COAL AGE

McGRAW-HILL COMPANY, INC.
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Devoted to the Operating, Technical and Business Problems of the Coal-Mining Industry

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Who Dress the Part Will Live It Also

AT IRREGULARLY frequent intervals business association officials exhort their fellows to take a more active interest in politics and so cure "the horrible mess" into which Washington has plunged the nation. The soundness of the general principle so advocated needs no exposition. The only debatable question is how this interest shall be manifested. Shall business men compete for political preferment or shall they become leaders of a public opinion that will make the politicians truly responsive to the real needs of the country? The thought that we can manage our neighbor's business better than he can is not confined to the professional reformers. Fortunately, most of us are so occupied by the inescapable demands of our work that our zeal for busybodyism is held in close restraint. But service in Congress seems to break the repressive bonds: freed from running a business of his own, the politician finds ample scope for the exercise of his desires to meddle with the business of others. For this reason, more constructive good can be accomplished and the opportunities for dangerous mischief will be considerably lessened if business men strive for public, rather than political, leadership.

Kansas City Takes a Step

WHEN NEWS COMES that Kansas City retailers have formed a "coal court," we take hope. There is wisdom behind the plan adopted in that city and agreed to by nearly every owner of a retail yard. The plan calls for the creation at once of a "court" composed of retailers with the city sealer of weights and measures as chairman or chief justice. Every sort of complaint that a householder can bring against a retailer, will get a hearing by this court. If the charges have any seeming foundation whatever, the retailer is haled before this court of his peers and gets a trial—by men who know all the tricks by which dishonest retailers have fooled police courts in the past. Also the court knows all the handicaps under which an honest retailer labors and can give them their proper consideration—a thing which few police courts can do.

Furthermore, cases will be heard in private, which may or may not be a good thing, but it will at least keep some of the troubles of coal out of the public eye. We sincerely hope that this feature of the "coal court" will not encourage even the slightest deviation from strict administration of justice, for in this strictness lies the whole hope of the project. Without it, public confidence—the one great thing this court should win and hold—will be lost and the tribunal will rot of its own impotence. The city sealer's threat of police court prosecution will help to make the court do its job effectively.

Here is an opportunity in a small way for coal to prove that it can handle its own difficulties. The country has been crying for a demonstration of this power. Various efforts to set up and operate coal boards of arbitration in some sections have been somewhat encouraging and have settled a number of disputes between retailers and jobbers and between jobbers and producers before these disputes got into court. But this Kansas City venture gets a little bit closer down to the great American householder himself, and we hope it succeeds so well that the idea will spread. The plan is already being considered in St. Louis.

Eyeing the Wheat Pit

IT IS OFTEN and truthfully said that the farmer is at the foundation of our national prosperity and when the farmer has money the country buys everything—including coal. Therefore it is of great and encouraging interest to the coal industry to note the general stability of things agricultural. With the value of farm products $9,500,000,000 in 1924 as compared with $8,727,000,000 in 1923 and only $7,816,000,000 in 1922, it is increasingly evident that if the farmer is not sitting on top of the world, he is occupying a comfortable ledge pretty close to that eminence. So we can look into 1925 with good cheer.

But what is this that is going on in the great Chicago wheat pit, center of the food market of the world? Grain prices have been steadily climbing in that trading mart, and last week attracted the attention of the world when wheat went to $2.05—a staggering price. Some say it is an inflated value and must drop because there is too much wheat in the world to sustain it. Others equally well informed declare there is a shortage in so many of the world grain markets that the price is justified. Meantime, with wheat over the excessive two dollar mark, flour takes a jump and there is an immediate worry lest bread will jump too. When bread jumps there is great talk of the cost of living. And so industry moves through its inevitable circle.

Other values have been steadily increasing through the fall, to help sustain this wheat increase. The stock markets have been uniformly bullish since Nov. 5, 1924, and trading in everything has been rapid. Is there enough basis for all this inflation to give it permanent and substantial basis? That is what the coal man wants to know as he sees wheat reach $2.05 and thinks of the benefit to the farmer—and the resultant effect that benefit is going to have all down the line through the coal-burning industry. It is certain that the farmers who have sold this $2.05 wheat got at least $1.30 for it. Many got $1.50. And the money is in their jeans. This alone gives 1925 a most hopeful start even though price fluctuations in the Chicago wheat pit may be wide during the next month or so. It is to be hoped the movement henceforth will be sufficiently downward to stave off a burst in the cost of food. But

it can hardly be enough downward to turn a bright 1925 prospect into a dull 1925 conclusion. These farm prices mean better coal business.

Popular Pressure

CENSURE and investigation are the inevitable portion of the manufacturer or producer of an essential article of commerce. Recognition of that fact may as well come early as late, for explanations never do much to lift the burden from the industry. They all have their items of weakness, and the best way to make them is by having nothing whatever to explain. Consequently it is well to take the chiding of the public in as cheerful a spirit as possible and meet the criticism in as constructive a manner as existing conditions will permit.

One of the frequent charges is that mines are unsafe. Surely the least we can do to meet those charges is to make accidents as infrequent as possible. If the progress of reducing the fatalities from roof falls is slow and uncertain we at least can remedy those which are caused by gas and dust explosions and so rid ourselves of the condemnation in which almost everyone indulges when his morning paper records another mine explosion. If the cure is expensive we can reduce its unfavorable effect on our balance sheets by arranging for uniform legislation that will make that cure a burden on all coal production and so provide us with an ability to increase the cost of coal, shifting the expense onto the consumer who in demanding the service must and should pay for all that it entails.

Another complaint is that the coal is dirty. We may explain where the impurity comes from but the public will not be able to understand. Why not clean the coal and use the inferior product for steam generation at our own plants? The means are available now whereby we can use our middlings efficiently. Even without pulverization it is possible to utilize the inferior product at mine plants.

Others complain that the coal is too greatly mixed with undersize. That can be avoided in part by proper handling at the tipple. The chute served well enough in earlier days, but the belt and the apron conveyor have made degradation at the tipple decreasingly necessary.

Many other complaints there are that proper constructive methods will correct. Querulousness is not the right attitude to assume toward criticism. The desires of the public are at least not unnatural, and their demands are best met by an effort to satisfy them and not by an attitude of resentment and even defiance. We all have our moments of disparagement, as the railroad men have learned to their sorrow. We wish other people to reform, and let us not forget that what we demand of others they will naturally require of us.

We might learn much from an example in the metal-mining industry. The impurities in copper are placed there by nature. It is not only mixed with country rock but oxidized and combined with sulphur into the bargain. But it goes to market with only a fraction of one per cent impurity. It is not only treated by washing and smelting but also by electrolytic processes. Why, in face of such an example, do so many of us insist on supplying the market with a product without any manner of preparation? So long as we do that anybody in competition with us can put coal on the market speedily with an extremely low first cost. Because our product is so crude is one reason why we are overwhelmed with competition. The selvages of our great wealth in bituminous coal may be found on hill after hill. This bare fact has demoralized the industry. Raising coal production to a manufacturing plane will save it from its reputation as an easy way to affluence, which any man with a few dollars can enter if the industrial conditions are temporarily favorable.

"Warm Slippers and Hot-Water Can"

SOME time before 1870 W. S. Gilbert, better known as the librettist of the Gilbert and Sullivan operettas, satirizing the welfare work of his time, wrote the ballad "Captain Reece, R.N." This worthy, the proud commander of the "Mantelpiece,"

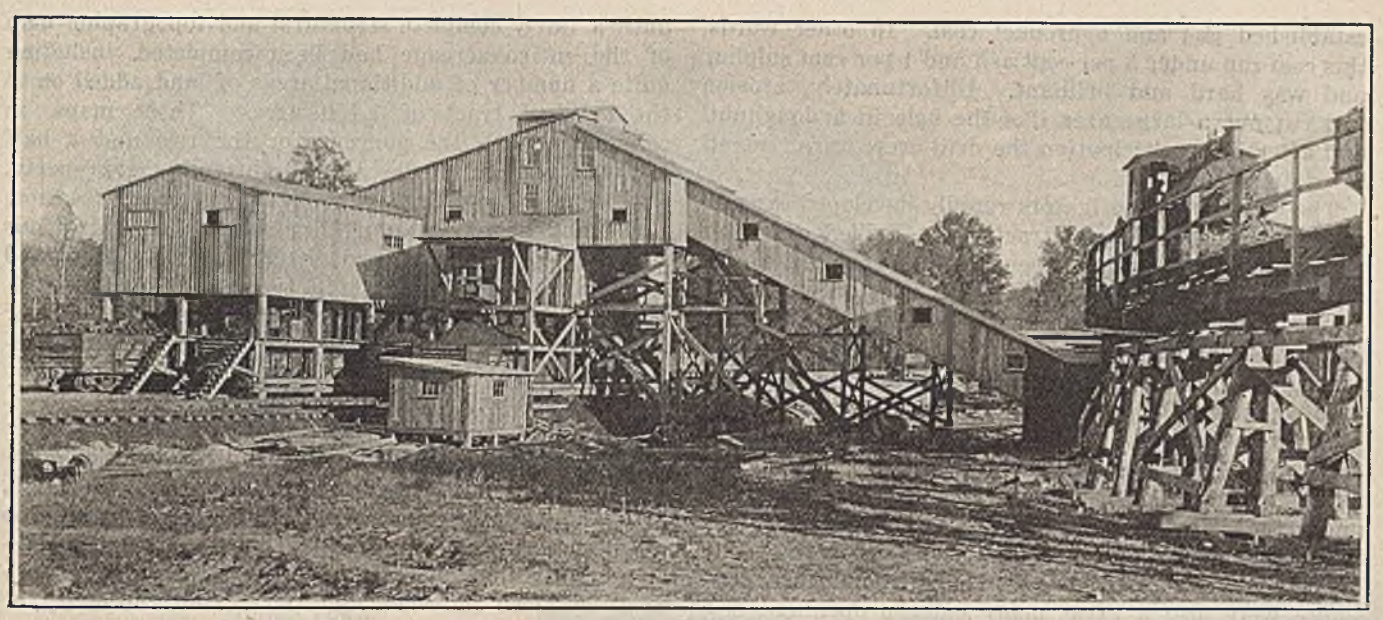
> Did all that lay within him to
> Promote the comfort of his crew.

Among the provisions he lists those attributes of plutocracy "warm slippers and hot-water can." In the United States those same comforts possibly seemed at that time the acme of luxury, but since then we, but not the citizens of Great Britain, have learned that these palliatives of a chilly house are needless when we have steam heat and running hot water.

But we have yet to learn that palliatives of extreme heat are not all that we might reasonably desire. We still cling to the desk fan or to a breeze from the open window, prolific breeders of colds, stiff necks, dirt and annoyance. They meet the need only in part. Some day they will be swept away—as have been the warm slippers, hot-water can, breakfast or hot coffee in bed and the warming pan—by a house temperature regulated with precision to the needs of the body. When that comes we shall be able to work and to sleep comfortably in the hottest days of the summer.

The prospect seems as far off as steam heat and hot water still seem to be in England. True, houses in the British Isles have "central heating plants," as they term them, and more have hot water, but here we have a piping system and radiators installed in almost every city house. So all we need is cool air and a fan to circulate it and our need can be promptly met. Besides we are ready psychologically for all such creature comforts. It seems certain that we shall have them before long, and when we do we shall look superciliously at those who still cling to a condition which we shall then term "unbearable," where people swelter in discomfort and dirt and do their work inefficiently. The dust and germs of the street will be excluded and we shall save in house cleaning, laundry bills, efficient work and perhaps in shortened vacations all that in that day we shall expend in ventilation and refrigeration. What is more, we shall have comfort into the bargain.

It is a bright prospect and its accomplishment will stabilize the coal industry. The dealer in coal and ice is typical of the future coal operator who will supply coal as a means of keeping warm in winter and cool in summer, but coal that keeps people cool doubtless will not come to the house but will go to the central power station which will supply the energy by which the house is cooled and ventilated. Think the idea over. It may yet give us a 308-day industry, because the factor that throws the business of coal production out of balance is the irregularity of the heating load.



3,500-Ton, Four-Track Tipple of Dawson Daylight Coal Co.

Kentucky Strip Pit Lifts 45 Ft. of Cover

Dawson Daylight Coal Co. Delayed, by Rain and Railroad, Drills Big Tracts Before Buying 1,343 Acres—Strips Edge of No. 6 Coal But Hopes to Mine Four Seams by Strip, Drift, Slope and Shaft

OPENING up a piece of coal-stripping property, especially a tract that gives some assurance of long-time operation, is no trifling enterprise. The Dawson Daylight Coal Co., now getting about thirty cars a day of No. 6 western Kentucky coal out of a stripping a few miles from Dawson Springs, Ky., knows by experience that this is a fact.

The company has built a 3,500-ton, 4-track tipple equipped with a full complement of screens and loading booms; it has ripped cover from part of the No. 6 outcrop; it expects to strip the edges of three other overlying seams and then to mine out large tonnages from each of the four by drift, slope and shaft operations all feeding to the one tipple; it has built a good little mining town; it has started a sheep-raising project to make use of its 1,343 surface acres, is planning even to plant its spoil banks to clover as part of the sheep range; it has taken other steps to make its operations permanent; but none of this was possible without a long and painful campaign of preparation. Stripping exacts its price.

Lack of Railroad Delayed Project

In the first place, the railroad, upon which the life of the project depended, was a long time in coming. The right of way had been largely graded before or during the war and it was predicted that steel would be down and wheels running over it in ninety days.

About that time, while the company was drilling, mapping and erecting plant and machinery—much of it hauled over country roads—a real rain started. The result was an increase of more than 50 per cent in the 20-year average precipitation for western Kentucky. It rained with intermissions for a year and a half. The change of climate was unfavorable to railroad construction and it took about a year and a half or more to finish four miles and provide an outlet for the coal company's shipments late last summer.

The company, made up of a group of Louisville, Ky., business men, including several coal men, a number of bankers and two engineers, proceeded carefully. Assuming that the strip method of coal extraction or combined strip and drift mining is unusually economical, if proper physical and labor conditions can be found, a drilling crew was kept busy for many months making cores of all kinds of real or alleged stripping properties through western Kentucky. The field work was in charge of W. J. Borries, consulting mining engineer, and the general plan under the personal direction of Kenneth U. Meguire, of Louisville. Numerous options were taken and several widely separated fields were explored.

Poor Coals in Upper Measures

As is well known, the central coal basin, embracing the western field of Kentucky and all Indiana and Illinois, contains a few billion tons of pretty poor coal. A large part of this mineral has over 10 per cent of inherent ash and 3½ per cent of sulphur, with moisture content running little less than the ash. Speaking generally, the coals of the upper measures in this field are inferior, whereas those at greater depth run much lower in moisture, ash and sulphur, and much higher in calorific value.

Though the Louisville group drilled much territory covered by the No. 11 and No. 12 coal seams and other territories where No. 9 was the only available seam, they located some strip coal not far from Beaver Dam, which was apparently a part of one of the lowest of the coal measures. The drill cores from this seam showed an analysis similar to that of the celebrated, but little operated, Bell seam of western Kentucky, which is an

established gas and byproduct coal. In other words, this coal ran under 3 per cent ash and 1 per cent sulphur and was hard and brilliant. Unfortunately, erosion had cut out a large area like the hole in a doughnut, and after high anticipation the drill crew were sent off to pastures new.

The group of investigators rapidly developed expense and experience. Several tracts were drilled out after observation of outcrop openings and much hearsay about wells, churn-drills, etc. In each instance, the size of the supposed area of strippable coal was greatly reduced after the drill reports were tabulated. Of course, the usual cause was local dips in the coal measures which made the coal too deep for stripping.

When options were finally taken on the Dawson property and drilling commenced there, it was with the understanding that twenty-six churn-drill holes made under the direction of a former superintendent of the St. Bernard Mining Co. would prove accurate within 5 per cent, as determined by the diamond core drill. There were also a great many outcrop openings, test pits, holes made with post-hole diggers and all kinds of prospect openings on all four seams of coal, that is, Nos. 6, 9, 11 and 12. The investigation consisted of making about fifty core drill tests and additional crop openings, etc., in all, about one hundred tests of the various seams.

On this property the ambition was realized of getting one of the desirable lower coal measures, brought close to the surface by an uplift, and on half the property a large acreage of the three upper seams in condition for both strip and drift mining.

CENTERED INTEREST IN NO. 6 SEAM

When the laboratory reports on the drill cores from the No. 6 seam began to come in, however, showing an ash content as low as 2.87 per cent, a heat value of about 14,000 B.t.u., dry basis, and sulphur around 2 per cent, and when the log of the drilling showed a few records of 60 in. or more of clean coal, and finally an average of 54½ in., and when the character of the shale overburden was more thoroughly developed, with no rock closer than 45 ft. above the top of the seam, interest waned in the other three seams, except as matters for future attention.

The property was taken over in February, 1923, and drilling and prospecting continued for about six months until a fairly complete structural and topographic map of the entire acreage had been completed, including quite a number of additional areas of land added on to the original tract of 1,100 acres. These maps, in connection with the surveys for the two and a half miles of railroad tracks to and through the property, the plans for water supply, drainage, camp location, tipple and shop location, the program for continuous stripping and even future plans for drift, shaft and slope mining were submitted to several outside engineers of national standing, among them S. A. Taylor of Pittsburgh, Pa., and W. R. Walker, of Stubenville, Ohio.

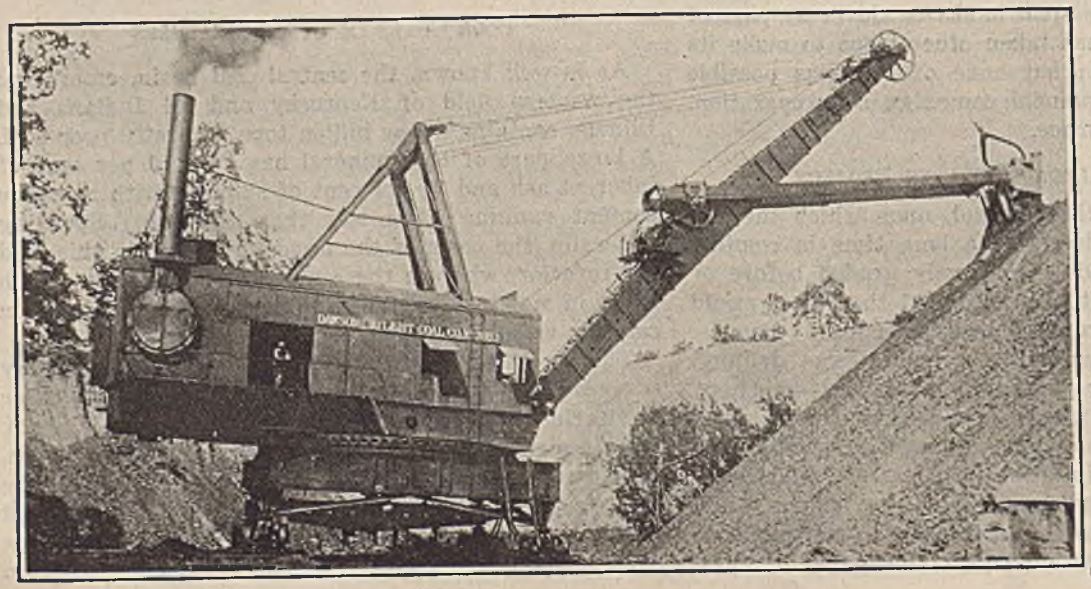
THOROUGH PRELIMINARY WORK

This preliminary investigation and construction engineering were quite expensive, but they were thorough, and in a territory where faulting is so frequent, too much emphasis could not be laid on the absolute necessity for drilling out any proposed strip acreage with holes at close intervals and the further necessity of making a most thorough examination of the nature as well as of the depth of overburden.

The company acquired fee simple title to this prospected property, which amounted to 1,343 acres, including also fee-simple right-of-way for its spur railroad. The tract lies about five miles northeast of Dawson Springs, Hopkins County, and on the recently completed new line of the Illinois Central R.R.

An analysis of the core drill prospecting revealed four seams of coal economically recoverable by both strip and underground mining methods. These seams are known by the correlation of the western Kentucky coals, as Nos. 6, 9, 11 and 12 seams. The engineers' analysis of the physical and geological features of these seams shows that 34 per cent of the total available tonnage can be operated by the strip method and more by underground mining through drift and slope entrances. A larger tonnage will require shafting. The total recoverable tonnage proved by the drill and careful engineering work totals 10,500,000 tons based on a conservative percentage of extraction.

By reason of a peculiar geological disturbance, the No. 6 coal seam has been lifted 275 ft. vertically from its original position and placed in the foothills below the terrace of the other coals, namely, Nos. 9, 11 and 12 seams. This geologic feature is entirely peculiar to



Steam Shovel Uncovering Coal

It is equipped with an 85-ft. boom and 6-yd. dipper. Its economical stripping limit is about 45-ft. of bank depth. It works principally in the blue shale and clay which overlie No. 6 seam. This overburden requires shooting only when the thickness of the shale exceeds 20 ft. The coal is loaded by a small shovel mounted on caterpillars.

"Daylight School" Near the Strip Mine

This new building is a part of the community which sprang up as soon as the Dawson Daylight Coal Co. began operating its stripping acreage. It is more than a school; it is rather a community center of which the citizens make good use.

More Like a Resort Than a Mining Town

This camp built by the Dawson Daylight Coal Co. is laid out above a road that circuits the crest of a small hill. Thus the community has a pleasant outlook over a happy country including the big lake which the state has stocked with fish.

the area embodying the holdings of this company, its engineers say, and not known to be duplicated in the entire western Kentucky field.

The overlying earth strata over portions of each of these seams is not too great to prohibit mining by strip methods. Thus, after stripping No. 6 coal, the equipment can be moved up to the next terrace and the coal in seams Nos. 11 and 12 likewise mined by the strip method, as well as portions of the No. 9 coal. Such portions of these seams as carry too great an overburden of earth strata can then be mined by underground methods by merely drifting into the sides of the hills where the stripping has reached its limit. By the combination of these two methods of mining the property should produce 85 per cent of its actual coal tonnage.

The examination of this property was not confined to physical and geological surveys, but also included a complete coal analysis. Samples were taken from the several prospect openings and analyzed.

The tabulation of the average analyses is given in the following table:

Analyses of Four Coal Seams at Dawson Springs

Name of Seam	Thickness Ft.	In.	Proximate Analysis (As Received) Moist	Ash	Volatile Matter	Fixed Carbon	Sulphur	British Thermal Units	Fusion Temp. of Ash
No. 6	4	5½	5.22	2.84	36.76	55.18	1.44	13,339	2,508
No. 9	5	0	6.85	7.94	36.37	48.84	3.32	12,232	2,424
No. 11	7	0	6.20	5.91	37.36	50.53	3.03	12,612	2,478
No. 12	4	6	6.37	12.19	36.79	44.65	2.79	11,698	2,464

The company has started its production in the No. 6 coal by the strip method. The large revolving stripping steam shovel is a Bucyrus, Model 320-B having an 85-ft. boom, 58-ft. dipper-stick and 6-yd. dipper. It is capable of removing overburden on this property economically up to a height of at least 45 ft. which is the limit set by the engineers in their calculations for total recoverable coal tonnage. This economical limit will depend on market price. The digging limit of the shovel, however, is a vertical cut 75 ft. high. The character of the overburden overlying the No. 6 coal as evidenced by the drill cores is entirely a soft blue shale surfaced with a clay soil. This overburden requires shooting only when the thickness of the shale exceeds 20 ft.

The coal-loading shovel is mounted on caterpillar trucks. This is also operated by steam power. The dipper has a capacity of 1¾ yd., so that with each dip into the coal seam an average of 1½ tons is dug and placed in the pit cars.

HAULS 48 TONS PER TRIP

These latter are of the Sanford-Day drop-bottom type, all steel construction and hoppered to hold 6 tons each. The track gage is 42 in. This gage permits the drop doors in the car bottom to open wide so as to pass the large blocks of coal which on this property can be obtained by strip mining. Eight to nine cars are hauled by each locomotive per trip, so that an average of 48 tons is hauled to the tipple hopper.

A trip rider on the locomotive releases the door-opening latches of these cars discharging the coal into a 60-ton hopper. At the far end of the hopper the doors of these cars are automatically closed and latched.

The bin at the tipple has two hoppers both of which feed through reciprocating feeders to a steel pan conveyor 4 ft. wide. This is inclined and elevates the coal to the top of the tipple and onto the shaker screens.

The tipple is a massive wood structure built on concrete and wood-piling foundations. It is equipped with shaker screens 6 ft. wide, and distributes prepared coal to four railroad loading tracks. There is a separate

mine-run hopper from which coal can be loaded direct into railroad cars.

The standard coal preparations made are as follows: 6-in. lump, 6x3-in. egg, 3x1¼-in. nut and 1¼-in. nut and slack. Various combination sizes are also possible.

The lump and the egg size after passing over 12-ft. horizontal sections used as picking tables, are loaded into the railroad cars by apron loading booms, eliminating breakage and the nut is conveyed into the bottom of the cars by chutes which are gradually raised as the car is loaded. By means of degradation screens under the main shaker screen, the undersized coal is taken out of the prepared sizes and conveyed to the car which is being filled with that size. The prepared coals are therefore re-screened before they are loaded.

All the machinery in the tipple is driven by electric motors. The railroad cars are placed under the tipple by a gravity track system. The loaded storage track has a 60-car capacity. The company owns one and three-quarter miles of the spur track. This connects with the new main line of the Illinois Central R.R. near the village of Charleston. The right of way for this spur railroad is fenced in and the roadbed thoroughly drained by ditches and protected by concrete culverts.

To guarantee a supply of feed water for the power plant the company constructed a 10-acre lake. This water comes from springs and rainfall. The lake is located in that portion of the property where the water would not become contaminated with mine drainage, or other injurious inflows. The water from this reservoir is discharged by an electrically driven pump to a large storage tank located on the hill above the strip area, whence it flows by gravity to the steam shovels. This same power pump supplies water through a chlorinating pressure filter to a storage tank on a hill above the townsite which it provides with filtered and sterilized water for drinking and general use. Danger of epidemics is thus minimized.

The town has been laid out with much artistic judgment. The road in the townsite forms an oval running round a ridge. Along it neat 4- and 5-room bungalows are constructed. This townsite is so near the lake, that some of the houses have the water in full view. The houses are all electrically lighted, have running water connections, sewage and garbage disposal and the employees abide by strict rules of community sanitation.

The company's mine office and store under one roof is located in the townsite. This is a large building, well lighted, with spacious rooms for the general office, for the manager and for the engineer, two rooms for the store and one sleeping room. Below the main floor is a large storage basement and heating plant.

Pittsburgh Men Fear Menace Of Oil-and-Gas Wells

Pillars Should Be Two-Hundred Feet Square Especially Where Cover Is Thick —Locations of Wells Should Be Recorded

ABOUT FORTY members of the Pittsburgh chapter of the American Institute of Mining and Metallurgical Engineers met on Feb. 5 in the U. S. Bureau of Mines station of their city, for an informal evening dinner which was followed by a short technical session. By special permission, A. W. Hesse, chief mining engineer of the Buckeye Coal Co., of Nemacolin, Pa., was allowed to present before the local chapter for discussion his paper on "Safeguarding Coal-Mining Operations against Danger from Oil and Gas Wells," which is scheduled for discussion at the annual winter meeting of the institute in New York.

In the discussion, W. E. Fohl voiced the thought that coal operations pierced by oil or gas wells should be classified as gaseous and worked in accordance with the rules laid down for gaseous mines. According to Mr. Hurlburt, who represents one of the largest gas companies in the country, co-operation between the two interested parties will eliminate much of the danger of gas and oil wells on coal properties. At present there is no state supervision of well location or of well plugging. The properties of large coal companies are so extensive and the wells are put down so quickly that the coal operators are not always aware that new wells have been sunk on the property.

Mr. Hesse doubts if a block of coal 100 ft. square is sufficiently large to seal off gas or oil which might otherwise find its way into a mine, especially where the cover is heavy. A rule followed closely by his company specifies that a pillar of coal 200 ft. square which is an area of about one acre shall be left around live wells. The subsidence committee of the Institute believes that the Pittsburgh-district mine owners do not leave sufficient coal around wells. Frank Haas was quoted by Mr. Hesse as saying that where a 200-ft. protecting block of coal is left around a gas well, he has never been able to detect gas from that well. Where casings are properly plugged, the Buckeye Coal Co. takes all the coal, but not until after the pressure is found to be such as to make this practice safe.

Mr. Sturgis advocates the issuing of a state license for each well, at a nominal fee of say about $25, to cover the expense of keeping on file for permanent record maps showing locations of all wells.

S. A. Taylor said that the Ohio law requires the filing of well locations with the state mine department before drilling is started. The same ruling might be made in Pennsylvania without subjecting the oil-and-gas producer to any unreasonable expense. Mr. Hesse declared that a Pennsylvania statute exists which provides for an oil-and-gas inspector, but so far as he could learn no such inspector is employed by the state.

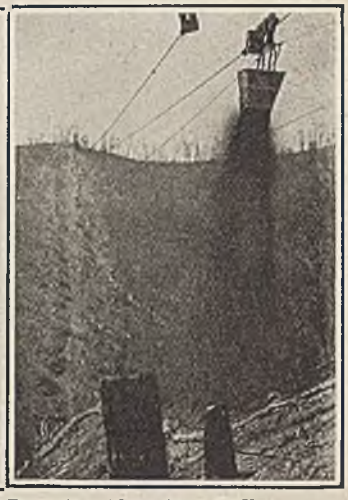
In the western part of Greene County, Pennsylvania, where his company is operating, Mr. Hesse declared, there is a thin seam of high-volatile coal which some day will be worked and when that time comes the hundreds of uncharted wells passing through it will cause no end of trouble, as also in deposits in other localities similarly riddled by drillholes.

The larger gas corporations are glad to give the mining companies information as to the locations of new or old wells. Much attention was directed to the small-well operator who is not disposed to co-operate with mine owners. T. G. Fear, general manager of the Inland Collieries Co., thinks something must be done to compel the small-well operator to drill only on locations agreed upon by mine owners. He cited an instance of giving a driller the right to put down a well at a point selected by his company. When the drilling operations started the coal company checked up the location of the hole and found that the driller had moved his rig an appreciable distance from the indicated location.

Aerial Tram Takes Rock Over Steep Hill to Dump

Slate Disposal Difficult in Mountainous Regions—At Consolidation Mine No. 251 One Man With an Aerial Tramway Wastes 180 Tons of Rock per Shift

BY FRANK H. KNEELAND
Associate Editor, *Coal Age*, New York City



Dumping Slate in a Valley

AT MANY MINES the disposal of slate and mine refuse is a comparatively simple matter. Thus, in a level country such as Illinois and the Middle West generally, the cars of slate as they come from the mine shaft may be run out and dumped from a light trestle. When this has been filled in by the refuse material, the track may be laid directly upon the dump itself and the embankment of slate extended indefinitely.

Another method by which slate in level country may be wasted is to employ a special side-discharge or gable-bottom car that receives the refuse material from a bin in the tipple and discharges it at the top of an incline. The slate dump thus built up is somewhat pyramidal in shape, but may be extended to any desirable distance and height.

In mountanious regions, however, the problem of slate disposal may be far more difficult and complicated. Thus, in many places in West Virginia the narrow, deep valleys in which the tipples are necessarily located offer no opportunity for the disposal of mine refuse. In such cases it becomes necessary to transport the slate and rock extracted from the coal on the picking table to some point other than the valley in which the tipple is situated. This "other point" is frequently a second valley separated from the one containing the tipple and railroad tracks by a formidable ridge or mountain spur.

Such a condition exists at Mine No. 251 of the Consolidation Coal Co., at Coalwood, W. Va. Here, as in many other localities in the Appalachian coal fields, local topography strongly favored, in fact, almost dictated, the use of an aerial tramway as a means of slate disposal. Such a device can easily carry the refuse material over the top of a nearby ridge and deposit it in the valley beyond.

This means of slate disposal was accordingly adopted at that plant. In the accompanying illustrations, Fig. 1 shows a general view of the upper works at this mine. The slate bin and beginning of the tramway appears on the left of this picture.

TRAM OPERATOR HAS CLEAR VIEW

Slate and other mine refuse is brought to this bin from the tipple by means of a scraper conveyor. From this bin it is drawn off to the buckets of the aerial tramway by means of counterweighted gates controlled by the man operating the tramway. His station, however, is so located that he has a clear view of the tramway as far as the deflection tower at the top of the hill.

This tramway is of the two-bucket type, one bucket going out loaded while the other returns empty. Each bucket holds from 3,000 to 3,500 lb. of slate and bone, and the capacity of the tramway is approximately 25 tons per hour. During a normal day's run, the contents

NOTE—The headpiece shows one of the buckets in the act of discharging its contents under the second span of the tramway. The trips attached to either suspension cable can be moved out as the slate pile builds up until the dump extends entirely across the valley. If still more room is then needed the tower on the far hilltop can be moved sidewise and the process repeated.

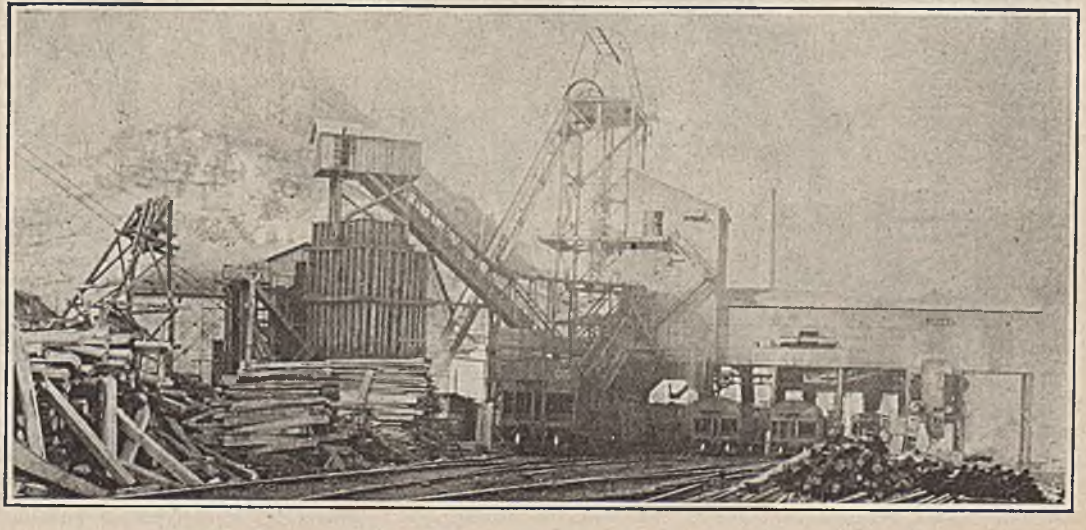


FIG. 1
Consolidation Mine No. 251
This is a general view of the top works from the empty yard showing the tipple, slate bin and foot of the rock-disposal tramway. The smokestack of a modern power plant may be seen behind the tipple.

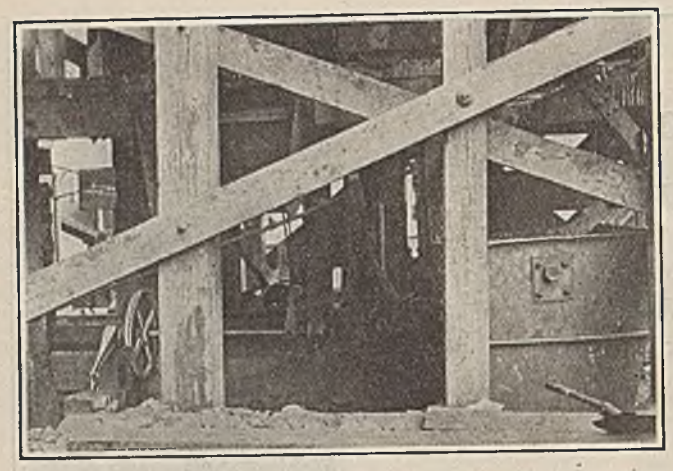


Fig. 2—Bucket Approaching Loading Point

The loading chute and the counterweighted mechanism that operates its gate appears to the left of this picture. The bucket can be seen on the right. The track at this point is no longer an inclined cable but a horizontal steel bar.

of thirty mine cars, each with a capacity of 3½ tons of coal or 6 tons of slate, are discharged on the pile.

The first span of this tramway is about 600 ft. long and rises to the top of a nearby hill at a fairly steep inclination, as may be judged from the accompanying illustrations. The second span is approximately 1,400 ft. long, the total length of the installation being thus about 2,000 ft. The second span crosses a deep valley that will afford ample dumping space for a long time to come.

Discharge Trips Movable

The stationary or track cables of this tramway are 2 in. in diameter and of the locked-coil type. The traction cables are of ¾ in. diameter. Beyond the deflection tower at the top of the hill two adjustable or movable trips are placed on the track cables. These make contact with suitable triggers on the buckets and discharge their contents. They may be moved along the cables as the dumping space below the tramway fills up. When the dump has been built entirely across the valley the position of the terminal tower on the farther hill can be changed without serious difficulty, thus affording additional space for the disposal of mine waste.

Bucket Size Essential

In installing a slate disposal plant of this kind it is important that not only the capacity of the tramway as a whole shall be ample but that the individual buckets themselves shall be of such size that slate and rock will not jam or hang up in them and refuse to come out when the bottom is opened. If jamming of this kind occurs it causes almost endless trouble and difficulty. It can, of course, be overcome by crushing the refuse to a suitable size before depositing it in the bucket but this complicates the installation and makes it unnecessarily expensive. It is far more satisfactory and cheaper in the end to make the capacity of the buckets large enough in the first place and their shape such that no difficulty will ever be experienced in their discharge. Years ago certain mining companies located in the West Virginia mountains had some bitter experiences of the kind above outlined. Cableways were installed of ample capacity but with individual buckets too small to handle readily the large pieces of flat slate that came from the mines. Accordingly, these large pieces had to be broken down with hand sledges. Naturally, this greatly increased the cost of slate wastage. Some of the firms that made this mistake are now "sore" on all forms of aerial tramways, even though no one was to blame for their difficulties but themselves.

When, as in this case, however, the buckets are made of ample size to accommodate the material handled, small difficulty is experienced in tramway operation. The installation here described, as has been shown, disposes of approximately 180 tons of slate and rock per shift yet requires only one man for its operation.

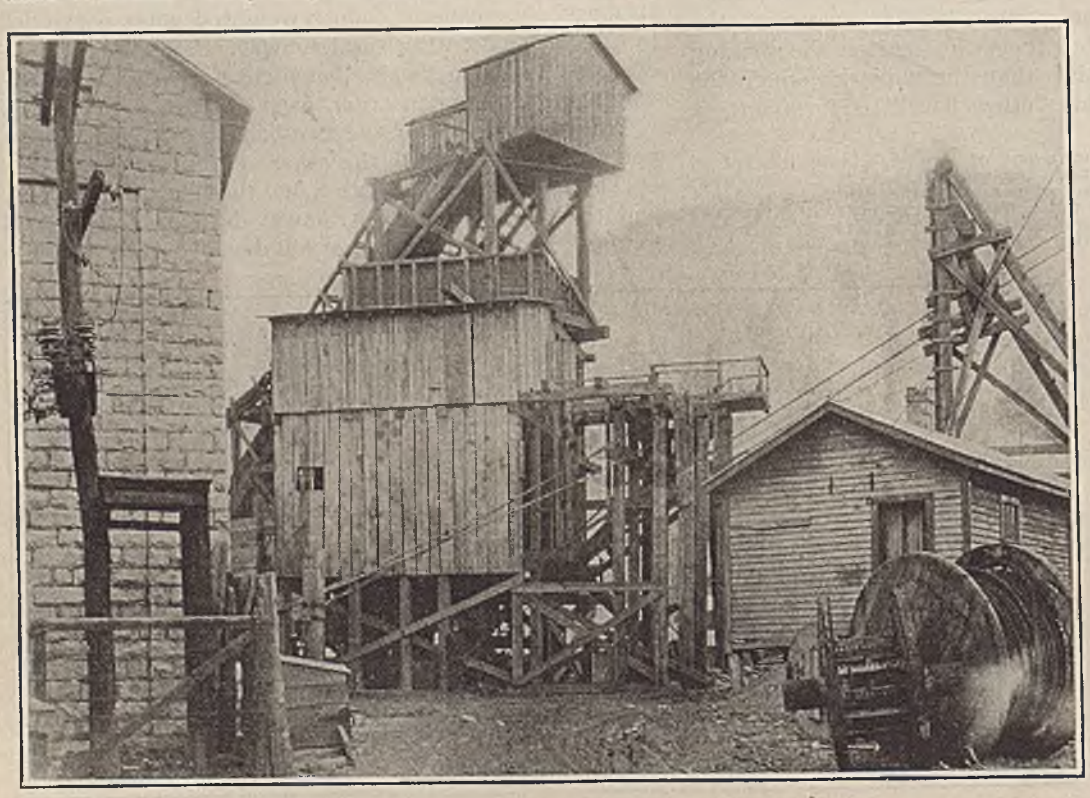
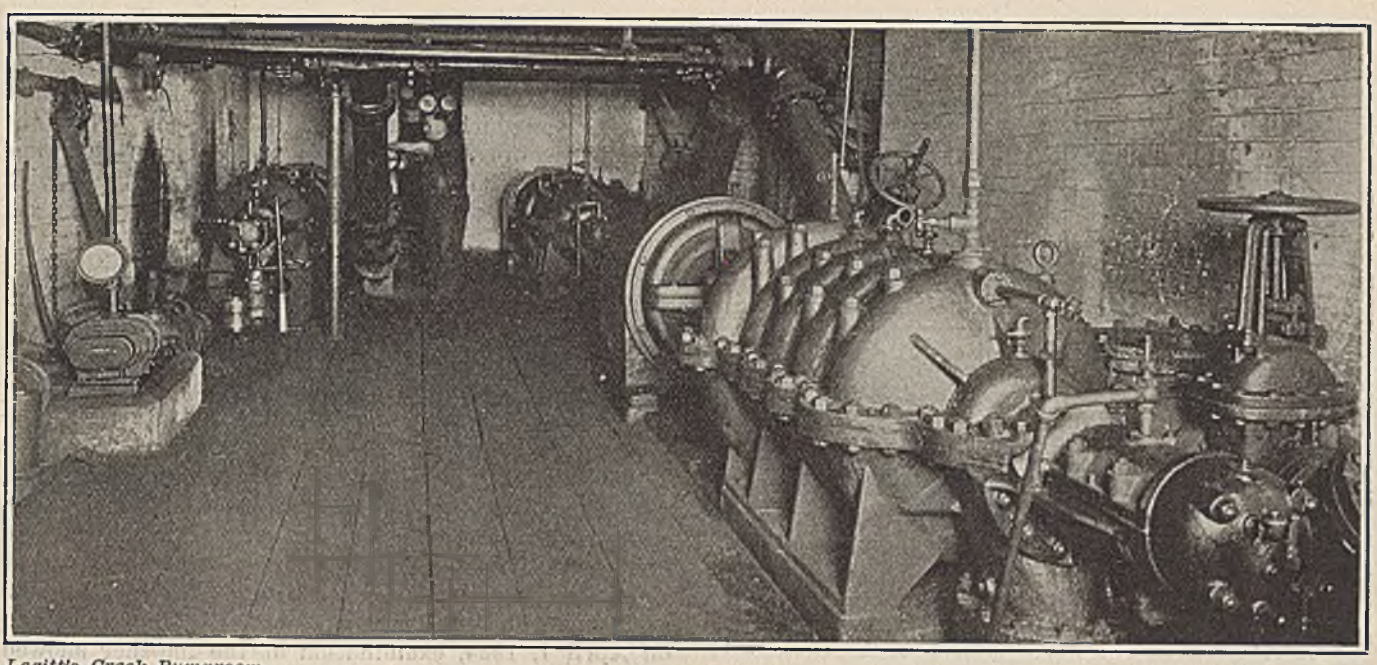


FIG. 3

Slate Bin

This forms the lower, or home, terminus of the aerial tramway. A bucket can be seen just entering the depression or sump at the loading point. The man standing at the foot of the slate bin, and almost in the center of the picture, is O. C. Walton, who, single-handed but with the aid of this tramway, disposes of approximately 180 tons of rock and refuse per day.



Legitt's Creek Pumproom

Marked Progress Being Made by Use of Special Alloy Materials for Mine-Pump Parts

Both Plunger and Centrifugal Pumps Are Now Using Parts Made of Chrome-Iron—Success of Alloy Points the Way Toward Development of More Efficient Pumps

By Edgar J. Gealy
Associate Editor, *Coal Age*,
New York City

NEVER has corrosion been as large a problem as today; for deeper mines and more extended working areas have made the mine water more acidulous than ever, and the need to use mine water for steam condensing and coal preparation has extended the range over which the acid water can perform its fatal work. Because good acid-resisting metals have not been available, the development of apparatus has been delayed and the operator has at times been ill disposed even to consider the introduction of machinery for the more efficient preparation of his coal.

In recent years several efficient coal-washing methods have been devised but their general adoption has been delayed because of the expense in handling the necessary water which in most cases is pumped from the mine and is so acid that the difficulties occasioned by corrosion can be met only by expensive replacements.

Better Pumps Can Be Made

The efficiencies of both old and new mine pumps are lower than they would be if mine water contained less acid. Old pumps are inefficient because of wear and corrosion and new pumps that might be made of maximum efficiency cannot be designed with that end solely in view, for they must be constructed so as to operate at speeds such as will keep the corrosive action of the water reasonably low. It is a recognized fact that centrifugal pumps can be designed to operate much more efficiently and for longer periods if suitable materials are available for making the pump parts.

Important tests have lately been made by government bureaus and institutions to ascertain the corrosion-resisting qualities of numerous alloys, but these experiments and the data obtained, though they have a direct bearing upon the problem, do not always afford conclusive results because the tests are frequently made in water which is not in motion or does not contain silt.

Dirt Causes Rapid Wear

The acid content of mine water is only a contributory cause to the rapid wear of pipe lines, chutes, machine parts, etc. Dirt in flowing mine water acts like a file; it wears away metal and also polishes it. The clean bright surface of the metal is then an easy prey to acid mine water. Tests made upon metals or alloys standing in such water which does not contain silt or is not agitated at the speeds with which water travels in pumps may be misleading because the product resulting from the corrosive action of the acid on the metal may act as a protection against further corrosion. In a pump, for instance, the dirt in the water keeps the metallic surface continually bright and clean, and consequently no protective covering can form.

Wood- or cement-lined pipes and pumps have been used extensively, so have lead- and porcelain-covered parts. Under some service conditions they have been regarded as unsatisfactory, but to be fair they serve a most useful purpose, for brass and bronze parts have much

Note—The impellers and wearing rings of the pumps shown in the headpiece were originally made of bronze, but recently they have been replaced by duplicates constructed of chrome-iron.

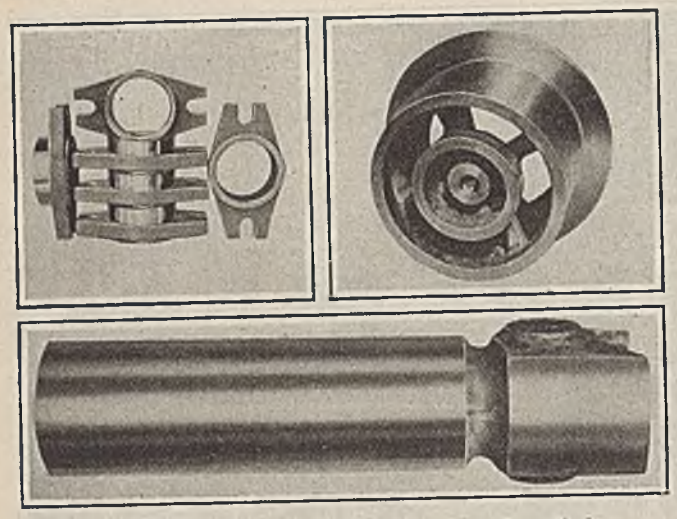


Fig. 1—Some of the First Castings Supplied for Mine Pumps

At first only those parts of plunger pumps which corroded rapidly were equipped with chrome-iron parts. The success of these units has prompted the design and construction of complete working barrels and pumps made from the corrosion resisting material.

shorter life than most of us realize, and the protection though not permanent serves to delay the progress of corrosion.

In the tests previously mentioned it was found that high-silicon cast iron and high-chromium steel were highly resistive to the action of acid mine water. When actually tested in operation these qualities have been proved to be as marked in rapidly moving as in slowly circulating waters.

As a result of these tests and much research-work chrome-iron alloys were further developed a few years ago and are now being used successfully in pumps and parts which handle acid mine water. Slowly but steadily more and more of this alloy has been used in various parts of both plunger and centrifugal pumps. Manufacturers and engineers first used it to replace worn-out and corroded parts of pumps which handle extremely acidulous water. Now whole pumps are being made of the metal.

The Alden Coal Co., near Wilkes-Barre, Pa., was one of the pioneer users of this special alloy. At its mines a centrifugal pump was equipped with casing rings made of this metal, and in spite of the unusually bad acid and silt conditions, after over a year's service, the same rings are still in the pump. Previously it had been necessary every three months to replace the bronze rings with which it was originally fitted. Now the pump is equipped with an impeller made of the same chrome-iron alloy. This pump is shown in Fig. 2. It is used to handle water to wash down an old culm bank.

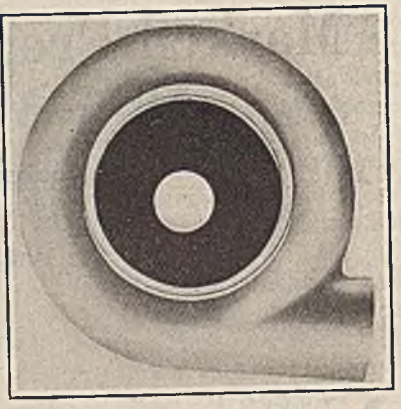
A large bituminous coal operator in western Pennsylvania had a pump equipped with the best-grade lead-bronze valve stems. The maximum service life of these stems was about 150 hr. A set of chrome-iron valve stems used in the same pump upon examination after more than 2,200 hr. service, showed a reduction in diameter of only 0.0005 in.

Another bituminous operator had a 6-in. centrifugal pump handling highly acidulous and extremely silty water. Bronze impellers lasted only from ten days to two weeks, being so badly corroded and worn by that time that replacement was necessary. On July 1, 1923, a chrome-iron impeller was installed in the pump and on April 1, 1924, examination of the impeller showed it practically as good as new. Obviously the saving alone in the time and labor previously required to change impellers will be enormous because the comparative life is estimated to be about 30 to 1 in favor of the chrome-iron impeller.

FIG. 3

For Longer Life

A 10-in. sand pump casing used by the Hudson Coal Co. of Scranton Such a pump as this must be built to resist acid water and the wearing action of gritty impurities.



A large mine-pump manufacturer, finding difficulty in keeping in service an 8-in. centrifugal slush pump in an anthracite mine, installed a chrome-iron impeller after three bronze impellers had failed within ten days

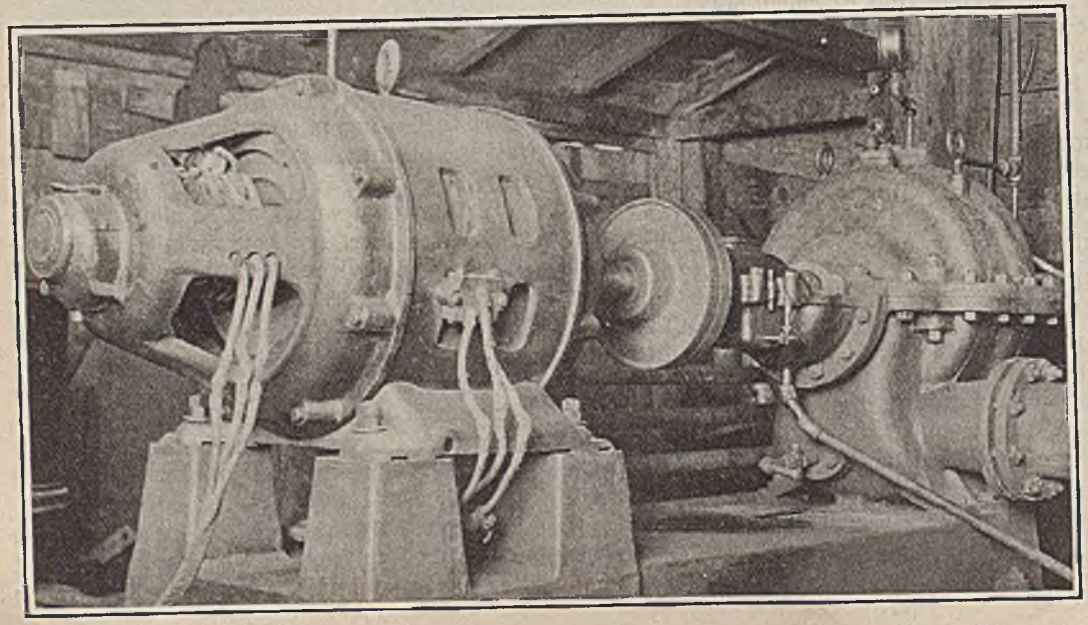


FIG. 2

In Slushing Service

The acidulous water which this pump handled made it necessary to equip it with special impellers and rings. Bronze parts lasted only three months; the new chrome-iron parts have been in service over a year already and show but little wear. The water delivered by this pump was used to wash down a culm bank.

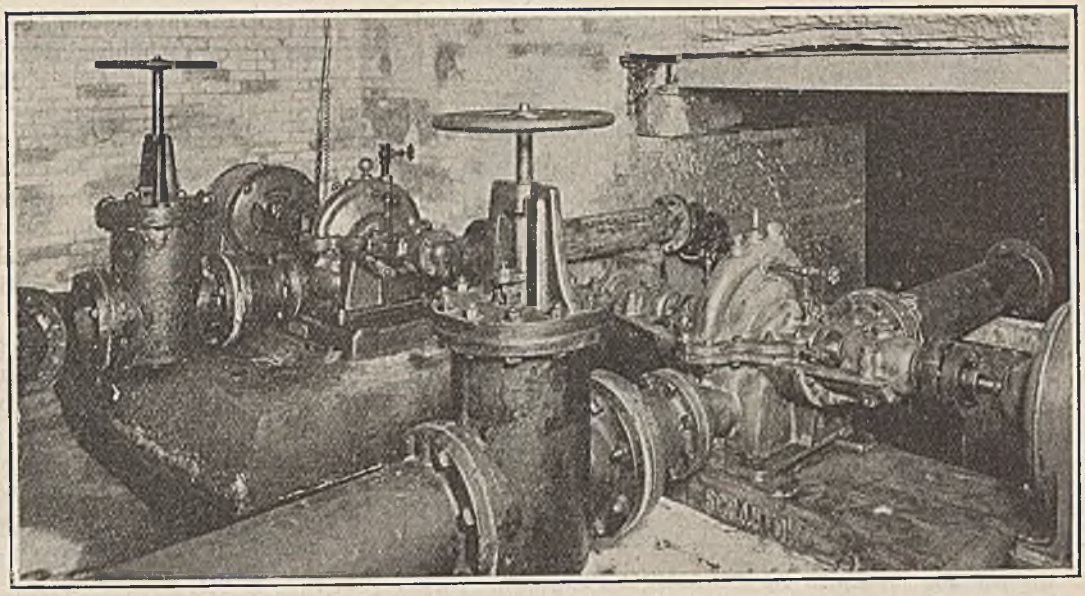


FIG. 4

Special Pumps

Bituminous-mine pumps are usually much smaller than anthracite mine units, but the water in some beds is just as corrosive. These two units are among the first complete pumps made of chrome-iron. The men of the Hillman Coal & Coke Co. are quite satisfied that these pumps are worth while, because bronze parts were corroded away in a few weeks.

or two weeks after being put in service. According to reports from the mine the new impeller is still working after four months' operation. In this particular case the superior wear-resisting quality of the alloy is brought out because the water contained much abrasive material.

Fig. 4 shows two complete chrome-iron centrifugal pumps in the Edna No. 2 mine of the Hillman Coal & Coke Co., Pittsburgh, Pa. J. A. Malady, master mechanic of the company, says, "We have been experimenting for the last three years with chrome-iron. The best acid-resisting bronze which we were able to buy for some of our pumps failed miserably. The reduction in the size of some parts of our pumps was as much as 7½ per cent in thirty days. We have chrome-iron parts operating in the same water for approximately two years and they have not as yet shown any signs of material loss." The two pumps shown in Fig. 4 have been in service for over a year.

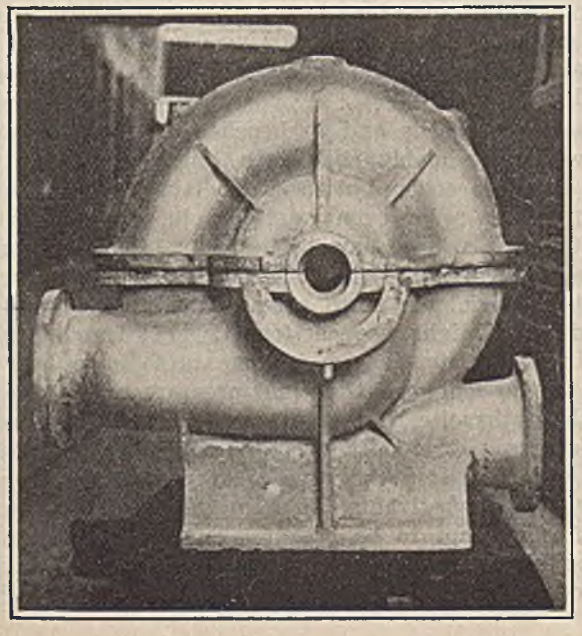
Similar results to these have been experienced at other mines where plunger-type pumps have been equipped with chrome-iron plungers and working barrels.

Recently the Hudson Coal Co., of Scranton, it is said, installed the liner shown in Fig. 3 for a 10-in. sand pump. This liner weighs about 1,000 lb. The Rochester & Pittsburgh Coal & Iron Co. has put in service two large centrifugal pumps. The lower half of the casing of one of these units is shown in Fig. 5.

The Sunday Creek Coal Co., of Columbus, Ohio, was one of the first companies to use chrome-iron in centrifugal pumps. Fig. 6 shows some of the parts used by this company. Most of these parts are made of cast chrome-iron, but the rolled metal has also been used for valve stems, piston rods, pump shafts, bolts, studs, etc. It has been employed successfully also for both jig and shaker screens and chutes.

The manufacturing processes under which castings are made are now perfected. Excellent casings of close-grained material free from blow holes, cold shuts, sand pits, etc., are now obtainable. The machining qualities of rolled chrome-iron compare favorably with those of medium-carbon steel.

The machining qualities of cast chrome-iron have been improved to the point where uniform results can easily be obtained. However, the metal takes about three times as long to machine as a similar bronze part. A sharp-nosed tool rather than a round-nosed tool is recommended for both roughing and finishing work. The specific gravity of the alloy is 7.6. When



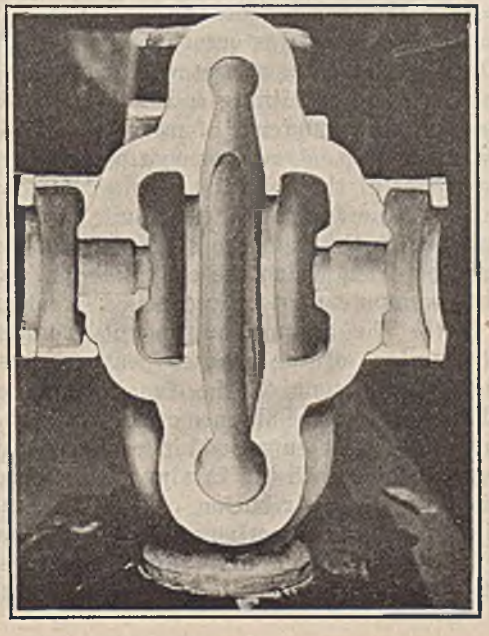


FIG. 5

Large Chrome-Iron Casing

These parts, built for the Rochester & Pittsburgh Coal & Iron Co., of central Pennsylvania, are perhaps some of the biggest that have been manufactured of chrome-iron. Two such pumps are now being made for the handling of acidulous mine water with the assurance that they will continue far longer in service than if made of less corrosion-resisting material.

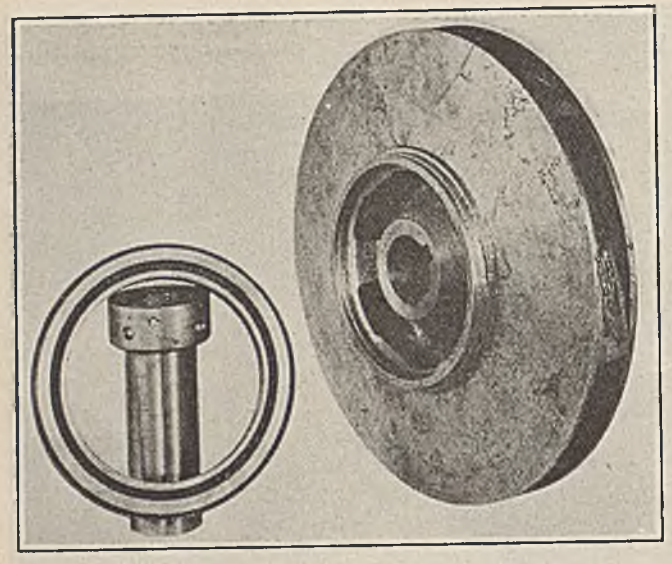


Fig. 6—Parts for Centrifugal Pumps

Where the water is acidulous and contains much grit pumps have only a short life, especially if the water must flow at high velocities as in centrifugal pumps. This illustration shows an impeller, wearing ring and shaft sleeve made for the Sunday Creek Coal Co., Columbus, Ohio.

cast it has a tensile strength of 45,000 lb. per square inch, whereas that of the rolled metal is 85,000 lb.

When used in contact with iron or bronze it has been found that there is no noticeable electrolytic action. Neither the chrome-iron alloy nor the metal it is used with has shown any signs of electrolysis.

Aside from the savings which have been made in the number of worn parts and the labor required to repair machines the operating time for each machine has been increased.

Further application of this alloy will no doubt bring about important developments in pumping equipment. High-speed centrifugal pumps operate more efficiently than slow-speed units of the same type. Mine pumps made of bronze must now be operated at relatively slow speeds with a resulting loss in efficiency. This is necessary because gritty acid water traveling at high speeds would wear out the bronze parts quite quickly.

Dried Peat on Top of Bog by Resisting Microbes Formed Mother of Coal

"Conclusive evidence that the surface of the peat bogs from which coal has been derived was occasionally exposed to air," said Dr. David White, at the winter meeting of the American Institute of Mining & Metallurgical Engineers "is seen in the occurrence of mother of coal, mineral charcoal or fusain, strewn or matted in layers on the bedding planes of the deposit.

"The prevailing belief that the fusain is the result of forest fires, either in place in the immense swamps, or on adjacent higher ground from which the charcoal was washed out over the swamps cannot be reconciled with either theory or fact. The assumption that it results from fires on the surface of the exposed peat is inconsistent with the great extent of the fusain layers, the evenness of their bedding, the absence of corrasion pits or ash accumulations with supposed cinders, the normal state of the coal just beneath the fusain, the regularity and parallelism of the distribution of the fusain, generally in thin layers, the sometimes almost incredible closeness of the layers which may form a large part of the deposit in some of the beds, the purity of some of the layers, and the delicacy and orientation of some of the carbonized debris.

"Fortuitous forest fires could hardly have occurred so frequently and so regularly over the same great areas and been so widely destructive as these must have been if they were to produce the results ascribed to them, nor could they have happened without leaving traces of ash accumulation or residue.

"That the fusain cannot be charcoal drifted out from the land is shown by the continuity of its deposition; by the arrangement in normal position or relations of the so-called 'charred' fragments of such delicate material as fern fronds, pinnules and stipes, not to mention stems and branches; by the inadequacy of any transporting current to distribute charcoal evenly again and again throughout the great areas in the midst of the growing vegetation, and, especially, to do so without an accompanying film or sheet of land-derived mineral sediment, and, finally, by the inadequacy of any probable supply at the source.

"It cannot be reasonable assumed that the erosion which would transport these vast quantities of charcoal out over thousands of square miles of coal-forming swamps would not at the same time erode the soil as well as wash away the plant debris. On the other hand, the fossillized peat surface offers no sign of erosion, nor of its ever having been submerged beneath waters except those of the most tranquil character.

"In another publication when discussing the origin of fusain, I called attention to the fact that the 'ulmo-humic' decomposition products were insoluble in water at ordinary temperature after they have once been concentrated and dried. This has been pointed out also by Collin Rae and others. With this fact in mind, the fragments of wood, bark, stem, fern leaf, and other debris, now fusain, covering innumerable bedding planes in the coal may be regarded as undecayed or partly decayed plant debris which lay on the surface when the evaporation of the water cover had exposed the top of the bog.

"Under these conditions, the toxic decomposition matter in the solution, as concentrated by evaporation, impregnated and dried on the surface of pinnule, stem, and wood fragment. It not only protected them for a time from weathering, but by its insolubility and toxic composition it left them protected from, and resistant to, the renewal of microbian action, that is, it prevented further decomposition from occurring when the surface was again submerged and the deposition of peat was resumed.

"In some coal beds and in benches of other beds, which were presumably laid down in a swamp that was at all times covered with water layers of fusain are relatively rare or even wanting; in others, they appear to form a large part of the coal. Occasionally but rarely, the fusain forms thin beds or lenses several centimeters thick. In some cases, it is jumbled and confused as by slight wave action. Fusain frequently occurs in anthracite, though it appears to have been crushed in the course of the great pressure stresses to which the anthracite beds were subjected. To a considerable extent, the thicker layers in anthracite are rubbed and eroded in the process of preparation for the market. Pennsylvania, Colorado, and Washington anthracites are apt to be broken along such bedding planes as are covered by fusain, in spite of an apparent partial cementation in these layers."

Organize the Coal Mining Industry for Safety

Success in Other Industries in Promoting Safe Conditions Has Been Greater Than in Mines—Make Care Against Accident Prerequisite of Employment —Have Every Class of Workman Active in Accident Prevention

By Francis Feehan
Mine Safety Commissioner, U. S. Bureau of Mines,
Pittsburgh, Pa.

THE NECESSITY for more efficient safety organization work in the mining industry is brought forcibly to our attention by the statistics published by the U. S. Bureau of Mines in "Coal Mine Fatalities in the United States, 1923," the author of which is W. W. Adams. An examination of the death rates from coal mine accidents for the last ten years, shows that the reduction of these casualties is making unsatisfactory progress. In 1913 there were 747,644 miners employed, of whom 2,785 were killed; in 1923 there were 846,990 miners employed and 2,452 were killed. Recent statistics show that for the first six months of 1923, the death rate was 3.91 men per million tons of coal mined, whereas, for the same period of 1924, the rate was 4.76 men per million tons.

Statistics available for metal mines (Metal Mine Fatalities in the United States, 1922, by W. W. Adams) show that the number of employees in 1915 were 152,118 and the fatalities 553. In 1922 105,697 were employed and fatalities numbered 344. Other large industries, it is believed, show a greater reduction in fatal and non-fatal accidents, presumably due to the fact that the safety movement has made much more substantial progress, safety organization work being conducted more efficiently, and accident prevention being given the first consideration.

At one of the largest steel plants in the Pittsburgh district, where there is an efficient safety organization, 550 workmen were employed steadily throughout the year 1923 in the transportation and labor department, the most hazardous employment about the plant. That plant had no fatal and but one lost-time accident for the entire year—certainly an extraordinary achievement. Mining companies should investigate the progress made in accident prevention in the iron-and-steel industry, by electric and other manufacturing companies, by the railroads and street railways, and adopt their form of safety organization.

The form of organization described at the close of this article can be made applicable to any industry by changing the titles of the representatives and organizing by divisions or departments when desired. Experience has demonstrated that this kind of activity efficiently conducted will bring astonishing results in preventing fatalities, serious and minor injuries to all persons employed in the mining industry and to their wives and families. At the same time it will effect a substantial saving to the mine worker and materially reduce the cost of production to the mine owner.

With proper enforcement and observance of our present laws, supported by an efficient safety organization at every mine in the United States, at least three-fourths of the fatalities and injuries now occuring can be prevented. The form such a plan should take is shown in Table I.

FRANCIS FEEHAN believes that the mine workers should be, and are, sufficiently interested in safety to serve on safety committees without pay, if the subject is presented to them properly. He thinks that every company should have a safety engineer, though at small mines they may be required to keep time, take charge of supplies and perform other work that will not interfere with their safety duties. Mr. Feehan declares that, with proper perserverance and with full official support, the accident record at mines can be greatly bettered.

The following rules have been advocated for the operation of the body organized as in Table I:

1. All company officials shall serve as permanent members of the mine safety organization.

2. Group 2 may be selected by the employees, or by the superintendent, mine foreman or safety engineer. They should be changed every three months.

3. Group 3 may be selected by the mine manager, superintendent or safety engineer.

4. Every class of employees should be represented. Where any class of employees exceeds fifty in number another member may be added for each additional fifty.

5. Meetings should be held at least once each month, preferably at the mine office after regular working hours. Where two shifts are worked, each turn will have its own safety organization and joint meetings shall be held when practicable.

6. Where a mining company operates more than one mine convenient one to another, joint meetings of all mine safety organizations shall be held at least every three months.

7. Community safety meetings for all employees, their wives and families, shall be held at least every two months. School auditoriums can usually be secured for this purpose. Outdoor meetings can be held when weather permits.

8. The minutes of each safety meeting should be recorded and kept available for examination by company officials, employees or state inspectors.

9. Service in the safety organization should be voluntary, and no representative should receive a bonus, or any pay for time or service from any source. The safety engineer should be a monthly employee of the company.

10. By a majority vote, the safety organization in

NOTE—Article presented at the meeting of the National Safety Council at Louisville, Ky., and entitled, "Organizing the Mining Industry for Safety."

meeting may submit to the manager any recommendations intended to promote safety and accident prevention, and no subject should be considered that does not pertain to safety.

The order of business for such a mine safety organization should be as follows:

1. Reading the minutes of previous meeting.
2. Report of safety engineer or secretary on recommendations made at previous meetings and disposition of same.
3. Report of accidents occurring since last meeting, how they occurred, and what action has been taken to prevent recurrence.
4. Report of mine hazards with recommendations as to the manner of safeguarding the men against same.
5. Report on inspections made since last meeting by the superintendent, foreman, safety enginer or state mine inspector.
6. Report on new bulletins, posters and other safety information, published by the U. S. Bureau of Mines, State Department of Mines, mining journals, newspapers, lectures, etc.
7. Report on co-operation of employees and the number who have qualified in first aid, and mine rescue.
8. Report on community and home hazards, how to remedy same; community and district safety meetings, first-aid and mine-rescue contests.
9. Report of safety engineer on progress being made, comparison of accident records, and other important statistics.
10. Prepared address on safety, the subject and speaker to be chosen by the chairman, who shall regulate the discussion on all subjects.

The duties of members of the mine safety organization should be as follows:

Manager—The success or failure of a safety organization at the mine depends entirely on the manager as the chief official spokesman of the mine owner. He should make known the policy to the employees by posting a permanent notice at each mine entrance reading as follows:

> The enforcement of the mining laws and observance of all safety rules are conditions of employment at this mine. This applies to all officials and every person in the employ of this company.
>
> (Signed) .....Manager.

Every official and employee should be informed that dismissal will follow his failure to support properly the policy of the company, and no person should be employed in any capacity who does not give definite assurance that he will support the safety policy to which reference has been made. The manager should manifest an interest in all safety activities, attend all safety meetings, and keep himself properly informed on the progress being made.

Superintendent—The superintendent is really an assistant manager. Frequently he has authority to employ mine foremen and other officials. In this instance what has been said of the duties of the manager applies to him. His ordinary duties will be supervising the work of subordinate officials. He should, therefore, be an enthusiastic supporter of the safety organization. He too, must insist that the practice of safety and accident prevention be a condition of employment, keep thoroughly informed through the safety engineer foreman and others of the progress being made and should attend all meetings of the safety organization.

Mine Foreman and Assistants—The successful mine foreman is he who can maintain the greatest maximum of safety for the employees under his charge. He cannot have efficient operation without this. Production is important, but he is a failure if he cannot also make safety the first consideration. Though a safety engineer is provided in this plan to work in conjunction with him, it is not intended that the foreman shall be relieved of the responsibilities imposed on him by the mining laws, to see that every one employed in the mine is properly safeguarded from accidents.

If he and his assistants are unable to influence workmen to volunteer their services on the mine safety organization, they lack executive ability to serve in this capacity. The practice of safety being a condition of employment, they have ample means of rewarding those who support the safety policy of the company. Refusal to serve is direct evidence that they do not intend to cooperate and are therefore unfit for employment.

The mine foreman should require the rigid enforcement of the mining laws and all safety rules, discipline those who violate them and see that all employees, especially new workmen, receive instructions in accident prevention. With a proper display of earnestness and example, the foreman can obtain the necessary support from subordinate officials and the employees.

Table I—Plan for a Standard Mine-Safety Organization

Chairman Mine manager or Superintendent	Secretary Safety Engineer	
Group 1	Group 2	Group 3
Superintendent and assistants	Miners and loaders, three to ten selected from different sections of the mine	Office clerk
Mine foreman and assistants	Motorman and helper	Supply clerk
Mine examiners and firebosses	Tracklayer and helper	Mining engineer
Driver boss	Shotfirers, one or two	Company physician
Tipple foreman	Wireman	Timekeeper
Bottom foreman	Bricklayer	Shipping clerk
Labor foreman	Timberman and helper	State mine inspector
	Electrician and helper	
	Machineman and helper	
	Workman at shaft or slope bottom	
	Workman on the outside	

Safety Engineer—It is difficult to convince mine owners and officials that it is necessary to employ a safety engineer. This was also true in other industries, but experience has proved that safety organization work cannot be efficiently conducted in any industry unless there is someone to supervise and attend to all the details, relieving the superintendent and mine foreman of the unnecessary work. He does not assume their responsibilities but works in conjunction with them under their direction.

Special Qualifications

The safety engineer should have special qualifications in organizing and co-ordinating the efforts of all officials and employees in safety work. He should have a certificate of competency from the U. S. Bureau of Mines for first-aid and mine rescue work and be qualified to train workmen in both. He should also distribute and maintain the equipment for these purposes in efficient condition.

He should investigate all fatal and serious accidents, arrange for care of the injured, keep informed as to their condition and report their progress to the superintendent. He should keep all records of accidents, be

empowered to provide safeguards where required and to remedy all unhealthy or unsanitary conditions that he may know exist in or about the mine or in the mining community. He should be the official representative of the company at all district, state or national conferences, and keep informed on new safety devices and practices as they are developed, prepare the program for all safety meetings and plan first-aid and mine-rescue contests.

He should obtain all other available information and statistics on accident prevention and present it to the safety organization. Where a company is operating several mines adjacent to one another, he can efficiently take charge of all the safety work. Large mining companies should have a safety department with a safety director and with a safety engineer at each group of mines. At small operations the safety engineeer may be assigned other duties such as time keeping, taking charge of supplies, etc. Mining companies will find it good business economy to hire a safety engineer and dismiss their compensation adjuster. An ounce of prevention is worth a pound of cure.

Miners, Skilled Workers and Laborers—This group comprises the workers' representatives in the safety organization. The fact that they are the greatest beneficiaries of accident prevention should inspire them to render every possible assistance in making the mine and mining community a safe place to work and live in. Eliminating the hazards of mining will materially improve the conditions of employment. They should welcome an opportunity to serve on the mine-safety organization, and assist the company officials in obtaining the strict enforcement of all mining laws and safety regulations, and also in aiding in the punishment of those guilty of their violation. For this service they will be amply rewarded because thereby their lives and those of their fellow workmen are safeguarded.

Clerks, Engineers, Physician, Inspectors—The representatives in this group can give the safety organization much valuable information. The clerk can report the time lost through accidents, the number of employees, etc. The mining engineer can give valuable information on future development and mining problems. The physician can report the condition and character of the injuries received by the employees or their families and other general information regarding the health of all persons employed at the mine or residing in the mining community. Other members of this group may assist in a similar way.

Solid Shots Caused Providence Explosion

Three shots fired from the solid caused the explosion at the Diamond No. 1 Mine, Providence, Ky. This mine, says James E. Boettger, assistant inspector, of DeKoven, Ky., in his report to W. H. Jones, chief inspector of mines of Lexington, Ky., Jan. 22, was owned and operated by Palmer Brothers, of Providence. On Jan. 15 about 5.45 p.m. an explosion occurred on the first east level off the north dip entry, the cause of which, Mr. Boettger declares, was windy, or blown-out, shots in the main east level. These shots ignited dust causing a dust explosion.

There were seven men in the mine at the time the accident happened. One was in the first west entry off the main north entry. This roadway was not affected in any way by the explosion. Two men were on the main east entry and four in the main north dip entry. Those on the first were killed by the force of the explosion, the others died from the poisonous effect of the afterdamp. Mr. Boettger says that if they had not become frightened but had stayed in their working places they would have been living today, for the explosion did not reach their places at all. However, they became excited, walked right into the afterdamp and died.

The two men who were working in the main east entry were shotfirers and machine men. They had been working the headings by machines and had just that day been put on pickwork. The face of the headings was squared up, and the main entry had three holes in the face, one hole 5 ft. long, another 6 ft. and a third 8 ft., all of them "on the solid." Three kegs of powder also went off in the explosion. A bad shot was fired in the main aircourse. This also was laid "on the solid" and assisted in causing the trouble. It blew out all the stoppings on the main east and a number on the main north above first east. Only one was blown out on the first east entry from the main north entry.

Output and Value of Coal from Tennessee and Texas Mines in 1923

(Compiled by U. S. Geological Survey)

State and County	Loaded at Mines for Shipment (Net Tons)	Sold to Local Trade and Used by Employees (Net Tons)	Used at Mines for Steam and Heat (Net Tons)	Made Into Coke at Mines (Net Tons)	Total Quantity (Net Tons)	Total Value	Average Value per Ton	Number of Employees: Underground—Miners, a	Underground—All Others	Surface	Total	Average Number of Days Worked
Tennessee												
Anderson	582,155	9,694	14,251	.....	606,100	$1,419,000	$2.34	780	283	209	1,272	161
Campbell	1,207,298	37,253	19,068	.....	1,263,619	3,798,000	3.00	1,570	615	384	2,569	188
Claiborne	1,146,707	12,808	17,987	.....	1,177,502	3,176,000	2.70	892	379	238	1,509	182
Cumberland	16,870	272	579	.....	17,721	40,000	2.26	26	14	11	51	167
Fentress	346,218	5,558	8,255	.....	360,031	908,000	2.52	290	121	85	496	173
Grundy	445,614	3,196	2,998	52,979	504,787	1,478,000	2.93	806	237	207	1,250	159
Hamilton	332,314	5,280	12,530	.....	350,124	1,012,000	2.89	357	201	103	661	192
Marion	184,303	1,595	5,636	.....	191,534	549,000	2.87	206	84	61	351	227
Morgan	379,810	3,724	10,372	28,500	422,406	892,000	2.11	552	275	129	956	186
Overton	177,562	1,765	1,664	.....	180,991	508,000	2.81	203	45	43	291	157
Roane	6,209	3,315	6,895	109,232	125,651	416,000	3.31	118	133	41	292	235
Scott	139,783	8,073	935	.....	148,791	391,000	2.62	249	83	71	403	128
Other counties b	638,174	27,124	14,613	.....	679,911	1,895,000	2.79	703	263	177	1,143	218
Total, excluding wagon mines	5,603,017	119,657	115,783	190,711	6,029,168	$16,482,000	$2.73	6,752	2,733	1,759	11,244	183
Wagon mines served by rail	11,100	.....	.....	.....	11,100	33,000	3.00	....	.....	.....	.....	.....
Grand total	5,614,117	119,657	115,783	190,711	6,040,268	$16,515,000	$2.73	.....	.....	.....	.....	.....
Texas												
Kind												
Bituminous (c)	163,436	2,025	9,871	.....	175,332	$836,000	$4.77	652	141	122	915	131
Lignite (d)	993,465	4,539	13,993	.....	1,011,997	1,326,000	1.31	989	352	196	1,537	206
Total	1,156,901	6,564	23,864	.....	1,187,329	$2,162,000	$1.82	1,641	493	318	2,452	178

a Includes also loaders and shotfirers. b Bledsoe, Rhea, Sequatchie and White Counties. c Erath, Maverick, Palo Pinto, Webb and Wise Counties. d Anderson Bastrop, Bexar, Henderson, Hopkins, Houston, Lee, Leon, Milam, Nacogdoches, Shelby, Titus and Wood Counties.

News Of the Industry

Wane of Union Power Seen in Dual Organization in Upper West Virginia, Rockefeller Plan and Merger Movement

By PAUL WOOTON
Washington Correspondent of *Coal Age*

Two news items of much portent to the coal operator have appeared recently. They are of particular significance when considered together. Under a Charlestown date line there was chronicled the action of mine workers in the Paint Creek, Coal River, Kanawha and northern West Virginia fields in organizing themselves into an association. The other article was the release of the report of the Sage Foundation on the Rockefeller plan.

While the mine workers behind the new organization in West Virginia claim that it is not a rival of the United Mine Workers, it is hard to understand how any such organization working in the territory covered by the union would not appear to be a "dual organization." John L. Lewis hurried to Charlestown, but as this is written is reported to be withholding comment. Until more is known of the purposes and strength of the new union its effect on the United Mine Workers cannot be estimated, but all agree it will bear watching. It has all the appearance of secession and the beginning of collective bargaining on a district basis—an arrangement that probably will suit the purposes of the West Virginia miners better than the international policies of the International union.

The Rockefeller plan, on which the Sage Foundation reported, is the most conspicuous example in the coal industry of the company union—an organization confined to the employees of one company, encouraged by the company and used as a means of discussing wages and working conditions.

Rockefeller Comments Favorably

The verdict of the Sage Foundation, on the whole, favors the plan, but in the report there is a thinly disguised sympathy with the out-and-out union. Sight should not be lost, however, of Mr. Rockefeller's comment on the report, which was to the effect that the plan has continued to develop and some of the suggestions made by the investigators of the Sage Foundation for improvement have been adopted since their field work was done.

It also is of significance to note that the plan has been installed in the mines of the Davis Coal & Coke Co., also controlled by the Rockefellers. It is further reported that the Consolidation Coal Co., another of the Rockefeller group, is giving much attention to labor relations just at this time.

These two pieces of news constitute new evidence that the United Mine Workers are losing ground under the extreme depression of the industry but that other means of preserving the good features of the trade union are being developed.

The company union long since was anathematized by the trade union. The American Federation of Labor is bitterly hostile to the company union of the Pennsylvania R.R. as organized by General Atterbury. It cannot be controlled from the outside. The employees of the Pennsylvania no longer are compelled to follow the decisions of the railroad brotherhoods regardless of how they may affect their local interests. At the same time they are in as good a position as ever to require adjustments in their own wages and working conditions.

Plan Impairs Union Power

It is not hard to discern why the United Mine Workers do not like the Rockefeller plan. It impairs their power of maneuvering in a single block the tonnage of the organized field whenever resort to a strike is being considered. There is only one other thing more repugnant to trade-union policy than company unions and that is the "dual organization." No one not familiar with the history of trade unions can appreciate the bitterness which attaches to those words. To accuse a man of favoring a dual organization is as bad as calling him a scab. The dual organization is to trade unionism what secession is to the federal government.

In the meantime news is not lacking on the operating side of the industry. A great consolidation in northern West Virginia is to embrace an output of 21,000,000 tons and property worth $100,000,000. This comes on the heels of similar announcements from Alabama and Illinois. This is new evidence that operators appreciate the advantages of organization and unified control.

Not the least of the advantages which will come to the northern West Virginia consolidation will be its ability to deal more effectively in the matter of labor relationships. It can bargain shrewdly with the United Mine Workers should it elect to do so. It would be in a position to stop wage cutting if it should determine to run non-union. It can determine a common wage policy for its many mines and hew to the line of that policy. These changes suggest that the thorny question of setting wages, which has been the cause of so much trouble in the industry, may be facilitated. The non-union fields have been concerned at times over the effects of one or two operators reducing wages. It may be that some of the large companies of the South or some of the newly projected consolidations could give favorable consideration to the workings of the Rockefeller plan and remove any arguments for the organization of their fields.

Willitts Favors One Head to Settle Coal Disputes

Refusal of unions to arbitrate, absence of coal mine owners from their mines and lack of one responsible head to settle labor disputes are responsible for irregularity in coal supply, according to Dr. Joseph H. Willitts, of the University of Pennsylvania and former member of the U.S. Coal Commission, who spoke at Atlantic City Feb. 4, before the Lions Club.

The miners' unions, said Dr. Willitts, often refuse to enter into collective bargaining because they know they can get what they want by the power of their union, which they rely on rather than intelligent settlement of important questions. Mine owners, he said, frequently live far from the mines and leave labor questions to superintendents to decide when special study and greater ability are required.

Representative John M. Robsion, of Kentucky, chairman of the House Committee on Mines and Mining, said last week that in view of the short time remaining at this session, the committee had abandoned the idea of attempting to get through any legislation, except possibly a bill providing for the establishment of several mine-rescue stations. Several bills of this nature are pending before the committee, he said, and the subject is uppermost in the minds of the committee members. Stations are badly needed in a number of districts, according to Chairman Robsion.

I.C.C. Upholds Car Rating Decision; Coal Commission's Proposals Rejected

Rules governing the ratings of bituminous coal mines, promulgated early in 1923, are upheld in a decision handed down Monday, Feb. 9, by the Interstate Commerce Commission. The decision is a complete rejection of the recommendations of the Harding Coal Commission. One of the recommendations of that commission was to the effect that mines should be given cars in accordance with the ability to sell the product rather than the ability to load coal into railroad cars.

The introduction of the commercial factor was opposed by the railroads and by the National Coal Association. They contended it would put the Interstate Commerce Commission in control of the commercial side of the coal industry.

Commissioner Potter dissented vigorously. "Efficient mines," he declares in his dissenting opinion, "assured of continuous operation and a fair profit, would promptly increase their output and further lower their costs. If the unexpected happened and they failed, the government could take over the mines and arrange for their operation, under lease or otherwise, on terms and conditions that would protect the public."

Some of the more pertinent extracts from the majority opinion follow: "The point of departure between this theory and that which we can accept is basic. The object of rating rules is to secure a just and equitable distribution of equipment among those who desire and are prepared to ship, and not to determine who shall or shall not be in a position to produce a commodity to be shipped; but the law has never undertaken to permit, much less require, a common carrier to discriminate between such persons when they tender freight for carriage, because of the efficiency of the shipper or his lack of it, because he is extravagant and needs reforming, or does not, or because the product is superior or inferior.

"With these qualities of the shipper and the article carried, the railroad as a common carrier may not rightfully concern itself. Whether Congress might do so we need not inquire, although the prohibition of personal attainders, which may well be considered as including the right to resort to the services of a common carrier, possessed alike by all men, is contained in the Constitution itself. But we have been given no regulatory jurisdiction with respect to the coal industry, and owe no duty to it other than to enforce, as to the carriers within our jurisdiction, the provisions of the Interstate Commerce act which require adequate service, and prohibit unjust discrimination and undue preference as between shippers. Whether the coal industry may need reform was not in issue before us; the record is silent upon the question and it is not within our province to comment upon or determine it in this proceeding. Many considerations urged upon us with great vigor properly should be addressed to Congress, if at all.

"Carriers are again admonished to maintain ratings that will be in line with both their duty and ability and the needs of the country. We will for the time hold the record open for such further action as may seem appropriate, and if on further consideration the entry of an order herein seems warranted, will then give consideration thereto in the light of the facts as they then appear."

Leaders Cite Opportunities In American Industry

Julius H. Barnes and David Sarnoff Trace Tremendous Strides of Recent Years

Julius H. Barnes, past president of the Chamber of Commerce of the United States; David Sarnoff, vice-president and general manager of the Radio Corporation of America, and Fred I. Kent, vice-president of the Bankers Trust Co., were the principal speakers of the banquet given at the Hotel Pennsylvania, New York City, on Jan. 30 by the McGraw-Hill Co., at the conclusion of its three-day convention devoted to the problems of industrial marketing. Malcolm Muir, a vice-president of the McGraw-Hill Co., briefly summed up the results of the convention. E. J. Mehren, another vice-president of the company, was toastmaster.

Mr. Barnes, who spoke on "Economic Marketing," said that the day had gone forever when the simple needs of a neighborhood were supplied by the village artisan with his market within an arm's length. Today industry was developed on a worldwide scale.

In the 140 years since the Republic was founded, the world's wealth had increased from 100 billion dollars—accumulated since the beginning of time—to ten times that today, said the speaker. The secret of this accelerated progress, he said, lay in the harnessing of power to man's service. Fifty years ago one-half horsepower per worker was used in the manufacturing field; today 4 hp. per worker. Fifty years ago the national wealth was 30 billion; today 320 billion. The speaker then pointed out to his audience what it meant to modern industry to have this power service. In the last analysis, he said, the earnings of commerce are the basis for all things that make life worth living.

Underwood & Underwood

Julius H. Barnes

Underwood & Underwood

David Sarnoff

"If this expanding production is human service visualized to us, we have a right to see what this accelerated progress presents to us in new and complex problems," said the speaker. "The chief problem is the growing complexity of the relation between government of established authority and the private processes of industry and private lives. . . . The intense individualism of America cannot be restored in its old shape, but it is possible to so align the relationship of government and the private lives of our people that we can preserve that individual impulse, the resourcefulness, the initiative on which the whole progress of America has clearly been based."

It rested upon such organizations as theirs, Mr. Barnes told the audience, and on chambers of commerce and all those agencies which crystallize and express through resolution and declaration the opinion of their organization, to find some way to guide government in the growing complexity of these questions which government touches more intimately than ever before and must touch always.

Mr. Sarnoff, who came to this country at nine years of age and who now at thirty-four has been vice-president and general manager of the Radio Corporation of America for two years, chose "Opportunity" as the topic for his speech. He attempted to illustrate the difference between looking at an opportunity and seeing it.

Hertz looked at the opportunity for transmitting electromagnetic waves from one place to another without the aid of physical agencies, he said. He had in his grasp the fundamentals of radio, and he looked at it. But Marconi saw that opportunity and took advantage of what he saw, and that resulted in the application of wireless telegraphy to the needs of mankind. These opportunities are around us every day, said Mr. Sarnoff.

In Europe, he had noticed, important positions were almost without exception filled with very much older men than those who fill similar positions on this side. Not only was the United States a young nation, said the speaker, but it was a nation of young men—a wonderful asset for the boys of America. In concluding he said, "I cannot sum up the word 'opportunity' in any better way than to say 'Opportunity! America is thy name'."

Accidents Kill 185 Miners In December; Fatalities For Year Total 2,381

Accidents at coal mines in the United States in December resulted in the death of 185 men and brought the total number of fatalities for the year 1924 to 2,381, as compared with 2,458 in 1923, according to reports from State mine inspectors to the U. S. Bureau of Mines. The reduction of 77 in the number of deaths does not, however, indicate a lower fatality rate per million tons of coal produced, because of the unusually small production of coal during the past year and the large number of deaths from mine explosions. Anthracite mines reported 40 fatal accidents in December and bituminous coal mines 145 fatalities. The death rate for the month was 3.26 for bituminous mines, 5.59 for anthracite mines, or 3.58 for both classes of mines combined, as compared with a combined rate of 3.26 in the preceding month and 3.26 for December, 1923.

A review of the returns for the entire year shows that the 2,381 deaths in 1924 represented a fatality rate of 4.27 per million tons of coal produced as compared with a rate of 3.74 per million tons in 1923 based on 2,458 deaths. The production of coal during 1924 was approximately 558,000,000 tons as against 657,000,000 tons in the previous year. For anthracite mines the fatality rate was 5.51 per million tons as compared with 5.45 in 1923, the figures indicating no material net change, although there was a slight reduction in the rate for underground haulage accidents and a small increase in the death rates from explosives and gas explosions; the rate for falls of roof or coal remained stationary. For bituminous coal mines throughout the country the fatality rate increased from 3.46 per million tons in 1923 to 4.03 in 1924. Nearly all of this increase was from gas and dust explosions, the rate for which rose from 0.585 to 1.039 per million tons.

	1924 Number Killed	1924 Rate	1923 Rate
Falls of roof and coal	1,052	1.886	1.767
Haulage	348	.624	.631
Gas and dust explosions	536	.961	.566
Explosives	100	.179	.173
Electricity	81	.145	.114
Mining machines	28	.050	.035
Other causes underground	71	.128	.143
Shaft	29	.052	.070
Surface	136	.244	.239
Grand total	2,381	4,269	3,738

Ten "major" disasters — meaning accidents killing 5 or more men each — caused an aggregate loss of 459 lives in 1924, while 11 similar disasters in 1923 resulted in a loss of 301 lives. The fatality rate from this class of accidents nearly doubled during the past year, as indicated by the number of deaths per million tons of coal produced, which was 0.458 in 1923 and 0.823 in 1924.

The following figures show the number of deaths from each of the main causes of accidents in 1924, and the death rate per million tons for each cause, with comparative rates for the year 1923.

Last Union Coal Mine in West Kentucky Closes

It was announced at Greenville, Ky., on Jan. 31, that the Phoenix Coal Mining Co., at Drakesboro, Ky., had closed down on that date, the manager, Vaiden Lackey, stating that the mine was operating at a loss on the Jacksonville agreement. The company was the only one in western Kentucky to accept the Jacksonville agreement, and started operations some months ago, employing between 200 and 300 men, and with a capacity of around 25,000 tons a month.

The mine was reported to have run at a steady loss. The losses in September averaged 30c. a ton, while in October, the best month, the "red" margin was 5c. a ton. It is now 25c. a ton. A few weeks ago the former owners of the mine, holding a mortgage on the property, sued for foreclosure, alleging that neither interest nor that part of principal that was due had been paid.

There are now five large mines operating in Ohio County and fifteen in Muhlenberg County operating on the 1917 scale. The W. G. Duncan mine at Graham, resumed operations Feb. 2.

J. M. Thompson, operating the Jim Thompson Coal Co., of western Kentucky, recently reorganized the company as the Puritan Coal Co., and has also sold his interest in the Thompson-Scanlon Coal Co., yard operators of Louisville. The Louisville concern as of Feb. 1 became the Scanlon Coal Co., with L. M. Smith as president; J. J. Anderson, vice-president, and O. Lawrence, secretary-treasurer.

Coal-Mine Fatalities During December, 1924, by Causes and States

(Compiled by Bureau of Mines and Published by *Coal Age*)

State	Underground											Shaft					Surface							Total by States	
	Falls of roof (coal, rock, etc.)	Falls of face or pillar coal.	Mine cars and locomotives.	Explosions of gas or coal-dust.	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.)	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1924	1923
Alabama	3		1									4							1				1	2	6	7
Alaska																									0	0
Arkansas	2						1					3													3	0
Colorado		2										2													2	2
Illinois	6		8				3					17													17	8
Indiana	1		2									3													3	4
Iowa	1											1													1	2
Kansas	1											1													1	0
Kentucky	9		2									11													11	17
Maryland																									0	1
Michigan																									0	1
Missouri																									0	1
Montana	1											1													1	1
New Mexico	1											1													1	0
North Dakota		1										1													1	0
Ohio	7		1									8						2						2	10	8
Oklahoma	2					2						4													4	1
Pennsylvania (bituminous)	19	3	8		2		2		1			35			1		1						1	1	37	22
South Dakota																									0	0
Tennessee				3								3													3	3
Texas																									0	0
Utah	2											2													2	0
Virginia	1			7								1													1	3
Washington												7													7	2
West Virginia	20		8	2								30	1				1							1	32	35
Wyoming	2											2													2	5
Total (bituminous)	78	6	30	12	2	2	6		1			137	1		1		2	2	2				2	6	145	123
Pennsylvania (anthracite)	19	2	5	1	5	1	1				1	35						4	1					5	40	36
Total, December, 1924	97	8	35	13	7	3	7		1		1	172	1		1		2	6	3				2	11	185	
Total, December, 1923	77	5	29	10	11		1	1	2		11	147	1		2		3	2	1	4			2	9		159

Co-operative Regulation of Mines Under One Surface Provided in W. Va. Bill

A great deal of interest has been manifested in a bill introduced in the West Virginia Senate by Senator Willis, of Monongalia, and in the House by Delegate Bartlett, of Marion, requiring the co-operative regulation of two or more mining operations under the same surface. This bill provides that in order to conserve the mineral resources of this state and to prevent the waste and loss of coal in one stratum by the untimely removal of pillars in an underlying stratum and to promote the safety of persons employed in coal mining whenever a new mine opening is made or new projections in an established mine are proposed where two or more strata of marketable coal exist under the same surface, the plans for such openings and projections shall be submitted to the chief of the Department of Mines of the state and his approval in writing shall be obtained before such openings or projections are made.

In the second section of the bill it is provided that whenever a mining operation is begun in an upper stratum of coal under which a lower stratum has already been removed, or is in process of operation, the openings, haulageways and entries of the upper mine shall be planned and laid out and its operations so extended as to avoid as far as possible danger to the employees of the mine and loss of coal therein by reason of the operations already in progress in the stratum; and the operators in the two strata of coal shall exchange with each other from time to time, as directed by the chief of the Department of Mines, maps showing the working places, projections and extensions in their respective mines.

It also is provided that whenever a mining operation is begun in a lower stratum of coal over which an upper stratum is already in process of being mined and removed, the openings, haulways and entries of the lower mine shall be so planned and laid out and its operations so projected and extended as to conform with the operations of the upper mine already in progress, to the end that as little damage as possible may be incurred and the lives of those employed shall not be endangered in the upper mine by reason of falls occasioned by the operations in the lower mine, and the operators of such mines shall exchange with each other from time to time, as directed by the chief of the Department of Mines, maps showing the workings in their respective mines.

The bill also provides that whenever mining operations are being conducted in two or more strata of coal under the same surface, it shall be the duty of those operating such mines to so conduct their respective operations under the direction of the chief of the Department of Mines, that the coal in each shall be conserved and the lives of those employed shall not be in danger, and if it be found impossible in the opinion of the chief of the Department of Mines to remove all of the coal in the lower stratum without danger or damage to the overlying stratum, then it shall be the duty of the operator of the lower stratum to leave such pillars as shall be necessary for the protection of the overlying stratum of coal and its operations, for such time as shall be reasonable, and the owner of the lower mine shall be compensated for the loss of coal so left standing, or for the damage sustained in the delay thus occasioned to him in removing the same, such compensation to be paid by the owner of the mine thus protected and the amount to be fixed and determined, if possible, by agreement of the parties, and if they cannot agree then the same to be fixed and determined by the chief of the Department of Mines.

Such legislation or proposed legislation has grown out of the dispute between two companies in the Monongalia field which finally ended in one company asking for and obtaining an injunction in the Circuit Court of Monongalia County.

P. & A. Photos

Charles R. Flint

"The Father of the Trusts" is actively engaged on the largest project of his colorful career—the consolidation of a number of West Virginia coal companies representing a capitalization estimated as high as $100,000,000. It will be the twenty-third important industrial merger effected by Mr. Flint, and will bring the total capital of companies organized by him to about $500,000,000.

$600,000 Mine for $36,501 To Andrew Hogg

Properties of the Memphis Coal Mining Co., at Mannington, Ky., said to have cost $600,000, were sold at the court house door at Hopkinsville, Ky., on Feb. 2 for $36,501, Andrew Hogg, of Hopkinsville, being the only bidder on the property as a whole. The property was first auctioned off in parcels, a total of $36,500 being bid. When put up as a whole Hogg bid an even dollar over the parcel totals, and acquired the property. The sale was made in a suit of the National Light & Power Co., New York, the amount sought plus interest being $212,000. The mine with two drift openings, machinery, electrical plant, 1,700 acres of coal land, held in fee simple; leases on several hundred acres more, and 53 dwellings, tipple, trackage, etc., all sold together. The property represents one of the cheapest buys in western Kentucky.

Indiana Miners May Work in Steel Mills

The Indiana Industrial Board, at the instance of Dixson H. Bynum, chairman, has made an arrangement with the United States Steel Corporation which may mean the voluntary transfer of a great many of the approximately 17,000 idle coal miners of southwestern Indiana to the Calumet steel mills for permanent employment, it became known Feb. 4. Negotiations were begun about the close of last year with the approval of Emmett F. Branch, then Governor, Mr. Bynum conferring directly with E. J. Buffington, of Chicago, president of the Illinois Steel Co.

Mr. Bynum recognized a situation in the coal mining industry brought about in the last few years of change in the industry, whereby Indiana mines have not been able to provide employment to a great many workers in the industry. In consequence of this condition most of the mines of the state have operated only one or two days a week, so that many miners have had only part-time employment. Many mines have been closed down altogether. Mr. Bynum said his investigations had shown that about 17,000 of the 32,000 miners in the state are now out of employment.

Rock Dusting Spreads In Alabama

The Alabama Mining Institute is pushing the campaign for rock dusting in Alabama coal mines as a means of preventing coal-dust explosions, and the movement is making satisfactory progress according to announcement of the Institute. Among the larger operators who have rock-dusted one or more of their mines or have this work in hand at present are the Galloway Coal Co., Majestic Coal Co., Sloss-Sheffield Steel & Iron Co., New Castle Coal Co., Yolande Coal & Coke Co., Franklin Coal Mining Co., Gulf States Steel Co. and DeBardeleben Coal Corporation. Practically all mines in the district using machines for coal cutting have a system for sprinkling the cutter bars and high-pressure water sprays are extensively used throughout the mines in settling coal dust. The Dolcito Quarry Co. has established a plant for the preparation of rock dust for use in the mines, based on specifications of the U. S. Bureau of Mines.

A safety extension service will be added to the Safety Division of the Bureau of Mines July 1, when funds for the new fiscal year are available. The new department of government will be in charge of J. J. Forbes, now Alabama representative of the division, who will operate from Washington with a force of employees. The program of the new department includes fire-drill work and first-aid expositions. "The work will have the effect of training the men for leadership when catastrophes occur," says Director Reed. "Frequently," he added "when our mine rescue crews arrive on the scene the mine superintendents are dazed."

Lake Michigan Docks Waging Losing Fight Against Pressure of Illinois Coals

Milwaukee Business Out of Line with Fluctuations at Head of Lakes in Recent Years, Asserts Survey Prepared for City Harbor Commissioners—Must Concentrate on Markets

Milwaukee and other Lake Michigan ports have been waging a losing fight against Illinois mines in the competition for business in territory tributary to the docks, according to F. C. Blood, associate professor of business administration, University of Wisconsin, who recently completed a study of the commercial aspects of the Milwaukee harbor for the Board of Harbor Commissioners of that city. While the unusual unsettlements of the last few years have intensified the situation, Milwaukee's failure to hold its position antedates those disturbances. This is shown in the accompanying table of comparisons of five-year average movements of bituminous lake coal made in the Blood report:

Average Movement of Lake Coal, 1908- 1917

	Yearly Average 1908–12, Net Tons	Yearly Average 1913–17, Net Tons	Increase, Per Cent	Yearly Average 1918–22, Net Tons	Decrease, Per Cent
Total movement	22,951,375	29,299,340	27.0	26,293,075	10
Lake receipts at					
Milwaukee	3,293,209	3,740,746	13.0	2,780,379	25
Duluth-Superior	6,096,118	8,175,439	34.0	7,530,728	7

The tonnages given do not cover car-ferry receipts.

"Two facts are at once evident in studying this table," comments Professor Blood: "First, the trade of Milwaukee during the period of increase (1913-17) did not increase in proportion to the total lake trade. It was 14 per cent below, and, second, during the depression of the trade (1918-22) it decreased 18 per cent below normal. Duluth-Superior, on the other hand, increased 7 per cent above normal from 1913 to 1917, and during the depression of 1918 to 1922 decreased 3 per cent less than normal decrease. The behavior of the trade at Milwaukee showed weakness while Duluth-Superior showed strength. Coal receipts at other points on Lake Michigan showed the same condition as existed at Milwaukee."

Receipts Show Decline

During the ten years ended with 1922 total coal receipts at Milwaukee showed a steady and, with the exception of 1921, unbroken decline. The same decade, however, "was the most prosperous in the history of the Northwest." But shipments of coal from Milwaukee during that period constituted a diminishing percentage of the receipts. For the five years ended with 1922 the average was 22.27 per cent, as compared with an average of 24.36 per cent for 1913-17, 28.77 per cent for 1908-12, 31.48 per cent for 1903-07 and 38.99 per cent for 1898-1902.

In 1918 Milwaukee docks were shipping coal to northern Illinois, the greater part of Wisconsin, southern Minnesota, Iowa, South Dakota and Nebraska. In 1922 the distributing territory had shrunk to Wisconsin, southern Minnesota and a small strip of northern Iowa.

While the prolonged coal strike of 1922, with its disastrous effect upon lake movement, played some part in the territorial shrinkage, Professor Blood is not of the opinion that a freedom from labor troubles will restore the lost tonnage to the docks. "The narrowing of Milwaukee's coal marketing territory," he says, "may be attributed to the activities of the Illinois operators' representatives in soliciting trade. The dock owners of Duluth-Superior and Milwaukee assign increased rail rates as the cause," but his study of the trend of Interstate Commerce Commission decisions bearing on the Northwestern adjustment leads him to look for little relief to the docks from Washington. "Certainly to grant the request of the dock owners" for an increase in rates from the Illinois mines "would not be to the best interest of the people of the Northwest, and it seems impossible of consummation.

Illinois in Strong Position

"It would appear that with nearly $1.50 advantage in freight rates on the average in favor of the Illinois operators they are in a strong competitive position. Granting that Illinois coal cannot bring as high a price per ton as Eastern coal because of its inferior quality, the freight differential gives it an opportunity in a large territory to make that reduction. There is no questioning the fact that the Illinois mines are geographically situated to serve a large part of the territory west of Milwaukee to advantage."

Nevertheless, concludes Professor Blood, the Milwaukee market "is in no danger of being wiped out." In Milwaukee proper and in the territory immediately contiguous, the Illinois mines cannot use rate differentials as a leverage to obtain business. It is only as the distance from the docks increases that the rate advantage of Illinois becomes pronounced. Furthermore, the Eastern mines will not lightly surrender the lake markets which take large tonnages of coal during the slack summer season. Although "the facts presented show that the coal market of Milwaukee has been subjected to narrowing influences and that many of them are of a permanent nature, within the narrower market an increasing trade probably will develop."

Engine Tosses Caboose; Coal Car Catches It.

An interesting photograph of a recent railroad accident on the Louisville & Nashville R.R., which also testifies to the strength of a steel hopper car, was shown in a Louisville paper on Jan. 21. This photo showed a standard railroad caboose perched snugly on top of a loaded coal car, it having been knocked from its trucks and thrown on the car in a rear-end collision between two trains. The caboose was thrown two cars forward, the assaulting locomotive having climbed up on the first coal car in front of the caboose.

More Money for Mine Dept. In Pennsylvania

The state budget presented to the Pennsylvania Legislature by Governor Pinchot shows that the 1925-1927 appropriation asked for the State Department of Mines is $617,800, which is $49,300 more than was allowed for the present biennium. It is pointed out, however, that this is $5,000 less than the present allowance for salaries and expenses of the department office force. In addition to this appropriation, if the Legislature approves it, the department will receive $17,000 in fees from mine foremen's examining boards, making available for the next two years $634,800, or an increase of $50,327 over the appropriation and available funds of the present two-year appropriation period.

The department had available for the 1921-23 period $688,800, and for the 1923-1925 period $584,473. There was an unexpended balance of $24,339 at the end of the 1921-23 biennial period, and this sum lapsed into the general fund of the state treasury. It is estimated that at the end of this biennium, May 31, next, the department will have $63 that will revert to the treasury.

As a matter of fact the department has more money in sight, but it desires to pay the inspectors who voluntarily worked for a month in 1923 without compensation in order that the department, whose appropriation had been cut approximately 26 per cent by the Governor, would not run short of funds.

The budget also provides an increase of $48,000 for the salaries and expenses of the fifty-five mine inspectors authorized by law. This amount is exclusive of the estimated income of $17,000 from the mine examining boards, earmarked for this purpose. Ten thousand dollars is recommended for the mine foremen's boards and this is an increase of $6,000 over the previous biennium and will be necessary if the full $17,000 income anticipated through their work is to be realized, the budget states.

At present there are sixteen office employees, fifty mine inspectors and twenty-nine members of the mine foremen's examining boards. The total salaries and wages paid during the 1923-25 period was $529 847 and in the 1921-23 biennium the total was $582,653.

Discussion

Indiana Man Rallies to Defense of Flame Safety Lamp

Safety Lamp Not Unsafe Even in Hands of Incompetent Men — Those Who Understand It Foremost in Its Misuse

In *Coal Age* of Jan. 8, Vol. 27, Page 52, I see another article that condemns the flame safety lamp, but in milder terms than those that Mr. Harrington used in a recent issue of *Coal Age*. Mr. Reynolds says that the flame safety lamp is potent for danger in the presence of explosive gas, unless in the hands of a thoroughly competent man. Now what does he mean by that term? The evidence was conclusive that, in the recent mine explosions quoted by Mr. Harrington, the men using the flame safety lamp *were* competent men, a few of them being certified men from Great Britain.

Is it right that we should condemn the flame safety lamp as Mr. Reynolds is trying to do, unless it is the hands of a thoroughly instructed and experienced man? It is usually the so-called competent man that fails and not the device. It is a psychological fact that a man in any occupation grows so familiar with his job that he seems to have a certain careless contempt for it, oftentimes growing careless or at least indifferent to all safety rules.

Competent But Reckless

Such men might not exhibit such carelessness wilfully or with any wrong intent, but merely because of familiarity. This applies to our so-called competent men; who think they are so familiar with the flame safety lamp that they can use it in an explosive mixture with a gauze missing, the friction igniter possibly not in place, and last but not least with a lamp that can be opened by some other method than by a magnet.

Our competent men must realize that a body of explosive gas is no respecter of persons. After all a mine is only safe to the degree of carefulness shown by the least careful worker. Consequently much depends on the individual. Almost all moving machinery, gears, belting, etc., are guarded by safety devices for protection against the possibilities of carelessness, but the greatest protection of all is the guard which the human being should erect around his powers of volition. It is better that men should do their thinking in the mine than in the hospital. No doubt, as the recent writer points out, we have nothing to offer in defense of the flame safety lamp as an illuminator, but it is surely indispensable for gas-testing purposes.

Detects Gasoline Vapors

The flame safety lamp is now being introduced extensively in the oil industries. It is used even in testing for gasoline vapors in tank cars when these are undergoing repairs, thus replacing the method now commonly used of taking samples of the vapor from the car and applying a lit taper to the sample. I am still of the opinion that when the lamp is properly assembled and of the approved type, it is practically a safe device. I would like, with your permission, to give extracts from a paper read by E. A. Hailwood, of Ackroyd and Best Co., Ltd., before the American Mining Congress held at Philadelphia, Oct. 17 to 25, 1913.

"Persons who have witnessed the intense white heat which is necessary to cause flame to pass from the inside of a well-constructed bonneted lamp to the outside, and which the gauze can attain only where the air has a velocity of over 3,500 ft. per minute and contains from 8 to 9 per cent of methane, will realize that it is a mistake to talk of creating an explosion in a mine by the overheating of a well-designed lamp. Many an explosion has been wrongly ascribed to this cause. Most of the lamps now in use are fitted with shields, and I have had lamps of this description in explosive mixtures with the gas inside the gauze burning for hours and the gauze red hot, and yet no explosion has occurred outside the lamp.

"I submit that it will be a rare occurrence to find in a mine a velocity of 3,500 ft. per minute, the mixture of air and gas explosive, and at the same time the lamp placed in such a position as to receive the full force of this velocity, and to find also that the miner is standing by oblivious to this remarkable combination of circumstances which would render the lamp dangerous. If the velocity be present, but if the unusual requisite volume of gas be absent, there is no danger. On the other hand, if gas be present but the requisite enormous velocity is missing, the lamp would be unlikely to cause an explosion. Furthermore it would be unlikely that the miner would remain in such gas, so that the danger from "still" gas is also unlikely to occur; for the light given out from a dangerous mixture of gas burning inside a safety lamp would be so small that the miner could not under the circumstances continue working.

"In another series of tests, the gas flame was kept burning in a lamp surrounded by an explosive mixture of gas, and at intervals coal dust was scattered inside the lamp, also over the outside of the gauze. The lamp also was constantly shaken about in the gas, and finally coal dust allowed to remain on the crown of the gauze for some hours. Under these circumstances the gas flame burned immediately underneath the top of the gauze, and had ample opportunities to heat and coke the coal dust. The lamp had a single gauze, and the test was made with natural gas, and yet the flame did not communicate with the surrounding gas, notwithstanding the fact that the gauze was often red hot.

Defective Yet Still Safe

"If, therefore, single gauzes will not under such conditions pass flame, it is evident that with double gauzes the lamp will still be more unlikely to pass flame. In other tests I have used a lamp having the glass so slack that it rattled freely when the lamp was shaken. The glass was split from top to bottom, and a crevice cut right across the top and also at the bottom of the split, the crevice being more than $\frac{3}{32}$ in. wide. This lamp was placed in a most explosive mixture of compressed gas and kept there for over half an hour with the gas blazing inside the lamp. This failed to cause an explosion.

"In the test the gas mixture was compressed down to two-thirds of its original volume, and the gas, there-

fore, was in a fiercely explosive condition. In other tests, a lit lamp has been passed into an explosive mixture of gas and a hole pierced in the top of the gauze of ¼-in. diameter, yet the flame failed to pass through the hole and ignite the surrounding gas; the reason for this being, no doubt, that the product of combustion from the lamp flame covered the hole in the top of the gauze with a barrier of incombustible gas, through which the flame could not pass to the gaseous atmosphere outside.

"To users of flame safety lamps, this test will no doubt be interesting, as it is the upper part of the gauze which is subject to the most wear and tear, and fortunately the test demonstrated that it is the top part of the gauze which is usually protected by the barrier of incombustible gas."

I admit that if a lamp is extinguished and the products of combustion are allowed to escape, so that the lamp is filled with an explosive mixture of gas, then when an internal friction igniter is operated so as to cause a flame to form in the lamp and to ignite the gas inside the lamp, it is possible that this flame would pass through the hole in the gauze to the outside of the lamp; but this, of course, only refers to this type of lamp, and would not refer to lamps of the type which must be completely closed when being relit.

Better Glass Recommended

Some authorities have made much ado about the possibilities of the heat from the flame of the lamp cracking the glass. But this is a question of only a few dollars, as lamps can be provided with a fine clear glass of such quality that it may be heated up to about 340 deg. F. and sprinkled with water from a watering can without fracture.

Some people have been afraid that a fall of roof on a safety lamp might cause an explosion and ignite gas, but so far the tests I have made seem to prove that before the lamp is dangerously damaged the flame is extinguished by the force by which the lamp is crushed. In one series of tests, a lamp was placed on an iron piston, and the piston moved rapidly upwards into a cylinder containing gas, so that the top of the gauze came into violent contact with the crown of the cylinder and the gauze was crushed down. No outside explosion followed, the light in the lamp apparently being extinguished by the crushing force or by the concussion of the atmosphere.

In a coal mine it is extremely unlikely that the conditions would be so severe as they were in the test, for in the event of the emission of gas preceding the fall of the roof, the gas would probably extinguish the flame before the lamp was crushed; whereas if the rock got down ahead of the gas, and crushed the lamp, the rock would crush out the light before the gas reached it. In either event an immense volume of gas would have to be released to reach a lamp crushed on the floor.

In recent years great strides have been made in the organization of evening mining classes in all coal-mining districts. A large proportion of both adult and young miners have attended these classes. A few years ago, miners could rarely be found who knew how to test for, and read, "gas caps." The consequence was that men have often ignorantly continued working in places so charged with gas as to be on or near the border line of explosibility. No doubt things have been done in such an atmosphere which would not have been attempted had the miner known of the danger to which he was exposed.

The only solution to the problem, in my opinion, lies in a course of education. Such instruction ultimately will prove to be one of the biggest factors of safety introduced in recent times into the coal mines of this country.

W. W. Hunter.

Clinton, Ind.

Room-and-Pillar System Not Necessarily Wasteful

On pages 613-614 of Vol. 26 appears an article by H. R. Bissell on a block system of mining coal, for which system many advantages are claimed when compared with usual room-and-pillar methods.

It is an old established practice in coal mining to determine the size of pillar and percentage of first extraction by the depth of cover overlying the coal, or the pressure to which the pillar is subjected, with the view of the ultimate extraction of every ton of coal available. The latter requirement is important in European countries because most of the coal is mined under lease and the royalty must be paid on all available coal, recovered or lost.

As a general rule, where the pillars are larger than necessary to carry the overburden, the expense of operation will be higher than with a pillar of the proper size. This is due to the extra narrow work on which "yardage" is generally paid, and the necessity of coursing the ventilating current to the face of each place by a temporary brattice.

When the depth to coal does not exceed 400 ft., the first extraction, "or solid work as it is generally known," may be as high as 50 per cent, and under ordinary roof conditions, permit a recovery of 95 per cent of all available coal at normal operating cost. At a depth of 900 ft. with a 30 per cent first extraction, I have frequently proved that it was possible to effect a 99 per cent total recovery. When the depth of coal is greater than 1,000 ft., it is generally necessary to use the longwall system.

In all mining districts there are a number of mines in which, for lack of capital or through misunderstanding as to the necessity of conservation and its importance, the first extraction is too great and undoubtedly large areas of pillar coal are lost, but this should be used only as a "horrible example," and not given as the general practice of any district.

Where the amortization charge and interest on money invested in plant, village and roads may be as high as 15c. per ton of all coal tributary to the mine, not to speak of the royalty value, it is necessary to obtain the highest recovery possible. To me the "horrible example" of only 12 men out of 800 garnering up from loose corners, is excellent practice.

A number of mines in the Alabama district are producing from 2,000 to 4,000 tons of coal per day from coal seams approximately 48 in. thick, in which the total extraction is over 90 per cent, and the primary extraction is approximately 50 per cent, the average depth being 350 ft.

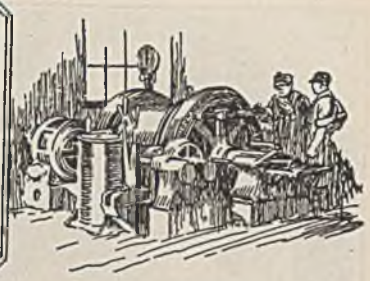
I know a number of "old" mines, the solid work of which was completed over 5 years ago and the output wholly secured by removal of old pillars during that time; further, some of these will continue in operation five years longer in competition with the most modern plants with larger outputs.

Plan No. 2, where solid work is advancing at same time as pillars are being removed in three entries, outlines a dangerous practice for a gaseous mine. It is prohibited by law in many mining districts.

Robert Hamilton,
Consulting Engineer.

Birmingham, Ala.

Practical Pointers For Electrical And Mechanical Men



Portable Blacksmith Forge Suitable for Heating Long Stock

At a coal mine the work of the blacksmith shop as also of the machine and electric departments greatly resembles that which jobbing shops have to perform. Many of the pieces before being forged must be heated throughout a greater length than could be provided in the narrow limits of an ordinary forge. To meet this need the shop forces of the United States Coal & Coke Co., at Gary, W. Va., have built and are operating the portable forge shown in the accompanying illustration.

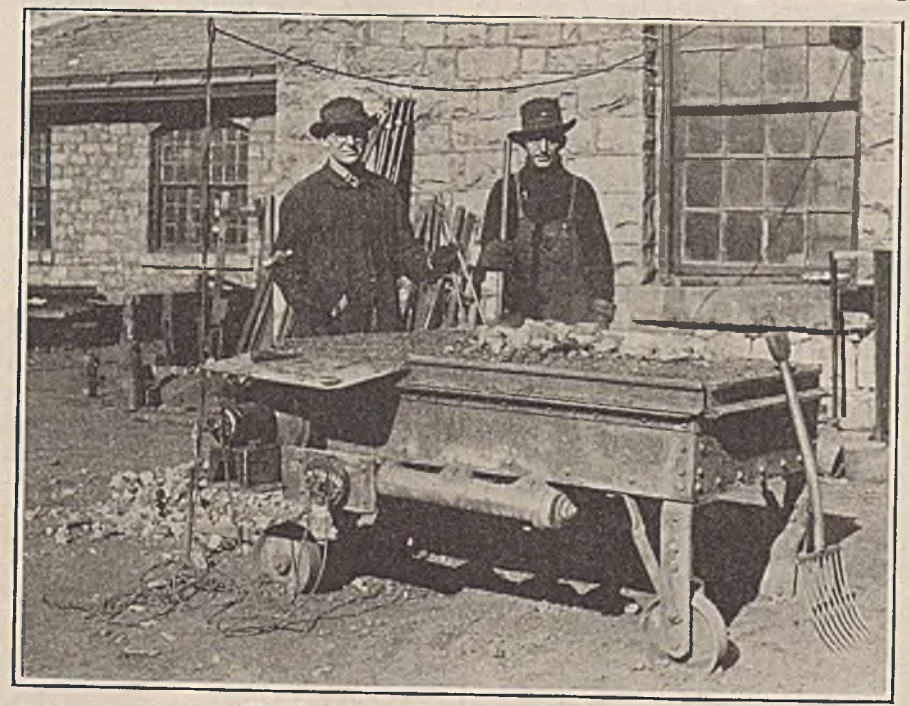
Although built up from odds and ends of stock found about the plant this forge or heating furnace is a business-like affair, and much useful work has been done with it. The body of this forge, which measures 40x56 in., is made of ¼-in. plates reinforced with ¼ x 2-in. angles. The legs are made of ¾ x 3-in. strap iron which on their lower ends, as may be seen, are fitted with wheels.

The blower serving this forge is a Champion No. 4 motor-driven blacksmith's forge fan weighing 35 lb. It is an alternating-current unit taking 110 volts and consequently may be attached to any electric light socket. The motor is controlled by a small rheostat and the speed is variable up to a maximum of 2,500 r.p.m. This blower discharges to a 4-in. pipe or wind box extending along the side of the forge to which the three tuyeres are connected. Draft to each tuyere is controlled independently by means of a "paddle" draft valve.

In the accompanying illustration this forge is shown in use just outside the blacksmith-shop door. This is where the device is normally operated, being ordinarily employed on big work only. At night or during inclement weather the motor-driven blower may be quickly detached and taken under cover. This blower outfit is so light that one man readily may carry it anywhere under his arm. On the other hand if the weather demands and the work to be done is urgent, the entire forge may be taken inside the shop.

This forge, with the exception of the blower, is strictly homemade. It is employed habitually in making medium to heavy heats. Thus eight to ten car belts, each ¾ x 3½ in. in cross-section, may be heated simultaneously. Sometimes as many as fifty smaller pieces capable of being rapidly forged on the bulldozer or under the steam hammer have been heated at once. Ordinarily coke is employed as a fuel, but coal may be used with almost equally good results.

The forge was built to answer a double purpose,—first to furnish a means for heating long or large work at the Gary shops and second to be capable of easy transportation to any of the outlying mines where and when repairs were necessary. Both of these objects it has fulfilled. Under ordinary circumstances it is used at the central blacksmith shop as shown in the illustration. When the need for a forge at some other point or mine arises, however, it may be loaded quickly onto a wagon or motor truck, transported to the point where needed, its motor attached to the nearest light socket (this may be several hundred feet away) and it is ready for operation. It has paid for itself many times over both in regular shop work and in emergencies.

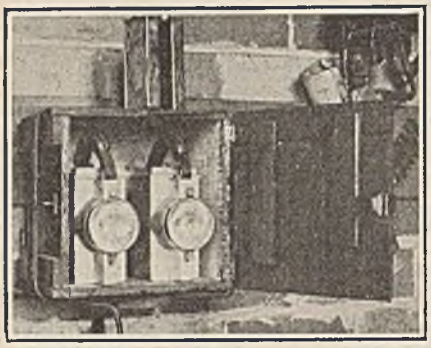


Heating Heavy Work in the Open Air

This forge was built for use out of doors, or in temporary locations. Inasmuch as it is operated from an electric light socket it can be readily transported to any point where needed and quickly set up ready for use. It is here shown outside the door of the blacksmith shop, in use, heating plates prior to the forging of them into a shape that will permit them to be used as the ends of conveyor buckets. With the three tuyeres long heats can be made.

Ready to "Shoot" Line Trouble Occurring at Night

For the maintenance of electric distribution lines a coal company must be equipped to locate and repair trouble by night as well as by day. Night trouble on main distribution lines, unlike that on most other parts of an installation, cannot well be left until daylight, because the failure of a transmission line usually



So Necessary When the Call Comes

Depending on a miner's carbide lamp or on a pocket flashlight for use in locating transmission line trouble and repairing the damage is often a cause of expensive delay.

prevents the operation of one or several mines. For hunting trouble at night the tool of first importance is a satisfactory flashlight or lantern. It must be fairly light in weight, should have a 10- to 12-hour capacity, and must be capable of throwing a strong beam of light a sufficient distance to clearly illuminate the tops of the highest poles.

A good example of being prepared for such work can be seen in the electric shop of the Island Creek Coal Co., at Holden, W. Va. The electrical department has been provided with two storage-battery type hand-lanterns. H. L. Bradshaw, chief electrician of alternating-current equipment, keeps the lanterns in a special box or cupboard mounted on the wall near his desk. These lanterns are of the rugged type used by city fire departments. They are equipped with 2-cell, nickle-iron storage batteries, and are fitted with leather-strap carrying handles. Mr. Bradshaw states that having these lanterns in a certain place, and always ready for immediate use, greatly reduces delay in making night repairs to outside equipment. The Island Creek company has approximately 10 miles of 6,600-volt lines to maintain. They are used to distribute more than 4,000 kw. of electrical energy.

Car Brake Prevents Man-Trips From Running Wild

In order to stop the man trip should it break away on a slope the safety car brake shown in the accompanying illustration has been devised by F. L. McCarty and Alfred Anderson of Rock Springs, Wyo. This consists essentially of a flat shoe so arranged that when the main cable attached to the man trip is taut this shoe is held up and out of contact with both rail and wheel. However, should the main cable part or become slack the shoe is forced down and under the wheel, effectually stopping the car to which it is attached.

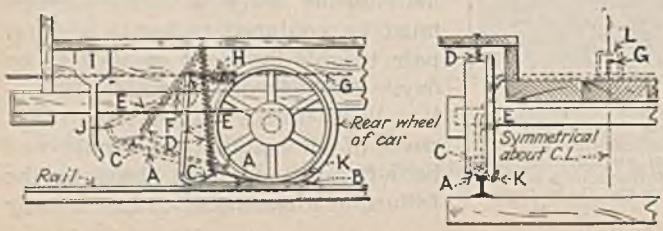
The shoe in the drawing is made of angle iron or some other suitable steel shape. It is fitted on the bottom with a lining *B* made of rubber belting or some similar material and on the top with a block or stop *C*. This may be made of cast iron or a steel strap bent to proper shape. At its rear end this shoe is also provided with a guide *K* to hold it in position.

The rope or cable *G* passes through the car longitudinally and at the end of the trip is attached to the hoist cable. Throughout the length of the car this cable is protected by the guard *L*. At the proper point it is attached to the lever *F*. This in turn is attached to the lever *E* which is pivotally fastened to the shoe at its forward end. The lever *F* is also acted on by the coiled spring *H*. The spring *D* is attached to the stop *C* on the shoe and holds it off the rail.

Where the man trip must traverse steep slopes, a sand box *I* may be employed. Flow of sand from this box to the rail is controlled by the valve *J* which is normally held closed by the end of the shoe. The operation of the device, however, opens this valve and permits sand to flow to the rail thus greatly increasing the friction of the shoe upon it.

When a trip is being hoisted or lowered, the tension on the rope or wire *G*, which is attached to the hoist cable, acting through the levers *F* and *C*, hold the shoe out of contact with both wheel and rail. Should the hoist cable become detached from the trip or break below the point where the wire *G* is attached to it this wire will also break as it is not strong enough to hold the trip. This allows the spring *H* to force the shoe under the wheel which rolls up on it as far as the stop *C*, whereupon the shoe begins to slide along the rail. The excessive friction thus set up promptly stops the car. Should the cable break above the point of attachment of the wire *G* the cable would slacken permitting the same operation as has already been described.

The simplicity of this device is such that it may be built and installed by almost any mine blacksmith or car repairman. The number of cars in a trip that should be fitted with it or the number of wheels to be "automatically spragged" in case of accident will depend upon the weight of the trip and the pitch or steepness of the slope traversed.

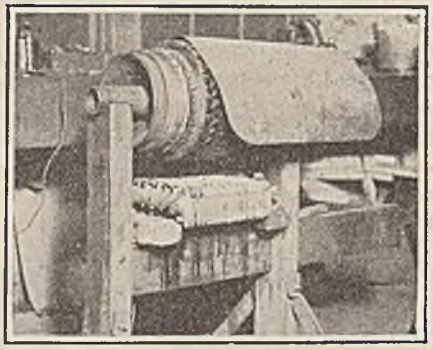


Man-Trip Brake

This trip operates only in case the hoist cable fails.

Ventilation No Problem With This Oven

Although the method of baking armatures to be described is not recommended for regular use, it, like many other makeshifts, is better than none. An old reel-motor resistance is used to supply the heat.



Baking Armature Without an Oven

The sheet metal cover was moved over to show the armature. This method, while naturally being a power waster, does surprisingly well in an emergency.

This is mounted a few inches below the armature and is supported on two firebricks which in turn rest on the wooden tie-piece of the armature repair stand. A piece of sheet iron bent in the form of a half circle is laid over the armature, the sides and top of which being thus confined make good use of the upward current of hot air. As expected the lower part of the armature gets much hotter than the top and therefore it is necessary to turn it every few hours to equalize the heat.

The fact that heating by electricity is, as a rule, a rather expensive luxury, makes it quite evident that this type of "super-ventilated" baking oven, if used to any extent, could be replaced advantageously by an inclosed heat-insulated heater.

Production And the Market

Mild Weather and Keen Competition Cause Further Depression in Soft-Coal Market

Milder temperatures accompanied by a slackening in demand have sharpened competition in the bituminous coal market to such an extent that circular prices are slipping on some grades. Southern Illinois lump, for instance, has dropped 50c., but even this failed to produce any noticeable increase in domestic business. Producers in this field, however, obtained a crumb of comfort in a sign of improvement in the steam situation. Shipments off the Northwest docks are following the weather pretty closely, the volume, which was fair in the first few days of this month, having tapered off as the temperature moderated. Normal midwinter demand is causing coal to move freely at Milwaukee, and dealers are satisfied. Demand at the Twin Cities, on the other hand, has fallen off to such an extent that prices are less firm. Business has softened somewhat in the Southwest, but some operators are still behind with deliveries. On the whole, there is not much change in conditions in the Kentucky fields, gains in some grades being counterbalanced by losses in others. In the West Virginia fields overproduction of high-volatile coals is playing hob with prices, though all grades of smokeless are being quite readily absorbed at good prices.

Competition Plays Havoc in Ohio Market

Competitive conditions in the Ohio markets have brought about a peculiar situation, some producers swamping the market with coal that almost has to be given away, while others take the more conservative course of keeping shipments within reasonable bounds and trying to maintain prices. Lake buyers are beginning to show interest and there is some prospect of railway fuel business being given out.

Unexpected firmness has developed in the New England steam market, prices holding steadier, less surplus tonnage being in evidence and buying sentiment having improved. Little change is noticeable in New York and Philadelphia trade, but recent slight gains are being maintained and the outlook is slightly better, some contracting having been reported, and more is in prospect. Depression still reigns in the Baltimore market and no signs of immediate improvement are in sight. Business is improving steadily in the Birmingham market, the steam situation showing increasing signs of health.

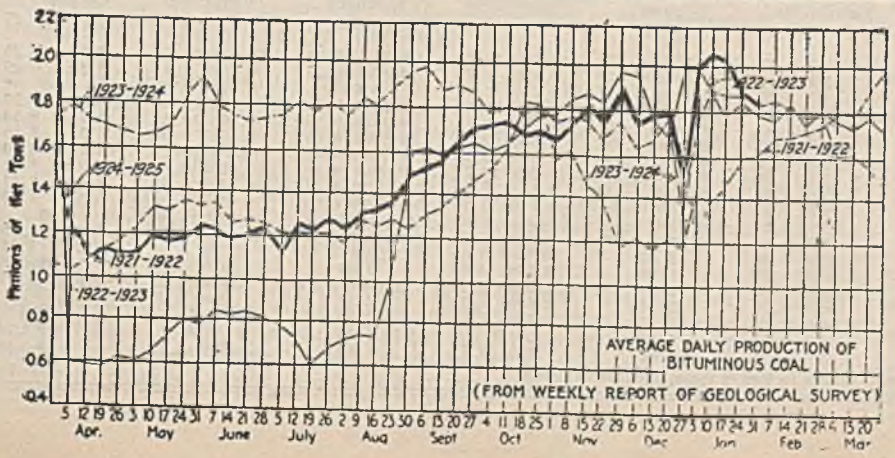
Hard-Coal Market Featureless

Demand for anthracite continues on a fairly even plane, unmarked by anything out of the ordinary, and seems likely to continue so unless severe storms should unsettle transportation. Chestnut is moving better than stove and brings the independents a better price. Egg still falls short of a good demand and pea also is lagging. Steam coals have increased in activity. Dealers are buying only to fill current requirements, expecting consumers to limit purchases to a hand-to-mouth basis during the rest of the winter.

Coal Age Index of spot prices of bituminous coal receded another point in the last week, standing on Feb. 9 at 168, the corresponding price for which is $2.03, compared with 169 and $2.05 respectively on Feb. 2.

Activity at Hampton Roads has varied little during the last three weeks, dumpings of coal for all accounts during the week ended Feb. 5 totaling 391,920 net tons, compared with 390,205 tons in the previous week.

Production of bituminous coal, according to the Geological Survey, declined again during the week ended Jan. 31, when 11,082,000 net tons was produced. This compares with an output of 11,588,000 tons in the previous week, as shown by revised figures. Anthracite production in the week ended Jan. 31 was 1,730,000 net tons, a decline of 10,000 tons from the preceding week.



Estimates of Production

(Net Tons)

	1924	1925
BITUMINOUS		
Jan. 17	11,992,000	12,028,000
Jan. 24 (*a*)	11,951,000	11,588,000
Jan. 31 (*b*)	11,716,000	11,082,000
Daily average	1,953,000	1,847,000
Coal yr. to date (*c*)	474,052,000	394,324,000
Daily av. to date	1,852,000	1,537,000
ANTHRACITE		
Jan. 17	1,884,000	1,803,000
Jan. 24	1,782,000	1,740,000
Jan. 31 (*b*)	1,893,000	1,730,000
Coal yr. to date (*c*)	76,402,000	73,974,000
COKE		
Jan. 24 (*a*)	263,000	265,000
Jan. 31 (*b*)	264,000	251,000
Cal. yr. to date (*c*)	1,163,000	1,171,000

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

Midwest Prices Sink

Weather and competition last week were too much for circular prices on Midwest domestic coal. Southern Illinois lump on Feb. 3 was dropped from $3.75 to $3.25, the biggest cut in a long time and one that came at least a month ahead of schedule. Egg dropped 25c. This was an heroic effort to win business from dealers who have been refusing to pay the high Franklin County prices and from competitors in Kentucky and elsewhere whose prices have been far under those of southern Illinois. But weather was against these reductions. The volume of business for domestic coal has not increased noticeably. There were few reductions in competing coals announced following the big drop in southern Illinois. The southern Illinois independents are still about 25c. under the standard shippers. Retailers caught with stocks of higher priced Franklin County coal are raising a wail, as might be expected.

The steam situation shows some sign of improvement, but that is the only crumb the southern Illinois producers have got out of the price reduction thus far. Southern Illinois 2-in. steam sticks closely to $1.75, and central Illinois, with a short haul to Chicago's great steam market, has climbed from $1.50 to about $1.65. The whole country, however, is full of coal of all sizes on wheels and a prospective slowdown of production is aiding steam coal.

Southern Illinois strip mines continue to work steadily and apparently are finding a ready market for their tonnage, and the independent mines with their lower prices seem to have a better market than the association mines. The independents are now down to $2.75 for egg and $3 for lump, with nut at $2.50. Mines are getting from two to four days a week, depending on contracts and rail coal.

There has been some idleness in the Herrin district but it has not seriously affected production. In the Duquoin field three days a week is good working time with one exceptional mine getting five and six. Prices here are equal to the independents in the Carterville field. All sizes remain in this field on track unbilled nightly. There has been a let-up in the domestic demand in the Mt. Olive field. Steam sizes are plentiful outside of screenings. Railroad tonnage continues good. Mines work three days a week.

In the Standard field conditions are unusually bad for this season. Screenings are down to $1.25 and 2-in. lump to $2.20, with 6-in. lump at about $2.50. Strip mines there are getting business with lower prices. Overproduction has caused all operators to sell coal at cost or below recently, and there is no encouragement held out to operators in this field. Railroad tonnage is light. Mines get from one to three days a week with the usual exceptions.

St. Louis domestic business is fairly good. This, however, is principally for cheaper grades and smaller quantities. Anthracite, smokeless and coke are slow. Country domestic

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

Low-Volatile, Eastern	Market Quoted	Feb. 11 1924	Jan. 26 1925	Feb. 2 1925	Feb. 9 1925†
Smokeless lump	Columbus	$3.60	$3.85	$3.85	$3.75@$4.00
Smokeless mine run	Columbus	2.10	1.90	1.90	1.75@ 2.10
Smokeless screenings	Columbus	1.50	1.20	1.20	1.10@ 1.30
Smokeless lump	Chicago	3.60	4.00	3.60	*3.60*
Smokeless mine run	Chicago	2.50	2.00	1.60	*1.50*
Smokeless lump	Cincinnati	3.60	4.10	4.00	*3.75@ 4.00*
Smokeless mine run	Cincinnati	2.60	2.00	2.00	2.00
Smokeless screenings	Cincinnati	2.10	1.10	1.10	**1.00@ 1.50**
*Smokeless mine run	Boston	4.80	4.45	4.25	**4.40@ 4.50**
Clearfield mine run	Boston	2.05	1.95	1.95	1.75@ 2.20
Cambria mine run	Boston	2.50	2.30	2.30	2.10@ 2.50
Somerset mine run	Boston	2.25	2.10	2.10	1.90@ 2.35
Pool 1 (Navy Standard)	New York	3.00	2.75	2.75	2.50@ 3.00
Pool 1 (Navy Standard)	Philadelphia	3.00	2.80	2.80	2.65@ 3.00
Pool 1 (Navy Standard)	Baltimore		2.25	2.25	2.10@ 2.40
Pool 9 (Super. Low Vol.)	New York	2.25	2.15	2.10	2.00@ 2.25
Pool 9 (Super. Low Vol.)	Philadelphia	2.30	2.20	2.20	2.05@ 2.40
Pool 9 (Super. Low Vol.)	Baltimore	1.90	1.85	1.85	1.75@ 2.00
Pool 10 (H.Gr.Low Vol.)	New York	1.95	1.85	1.85	1.75@ 2.00
Pool 10 (H.Gr.Low Vol.)	Philadelphia	1.85	1.85	1.85	1.70@ 2.00
Pool 10 (H.Gr.Low Vol.)	Baltimore	1.80	1.70	1.70	1.65@ 1.75
Pool 11 (Low Vol.)	New York	1.60	1.60	1.60	1.50@ 1.75
Pool 11 (Low Vol.)	Philadelphia	1.65	1.65	1.65	1.60@ 1.70
Pool 11 (Low Vol.)	Baltimore	1.60	1.50	1.50	1.45@ 1.60
High-Volatile, Eastern					
Pool 54-64 (Gas and St.)	New York	1.60	1.50	1.50	1.40@ 1.65
Pool 54-64 (Gas and St.)	Philadelphia	1.70	1.50	1.50	1.45@ 1.60
Pool 54-64 (Gas and St.)	Baltimore	1.50	1.65	1.65	1.60@ 1.75
Pittsburgh scr'd gas	Pittsburgh	2.55	2.35	2.50	2.40@ 2.60
Pittsburgh gas mine run	Pittsburgh	2.30	2.10	2.25	2.15@ 2.35
Pittsburgh mine run (St.)	Pittsburgh	2.00	1.95	1.95	1.90@ 2.00
Pittsburgh slack (Gas)	Pittsburgh	1.55	1.50	1.45	1.40@ 1.50
Kanawha lump	Columbus	2.60	2.50	2.50	2.25@ 2.75
Kanawha mine run	Columbus	1.60	1.60	1.60	1.50@ 1.70
Kanawha screenings	Columbus	1.05	.75	.65	.60@ .75
W. Va. lump	Cincinnati	3.10	2.15	2.15	*1.50@ 2.50*
W. Va. gas mine run	Cincinnati	2.10	1.30	1.40	*1.25@ 1.50*
W. Va. steam mine run	Cincinnati	2.10	1.30	1.30	*1.00@ 1.50*
W. Va. screenings	Cincinnati	1.25	.80	.80	*.50@ 1.00*
Hocking lump	Columbus	2.75	2.50	2.50	2.35@ 2.65
Hocking mine run	Columbus	1.85	1.60	1.60	1.50@ 1.75
Hocking screenings	Columbus	1.05	1.10	1.10	1.05@ 1.20
Pitts. No. 8 lump	Cleveland	2.40	2.30	2.30	1.90@ 2.75
Pitts. No. 8 mine run	Cleveland	1.80	1.85	1.85	1.80@ 1.90
Pitts. No. 8 screenings	Cleveland	1.45	1.35	1.30	1.25@ 1.40

Midwest	Market Quoted	Feb. 11 1924	Jan. 26 1925	Feb. 2 1925	Feb. 9 1925†
Franklin, Ill. lump	Chicago	$3.50	$3.60	$3.35	*$3.00@$3.25*
Franklin, Ill. mine run	Chicago	2.35	2.35	2.35	2.25@ 2.50
Franklin, Ill. screenings	Chicago	1.80	1.85	1.60	1.50@ 1.75
Central, Ill. lump	Chicago	3.10	3.00	2.85	2.75@ 3.00
Central, Ill. mine run	Chicago	2.10	2.20	2.20	2.15@ 2.25
Central, Ill. screenings	Chicago	1.35	1.45	1.30	**1.50@ 1.65**
Ind. 4th Vein lump	Chicago	3.10	3.10	3.05	*2.75@ 3.00*
Ind. 4th Vein mine run	Chicago	2.60	2.35	2.35	2.25@ 2.50
Ind. 4th Vein screenings	Chicago	1.70	1.55	1.45	1.40@ 1.50
Ind. 5th Vein lump	Chicago	2.60	2.60	2.60	2.50@ 2.75
Ind. 5th Vein mine run	Chicago	2.10	2.10	2.10	2.00@ 2.25
Ind. 5th Vein screenings	Chicago	1.45	1.40	1.30	1.25@ 1.40
Mt. Olive lump	St. Louis	3.10	3.00	2.85	2.75@ 3.00
Mt. Olive mine run	St. Louis	2.50	2.35	2.35	2.25@ 2.50
Mt. Olive screenings	St. Louis	1.50	1.80	1.60	1.50@ 1.75
Standard lump	St. Louis	2.75	2.45	2.35	2.25@ 2.50
Standard mine run	St. Louis	1.95	1.95	1.95	1.90@ 2.00
Standard screenings	St. Louis	.75	1.15	1.05	**1.00@ 1.25**
West Ky. block‡	Louisville	2.85	2.55	2.55	2.40@ 2.75
West Ky. mine run	Louisville	1.70	1.55	1.35	1.25@ 1.50
West Ky. screenings	Louisville	1.05	1.10	1.00	**1.00@ 1.15**
West Ky. block‡	Chicago	2.85	2.40	2.35	2.25@ 2.50
West Ky. mine run	Chicago	1.60	1.50	1.35	1.25@ 1.50
South and Southwest					
Big Seam lump	Birmingham	3.85	2.85	2.85	2.50@ 3.25
Big Seam mine run	Birmingham	1.75	1.75	1.75	1.50@ 2.00
Big Seam (washed)	Birmingham	2.10	1.75	1.75	**1.75@ 2.00**
S. E. Ky. block‡	Chicago	3.35	2.60	2.60	**2.50@ 3.00**
S. E. Ky. mine run	Chicago	2.00	1.50	1.50	1.25@ 1.75
S. E. Ky. block‡	Louisville	3.25	2.75	2.60	2.25@ 3.00
S. E. Ky. mine run	Louisville	1.80	1.35	1.35	1.25@ 1.50
S. E. Ky. screenings	Louisville	1.35	.85	.85	*.60@ 1.10*
S. E. Ky. block‡	Cincinnati	3.15	2.75	2.60	2.25@ 3.00
S. E. Ky. mine run	Cincinnati	2.05	1.40	1.40	*1.00@ 1.60*
S. E. Ky. screenings	Cincinnati	1.25	.90	.90	*.50@ 1.10*
Kansas lump	Kansas City	5.00	4.85	4.85	4.75@ 5.00
Kansas mine run	Kansas City	3.50	3.35	3.25	**3.25@ 3.50**
Kansas screenings	Kansas City	2.25	2.50	2.50	2.50

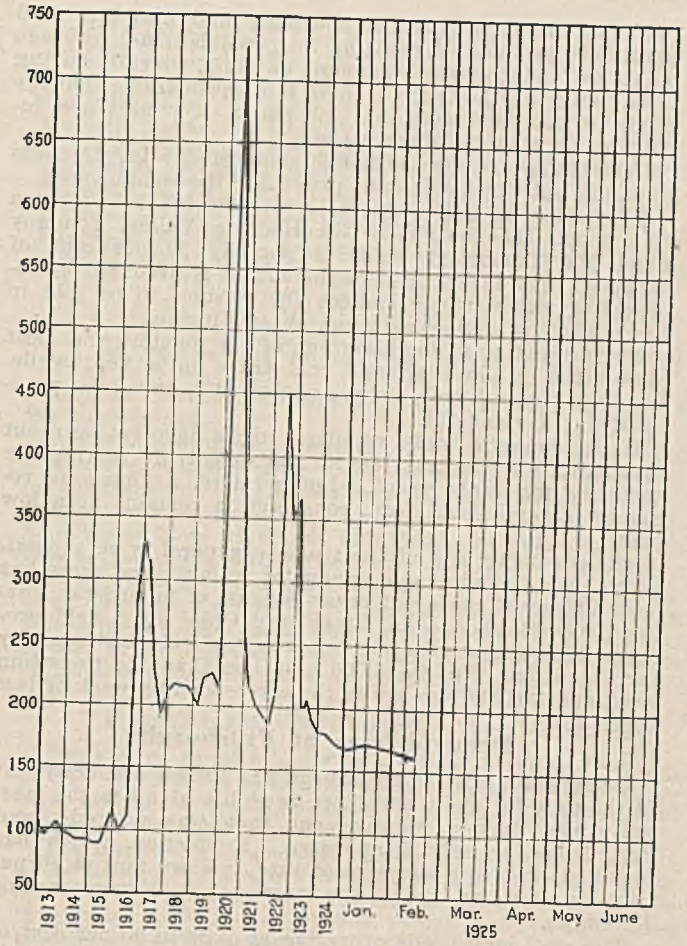
*Gross tons, f.o.b. vessel, Hampton Roads. † Advances over previous week shown in heavy type; declines in *italics*.

‡ The term block is used instead of lump in order to conform to local practice, but the same coal is being quoted as heretofore.

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

	Market Quoted	Freight Rates	Feb. 11, 1924 Independent	Feb. 11, 1924 Company	Feb. 2, 1925 Independent	Feb. 2, 1925 Company	Feb. 9, 1925† Independent	Feb. 9, 1925† Company
Broken	New York	$2.34	$8.00@$8.50	$8.00@$9.25		$8.00@$9.25		$8.00@$9.25
Broken	Philadelphia	2.39				9.15		9.15
Egg	New York	2.34	8.25@ 9.00	8.75@ 9.25	$8.50@$9.25	8.75@ 9.25	$8.50@$9.25	8.75@ 9.25
Egg	Philadelphia	2.39	8.50@10.00	8.75@ 9.25	9.45@ 9.75	8.80@ 9.25	9.45@ 9.75	8.80@ 9.25
Egg	Chicago*	5.06	7.50@ 8.00	8.00@ 8.35	8.17@ 8.40	8.08	8.17@ 8.40	8.08
Stove	New York	2.34	9.50@10.25	8.75@ 9.25	9.50@10.00	9.00@ 9.50	9.50@10.00	9.00@ 9.50
Stove	Philadelphia	2.39	9.85@11.00	8.90@ 9.25	10.10@10.75	9.15@ 9.50	10.10@10.75	9.15@ 9.50
Stove	Chicago*	5.06	7.95@ 9.25	8.00@ 8.35	8.80@ 9.00	8.53@ 8.65	8.80@ 9.00	8.53@ 8.65
Chestnut	New York	2.34	9.50@10.25	8.75@ 9.25	9.75@10.50	8.75@ 9.40	*9.75@10.25*	8.75@ 9.40
Chestnut	Philadelphia	2.39	9.85@11.50	8.90@ 9.25	10.00@10.75	9.25@ 9.40	10.00@10.75	9.25@ 9.40
Chestnut	Chicago*	5.06	7.95@ 9.25	8.00@ 8.35	8.61@ 9.00	8.40@ 8.41	8.61@ 9.00	8.40@ 8.41
Pea	New York	2.22	4.75@ 6.25	6.15@ 6.65	4.75@ 5.50	5.50@ 6.00	4.75@ 5.50	5.50@ 6.00
Pea	Philadelphia	2.14	5.25@ 7.25	6.35@ 6.60	5.75@ 6.00	6.00	5.75@ 6.00	6.00
Pea	Chicago*	4.79	4.50@ 5.60	5.40@ 6.05	5.36@ 5.75	5.36@ 5.95	5.36@ 5.75	5.36@ 5.95
Buckwheat No. 1	New York	2.22	2.25@ 3.50	3.50	2.35@ 3.00	3.00@ 3.15	*2.85@ 3.00*	3.00@ 3.15
Buckwheat No. 1	Philadelphia	2.14	2.00@ 3.50	3.50	2.50@ 3.00	3.00	2.50@ 3.00	3.00
Rice	New York	2.22	2.00@ 2.50	2.50	2.00@ 2.25	2.00@ 2.25	2.00@ 2.25	2.00@ 2.25
Rice	Philadelphia	2.14	1.50@ 2.50	2.50	2.00@ 2.25	2.25	2.00@ 2.25	2.25
Barley	New York	2.22	1.50@ 1.75	1.50	1.40@ 1.65	1.50	1.40@ 1.65	1.50
Barley	Philadelphia	2.14	1.00@ 1.50	1.50	1.50	1.50	1.50	1.50
Birdseye	New York	2.22		1.60	1.60@ 1.75	1.60	**1.65@ 1.75**	1.60

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



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

	1925			1924
	Feb. 9	Feb. 2	Jan. 26	Feb. 11
Index	168	169	173	188
Weighted average price	$2.03	$2.05	$2.09	$2.27

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

is fairly good for medium coals only. Much resentment still continues here against southern Illinois operators, even in the face of the reduction. Wagonload steam is fairly good and carload is slow and hard to find. Country steam is quiet. There has been no change in prices.

Kentucky Business Is Slow

There has been a slightly better demand at Louisville over the week for large prepared coal but small prepared sizes drag. Mine run has been slow and screenings have been very weak in the eastern Kentucky field, but a shade stronger in western Kentucky. Distress screenings have been offered at very low prices in some instances, but the steam market is a shade stronger. Eastern Kentucky screenings are as low as 60c. on cheap grade, but going as high as $1.10 for prime gas screenings.

There is a fair demand for prepared coal that is rolling, but railroad deliveries are a trifle slow, and retailers want at once what little they buy. Mean weather over the week resulted in fairly good consumption, but warm temperatures and heavy rains came at the week end.

While there may be some short periods of advanced prices in prime block coal it is hard to see how there can be any sustained high market in view of production and offerings and the fact that production is too big for the market.

The coal industry in both northern and southern West Virginia so far as high volatile coal is concerned is still handicapped by overproduction, resulting in ruinously low prices. Although operators admit that the large quantity moving to market is demoralizing prices and conditions in general, no steps are being taken to curtail output, each producer waiting for the other to take such a step.

Smokeless coal is being much more readily absorbed as to all grades. There is a sufficiently strong demand for lump, for instance, to keep that grade around $4 a ton and egg commands anywhere from $3.75 to $4 a ton. Mine run is not in quite as strong a position as it was for a time, but most producers are asking and obtaining $2 a ton for that grade. Slack is rather weak in price, nut and slack bringing $1.25 a ton and slack alone about $1 a ton.

Inasmuch as less demand has developed in the Upper Potomac and western Maryland regions, production has declined slightly in those regions, although Upper Potomac mines continue to ship about 42,000 tons a week.

Mines in the Virginia district continue to increase output, owing to the heavy tonnage under contract supplemented by a little better spot demand. Production is now well above 80 per cent of potential capacity. "No market" losses have been materially reduced and in some sections are not affecting production more than 10 per cent.

Northwest Trade Follows Weather

Shipments from Duluth docks in January totaled 27,693 cars compared with 29,615 in December and 25,984 in January of last year. So far this month the docks have had fair shipments, but within the past two days they have been lower than last month because of the spell of mild weather. The shipments follow the weather closely, and as soon as a mild spell comes along everyone stops buying.

Better shipments are being made to industrials. The increasing diversity of the consumers makes the market more stable, and is considered a good sign by all dock men. More and more coal is going to the Twin Cities, especially buckwheat for commercial heating, and it looks as if the docks had regained their trade there.

Every dock man interviewed said that the docks were sure of cleaning up bituminous stocks this year. Anthracite, too, is going fast, and it is possible that there will be little left. Four docks are now bringing in Pocahontas all-rail for their trade. The dock price is now firm at $9.50.

Coal is moving from the Milwaukee docks and yards quite freely to supply a normal midwinter demand. The weather for a week past has been freaky—extremely cold in some sections of the Northwest and comparatively mild in other sections; and in the vicinity of Milwaukee the weather bureau's predicted cold waves have not been appearing as advertised. Coal dealers, however, seem satisfied. On Feb. 1 coke was advanced 50c. a ton in the Milwaukee market. The delivery price now is $13.40 for the larger sizes, and $10 for pea.

The weather at Minneapolis recently moderated, leaving a much reduced demand for fuel in that territory, and prices have softened materially. This probably will continue only as long as the thaw lasts, but while it is on it leaves the market rather upset. Buying has been spasmodic for some time, and is quiet just now. The proposed changes in freight rates also have a tendency to upset things. During the past week the price on southern Illinois lump was reduced from $3.50 to $3.25, while central Illinois has been easier, and selling at $2.75, and Kentucky at $2.50. Dock prices remain as before, with Youghiogheny $5.75 and Hocking $5.25.

Screenings demand has been a little better during the mild weather, but supply is heavy. Considerable distress coal has been wildly seeking an outlet during the past week. The demand upon the docks of late has been reduced, both from a lessened interior demand and because retailers stocked during the cold weather.

Western Trade Still Brisk

There has been little change in conditions in the Southwest since a week ago. The market has softened a little under the influence of a moderating temperature, but some operators still are as much as ten days behind with deliveries of Kansas lump and nut. The screenings demand is just about equal to production. A few operators are two or three days slow with deliveries, but most are taking care of orders as they are received. The situation in Oklahoma is about the same as in Kansas. There is little demand for Arkansas lump, with screenings still scarce at $2.

In the market territory reached by Colorado coal a slight change in the weather conditions has stimulated the de-

mand, particularly on lump coal, and as a result operators are unable to fill the requirements for immediate delivery. Consequently orders are taken only for future delivery. The orders for pea, nut and slack coal appear rather sluggish.

The mines, however, are running approximately 80 per cent of full time with no transportation interruptions and a surplus of labor. The present mine quotations are: Walsen-Canon City lump, $5.25; nut, $4.25; slack, $1.75@$2.25; washed pea, $3.50; Trinidad Segundo lump coke, $7.50; nut coke, $6; Crested Butte anthracite No. 3 and No. 5, $9; No. 6 chestnut, $5.75.

In Utah the coal market is very soft, chiefly due to weather conditions and the approach of spring. Operators say they cannot cut present prices any further whether they do any business or not. Many of the operators are storing slack, while the mine-owned yards are storing both nut and slack.

Cincinnati Market Has a Bright Gleam

About the only ray of sunshine in the drab situation at Cincinnati this week is a slight awakening of interest by lake buyers and prospects of some railway fuel business being let. The lake interests came with talk of extremely low prices, but operators and jobbers refuse to take any old price for coal that may cost more to get out later.

Some producers continue to pile coal on the market that is literally given away. It is only a question how long some of them can stand up under the strain, for it is commonly heard that distress mine-run has sold down to 60c. a ton, slack at 25c. and some lump at $1.40. On the other hand many sales offices put up a bold front, asking the set prices between $2.25@$3 for lump and block on down to 75c.@$1 for screenings.

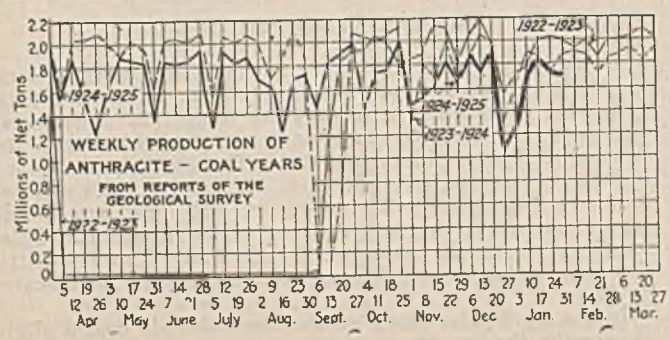
In the smokeless market conditions are much better, even though in the paring off of demand there has been a slight dip under the circular of $4 for lump and egg and $2 for run of mine. To balance this the quotation on screenings has been advanced, some of the companies asking as high as $1.50 for February deliveries.

Retail business is slowing off, as the householder is "piecing out" on his winter supplies. There has been no change in prices. River business has increased perceptibly in volume with better weather and less ice coming down.

Market conditions in Columbus have changed but little in the last few weeks. Despite some zero weather weakness in all grades is reported and there is little hope for immediate improvement. Buying is limited to present needs as a rule and stocks are about normal for the time of the year. The expected spurt following the holidays has failed to materialize although some producers and distributors profess to see signs for improvement in February.

Retail trade is the best feature although there is no great activity in any location. Retailers have only fair stocks, but are purchasing carefully. Dealers have been able to buy a considerable tonnage on the open market, often at reduced prices, and as a result they are not worrying. Many purchased coal earlier in the season which is now coming in and this takes care of present requirements. Retail prices are rather steady at the levels which have prevailed for several weeks. Pocahontas lump and egg are quoted at $8@$8.50 delivered while splints are selling around $7.25@$7.75. Considerable Kentucky block is coming into the market. Ohio mined grades are still dull and not a great movement is reported.

Steam business is quiet in the extreme, buying being limited to present requirements, as reserves are pretty good. Utilities and railroads, which have been the best buyers, are taking about the usual tonnage. General manufacturing lines are buying rather sparingly and iron and steel plants are gradually increasing their requisitions. Storage plants are reducing their amounts on hand, which is having a bad effect on the trade. There is a considerable tonnage of demurrage coal available and many consumers are depending on this for their needs.



Contracting is quiet, although some of the larger users have put out "feelers" as to prices for the coming year.

Production is still reduced, especially in the southern Ohio field. The output in the Hocking Valley, Pomeroy Bend and Cambridge fields is scarcely 20 per cent of capacity. The larger part of the output is produced by cooperative mines, which enables the product to be sold in competition with the coal from West Virginia.

The present week has been one of the quietest and most uneventful in the Cleveland coal trade in a long while. Inquiries for coal, both steam and domestic, have been practically at a standstill.

In the domestic trade, retailers' stocks have not been cut into materially, at least not to the extent of creating the necessity for replacement. Furthermore, as business recovery is very slow, steam consumption remains at a low point.

The producing end of the trade in general is very pessimistic over the minimum amount of activity, and there has been additional closing of mines because of no orders. During the week ended Jan. 31 eastern Ohio No. 8 field produced 269,000 tons or about 38 per cent of potential capacity for the week. This is 18,000 tons less than the preceding week and 126,000 tons under the corresponding week of last year.

Demand Sags at Pittsburgh

Demand for coal at Pittsburgh has grown distinctly less in the past fortnight and there is no life at all in the market. The decided improvement that was noticed about Jan. 1 has entirely disappeared. Production, which had mounted close to a 50 per cent rate, is down now to 40 per cent or less, or about the average of November and December.

The steel industry is operating at close to 90 per cent of capacity, the highest rate since last April, but it is likely the rate will soon begin decreasing.

Prices in general are not quotably changed, but there are cases of regular prices being shaded, also occasional lots of coal selling at a sacrifice. Slack is holding quite steady after its recent decline, but the steadiness is attributed to light production, there being so little demand for lump.

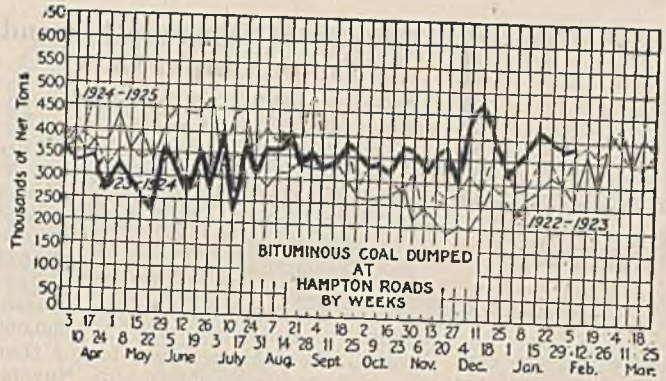
At Buffalo the heavy snow has not helped the bituminous trade and does not promise to, unless the mines are shut off more than they are yet. West Virginia mines are offering coal down at low prices in an apparent determination to take the lead in this market as fast as possible, and every week there are reports of new inroads on the Pennsylvania product. Prices remain dull at former figures.

New England Sees Unexpected Upturn

The steam-coal situation in New England is rather more firm than was expected a week ago. Both at the loading ports and at this end prices are more evenly maintained, there is less surplus tonnage pressing for disposal, and there is perhaps a better buying attitude than has been in evidence for several months. The signs of weakness have gradually faded, except in the case of less desirable grades, and the few instances of lower quotations were either to move accumulations or were options that had been left out when the outlook was anything but favorable. In any case it develops that they were not typical.

The volume of high-grade coal at and en route to Hampton Roads has now been diminished to within reasonable limits, and among the agencies there seems a spirit of coordination that has not been in evidence in the past few months. For No. 1 coal the price of both Pocahontas and New River seems pegged at $4.50 per gross ton f.o.b. vessel, and apparently there is now a more determined attitude of "Take it or leave it." A fair amount is being received in this market, both spot and on contract, and several factors are participating in steamer cargoes in order to get the advantage of more favorable freight rates. The latter are now on the basis of 80@85c., and even 90c., Hampton Roads to Boston and Portland.

For inland delivery also spot quotations are reasonably firm. One or two rehandlers are adhering for the present to a $5.75 price, but most have advanced to $6. This allows



a slightly increased margin over what became the rule a few months ago.

In the all-rail market there is practically no change. Spot prices are still dragging along on minimum figures, and except for a few specialties, most of the grades, both high and low volatile, have had no increase in business. If Pocahontas and New River are held firmly in excess of $6 on cars at points like Providence and Boston there will in time develop an improved demand for the more favorably known Cambrias and Somersets. The blocking snowstorm of a fortnight ago held up all-rail receipts to such extent that certain of the railroads were obliged to buy extra tonnages of tidewater coal to see them over the emergency.

Recent Gains Maintained at New York

There is no great activity in the bituminous coal market at New York but it is as brisk as last week. While a good-sized tonnage is moving it consists mostly of contract and standing-order coal.

The reported improvement in general business in nearly all sections of the country has not yet been reflected in the soft-coal market here. Consumers do not show any desire to increase their reserves or even to put in a few extra cars unless they strike a bargain.

Additional contracts are being closed and it is reported that some consumers are negotiating prices extending over a two or three points period instead of the usual month for standing orders.

The market for tidewater coal is quiet. Shipments are moving without delay and there is no difficulty in disposing of the free coal. Shippers continue to use care in ordering coal to the piers.

The industrial outlook at Philadelphia is slowly improving, which portends well for the soft coal trade. Buying of the better grades of soft coal continues at a good rate, although it is difficult to convince the average producer that business is actually good.

There have been no general price changes during the week and purchases are no longer tempered with the hesitancy caused by a possibility of a fall in price.

This market seems to be consuming a larger tonnage of the lumpier low-volatile fuels for heating large buildings than ever before. Gas slack still remains an actively sought article, as users are storing as much as they can get hold of in order to be ready for the spring business. There is little of notable mention at tide, bunkering being the only activity and not a heavy volume of this recently.

At Baltimore demand is extremely light in all branches of the coal business and prices continue on the low level of several weeks past. A survey of the local field is such that there is not much hope of betterment in the immediate future. While coal exports from Baltimore during last month were the smallest of any like period since January, 1923, hope prevails among those engaged in this commerce that "a bad beginning will make a good ending."

Fairly seasonable weather at Birmingham several weeks past has produced a well sustained run of orders for retail coal dealers, and is now being reflected in a measure in better business in the wholesale trade. While the market for domestic sizes is not to say active, sales have improved some and the movement against contracts is somewhat better. Dealers are ordering only in quantities as necessity seems to justify to maintain a reasonable reserve.

Steam seems to be taking steady strides toward a healthy position. Expansion in industrial requirements is reported, the movement of both spot and contract fuel showing steady betterment, and the feeling is general that the district is set for a substantial general trade revival. Railroads are busy and are using more coal now than for quite a while. Some consumers who have depended on spot supply for a long time are reported to have made contracts recently, though contracting is not general as yet. Shipping at Gulf ports is more active than at any recent date and bunker coal is moving in larger quantities and finding a steadier and more satisfactory market.

Quotations on steam coal are strengthening and higher prices are in prospect if market activity continues and there is a growth in requirements as indicated at present.

The coke market is strong for the foundry product at quotations of $5@$5.50 ovens, while furnace coke is needed in greater quantities than before in the past year, and washed coal is being converted into coke on an extensive scale.

Anthracite Demand Is Fair

Hard coal demand at New York remains comparatively quiet and dealers do not look for anything out of the ordinary unless heavy storms should tie up transportation. So far this winter dealers have had no trouble in taking care of all demands notwithstanding the heavy ice in the rivers for several days. Hand-to-mouth buying is expected from now until April 1.

Dealers have been buying in fair volume but are not putting away more than their requirements. Consumers are placing small refill orders. The steam sizes are more active, some shippers having no rice or barley to offer. Chestnut coal is moving better than stove and the independents are getting more money for the smaller size. Egg is not in good demand and with pea coal is lagging.

Philadelphia retailers are receiving as much business as they can handle, although with less severe weather this week there was a noticeable falling off in new business. Profits have been cut, however, by added delivery costs and extra expense caused by coal badly frozen in the cars on arrival.

Nut is in active demand, with company shippers still far behind on orders for this size. Stove also is in good demand generally, although no shipper seems to have any difficulty in filling orders for it. Egg and pea have gained a little strength, but dealers are slow about ordering anything but most meager lots of these two sizes.

A somewhat definite rumor is to the fore that several companies will try out making a mixture of nut and pea coal, putting it on the market April 1. So far the dealers are not very enthusiastic about the "special nut" introduced by one of the large producing companies about six weeks ago.

Steam coals are quiet, although they have enjoyed a better demand of late.

Although milder weather prevails in Baltimore, as compared with the almost steady cold wave during January, dealers in hard coal report a fair line of sales. This is due to the fact that a great many consumers who ordinarily take in full year supplies bought only enough coal in the fall and early winter to care for part of their needs. The effect of this on the dealer was that while he lost some interest due to delay in paying in full for an entire winter, he gained on the other hand a more even distribution of deliveries over the season.

The Buffalo anthracite trade is active. Zero weather has increased consumption and set consumers to buying. There also is a big demand for coke, especially in chestnut and stove sizes. Consumers who fail to get anthracite in these sizes will generally accept coke instead and in this way will get into the regular use of it.

Coke Market Improves Further

The Connellsville spot furnace coke market has further recovered from its recent slump, being now quotable at $3.85@$4. It is quite likely, however, that within the past week there have been some sales at $3.75. The recovery probably would have been more rapid were it not that demand is light since furnaces picked up bargains recently. Spot foundry coke remains quotable at $4.75@$5.25 but is not over-firm at that range.

The general tone of the coke market is poor. Furnaces are in no mood to pay prices operators would like to obtain and think they are justified in asking, considering costs. Furnacemen insist that the wage advance of Dec. 16 was all wrong, that the operators acted precipitately in making it, and that if any advance at all was required a moderate one, say half-way, would have been quite sufficient.

Foreign Market And Export News

Depression Hits British Coal Market; Production Gains Slightly

Exports from Welsh ports are decreasing and stocks are increasing, with the result that the situation compares unfavorably with the position at this time last year. Few operators have sufficient orders to insure full working beyond ten days. Most of the pits are working irregularly as a result and several pits are still unable to clear and are held up. Exporters are reluctant to cover requirements in advance. In some cases buyers are obtaining concessions for prompt clearance, but the operators are in the main able to hold their prices.

A joint committee of eight operators and eight tippers and trimmers are to meet at the end of January to consider the question of introducing a third shift, a step the employees have so far refused to permit.

The Newcastle market is uninteresting and business all round is very quiet. Prices are steady and the contracts received insure only a moderate volume of trade. Bordeaux gas works is inquiring for 10,500 tons of Durham gas coals for March shipment.

Production by British collieries in the week ended Jan. 24, a cable to *Coal Age* states, was 5,427,000 tons, according to official reports. This compares with an output of 5,409,000 tons in the preceding week.

Total exports of coal from the United Kingdom during 1924 amounted to about 61,651,000 gross tons, as compared with 79,450,000 in the preceding year and 73,400,000 tons in 1913. The decrease is due to the increased production in the Ruhr district. While exports to certain Continental countries, such as France, Italy, Germany, and Belgium, were smaller in 1924, shipments increased to Norway, Sweden, Denmark, Spain and Argentina.

Hampton Roads Market Firmer; Outlook Improves

The market at Hampton Roads was stronger last week, due more to an effort to push prices up than to any actual increase in demand, according to shippers. Inquiries were fairly brisk and the piers were operating on a more normal schedule.

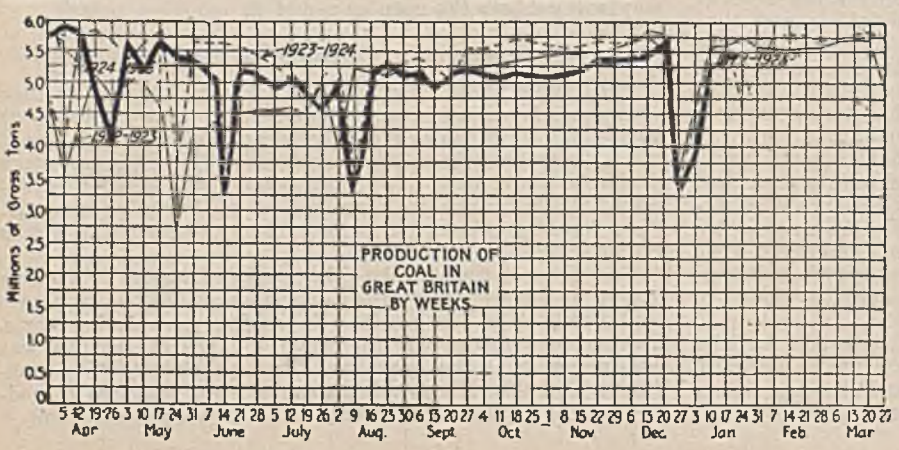
Business in the West was reported better, though New England, bunker and foreign trade was reported as only fair. Considerable accumulations were reported at the piers, but the movement was preventing any undue surplus.

The tone of the market was firmer and indications on every hand pointed to an early increase in trade.

The Board of Education of Toronto, Ont., announces that it may discontinue the use of oil for fuel in the city schools. It has been found that oil is costlier than coal and is going up. Oil at present is used in about ten of these schools.

While the output of coal from Canadian mines in November last increased 16 per cent over the production for the preceding month, the tonnage remained much below the average for the past five years. The figures were 1,545,751 for November, which was 97,518 tons less than the average November output during the past five years. Importation of coal from Great Britain and the United States totaled 1,452,208 tons a decrease of 20 per cent, as compared with October, and 25 per cent lower than the five-year average importation in November. The coal mines of Canada employed in November 28,904 men.

Steam coal mines in the mountain regions of Alberta are all working at present, although not at full speed. It is not expected that railway contracts will be given until well into the current year. There are still many unemployed miners in the Mountain Park district though the worst of the distress has been alleviated.



Utility Fuel Consumption and Power Output Gain

Electric public utility plants consumed 3,603,409 net tons of coal in December, 1924, according to a report by the Geological Survey, compared with 3,293,363 tons in November, as shown by revised figures. Fuel oil consumed by utility plants in December totaled 1,352,023 barrels as against 1,139,679 barrels in November.

The average daily production of electricity in December was 177,600,000 kw.-hr., about 5½ per cent larger than the average daily output for November, 1924, and 11.6 greater than the average daily output for December, 1923. The output of electricity by public-utility power plants in December, 1924, was by a considerable margin the largest ever produced in any previous month. The total production of electricity by the plants in 1924 was 6 per cent larger than in 1923.

Export Clearances, Week Ended Feb. 5, 1925

	Tons
For Brazil:	
Br. Str. Neatsfield, for Santos	5,955
Br. Str. Wimborne, for Rio de Janeiro	7,454
Braz. Str. for Para	5,523
For Cuba:	
Nor. Str. Recto, for Cienfuegos	1,460
Br. Str. Onega, for Havana	.....
For French West Indies:	
Nor. Str. Lorentz D. Hanson, for Fort de France	2,274

Hampton Roads Pier Situation

N. & W. Piers, Lamberts Pt.	Jan. 29	Feb. 5
Cars on hand	1,723	2,302
Tons on hand	117,201	152,559
Tons dumped for week	149,463	133,060
Tonnage waiting	10,000	5,000
Virginian Piers, Sewalls Pt.:		
Cars on hand	1,215	1,576
Tons on hand	84,150	111,500
Tons dumped for week	100,442	103,871
Tonnage waiting	21,492	18,485
C. & O. Piers, Newport News:		
Cars on hand	1,771	1,918
Tons on hand	85,845	93,894
Tons dumped for week	98,493	112,998
Tonnage waiting	9,475	5,875

Pier and Bunker Prices, Gross Tons

	Jan. 31	Feb. 7†
PIERS		
Pool 9, New York	$4.75@$5.00	$4.75@$5.00
Pool 10, New York	4.50@ 4.65	4.50@ 4.65
Pool 11, New York	4.35@ 4.55	4.35@ 4.55
Pool 9, Philadelphia	4.90@ 5.25	4.90@ 5.25
Pool 10, Philadelphia	4.45@ 4.70	4.45@ 4.70
Pool 11, Philadelphia	4.30@ 4.50	4.30@ 4.50
Pool 1, Hamp. Roads	4.20	**4.35@ 4.50**
Pool 2, Hamp. Roads	4.10	**4.15**
Pools 5-6-7 Hamp. Rds.	4.00	4.00
BUNKERS		
Pool 9, New York	$5.00@$5.25	$5.00@$5.25
Pool 10, New York	4.75@ 4.90	4.75@ 4.90
Pool 11, New York	4.60@ 4.80	4.60@ 4.80
Pool 9, Philadelphia	4.90@ 5.25	4.90@ 5.25
Pool 10, Philadelphia	4.75@ 4.95	4.75@ 4.95
Pool 11, Philadelphia	4.50@ 4.70	4.50@ 4.70
Pool 1, Hamp. Roads	4.30	**4.35@ 4.50**
Pool 2, Hamp. Roads	4.15	**4.25**
Pools 5-6-7 Hamp. Rds.	4.10	4.10

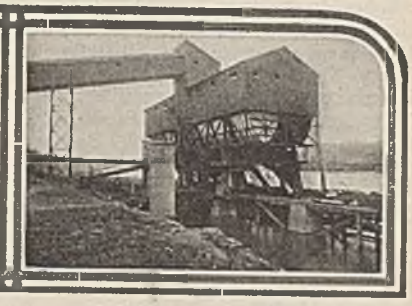
Current Quotations British Coal f.o.b. Port, Gross Tons

Quotations by Cable to *Coal Age*

Cardiff:	Jan. 31	Feb. 7†
Admiralty, large	27s.	*26s.9d.@27s.*
Steam smalls	16s.6d.	*16s.3d.@16s.3d.*
Newcastle:		
Best steams	18s.6d.	18s.6d.
Best gas	21s.6d.@21s.9d.	**21s.6d.@22s.**
Best Bunkers	18s.@19s.	18s.@19s.

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

News Items From Field and Trade



ALABAMA

At the January examination held by the state board of examiners at Birmingham thirty-six applicants enrolled for the test for certificates of competency as mine foremen and firebosses, twenty-five of whom successfully stood the test.

Henry L. Badham, Jr., has been elected president of the Bessemer Coal, Iron & Land Co. as a successor to his father, who recently died. Mr. Badham is perhaps the youngest head of a great industrial corporation in this district, but is said to be well equipped for the responsibilities. He served overseas during the world war in the aviation service. James Bowron, dean of industrial men of this district, was re-elected vice-president, and W. A. Reed, secretary and treasurer.

D. H. Thomas and associates now operating the mines of the Montevallo Coal Co., at Aldrich, under lease with David Roberts, Jr., trustee in bankruptcy, are negotiating for the purchase of the properties, which are considered very valuable. The sale, if arranged, will have to be approved by the federal courts.

The Alabama Mining Institute, state mine inspection department and the U. S. Bureau of Mines station at Birmingham are waging a vigorous campaign for accident prevention in Alabama mines, co-operating with the Joseph A. Holmes Safety Association, which is organizing local chapters throughout the district for study of safety work and accident prevention. The men in the camps are being addressed in reference to the most prevalent causes of accidents—falls of roof and coal, electricity, haulage, explosives, etc., and the means of prevention. C. H. Nesbitt, chief mine inspector, J. J. Forbes, Bureau of Mines, and James Nichol, Jr., and L. E. Geohegan, mining officials, have been appointed a committee to confer with mining companies with a view to establishment of the safety association chapters at every mining camp in the district.

The Sloss-Sheffield Steel & Iron Co. has placed 200 beehive coke ovens in blast at its Flat Top Mines because of urgent need for furnace coke. The company now has seven blast furnaces in operation and its byproduct plant of 120 ovens at North Birmingham is running at capacity, with an additional 500 tons of coal being coked daily at the Ensley plant of the Semet-Solvay Co., but in order to meet its own needs and care for its domestic business finds it necessary to start the beehive ovens, which have been idle for several years. The company recently installed a Link-Belt car dump at its byproduct plant, which greatly facilitates the unloading of coal and reduces in labor cost.

The Deep Water Coal Co., with headquarters in Jasper, is reported to be opening a mine on the Black Creek seam of coal near Ethridge, Walker County.

The Munro-Warrior Coal & Coke Co. has completed the electrification of its Sterling mine transportation system and has placed a number of electric locomotives in commission in place of storage-battery motors formerly used. The company is considering the erection of a new tipple at one of its openings at Nauvoo in the near future, plans not having yet been decided upon. The company mines the Black Creek seam of coal. At present the mines are operating full time.

COLORADO

No opposition to the bill now before the State Legislature revising coal mining laws of Colorado is anticipated and it is expected it will pass the House and Senate and be approved by the Governor.

A compromise has been affected between the operators and Mr. Dalrymple, chief coal mine inspector for Colorado, in the revision of the coal mine laws which are now before the Legislature for enactment. Ten sections of the proposed bill by Mr. Dalrymple which related to the standardization of coal mine laws have been withdrawn on account of the objections of the operators. By eliminating these sections and making some minor modifications in the present law, a compromise was reached.

ILLINOIS

The miners of Illinois thought they had adopted an old-age pension system until last week, when the international board of the United Mine Workers handed down a decision that the plan was unconstitutional. The adoption was by a majority instead of a full two-thirds vote of the membership.

The Bradbury-Scullin Coal Mining Co., of Marion, on Jan. 31 filed a voluntary petition in bankruptcy with the U. S. District Court at East St. Louis. It listed liabilities of $39,148.65 and assets of $15,641. The liabilities include $12,550 secured claims, $26,559.47 unsecured claims and $39.18 taxes. The assets include $9,000 in real estate

A large strip mine will be opened ten miles north of Carbondale, by a new company, with capital of $200,000. The firm has purchased 360 acres of land on which coal will be mined at a depth of from 18 to 40 ft. Among those interested in the new company are R. E. Renfro, C. E. Hamilton, F. O. Hamilton, W. W. Hamilton, John Montgomery and William Montgomery. Two miles of track will be built from the Illinois Central to the new working.

A new strip mine is being opened by R. L. Van Hoohen, of Herrin, at Duquoin, which is expected to have a capacity of approximately 300 tons of coal a day. The vein to be worked is the No. 6 vein 9 ft. or more thick with about 20 ft. of overburden.

Judge Louis R. Bernreuter of Nashville on Jan. 27 appointed A. R. Odell and Garland R. Dunington, both of Chicago, as receivers for the Jewel Coal & Mining Co., with properties at Duquoin. The company failed to meet its Dec. 30 and Jan. 15 payrolls and at present owes the men employed at the No. 1 mine approximately $30,000. The Jewel Coal & Mining Co., was organized during the war by several Chicago and St. Louis coal men, making W. S. Burris, of Duquoin, president, which position he still holds. The company operated successfully its No. 1 mine and in 1920 sank No. 2 mine. The Sterling-Midland Coal Co., of Chicago, in the meantime had become heavily interested in the company, having purchased the stock held by St. Louis interests.

Citizens of Assumption held a meeting Jan. 21 and pledged $10,000 to insure the opening of the mine of the Assumption Coal Mining Co. The citizens' meeting followed that of the company, at which time J. A. Lacharite was elected manager of the property. Most of the miners are still living at Assumption.

All previous records were broken at Mine No. 10 of the Indiana & Illinois Coal Co., at Nokomis, on Jan. 15, when 6,005 tons of coal was hoisted in an eight-hour day. The previous record was 5,800 tons.

The mines of the Peabody Coal Co., in the Taylorville district broke all previous production records Jan. 22. About a year ago these mines established a day's record of 21,943 tons, which included the production of Mine No. 21 at Stonington. This year, on Jan. 22, these mines produced 21,200 tons of coal, not including Mine No. 21 at Stonington, which was closed. In other words the four mines at Taylorville produced within 750 tons as much coal on the record day of this year as did the entire five mines a year ago.

The Lovington Coal Mine Co., a citizens' organization which took over the Lovington mine at a receivers' sale

last fall, has elected these permanent officers to replace the temporary ones chosen when the mine was bought: President, George B. Spitler of Mt. Zion; Vice-President, O. A. Danzeisen, Decatur; Secretary-Treasurer, William Kirkpatrick, Lovington; Directors, R. E. Bower, Lovington; D. W. Beggs, Decatur; John Vent, Hammond; Daniel Hall, Bement; Daniel Houlihan, Lovington.

About six hundred men were thrown out of work when the Lincoln mines of the Brewerton Coal Co. closed Feb. 1 for an indefinite period.

INDIANA

Wick Dixon, George J. Nattkemper and James Pearson, all of Terre Haute, have been named appraisers in Superior Court there for the Indiana Fourth Vein Mining Co., for which Hugh B. Lee was named receiver last Aug. 2. The London Guarantee & Accident Co. filed suit for a judgment of $1,800 and the appointment of a receiver.

The Martin mine, one of the larger coal mines in the Bicknell field, which had been closed down for more than a year, has re-opened under a co-operative mining agreement. Employees of the mine have formed a corporation known as the East Side Coal Mining Co., and will themselves operate the plant. The mine, when working at full capacity, employs about 425 men, but the number at the start will be fewer.

KANSAS

In November miners in Kansas voted to discontinue the $1 a week assessment levied against those who worked as much as five days a month, for the relief of their fellows who were unemployed. The assessment has been in force since last May. Since then the anti-administration faction in District 14 has been agitating for a renewal of the assessment. Late in December this faction established a collection agency for such a fund without the approval of the district officials. The agency has since been so active that on Jan. 24 district officials sent letters to all locals warning against it and offering to resubmit the proposal to a vote.

KENTUCKY

The Kentucky River Coal Co. has won judgment in the Perry County Circuit Court under which it obtains possession of the 273-acre Holliday farm, mineral rights, etc., on Ten Mile Creek, sixteen miles from Hazard, on a deed made in 1903, but in litigation for some years.

The Columbus Mining Co., operating mines at Allais, Heiner and other shipping points in the Hazard field, broke its loading record on Jan. 26, when it loaded out 99 cars. The company is operating the Nos. 4 and 7 Hazard seams.

Some of the miners formerly employed by the Madison Coal Corporation in the company's Central City mine would like to go back to work at the 1917 scale with important changes in working conditions. "They want us to give them the mine," commented a company official humorously. The Central City local voted by a bare majority to ask for a conference with certain officials of the company. Not more than half the membership voted, according to report. The company replied that if the men wanted to make a proposition, they would have to put it in writing. The Madison mines in western Kentucky have been down ever since the strike started in April and have not followed the 22 out of 27 operators of the striking district who have resumed work non-union on the 1917 scale. The Madison Coal Corporation's principal operations are in the solid union state of Illinois.

Fire on Jan. 23, at Yellow Creek, on Carr's Fork, in eastern Kentucky, destroyed the commissary and office of the Wisconsin Coal Co. plant.

It was reported from Whitesburg on Jan. 21 that W. W. Hull, of Hazard, had bought the Blackey Coal Co. mines at Blackey. It is alleged that the purchase was made for the Virginia Coal & Coke Co., which will operate the plant. The mine has been idle for some months. It was further reported that the Jenkins Coal Co. had been taken over by the Swift Coal & Timber Co., which would arrange to lease the property, instead of operating it for other owners.

The E. T. Slider Coal Co., Louisville, taking advantage of fine weather and an open river, dispatched its steamer Northern to the Kentucky River mines a few days ago with a tow of empty barges, with arrangements for bringing down a tow of coal for the company yards in Louisville, Ky., and New Albany, Ind.

Courtesy Bertha-Consumers Co.

Tipple at Bertha Mine

Equipped with modern machinery electrically operated, including shaker screens, reciprocating feeders and loading booms. This property of the Bertha-Consumers Co., located at Bertha, Pa., comprises about 1,200 acres of Pittsburgh coal and 300 acres of surface land.

NEW YORK

Demonstration of the furnace use of small sizes of anthracite, under the auspices of the Anthracite Economy Service, assisted by the New York State Retail association, is to be given in Buffalo for a week beginning on Feb. 19.

OHIO

I. J. Donnelley, for many years connected with the Houston Coal Co. of Cincinnati in various capacities, has been ill at his home for several weeks but friends were relieved by the news that he was on the road to recovery.

Word has reached Cincinnati that James Ford, well known in operating circles in Logan County, W. Va., has succeeded George Jones as the head of the operating department of the Logan County Coal Corporation at Lundale, W. Va.

Trial of the suit of the Tildesley Coal Co., Cincinnati, vs. the Mill Creek Colliery Co. for recovery of $10,000, with interest and costs, alleged to be due under a contract for coal, was begun in United States District Court at Cincinnati Jan. 28 before Judge Smith Hickenlooper and a petit jury. This case is an aftermath of a suit brought against the Tildesley company by the Mill Creek company in which the Mill Creek obtained a judgment for approximately $10,000 for alleged breach of this coal contract.

The Columbus Board of Purchase opened bids Feb. 3 on 17,500 tons of Hocking nut, pea and slack for the Municipal Light plant; 4,000 tons of Hocking nut, pea and slack for the garbage disposal plant and 7,500 tons of the same grade for the Water Works Department. The W. S. Harman Coal Co. bid on the 14,500 tons at $1.23 f.o.b. mines and the 4,000 tons at $1.18 f.o.b. mines. The Sunday Creek Coal Co. was awarded the contract for 7,500 tons for the Water Works Department at $1.05 f.o.b. mines.

PENNSYLVANIA

Feb. 16 will find holdings of the Lehigh Valley Coal Co., the Beaver Valley Coal Co. and the Hazle Brook Coal Co. involved in litigation at Bloomsburg, where the county commissioners have engaged several attorneys to represent them in a fight to keep coal-land valuations at figures set in 1922. At that time coal lands in Beaver and Conyngham townships and Centralia borough were increased in valuation from approximately $2,500,000 to $18,000,000. The coal companies took an appeal, there were many hearings before the board of commissioners and at one time an amicable settlement seemed near. This fell through and the trial of the appeals is now listed.

The annual get-to-gether banquet of the officials of the Berwind-White Coal Mining Co. from the Windber and Herminie districts was held in Windber on Feb. 2. Two-hundred and fifty men attended. E. J. Newbaker, newly appointed general manager of the company's operations in the two districts, was toastmaster. The speakers were Attorney Charles C. Greer of Johnstown, and Nicholas Evans, of Johns-

town, state mine inspector of the 24th bituminous district of Pennsylvania. J. J. Stoker, of Irwin, and Thomas Williams of Johnstown, both state mine inspectors, were guests.

The commissioners of Cambria County, John D. Walker, Homer C. George, W. J. Cavanaugh and their chief clerk, S. S. Kinkead, were in Pittsburgh on Feb. 4 and 5, consulting the Allegheny County Commissioners relative to assessments of coal lands. Hearings on appeals will begin in Cambria County on Feb. 23. It was the desire of the commissioners to post themselves on matters pertaining to coal assessments as practiced in other coal districts.

At a citizens' meeting held in Punxsutawney on Jan. 28 A. J. Rosenthal was named president and J. Boyd Hunger secretary and President Rosenthal appointed three citizens, E. A. Murray, W. C. Tibby and George C. Brown, to represent that town at a convention of the Citizens' Association, to be held in the near future. The object of the convention, it was explained, would be the naming of a citizens' fact finding commission to determine what course to pursue to get the mines of the district into operation.

Seventeen men were injured, five seriously, when a mammoth "squeeze" occurred in the Boston mine of the Hudson Coal Co. at Larksville on Jan. 28. The men were carried 15 to 20 ft. by the force of the concussion. The territory affected is known as the robbing territory and the coal is being removed close to the surface. The frozen condition of the ground made it impossible to estimate the damage to the surface. The squeeze occurred in a surface vein. According to the report of one of the victims, the first indications were small falls of rock and a movement of the pillars. Immediately following there was a terrific explosion, which sent air through the workings at a high speed.

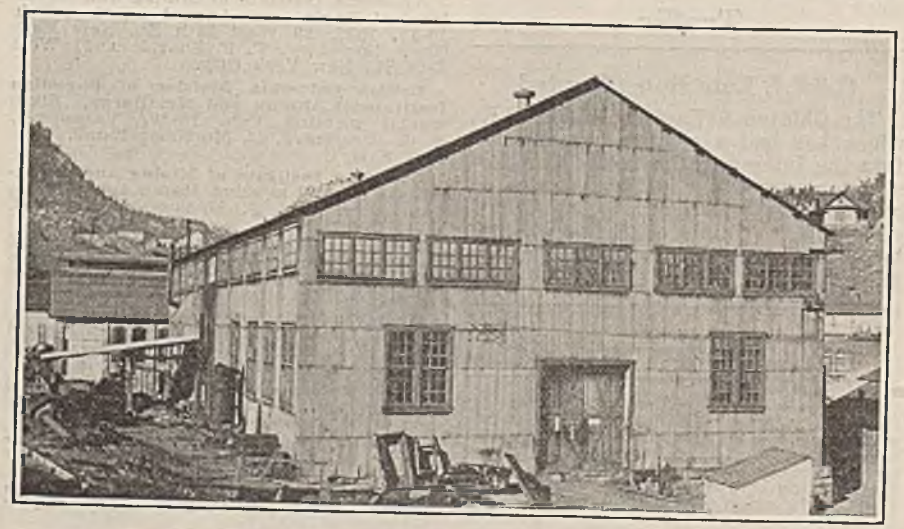
Thomas Kennedy, new secretary-treasurer of the United Mine Workers, was honored on Thursday afternoon, Jan. 29, at a luncheon at the Altamont Hotel in Hazleton, when a clock made of coal was presented to him by his associates. The coal was taken from the No. 10 slope at Lansford, where Mr. Kennedy started to work as a boy of nine years, when his father was killed in a mine mishap. C. J. Golden, president of District 9, made the presentation.

A deal has been closed and a deed put on record in the Cambria County Court on Jan. 28, whereby the Fauxhall Coal Co. becomes the owner of several thousand acres of coal land of the Mountain Coal Co., the consideration named being $330,000. The land is in Adams, Croyle and Summerhill townships, Cambria County, the principal opening being at Dunlo. The Mountain Coal Co. is a Greensburg corporation of which H. F. Bovard is president, and has operated at Dunlo for twenty years. The purchasing company is controlled by Philadelphia operators, who already have large holdings in Cambria County. The Fauxhall company is controlled by William J. Faux of Philadelphia, head of the Logan Coal Co.

John Brophy, president of district No. 2, United Mine Workers, visited the compensation headquarters of the union in Johnstown on Jan. 27, and conferred with Attorney Peter P. Jurchak, in charge. He found that more than 400 cases have been handled in the four months since the office was established. The record of more than a hundred cases per month fully justifies the establishment of such an office for the benefit of the miners, said Mr. Brophy.

Judge Arid, specially presiding in the Clinton County Court, on Jan. 28 appointed receivers for the Blanchard-Moshannon Mining Co. In his answer filed to the bill seeking the appointment of receivers, William G. Blanchard, president of the company, denied all the major complaints of the petitioners, but joined in a petition asking for receivers. He maintains, however, that the company is solvent. Bellfonte investors, who put $170,000 cash into the company, believing that the total stock issue was only $200,000 preferred and $600,000 common, learned with more or less amazement through Mr. Blanchard that the authorized capital is not $800,000, but $3,200,000, representing $200,000 preferred and $3,000,000 common stock. A. R. McNutt, of Bellefonte, Thomas B. Bridgens, of Lock Haven, and Dr. R. P. McClellan, of Irwin, were named receivers.

Seven trustees were appointed at a meeting in Huntingdon on Jan. 24 for the Keystone and W. H. Sweet Coal companies. These companies have existed in the nature of a partnership since forty-one persons, twenty-five years ago, purchased 3,376 acres of coal land in Greene County. Nothing has been done in all these years but pay the tax. The disposition of the land, either by sale, option or lease, is practically a necessity in order to settle twenty-eight estates, this many of the original owners having died. The following were elected to go over the situation and get it in shape for option or sale, if possible: E. A. Beaver, Huntingdon; R. M. Brenneman, Saxton; A. R. McNutt, Milroy; J. H. Sweet, L. R. Leister, Dr. C. W. Wilson, W. H. Trude and W. M. Henderson, all of Huntingdon.



Machine Shop of Phelps Dodge Corporation, Dawson, N. M.

A good machine shop, at which machines and locomotives can be repaired and maintained at maximum efficiency, is necessary for any coal-mining operation of size and is especially essential where the company is isolated and must be dependent for almost all its repairs and much of its construction work on the efforts of its employees and the facitities afforded them.

UTAH

D. D. Muir, vice-president and general manager of the U. S. Fuel Co., has been elected a director of the Utah Associated Industries

The Western Fuel Co. has been awarded a contract for supplying slack coal to the Salt Lake County Commission at $3.20 per ton. There were four bids, the highest being $3.75.

VIRGINIA

The Coal River Collieries Co., owned by the Railway Brotherhood, has opened an office in Norfolk with Allen F. Gibson in charge.

The Jewell Ridge Coal Corporation, of Jewell Ridge, Va., has started a safety campaign by employing a safety inspector and organizing a safety and welfare organization with the following officers: President, R. W. Fletcher; vice-president, F. P. Carr; secretary, J. A. Allison; education director, Dr. C. E. Dyer; safety director, E. C. Miller. F. P. Zeigler, and G. W. Day were elected to the executive committee and a safety committee of eight was appointed to report on accidents, their causes and prevention as well as to make safety recommendations. Meetings are held each Tuesday and Thursday evening, when first aid to the injured and safety methods are discussed.

WASHINGTON

Martin Flyzik, head of the United Mine Workers of Washington, has been appointed state supervisor of safety by Claire Bowman, director of the state department of labor and industries. William Short, president of the Washington state federation of labor, breaks into print irately declaring that Flyzik is going to help turn over labor to the employers of the state, bound and gagged. Short supported Ed Clifford for governor and Flyzik refused to join in that support.

WEST VIRGINIA

J. T. Dunigan, general manager of the Coal River Collieries Co., Huntington, has been named president of the company to succeed Harry Leaberry, of Huntington, who resigned Jan. 17. Mr. Dunigan will continue as general manager.

The tipple of the Francois Coal Co., near Lowesville in Monongalia County, was completely destroyed by fire late in January, causing a loss of between $8,000 and $10,000. Examination showed that the tipple had been completely saturated with oil before incendiarists applied the match. The company operates on a non-union basis. An attempt was made in October to destroy the same tipple.

It is learned that the International organization of the United Mine Workers is sending $80,000 per month into the Kanawha field to support the strikers in that field who are in need of food.

Following a decision of the state Supreme Court in Charleston in nine test cases carried up from the court of Judge W. S. Meredith in Marion County, by counsel for the United Mine Workers at Grant Town, orders have been entered in the Circuit Court by Judge Meredith evicting the miners from sixty-four of the company owned houses at Grant Town. As a result of the trial of the cases before Judge Meredith in the first place, verdicts were directed in favor of the New England Fuel & Transportation Co., which is now operating open shop. Barracks are being built at Grant Town by the local for the use of the miners who will have to vacate company houses.

CANADA

The Saunders Ridge Coal Co., which opened a new mine at Mercoal, Alberta, in mid January, announces a daily output of 250 tons. Fitzhugh Burns, of Minneapolis, Minn., is president of the new company. The mine is situated near the banks of the McLeod River and is on the railway branch leading to the Mountain Park mines.

On the application of the Union Trust Co., of Vancouver, which is acting for the debenture holders, Justice W. A. Mandonald has appointed William McGee Young, former Provincial Water Comptroller, receiver for the Diamond Vale Collieries, which owns and for a time operated 3,000 acres of coal lands at Merritt, B. C.

A serious fire which destroyed the tipple and hoisting machinery of the Rosedeer mine at Wayne, Alta., Jan. 23, also caused more than two hundred miners to be out of work during the busiest season of the year. Damage was estimated at $15,000, and it is said that although new machinery was ordereed at once it cannot be in place for at least three weeks.

The miners employed at the Crows Nest Pass Coal Co.'s Michel and Natal collieries have followed the example of the Fernie and Coal Creek miners and have withdrawn from the United Mine Workers and will join the British Columbia Miners Federation—the name used by the Coal Creek miners. This decision was reached by a large majority of the men at a meeting on Jan. 24, mainly because since the Coal Creek miners agreed to a wage reduction they have been employed continuously while Michel men worked only two or three days a week. Fernie miners have appealed to the Fernie Town Council for a reduction in water and light rates and to the Fernie merchants for a cheaper rate on the necessaries of life because of the 25 per cent reduction in wages.

A Fernie syndicate has commenced drilling operations in the hope of finding coal near Qualicum Beach, Vancouver Island.

At the instance of the recently constituted Board of Conciliation direct negotiations between the miners of District No. 26, United Mine Workers, and the officials of the British Empire Steel Corporation with regard to the wage dispute were resumed on Jan. 30. Neither party evinced a disposition to recede from its position, and after three hours the conference was broken off. The Board of Conciliation took no part in the deliberations.

Some concern is being expressed by the city of Edmonton in regard to the results which are likely to follow a Supreme Court judgment recently given, permitting almost unrestricted mining operations within the city limits. Several mines are at present operating underneath main streets and street-car tracks and are continually extending their shafts toward the center of the city's business section. In addition to the danger of weakening the surface, the question of the city's rights in the sale of surface property is involved in the judgment and is expected to be brought before the Council in the near future.

In reply to a deputation from the Alberta Federation of Labor asking for legislation under which miners would be given better protection in the matter of payment of wages, the provincial government promised that new regulations would be made under the Mines Act to meet their views.

Traffic

C.&E.I. Rate Boost Denied

The Chicago & Eastern Illinois R.R., which has had a petition pending before the Interstate Commerce Commission for an increase in freight rates on coal from western Kentucky, via Evansville, Ind., to points on the C. E. & I. in Illinois, was denied the increase on Feb. 2.

Obituary

George E. Davis, Norfolk manager for the Consolidation Coal Co., Inc., and one of the best known men in the coal trade in this section, died on a Norfolk & Western train en route to Lynchburg, Va., early on the morning of Feb. 3. Death was due to acute indigestion. The body was taken to Lynchburg and forwarded from there to Indianapolis for burial Feb. 5. Mr. Davis married Miss Gene Harrison, niece of the late Benjamin Harrison, former President of the United States. They formerly lived in Roanoke, coming to Norfolk about one year ago.

E. G. Leech, aged 50, formerly traffic manager of the Lorain Coal & Dock Co., of Columbus, Ohio, died at Long Beach, Cal., recently. He was connected with the Lorain Coal & Dock Co. for about 12 years and previously had been with the Hocking Valley Ry. in the traffic department. He leaves a widow, two sons, two daughters and a brother.

New Companies

The Blue Ridge Coal Co. has just been launched at Charleston, W. Va., with a capital stock of $200,000. C. E. Krebs, well known as a mining engineer, is one of those interested. Associated with him are having been with the Logan Mining Co. for L. B. Ramsey and J. J. Ross, the latter a number of years.

The Jere L. Robinson Coal Co., Akron, Ohio, has been chartered with an authorized capital of $10,000 to mine and deal in coal. Jere L. Robinson, R. M. Cobbs, D. W. Maxon, Paul C. Weick and C. G. Wise are the incorporators.

A charter has been issued to the **Scotch Run Coal Co.**, of Wilkes-Barre, Pa. The company, which has a capital stock of $40,000, will engage in mining, selling and preparing coal for the market. The incorporators are: Thomas A. Gibbons, Pittston, treasurer; Charles Gibbons, Pittston and John H. Dando, Wilkes-Barre.

The United Coal & Coke Co., Inter-Southern Bldg., Louisville, Ky., has been organized with Paul Wing, president, and P. H. Hutchinson, secretary and treasurer, and has started to develop 20,000 acres. Daily output will be about 20 cars of coal.

The Kentucky Coal & Land Co., has been incorporated in Pikeville, Ky., with a capital of $48,600, by Ballard Weddington, J. L. Morgan and Rudolph Rutherford.

The Puritan Coal Co. has been incorporated in Bowling Green, Ky., with a capital stock of $30,000, by James M. Thompson, T. B. Dixon and W. R. Gardner.

The Valley Coal Co., of Linton, Ind., has filed papers of incorporation showing a capital stock of $10,000. It will mine and sell coal. Incorporators are George May, Dan Scully and Mahlon W. Gilbreath, all of Linton.

The D. H. Brown Coal Co., has filed articles of incorporation with a capital stock of $55,000, to engage in a wholesale and retail coal business and operate coal and ore mines in Jefferson County. The company's principal office is in Birmingham, Ala.

Coming Meetings

Rocky Mountain Coal Mining Institute. Albany Hotel, Denver, Colo., Feb. 16, 17 and 18. Principal program subjects are rock dusting, underground loading and safety measures. Benedict Shubart, secretary-treasurer, 520 Boston Bldg., Denver, Colo.

American Institute of Mining and Metallurgical Engineers. Annual meeting, Feb. 16-19, 1925, 29 West 39th St., New York City. Secretary, F. F. Sharpless, 29 West 39th St., New York City.

British Columbia Division of Canadian Institute of Mining and Metallurgy. Sixth annual meeting Feb. 18-20, Vancouver, B. C. Secretary, H. Mortimer Lamb, Vancouver, B. C.

Canadian Institute of Mining and Metallurgy. Annual meeting March 4-6, Ottawa, Can. Sec. Geo. C. Mackenzie, Montreal, Que., Can.

Indiana Bituminous Coal Operators' Association. Annual meeting March 11, Terre Haute, Ind. Secretary, P. H. Penna, Terre Haute, Ind.

New England Coal Dealers' Association. Annual meeting, March 25-26, Springfield Auditorium, Springfield, Mass. Secretary, C. R. Elder, 141 Milk St., Boston, Mass.

Upper Potomac Coal Association. Annual meeting April 6, Cumberland, Md. Secretary, J. F. Palmer, Cumberland, Md.

Manufacturers' Division of the American Mining Congress. National exposition of coal-mining equipment, Cincinnati, Ohio, week of May 17. Secretary of American Mining Congress, J. F. Callbreath, Munsey Building, Washington, D. C.

Mine Inspectors' Institute of America. Annual Convention May 19, 1925, at the Jefferson Hotel, Peoria, Ill. Secretary, G. B. Butterfield, Hartford, Conn.

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

New Equipment

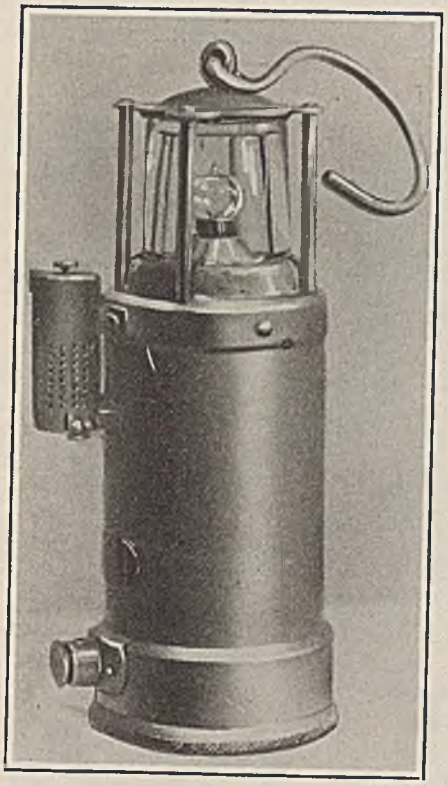
Gas Detector Suitable for Electric Safety Lamp

A gas detector for miners' electric safety lamps has been invented and provisionally patented by A. Gulliford, the chief lampman at the Denaby and Cadeby collieries, near Doncaster, England.

The detector is attached to an electric safety lamp of which it forms an integral part. Warning of the presence of gas is given by an increased glow in this attachment, accompanied by a decreased glow in the lamp bulb. When 2½ per cent of gas is reached, the lamp goes out, but the user is made aware that it is time for him to withdraw from the danger area. The device is so contrived that, after this unmistakable warning has been given, the light may be regained, so that the miner may reach safety with ease.

The new lamp has been put under test at the research laboratories of the Mines Society at Sheffield where it was exhibited to the Secretary for Mines. It has also been tested under actual working conditions at Cadeby colliery with satisfactory results. The official report of this latter test stated that the detector has reacted to 2½ per cent of methane.

It is understood that the inventor is engaged in further developing his idea, so that, for the use of firebosses and other officials, exact percentages of gas, up to 7 per cent may be recorded.



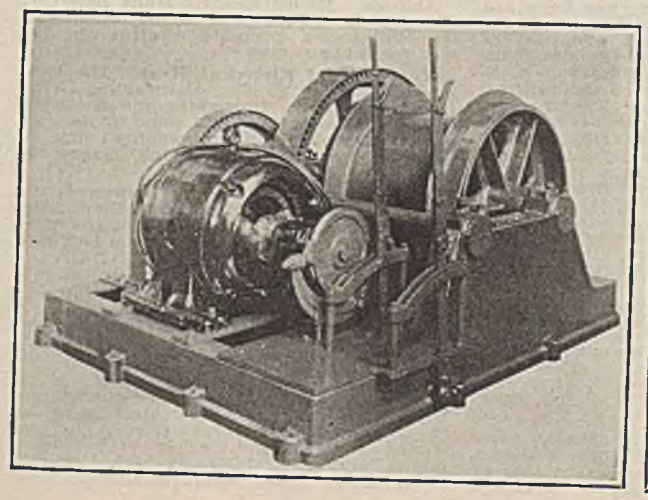
Electric Lamp with Gas Detector

The small attachment on the side of the lamp indicates danger by its increased glow when in an excess quantity of methane.

This Slope Hoist is Built To Stand the Gaff

Mine hoists face hard service. A hoist that will operate satisfactorily elsewhere, too often cannot "stand the gaff" of mine work. This fact is recognized by the Thomas Elevator Co., of Chicago, Ill., which has just brought out a new type of slope hoist designed especially for mining duty and which is expected to stand up under all the "thunder and lightning" of getting coal out of the ground. This hoist is a double-reduction machine and is equipped with band frictions of the flat type. The Thomas automatic motor brake is included as standard equipment for this machine which is described in a new bulletin on the subject. The bulletin shows that the hoist is made in sizes up to 150 hp., capable of handling a single line load of 9,000 lb. at a rope speed of 450 ft. per minute.

Several improvements have been incorporated in this machine all calculated to make it fit to meet anything in the day's work. The rope drum is extra large and the machine is sturdily built. The frame is of the rugged box-section type, connected by tie pieces rather than by the open sections of I-beam construction, commonly seen in slope hoists. The band friction clutch has been simplified and improved. The series of levers and rods ordinarily used to connect the operating lever to the clutch is replaced by two shafts, one horizontal and the other vertical, with a set of finger levers acting as bevel gears. This gives a much more direct connection and reduces backlash and lost motion.



A Husky Hoist for Mine Service

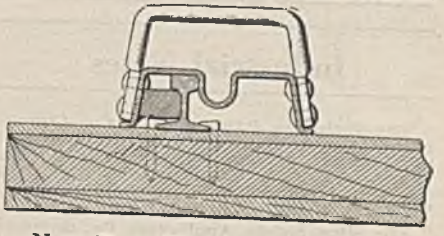
This machine, built especially for slope service, has unusually large drums, simplified clutch mechanism, and an over-all ruggedness which its designers know is required for mine service.

Device for Quick Extensions Of Rail Sections at Face

An extension rail for use in coal mines recently has been invented by H. P. Tompkins, a coal operator of Charleston, W. Va. The equipment has been manufactured of standard size at one of the large steel plants and is now in use in mines in West Virginia and Pennsylvania.

The extension rails are channel members, simple in construction and designed to fit over the ordinary rail. They are rolled with a groove in the middle so that the flange of the car wheel can travel in it. A combination car stop and handle is provided at the end toward the face. When the workman is ready to extend his track to a point closer to the face or place of loading, he grasps the handle and slides the extensions forward the required distance, and the track thus provided is ready for use. This is repeated each time a projection of track is desired, until the extensions have advanced their full length. Then the permanent track is laid with full-length steel, and the operation is repeated.

It is claimed that the extension rails save the operator the entire cost of laying down and tearing out short track projections, a cost estimated at 7 to 12c. a ton, and probably three-fourths of all track-labor expense. Thereby are saved also the indirect costs resulting from the idleness of working places and the employment of contract labor. Every dayman and piece of machinery and equipment from the face of the coal to tipple functions inefficiently while any part of the mine is waiting for track. In avoiding this delay by the use of this simple piece of equipment, this loss also is eliminated.



New Piece Fits Over Last Rail

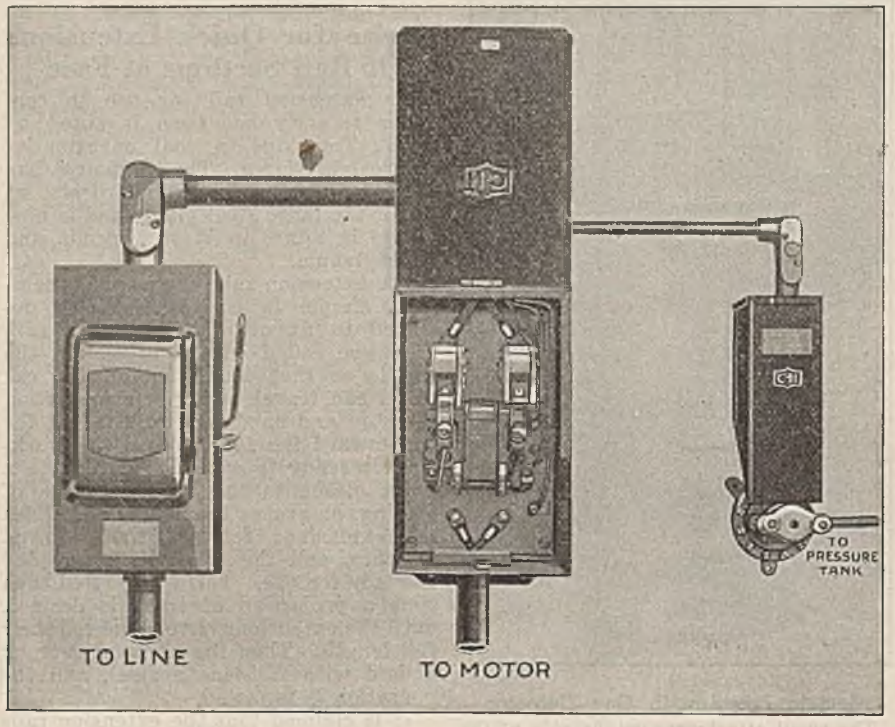
The flange of the car wheel travels in the groove in the extension piece. Note the handle at the end of the section.

Three-Speed Ventilating Fan

A three-speed ventilating fan having blades 16 in. in diameter and with the motor bolted to a 20-in. cast-iron supporting ring has been placed on the market by the Century Electric Co., St. Louis. The fan is provided with a separate controller mounted in a japanned iron box.

Automatic Control Starts And Stops Mine Pump

A typical safe wiring and installation arrangement for automatic control of a small alternating-current single-phase motor-driven pump outfit is shown in the accompanying illustration. The main-line switch is of the inclosed outside-operated type mounted alongside of the Cutler-Hammer double-pole magnetic switch and pressure-actuated switch. The latter is connected by pipe to the tank and electrically to the magnetic coil of the magnet switch so that when the pressure in the tank drops to a predetermined low value the magnetic switch is caused to close, thus automatically connecting the motor on the line. When the pressure reaches the desired high value, the pressure switch opens, the magnetic switch drops out and the motor and pump come to rest.



Takes the Human Equation out of Starting

Automatic pressure-control devices start and stop the motor connected to these switches. Pressures may be maintained easily by adjusting the regulator to operate between predetermined limits.

Industrial Notes

The Weinman Pump & Mfg. Co., Columbus, Ohio, recently completed an extensive addition to its already spacious plant, the capacity being increased to more than 100 pumps per month. Modern equipment, including testing blocks, has been installed.

The Mine Safety Appliances Co. removed its office on Jan. 1 from the Chamber of Commerce Building to Braddock Road and Thomas Blvd., Pittsburgh, Pa.

The executors for the estate of the late Wm. Griffith, mining engineer and geologist, of Scranton, Pa., announce that his data pertaining to reports, etc., have been turned over to **Frank B. Davenport**, mining and mechanical engineer, Scranton. Mr. Davenport has assisted Mr. Griffith on many occasions both in the field and in his technical work and is therefore quite familiar with Mr. Griffith's memoranda. Further assistance along similar lines can be had through Mr. Davenport.

Theodore Hanau, for many years in the New York sales office of the **S. Flory Manufacturing Co.**, Bangor, Pa., has been transferred to the home office of his company, where he will direct the sales of contracts, marine deck and material handling equipment.

After operating for some time as a partnership, Lloyd Bennett and Leo J. Meyer have incorporated under the name of **Bennett & Meyer, Inc.**, to deal in and manufacture mining equipment, machinery and tools. The company has been capitalized at 600 shares, no par value designated. While the factory of the company is located at Rome, Ohio, general offices are maintained at 316 Rowlands Building, Columbus.

The Blodgett Engineering & Tool Co., of Detroit, has added Roy Gill to its sales organization to work directly out of the Blodgett factory as a special representative.

R. B. Randall, who for approximately six years was Western sales manager of Blaw-Knox Co., has been appointed Western sales manager of the **G. H. Williams Co.**, manufacturers of clamshell buckets, Erie, Pa., with headquarters in Chicago. Mr. Randall is very well known to coal dealers, especially in the Middle West, and his many years of experience with clamshell bucket work have equipped him to render valuable service to bucket users.

The Okonite-Callender Cable Co., Inc., has purchased a plant in Paterson, N. J., where it will manufacture lead-covered paper insulated cables.

Charles E. Brown, formerly vice-president of the Central Electric Co., has been appointed vice-president in charge of the territory west of Pittsburgh and east of the Rocky Mountains of the Okonite Company, with headquarters in Chicago. **A. L. McNeill**, formerly manager of the railroad department of the Central Electric Co., has been appointed manager of the railroad department. **E. H. McNeill**, formerly railroad sales representative of the Central Electric Co., has been appointed sales engineer. **Ray N. Baker**, formerly railroad sales representative of the Central Electric Co., has been appointed sales engineer. **L. R. Mann**, formerly sales representative of the Central Electric Co., with headquarters at St. Louis, has been appointed manager of the St. Louis office. **Joseph O'Brien**, formerly railroad sales representative of the Central Electric Co., has been appointed sales representative, with headquarters in Chicago. **C. E. Brown, Jr.**, formerly country sales manager of the Central Electric Co., has been appointed manager of the light and power department.

The Okonite Company will open an office at 310 South Michigan Avenue, Chicago, on Feb. 1 and will take over the sale of Okonite products in Western territory.

Publications Received

Fourth Annual Report of the Federal Power Commission, 1924. Pp. 245; 6x9 in. Covers fiscal year ending June 30, 1924.

Structural Engineers' Handbook, by Milo S. Ketchum, McGraw-Hill Book Co., 370 Seventh Ave., New York City. Pp. 1080. 6x9 in.; illustrated, tables. Third edition, enlarged. Price (flexible), $7.

Statistical Abstract of the United States, 1923. Bureau of Foreign and Domestic Commerce, Washington, D. C. Pp. 878; 6x9 in.; tables. Price (paper), 85c. Copies can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Public Relations, by John C. Long. McGraw-Hill Book Co., 370 Seventh Ave., New York City. Pp. 248; 5½x8 in.; illustrated. Price, $3. Describes the media of publicity and explains the possibilities of these media and best methods in using them.

Annual Report of the Director of the Bureau of Mines to the Secretary of the Interior for Fiscal Year Ended June 30, 1924. Pp. 57; 6x9 in.; plates and tables.

Coke-Oven Accidents in the United States During the Calendar Year 1923, by William W. Adams, Bureau of Mines, Washington, D. C. Pp. 35; 6x9 in. tables.

Report of the Mining Engineer and Agent of the Girard Estate in Schuylkill and Columbia Counties, Pa. for the year 1923. Pp. 57; 6x9 in.; tables.

Recent Patents

Mine Car; 1,508,971. John A. Hebb, Hopwood, Pa., and Wm. J. McDade, Uniontown, Pa. Sept. 16, 1924. Original application filed Nov. 6, 1919; serial No. 336,925. Divided and this application filed Oct. 6, 1920; serial No. 415,066.

Hoisting and Dumping Apparatus; 1,508,996. George N. Simpson, Pittsburgh, Pa., and Arthur M. Simpson, Chicago, Ill. Sept. 16, 1924. Filed Aug. 5, 1921; serial No. 489,940.

Automatic Skip Bucket Loading Device; 1,509,154. Wm. H. Lang, Chicago, Ill., assignor of one-half to Geo. W. Phillips, Chicago, Ill. Sept. 23, 1924. Filed March 12, 1923; serial No. 624,442.

Ropeway Bucket Conveyor System; 1,509,479. Henry Otto, Walthamstow, London, England. Sept. 23, 1924. Filed April 10, 1922; serial No. 551,152.

Limit Device for Hoisting Machines; 1,509,685. Roscoe Moore, Wilkes-Barre, Pa. Sept. 23, 1924. Filed Nov. 29, 1919; serial No. 341,438.

Mine Car; 1,509,963. John C. H. Lubken, Johnstown, Pa. Sept. 30, 1924. Filed Aug. 27, 1921; serial No. 496,121.

Trade Literature

The W. A. Jones Foundry & Machine Co., Chicago, Ill., has published two catalogs Nos. 31 and 32, the former on **Power Transmission Machinery** and the latter on **Sprocket Wheels and Chain Belting.** Illustrations and prices are included.

Skilsaw. Michel Electric Hand Saw Co., Chicago, Ill. Four-page folder describing the Skilsaw, a portable electric circular saw for labor saving.

Two Feet of Electrical Heat. The Cutler-Hammer Mfg. Co., Milwaukee, Wis. Publication H-2. Illustrates and describes the C-H space heater and some of its uses such as keeping vaults warm and dry, in valve houses and on fire sprinkler systems, etc.

Heine Longitudinal Drum Boilers. Heine Boiler Co., St. Louis, Mo. Bulletin 52. Pp. 35; 8 x 10 in.; illustrated. Details of construction, circulation, and furnace arrangement are given.

Hardinge Air Classifiers. Hardinge Co., New York City. Bulletin No. 17. Pp. 8; 8 x 10 in.; illustrated. Application and operation of the rotary air classifier and the combined rotary and superfine classifier are described.

American High Duty Conveyors. Conveyors Corporation of America, Chicago, Ill. Pp. 8; 8 x 11 in.; illustrated. Describes the American high-duty ash conveyor designed for handling ashes from power plants having exceptionally high tonnages or operating under severe conditions.