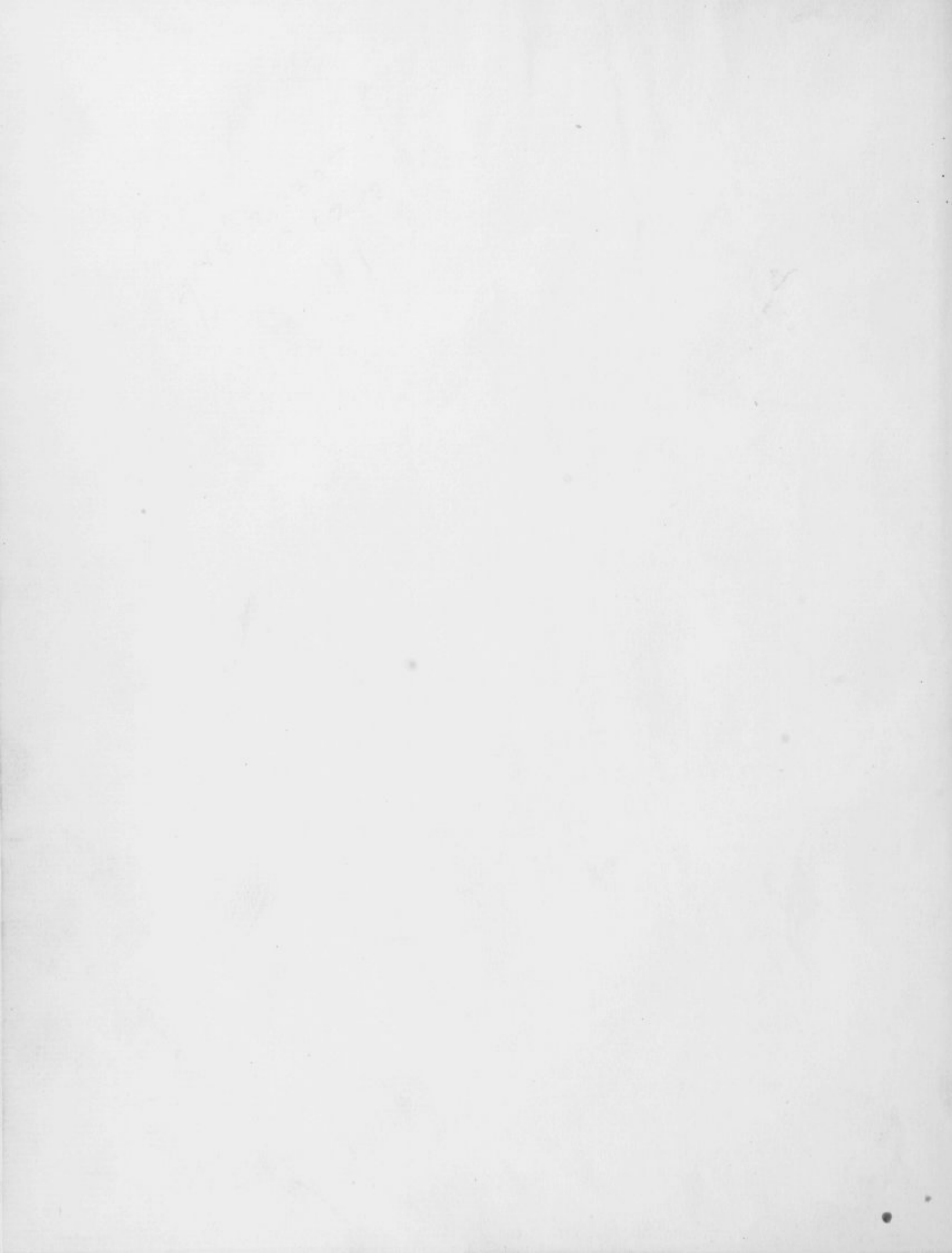


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Publisher



COAL AND TIMBER

A MONTHLY REVIEW OF COAL · TIMBER · AND · KINDRED · INTERESTS

Vol. 1, No. 1

PITTSBURG, JANUARY, 1905

\$1.00 Per Year

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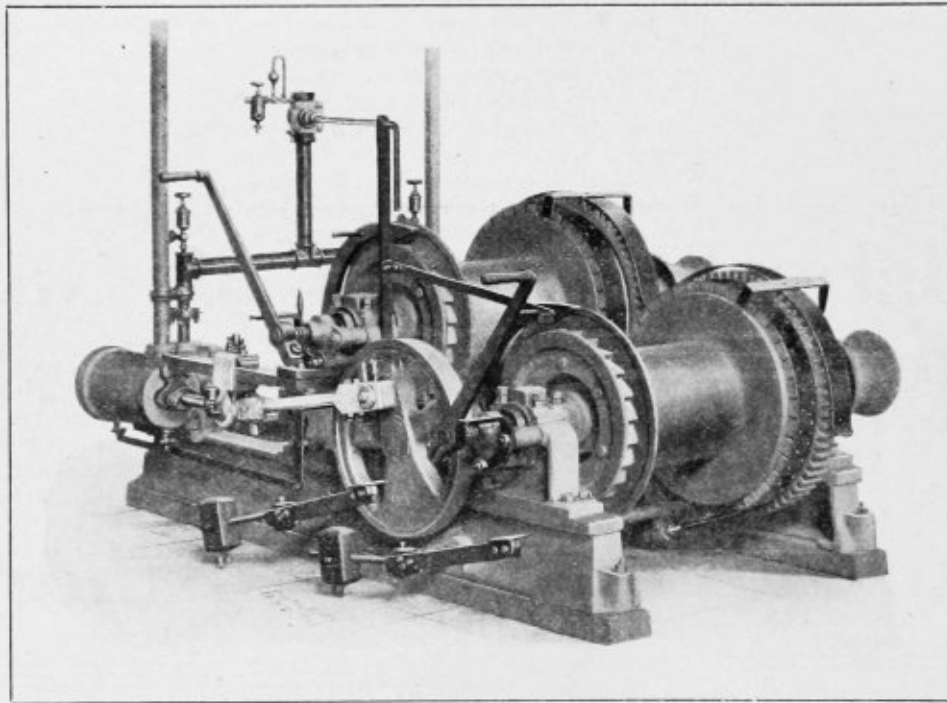
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CENTRAL MINING INSTITUTE OF WESTERN PENNSYLVANIA WINTER MEETING

COURT HOUSE, PITTSBURG, TUESDAY AND WEDNESDAY, DECEMBER 20 AND 21, 1904

NOTE:—The following is a mere summary of the work and proceedings of the Institute. A synopsis of papers and discussions will appear in subsequent editions of "COAL AND TIMBER," and an official report will be published by the Institute in its regular journal.
—Editor.

It is impossible to write a report of the Winter Meeting of the Western Pennsylvania Central Mining Institute which would convey to those who were not present at each session a realization of what they missed. It was a successful meeting, as the attendance was representative of all professions and vocations which are included in the membership of the Institute.

At no meeting of the Institute have more important papers been read and discussed.

An attempt to draw comparisons would be futile. Each paper and each discussion was of vital interest to everyone present, and as the writer was leaving the building he heard one man say: "It is too bad that our meetings are so short. We get together, elect officers, attend to routine business, etc., and then just when we all become intensely interested in the discussions of subjects upon which we are all seeking information and upon which not only our success but our lives may depend, we have exhausted the specified time and must adjourn. Let us devote a week to the meetings of the Institute, learn all we can and thus obtain the fullest value of each other's study and experience." This suggestion is worthy of consideration. Every paper read at the Winter Meeting was pregnant with advancement in mining and the discussions which followed were worth hours of any interested man's time, and that means more than dollars.

The president of the Institute, a sapient man, ripe with experience, alert and progressive, considered each paper and discussion, valuable, important and timely.

When the President called the Institute to order Tuesday morning and opened the first session with his address he could not conceal his emotions as he spoke of the deaths during the past year of Selwyn M. Taylor, Henry W. Oliver and W. A. Hogg.

Only one of these gentlemen, Mr. Taylor, was a member of the Institute, but all three were enthusiastic supporters of it and the words of Mr. Keighley tell how his own heart mourns the loss of their presence and friendship. Even the committee appointed to draft appropriate resolutions on the deaths of these eminent gentlemen, at a later session requested that each member send a letter to the committee expressing his personal sentiments in order, as it was explained, that the resolutions might more fully express the deep sense of loss which each member felt and which the mining interests of this district had sustained.

THE PRESIDENT'S ADDRESS.

Members of the Institute and Friends: It is hardly necessary for me to state that I am glad to meet you all again as most of you are friends of many years standing, in fact, some of you I have known from the days of my boyhood. I wish to tender you the compliments of the season and express the hope that we may all meet at our next Summer Meeting.

The address of the President at an Institute of this character resembles, to a certain extent, the traditional mince pie—it has to contain a little of everything, and perhaps not much that is of serious weight.

There are quite a number of things that come under the notice of a man engaged in mining operations and coke manufacturing during a year, that give him serious thoughts. The general tendency of the present time is to look forward, and no doubt this is a very good thing to do; however, things have occurred during the current year that have led me very seriously to look backward; in fact, I have about come to the conclusion that it would be better for all of us, and certainly very profitable, to look backwards about twice as many times as we look forwards.

There are a great many mining superintendents, mine foremen, mining engineers and other mine and coke works officials here present, and I believe that if they will follow my line of thinking they

will likely come to the same conclusions that I have.

Without going into this matter of looking backward very deeply, I will single out the professional mining engineer to emphasize my views in this matter. I should like to ask a member of this profession what would become of his fore-sight if he had no back sight? My experience in engineering has been that all hinged and depended on the back-sight. In the matter of theory and practice, it might be remarked that theory is the back-sight and practice is made the fore-sight.

There are other reasons why I should be in this mood of looking backwards. I, personally, am just about scoring the half century mark in my life, consequently I am at a point where I can take a very long and a very interesting look backwards. Again, this month marks a quarter of a century's experience in the mines and at the plants of the Connellsville Region, for it is just 25 years the first of December since I first took a part in the coal mining and coke industry of the Connellsville Coke Region.

It is a remarkable and somewhat singular coincidence that the year of my coming into the coke region was the very first year that any attempt was made to make a record of the statistics of one of the greatest industries in the States—perhaps the world. Not that I had anything to do with the matter of statistics, for I have not had any connection therewith. At this date, it seems to be a very strange thing that no one thought it worth while to keep a record or collect statistics of an industry of this magnitude.

The fact that a record has been kept since 1880 has enabled me to note the great and rapid strides in the developments of the Connellsville Coke Region from 1880 to 1905. According to Mr. E. W. Parker, United States Statistician, whom we all know so well through his many years of diligent and effective work in the compilation of the mining and coke manufacturing statistics of the United States, it appears that in 1880 there were in existence 67

establishments for the manufacture of coke in the Connellsville Coke Region.

These establishments consisted of 7211 coke ovens, 731 of which were in the process of construction. The coal used during that year for the manufacture of coke was 3,367,856 short tons; coke produced therefrom 2,205,946 short tons; total value of coke at ovens, \$3,948,643; value of coke at ovens per ton, \$1.79; yield of coke from coal, 65.5 per cent.

There are no statistics relative to the coal and coke production for the year 1904 available at this time; however, there is reliable data furnished by the Connellsville

which is at the rate of 11,000,000 short tons in round numbers per annum.

Of late years, a sister Coke Region has been developed in proximity to the Connellsville Coke Region Proper, which is now generally known as the Klondike or Lower Connellsville Region. From the same issue of the Courier, I find that there are in existence in that Region at this time, 30 establishments, 6,189 coke ovens, 5,433 of which are in blast and 756 out of blast, with several hundred more projected and in the process of construction. The production for the week ending December 10th, amounts to 66,588 short tons or a pro-

duction has increased from 2,205,946 short tons of coke to 15,538,701 short tons produced at the high production mark which was reached 1902. The value of this coke in 1880 was \$3,948,643, and at the high production mark of 1902 was \$23,785,433. The value of coke at ovens per ton, \$1.79 to \$2.28, and the yield of coke from coal 65.5 per cent. to 67.05 per cent. You must bear in mind that these latter figures are for the year 1902, which was the boom year in coke.

The possibilities of the two Regions at this time owing to the increase in the in the number of plants and ovens erected, would, under favorable conditions, amount to 19,000,000 short tons in round numbers, and no doubt would reach that rate at this time, were it not for the fact that water cannot be had to keep in operation the plants now out of blast.

I might further remark that the coke production of the United States since the year 1880 to 1905, has increased about 800 per cent. The figures submitted to you relative to the Connellsville Coke Region Proper and the Lower Connellsville Region would show an increase as follows:

For the Connellsville Region Proper, about 500 per cent; and with the two Regions combined, 600 per cent; but the possible production would be about 650 per cent. of an increase. This shows tremendous strides in the matter of production during the 25 years that I have known the Coke Region.

But there have been as great and probably much more important strides in the matters of systems and appliances used in this great industry. I can remember the time when there was not a safety lamp in use in the Connellsville Coke Region. It is true that in 1880 there were some large plants as compared with the modern plants now in existence, but it would be like comparing a tallow dip to a sixteen candle power electric light.

Up to 1880, accidents in the Connellsville Coke Region were rare, and I doubt very much if fire damp had much more than made its appearance, and certainly not in dangerous quantities.

Looking backwards has its painful, as well as its pleasant side. From 1880 to 1904 is a period which, when looked at from the standpoint of fatalities in the operation of mines, can not be viewed without concern and sad reflection.

In 1880, the naked light was the sole illuminant in the miner's possession. At this time, all large mines or mines of any importance within the confines of the Connellsville Regions combined, are equipped with the latest and most safe type of safety lamps; and the year 1905 will no doubt see the present type of safety lamp replaced by electricity. When this form of safety lamp is fully introduced, it will certainly be one of the greatest, if not the greatest stride in improvements for safe guarding connected with the industry, as it is one that involves the health and safety of the



F. C. KEIGHLEY.

President Central Mining Institute of Western Pennsylvania.

Courier, which is the representative paper of the Connellsville coke industry on the matter of establishments and coke ovens now in existence, and of all matters connected with the coke industry.

Referring to the Courier's issue of December 16, I find that the total number of establishments is 101; the total number of ovens in shape for use, 23,178; the number of ovens in blast, 19,110; the number out of blast, 4,068, with a thousand or more ovens projected and under process of construction; and the weekly production from the ovens in operation was for the week ending December 10th, 215,268 short tons,

duction at the rate of 3,500,000 short tons in round numbers per annum.

Adding these two sets of figures together, we have in the two Regions, which are now the important Coke Regions in the States, 131 establishments, 29,367 ovens, 24,543 of which are in blast, 4824 out of blast, with a production for the week ending December 10th of 281,856 short tons, which is equal to 14,500,000 short tons in round numbers per annum.

Looking backwards, it is seen that the number of establishments has increased from 67 to 131 and the coke ovens have increased from 7,942 to 29,367. The pro-

miner, upon which the whole of the coke mining manufacturing fabric is founded.

During the term of 25 years that I have been actively engaged in the Coke Industry, I have witnessed many strange things, had some thrilling experiences and seen wonderful changes which to relate here in no matter how brief a form would fill volumes; therefore, I shall not go beyond citing a few important facts.

The rapid and wonderful strides in the Industry do not begin to compare with enhancements of value in the coal seam that sustains it. For instance: In the year 1881, I was offered six hundred acres of this coal for the small sum of twenty dollars per acre. Today, that same coal could not be bought for \$2,500.00 per acre, and I have heard a man who has been connected with the industry the whole of his life, state that the real value of an acre of Connellsville Coking Coal was fully \$4,000.00 per acre. I do not doubt this, for I have myself seen fifty, even seventy-five cents per ton royalty paid for the famous Block Coal of Ohio, solely on account of its fitness for Iron Smelting, yet it was not equal in such fitness to the Connellsville Coke, and its use was long since abandoned. I have myself (for at one time I was the owner of a Block Coal Mine) paid a royalty of twenty cents per ton on the product of a coal seam, the maximum thickness of which was but twenty inches, and we followed it down to fourteen inches with profit. At a neighboring mine, they actually mined some of this coal down to a thickness of twelve inches.

The operations, systems, machinery, safety appliances and general improvements in the Connellsville Coke Region today are of a character unexcelled by any mining region in the world, and with this remark I must end this imperfect review, as I have other matters of importance to the Institute to take up.

This year will always be remembered by me with sadness, for it has inflicted upon me three great shocks; each totally unexpected and each successively nearer until it reached my own family circle. They were not only the vehicles of sadness to me, but they extended to the members of this Institute, both directly and indirectly. I refer to the passing away of Mr. Selwyn Taylor, Mr. Henry W. Oliver and Mr. W. A. Hogg. All of them were connected with the Mining and Coking Industry and they were all masters in other lines, so that they were doubly great.

We now have in our hearts the memories of three men—men who were leaders in the three of the many divisions constituting the Grand Army of Progress and Enlightenment that sustains and glorifies this land.

Mr. Selwyn Taylor was by profession a Mining Engineer, a member of this Institute and at one time held the office of Secretary and Treasurer. He was also a Coal and Coke operator.

Mr. Henry W. Oliver was, as you all know, a master mind in many things; in him was combined the Iron and Steel

Manufacturer, the Mine and Coke Operator and the Financier. It would be difficult to determine in which he was greatest—such men cannot be measured.

Mr. W. A. Hogg was a Lawyer by profession, but of late had entered into the business of Mining and Coke Making. Mr. Oliver and Mr. Hogg were not directly connected with this Institute, but indirectly they were, and as many of you personally knew them it is but natural that you should wish to have them remembered at this time, the first of our meetings since their death. Time forbids my taking up as fully as their careers certainly merit, the many fine qualities they all possessed, so I shall endeavor to as briefly as possible outline the salient features.

No eulogy of mine can add lustre to the reputations of such men, so I will only cite a few of the many things they will ever be remembered for.

Mr. Selwyn Taylor, I had known for nearly a quarter of a century and I always considered him a friend of whom to be proud. He was a skillful Engineer, in fact, he stood at the time of his death at the head of his particular line of work, and the towering monuments of engineering achievements he has left behind him, cannot be excelled. Leckrone, Footdale and Buffington Plants of the Lower Connellsville Coke Region alone are sufficient proof of this.

In the line of Coal Mining and Coke Making, he possessed remarkable foresight, as he developed, or at the very least was the ruling spirit in the development of coal fields and Coking Coal lands that had been rejected or condemned as of but minor value. Mr. Taylor was but little over forty when he died, yet he demonstrated the value of these fields and saw them in successful operation, notably the development of the now great Lower Connellsville Coking Coal Field.

It would take days to describe his many achievements. As a man, he was of a friendly, charitable and kindly disposition, always smiling even in times of trial in business matters. That he was brave is attested by the manner of his death. He marched to certain death in the attempt to rescue the miners from the ghastly and horrible depths of the Harwick Mine. Not because it was his duty, not because he was Manager of the Mine, not because he had any pecuniary interest there or his reputation was at stake; but simply because the grief of the stricken widows and orphans, many of whom were aliens and not of his class, appealed to his great and manly heart.

It seems hard and difficult to understand why such men die in this way and at a time when they had attained a position in life of note and affluence.

Mr. Taylor was one of the three members of the Examining Board under whose examination I sat and by whose recommendation I received my commission as Mine Inspector, and I had since frequently

met him on matters relative to Mining and Coke Making. I had often been in his company and always found him a tower of strength and a warm sincere friend. He was one of the most esteemed members and officers of this Institute, and though he could give us but little of his valuable time from his busy life, he was one of its strongest friends and his ability was one of the pillars that uplifted it. What more could I say? It is not necessary for me to ask you to pass a resolution in recognition of his merits for you have all done so long ago in your hearts and all that is required now is the formal presentation.

Relative to Mr. Henry W. Oliver, I stated that he was not directly connected with the Institute, yet indirectly he was, in fact, the Institute recognizes all that are engaged in mining and the industries directly relating thereto.

I know that I am voicing the sentiments of every member of this Institute when I state that all classes, from the Miner to Mine Owner, are always welcome at our meetings; no matter whether they are members or not they need not wait for an invitation, the latch string is always out and within reach.

It is natural that I should view Mr. Oliver's death with sorrow, and no words of mine can fully express the esteem and admiration of him that fourteen years directly under his masterly leadership have built up. He always took a warm interest in anything pertaining to the Institute, and some years ago, when we were about to hold our pleasurable trip to the Coke Regions of South Western Pennsylvania, he was the first man I unburdened myself to and informed him that funds were low in the Treasury of the Institute, and I feared the trip would be a failure for lack funds. In his characteristic and generous manner, he said "go ahead and draw on me for any money the Institute may require for the trip." I went ahead and our trip was a great success. Other operators generously and kindly aided us, but yet I had a debit of \$150.00 as the balance due on expenditures. You all know that he paid that balance. Owing to the fact that Mr. Oliver was not a member of the Institute, I cannot take the space afforded the memory of Mr. Taylor, yet I feel that I cannot, and you would not want us to pass over his memory without giving you at least some points in his career as I saw them.

Mr. Oliver was a man who met with many problems that were difficult of solution and still harder to surmount. At least three times in his life he, Phoenix-like, arose from the very ashes of disaster and each time he achieved a higher plane, and at the time of his death he stood high on the roll of wealth and honor that is the admiration, even the envy of all nations. His foresight was remarkable, and one remark of the many I have heard drop from his lips is sufficient to demonstrate that.

A certain property had been offered to

him, and in reply to his interrogation to me relative thereto, I said the only thing I saw against it was the fact that others had turned it down. He said to me, "that should not be taken as conclusive. Young man, let me say to you, that all the things from which I have made money and which have been greatly successful were things that other people had turned down." Nothing could be more effectively indicative of the calibre of a man than that remark. There is food there for much profitable thought for all of us.

Today the mining property which is in my charge is provided for completely by his foresight, yet it is good for thirty years active life and will produce over 30,000,000 tons of coal. Today 10,000 people would be in dire distress for want of water, not to mention the requirements of several thousand coke ovens, were it not for the recent completion of one of his well timed projects. I could add a dozen or more such instances were it necessary.

As an employer, no man could be kinder, and I can here state that during the whole of the many years I served under him, and through instructions that involved millions of dollars, I never received from him one unkind word.

A few words relative to William A. Hogg, and I will close my address as it is a lengthy one. I had known him for nearly twenty years; he was of late years my Attorney, and finally became a much loved member of my family. I can say no more relative to him than to quote the words of an associate of his at the Bar of the Courts of Fayette County. In a recent memorial service he stated that "no member of the Bar was more respected than W. A. Hogg, and that when he made a statement in Court it was never questioned; that morally his character was absolutely clean." What more could be said?

Looking back, as it were, through the avenues of the years of these three men's lives—three men that were representatives of the Engineer, the Operator, and the Bar, we discover that in each case they began at the foot of the ladder.

Mr. Selwyn M. Taylor began as a boy in humble circumstances, and by his own efforts and determination became an eminent engineer.

Mr. Henry W. Oliver began as an office boy and died a multi-millionaire and one of the most able business men of his time.

Mr. W. A. Hogg began life on a farm, and it was a difficult matter for him to procure the necessary books to study for the profession in which he became noted.

These parallel lines have been drawn on the mirror of life, and though the forms that drew them have passed away, yet they all live and will live for years to come by reason of their great and good deeds.

I cannot close without expressing the regret that these men all died comparatively young and before they reaped the full and richly deserved fruits of their

labors; however, they have left to us object lessons that the oldest of us will be the better for remembering.

Following the address of President Keighley came the annual election of officers.

Thos. K. Adams of Mercer, Pa., (mine inspector 3rd district) moved that as the officers who had served the Institute the past year had been so proficient and efficient, they be re-nominated and re-elected. President Keighley had excused himself and called Vice President William L. Affelder to the chair. The motion was seconded and carried unanimously.

I. G. Roby, the Secretary-Treasurer, presented his annual report, which showed a handsome balance on hand. The report was accepted and approved.



I. G. ROBY.

Secretary and Treasurer, Central Mining Institute of Western Pennsylvania.

A vote of thanks was unanimously extended to each of the officers.

Routine business occupied the rest of the forenoon session and a recess was taken until 2 o'clock P. M.

At 2 P. M. the President rapped for order and announced a paper on "Electricity as Applied to Mining," by H. C. Hubbel of Newark, N. J.

As Mr. Hubbel was reported ill in bed, in fact had dictated his paper from his sick bed. Vice-president Joseph Simpson read the paper, prefacing it by explaining the circumstances and saying that Mr. Hubbel regretted his inability to be present and to go more fully into the subject which his paper was to treat.

In a brief manner but with masterly simplicity the paper covered mine wiring, signaling, illuminating and all the vexed intricate problems connected therewith. (The paper will be published in the February number of "Coal and Timber.")

The President emphasized the importance

of the matters treated in Mr. Hubbel's paper, and a vote of thanks was extended the gentleman with an expression of hope for his rapid and complete recovery.

After a short discussion of this paper, the points of which were so well taken and so apparent that discussion was practically obviated, the Institute undertook a general discussion of "Economy in Mine Timbering."

This subject brought on an animated debate and one which developed much valuable information. The members seemed loth to open this discussion, but when, after waiting for some one to rise, the President stated his views based on the experience of 25 years in the Connellsville district and stated the specifications for, and methods of using timber which prevail in his district, the debate waxed warm and each man who got the floor explained how and why timber is used as it is in his particular mine or district. Economy, not of cost of material or labor, but of safety of life and property was the predominating idea. Some argued that in many mines an unnecessary and unreasonable amount of timber was used, while in other mines not a sufficient amount was used to insure safety. The nature of strata; weight of surface; plan of mine; tensile strength, endurance or life of various kinds of timber were discussed as was also the effects of atmospheric conditions on the timber.

Messrs. McCanch, Stoek, Adams, Affelder, Phillips, Roby, Hardy, Black, the chairman and others took part in the discussion and so much interest was manifested in Mine Timber that the subject was brought into almost every discussion which came up during the following sessions of the Institute.

Then came an educational dissertation on

"THE PREPARATION OF ANTHRACITE COAL"

By H. H. Stoek, E. M., Editor of "Mines and Minerals" of Scranton, Pa.

Mr. Stoek is well known to all his fellow members of the Institute, so of course he had a large and closely attentive audience. He had made elaborate preparations to illustrate his lecture with maps, photographs and drawings which were projected upon a large screen by a powerful electrical stereopticon. Both Mr. Stoek and the journal which he so ably edits are acknowledged authorities in their profession and sphere. To attempt to report him without doing so verbatim and using all the expensive illustrations with which he illustrated his lecture, would do Mr. Stoek an injustice, but the following is a summary of the ground he covered.

The illustrations showed the method of preparing anthracite for market and traced the complete operation from the time the coal reaches the surface until it is delivered in the mine cars ready for shipment to market.

Mr. Stoek described the differences existing in the Wyoming and Schuylkill regions which give rise to differences in mining and consequent differences in the method of preparation between the two regions. He explained the necessity for preparing anthracite and showed how the coal is delivered at the head of the breaker and then traced its course through the various bars, screens, jigs, and different automatic picking devices until it is ready for the consumer.

He also showed the method of washing anthracite and showed by illustrations the method of disposing of the refuse culm by flushing it back into the underground workings. The method of driving breaker machinery by rope drives, by individual electric motors, and by belt and line shafting was also touched upon.

The President spoke appreciatively of Mr. Stoek's lecture and the gentleman received a unanimous vote of thanks.

Adjourned until 9:30 Wednesday morning.

WEDNESDAY, DECEMBER 21, 1904.

President Keighley called the meeting to order at 9:50 A. M. and announced the first paper on the program, "Box Car Loaders," by Mr. Wm. L. Affelder, Mosgrove, Pa.

Mr. Affelder stated that the first practical Box Car Loader was invented by Richard Ramsey, of Illinois, and was first placed on the market in 1885. Loaders of this type were manufactured by the Ottumwa Iron Works, Ottumwa, Iowa, and the Litchfield Foundry & Machine Co., of Litchfield, Ill., but are no longer made.

Mr. Affelder went into the history of Box Car Loaders very thoroughly and with the aid of illustrations was enabled to convincingly show the practicability of Box Car Loaders.

The following Box Car Loaders were illustrated and their operation explained during his address: The Ottumwa, of which a working Model was exhibited, Christy Victor and Smith Gravity.

We shall endeavor to give a more complete report of Mr. Affelder's address in some future number of "Coal and Timber."

The next paper on the program was "Coal Dust." This paper excited so much comment, was received with so much enthusiasm and aroused such animated discussion, that we give the paper in full.

COAL DUST.

Paper prepared and read by Thos. A. Jackson, of Oliver, Pa., before the Winter Meeting of the Western Pennsylvania Central Mining Institute, held at the Court House, Pittsburg, Pa., Tuesday and Wednesday, December 20th and 21st, 1904.

There are few industries in which the practical and theoretical knowledge of the work to be performed is of more importance than in Coal Mining. The danger to life and risk of capital are so great that laws have been passed to protect the one

and the most modern business methods advanced to counteract the other. The difficulties in mining are increasing daily as we go deeper into the bowels of Mother Earth, and the competition in the coal market, so that the management of our mines today require something more than ordinary intelligence.

The operations of mining and the production of coal are conducted under circumstances that command public sympathy and the subject of mining in all its details is one that should be studied by every miner and mine laborer, as well as the mine officials, for the safety of a mine, especially in regards to ventilation, drainage, gaseous mixtures and coal dust; for it not only depends upon the competency of the mine officials and mine inspectors, but upon the action of each and every individual in or around the mine, whatever his position may be.

The history of mining contains many sad pages of disaster and the explosions to which they are subject have caused an appalling loss of life.

These calamities have appeared to be inexplicable, while the numerous mining Institutions of this and other countries have long records of voluntary labor and expenditure in trying to discover the needed remedies.

The origin and conditions of Fire Damp explosion are now well known and provided against. Yet explosions still occur, and a well equipped mine that is supplied with all the arrangements and precautions that experience and science can suggest, is suddenly transformed into a chamber of death.

It has been evident for some time that a danger other than Fire Damp lurks within the mine and its discovery has been sought by inspectors of mines, mining engineers and mine officials and the general verdict is that Coal Dust is an element that plays an active part.

The subject under consideration is somewhat complicated, and in the very nature of the case, the part which coal dust may take in an explosion in a mine cannot be a matter of observation, as it would in all probability prove fatal to the observers. The dangerous part which coal dust plays is difficult to elucidate even under the highly organized scientific and practical management and inspection to which all our mines are now subjected.

Scientific and experimental researches have been conducted and the results applied to the examinations in recent years, which permits only the conclusion that Coal Dust is a contributory danger in a gaseous mine that would propagate an explosion of gaseous mixtures.

An explosion is the most dreaded accident we have to contend with in the mining world, as it occurs unexpectedly without any warning.

The records of mining show that explosions cause a greater destruction to life and property than any other class of accidents. They have been traced and found

to effect mechanical violence where gas could not be conceivably present. Coal Dust has been observed in a coked condition on the timbers, roof and sides of haulage and traveling ways, showing that it had been subjected to intense heat, and next to the explosion itself, and the loss of life and property which it involves. The most serious (and often frequent) consequence is an underground fire, as some smouldering material may be fanned into a flame as soon as ventilation is partially restored, and it in turn will set fire to the coal or any other combustible material close at hand. In regard to the part coal dust plays in an explosion, it can only be arrived at by means of experiments. It is however, a well established fact that coal dust under certain conditions is a very dangerous element in a mine and it is probable that the intense heat thrown out by an explosion may convert an otherwise harmless dust into an inflammable one, and as a result coal dust of sufficient quantity, fineness and dryness raised by a strong ignition of fire damp an extension of the initial explosion is inevitable, which goes to show that explosions are carried into districts that had this agent not been at work, would have been unaffected by the initial explosion. Let us for a moment take a view of the force an explosion of Fire Damp and air contains when properly mixed in the most explosive proportions, let the initial temperature be 65 degrees F. and 521 degrees absolute. Yield about 23,550 units of heat and the degrees F. this mixture will be raised are 6663 degrees or 13.8 atmospheres, the steady pressure due to the explosion, but to this must be added a considerably increased force due to shock, the amount of which cannot be calculated when it is remembered that 13.8 atmospheres are equal to 30,000 lbs. pressure per square foot, whereas the force of a hurricane moving at the rate of 100 miles per hour is only 50 lbs. per square foot, some idea of the terrific force of an explosion may be realized, and as before stated, this in itself will convert an otherwise harmless dust into an inflammable one.

Let us look at our mines since the introduction of mining machines, and I think we will find that we are getting a larger percentage of coal dust than before their use. Taking the chain type of machine for instance in undercutting or undermining the coal, they practically saw their way in under the coal, making nothing but fine dust, and it will be observed that when the machine is in operation as the chain containing the bits or teeth revolves and cutting into the coal brings out its fine dust and the helper on the left of machine turning it over or casting it aside out of the way raises a very large cloud of dust into the atmosphere, so much so at times in very dry and dusty mines you can scarcely see the operator and helper at work and the atmosphere is pregnated with said dust. It will also be observed that naked lights are used daily in the presence of this danger without any

serious results so far as the writer knows, in the several Bituminous Inspection Districts. I will cite a case that came under the writer's personal observation, where the loader, as soon as the machine had finished undercutting his room and had been moved to the next room, he, the loader, got down on his knees on the road side, scraped away some of the dust from face of undercut to look in under to see if the machine had left in any stumps or uncut coal and with his open light attached to his cap on his head, looked in under with the result that the finer particles of dust set a flame, burning him severely. This occurred about 11 o'clock A. M. and there was no gas in the room. If there had been, the driver, operator and helper, as well as the loader, would have found it sooner as they all four were using open lights and upon examination of the Fire Boss' reports, no gas had ever been reported, so that it is evident in the writer's opinion, that the fine particles of coal dust set aflame by coming in contact with the open light as used by the said loader, Fire Damp being absent. In questioning the said loader, his version was that it went off like a flash of blasting powder.

Now, if you will permit me to digress a few moments and take a view of the reports of some of the British Mine Inspectors for recent years, also of our own Bituminous Inspectors' reports, as in the writer's opinion this paper would be incomplete without them, as they bear so closely to the subject under consideration and attention should be drawn to some of them as they contain several references to the part played by coal dust in some recent explosions. April 30th, 1875, an explosion occurred at the Bunkers Hill Colliery, where 49 men lost their lives, caused by a blown out shot igniting the coal dust which in turn communicated with a pocket of gas supposed to be back some distance from the face, as the working face was considered safe for to fire the shot, this heading or entry, being ventilated by a pipe one foot in diameter.

Brannpith Colliery, Durham, April 24th, 1889, explosion caused by an open torch, used by workmen in cleaning out hoppers, in which three men lost their lives.

Mossfield Colliery, October 16th, 1889, on which the Inspector says this disaster is another example of how an explosion is extended by coal dust. The loss of life and property being greatly increased as a consequence.

Hubburn Colliery, November 4th, 1889, in which the inspector says he does not feel justified in calling it entirely an explosion of Fire Damp, as the shot hole was charged with gelignite and roburite together and in the inspector's opinion this explosion was caused by the flame blown out from the fast shot, assisted by any small quantity of Fire Damp that may be present.

Particulars of another example of Coal Dust exploding without Fire Damp which

occurred in 1890 at one of the Collieries in the Yorkshire District. Some very fine coal dust had accumulated on a plank which it was necessary to remove to make some repairs to the engine; in turning the plank over, the coal dust fell upon a torch light below and an explosion occurred, burning several men severely. Also recent reports of the Inspectors in the different States have drawn attention to the serious effect coal dust has in propagating an explosion. The Inspector for the Second Bituminous District in his report for 1891 recommended that coal dust of dry mines be dampened; also the report of the several Inspectors on the late Harwick disaster says they agree that the cause of the explosion was the result of a blown out shot, and that the sprinkling and the laying of the coal dust according to rule 60 had been neglected. Also, they found that in several parts of the mine the heat had been intense, coking the coal and dust. And, further, the report says we can readily see that the explosion could be transmitted from one point to another by the Carbonic Oxide distilled from the coal dust which had been suspended in the atmosphere of the mines, thus exploding the accumulation of Fire Damp and coal dust along the path of the explosion, carrying death and destruction into every nook and corner of the mine. In viewing over the different causes of explosions, on the one hand I find that the largest and most destructive explosions have occurred in mines which are more or less fiery, and on the other hand, no very large explosions have ever occurred in a very wet mine, which tends to show that coal dust plays some important part in the extent of an explosion.

From experiments made by Mr. W. Galloway (whose name will always be honorably associated with this matter) proves beyond a doubt that the existence of Fire coal dust in fiery mines is a dangerous element and that it has played an important part in Mine explosions. It has been stated that if a small quantity of Fire Damp be present and fired that its effects are much intensified and the explosion is extended along the roads containing coal dust, thus feeding the flames of the explosion and that these facts are now fully recognized is evident as per rule No. 60 of the Bituminous Mine Law which reads: "In mines where coal dust has accumulated to a dangerous extent, care shall be exercised to prevent said coal dust from floating in the atmosphere by sprinkling it with water or otherwise as far as practical. It is now very evident that a blown out shot will raise the dust and set it aflame and for evidence in this will cite a case when Mr. H. Hall, Inspector of Mines for the Liverpool District, reported by him to the Secretary of State, January 23rd, 1893, says in part that a charge of blasting powder was fired by electricity from a cannon, suspended in a wet shaft, the air of which was proved by careful chemical analysis to be absolutely free from any trace of inflam-

mable gas, and in some of the experiments, even in the absence of dry dust in suspension in the shaft, that the dust lodged on the timbers was exploded by firing 1½ lbs. of gunpowder from the cannon. Mr. Galloway says that one per cent. of Fire Damp when properly mixed with very fine coal dust and air forms an explosive mixture, while Sir Frederick Able states that from 2 to 2½ per cent. of Fire Damp is needed. In the writer's opinion, after glancing over the several reports of Mine Inspectors and in viewing over the results of experiments made in the past, the following conclusion may be drawn: First—Coal Dust is not completely burned in flaming air. Second—And that if a high charge of coal dust is inflamed at one point, the carbonic oxide produced becomes a transmitter of flame to another point. Third—And that in case we need to use a very strong current of air for the removable of gas, this strong current would raise the dust lodging on the timbers or along the floors or sides of airways and carry it in suspension and while the gas being removed may of itself not be sufficient when mixed with air to make an explosive mixture, yet with the addition of coal dust a very explosive mixture may be generated and if any kind of flame came in contact with said mixture a very disastrous explosion would occur.

The question naturally arises, what means or methods should be applied to remove this agent of destruction from our midst?

Some have proposed covering the roads with common salt believing that it would retain a continual dampness being deliquescent or an absorber of water. Nitrate of Soda has been proposed and tried for the same purpose, wetting the roads with streams of water has been tried, but from some cause or other these methods have either entirely failed or partially so. In the writer's opinion, the coal dust should be loaded and taken out of the mine as far as practical, yet in doing this the dust in transit along the haulage roads in the mine wagons would leak out through the crevices of said wagons on the road as in our improved systems of transporting the coal from the face to tippie, the trains are run at a great speed and the dry coal and coal dust carried in the wagons is subject more or less to jolting and jarring and the dust leaking out gradually settles on some part of the haulage, the finer particles remaining longer in suspension settling for the most part on the timbers and sides, and if an explosion should occur in any one district of the mine and the dust deposited on haulage or other districts may not be set aflame, yet the dust will be much more violently agitated and the atmosphere become so impregnated with the dust, as to render it fatal to any one inhaling it while trying to escape from the mine, not having been affected by the said explosion in the other district. To keep the haulage ways as free as practical from this danger a water wagon attached to the rear end of trips going in or out of mine, preferably behind

the train of coal with a pipe attached perforated with holes of a smaller diameter, to use as a spray, something on the principle of the system of laying the dust on the streets of our cities and towns, believing this would be a very effective means of reducing the danger, and in order as far as possible in mines which are fiery dry and dusty to prevent explosions, thus limiting their fatal effects when they do occur. To use double doors on all the main airways, render harmless the gas as it issues from the coal seam by a constant and sufficient current of air, prevent as far as practicable the depositing of coal dust on all haulage roads, exclude all naked lights, prohibit the use of explosives which are liable to produce flame outside of the shot holes, fire shots only between shifts and then fire them electrically, employ only men who are competent to do work where risk and responsibility are involved, enforce rigid discipline and strict compliance with the mining laws and all rules, both general and special, and in my belief, not only explosions, but accidents of all descriptions will be reduced to a minimum.

The Wednesday afternoon session was devoted almost entirely to further discussions of "Coal Dust" and "Economy in Mine Timber," and there was not a dull moment during the entire afternoon, as at times two, three or even four members were attempting to secure recognition by the chair at the same time. So much interest was manifested that it was decided to take up the subject again at the next meeting of the Institute by a paper on "Coal Dust, Considered Physically and Chemically," the author to endeavor to get hold of "authorities that will be definite" to find out if experiments can be made of the varying properties in "coal dust."

It was suggested that some dust explodes chemically while other dust would not, so experiments and microscopic examinations should be made.

Mr. Roby moved that the chair appoint a committee to assist in the preparation of the "business end" of the Institute Journal by securing advertisements which would defray the cost of printing. The motion was seconded and carried and the President will appoint the committee later.

Mr. Evans introduced a subject of much importance by saying that it is about time for the Central Mining Institute to have a permanent home, and moving that a committee be appointed to consider the matter, see what can be done, and to inquire into the ways and means.

The motion was seconded and carried, and the President will appoint the committee.

Topics of papers for the next meeting were announced by the President—a vote of thanks for the use of the court room was extended the County Commissioners and the meeting closed.

REPORT OF COMMITTEE ON RESOLUTIONS.

Resolutions on Death of Selwyn M. Taylor.

Whereas, Eleven months ago Selwyn M. Taylor, a fellow in membership of this Institute, surrendered his life in an effort to save the lives of men in Harwick Mine after the explosion, and this death, almost beyond any other possible, as the glorious one of disinterested sacrifice appeals in its manner peculiarly to us as men of the mining business that were associated with him; wherefore,

Resolved, That a suitable memorial be composed by aid of all the members who will send to us of the committee, letters giving facts in appreciation of the life work of Selwyn M. Taylor, for printing in the proceedings of the Institute.

List of Members of the Central Mining Institute of Western Pennsylvania.

This list of members is printed by request of the President and the Secretary-Treasurer who desire that notice of any mistake in names or addresses be sent to I. G. Roby, Secretary-Treasurer, Uniontown, Pa.—Editor.

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Coal and Timber

PUBLISHED MONTHLY BY

Coal and Timber Publishing Company

802 ARROT BUILDING, PITTSBURG, PA.

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Communications relative to news of coal and timber lands, mines, shipments equipment, etc., as well as items of interest concerning owners, operators, shippers and officials, are invited and should be addressed to the Editor Coal and Timber.

Checks, drafts and remittances and all matters pertaining to the business department should be addressed to COAL AND TIMBER PUBLISHING COMPANY
Telephones—Bell, Court 2388; P. & A., Main 1790.

SUBSCRIPTION \$1.00 PER YEAR

SINGLE COPY 10 CENTS

ADVERTISING RATES ON APPLICATION

PITTSBURG, JANUARY, 1905

"COAL AND TIMBER" makes its initial bow and steps into the field of trade-journalism with confidence inspired by a realization of the usefulness and value which such a publication will be to the Pittsburg field. A review of coal and timber operations, mine news, shipments, markets and land transactions, with general, local and personal matters, is of particular concern to all parties interested directly or indirectly in the progress and development of these very important industries.

Pittsburg is a centre for coal operators, shippers, engineers, mine supply and equipment companies, and enterprising capitalists seeking profitable investments, and it deserves to be represented by a journal that properly reports and exploits these various interests and covers the field thoroughly.

New coal fields are so generally surfaced with valuable timber that the two products are naturally allied, and both are commonly included in the purchase of one tract of land.

The established coal and timber interests of the Pittsburg field, which covers Pennsylvania, Ohio, West Virginia and reaches Maryland, Virginia and Kentucky, especially the recent remarkable discoveries and developments in West Virginia, entitle this district to special attention.

The aim of "COAL AND TIMBER" is to do this very important work and to so improve with each issue as to make itself more and more valuable to its subscribers and advertisers. To this end it most respectfully invites the co-operation of all interested parties, promising on its part to exert itself to the utmost to promote and conserve the interests of all.

"Coal and Timber" wishes everybody a happy and prosperous new year.

THINK IT OVER

Who can compute the cost? We refer to the price this country has paid the past year as a penalty for the ruthless and wanton destruction of timber, and for the indifference and negligence which has allowed a bounteous sufficiency of water to run away from commercial, industrial and domestic utility.

Count the cost of the drought. First: stagnation of river transportation; boats out of commission; crews idle; capital idle; property deteriorating; "nothing doing" in supplies; shortage of coal at all points from Cincinnati to New Orleans and throughout all the dependent territory—the consumers paying advanced prices. Second: mines and coke works cease operations; labor idle; capital idle; property deteriorating. Consumers paying higher prices for coal and coke, and paying higher prices for every article in the manufacture of which these two commodities are important factors, while every store which caters to the patronage of these wage earners, suffers, and the influence of "slack water" is felt in large retail stores and the great wholesale houses. Third: manufacturing plants are compelled to shut down, either for lack of water or because the water is so bad that it ruins their boilers, and manufacturer, laborer, merchant and banker all suffer financial loss.

These three are merely first instances. Follow them through all their commercial, industrial, financial, social and political consequences, and count the cost.

The remedy? It is at hand. It is comparatively easy of accomplishment, and, compared with the immense profits which the investment will pay, we as a nation must be blind to our own interests and criminally negligent in our duty to posterity, if we fail to act; act promptly and liberally.

A Divine Providence, Nature's God, has ordained laws which we but imperfectly understand; but if we would only do our part to retain and properly utilize the abundant supply of water with which this valley is blessed in the course of a year, we should have a boating stage from headwaters to the gulf every day of the year, except for ice. Dams, locks and channels will do this. A judicious "Forestry Movement" backed by proper legislation will do the rest.

"Count the cost", and then decide whether we are to profit by the lesson of seven months drought, or are we to endure even greater commercial and physical suffering each succeeding year. Continued neglect and indifference means stagnation, even death, to many industries, at a cost of millions of dollars. Prompt, well-advised action, means commercial and industrial life and prosperity.

Shall we head the lesson?

Compute the cost of neglect, estimate the profit,—the necessity,—of action.

Congress ought to hear from YOU.

A NEW POINT IN COAL LEASES

A new question has arisen which will interest all lessees and lessors of coal properties.

Three separate actions in equity have been begun at Scranton, Pa., by the heirs of Erastus Smith against the New York, Susquehanna and Western Coal Company and others as executors of Arminda Neeld.

The suit grows out of alleged violations of a lease made by Erastus Smith in 1868 to Elisha Coray, which lease by subsequent assignments has finally come into the possession of the several defendants who are now operating under it. The tract of coal land leased is three hundred and fifty acres, which has been and is being mined by the defendant company.

The plaintiffs claim that Arminda Neeld, wife of Erastus Smith, never concurred in the lease. The burden of their complaint is that since the making of the case the defendants have not weighed the coal according to the terms of the lease, and further that they have so altered the mesh in the screens that instead of having to pay for 95 per cent. of the coal they mine they now escape with paying for only 54 per cent.

The plaintiffs ask that the court compel them to render an account for all coal mined and to cause a survey of the mines at the defendants' expense to ascertain just how many cubic yards have been mined.

The case presents a new proposition for the courts. They will be asked to determine whether "pea coal and dust" are the same as dirt and waste.

The plaintiff's claim that at the time the lease was made in 1868 pea coal and dust meant dust and waste and was meant to so mean as used by them in the lease. Since that time, however, pea coal and sizes smaller have been marketable, and therefore the plaintiffs ask that the defendants be compelled to pay for it, on the ground that "pea and dust" as used in the lease was not meant to cover pea coal and smaller sizes, which have become merchantable.



FORESTRY CONGRESS.

Important Convention at Washington.

All indications lead us to believe that there will be a large and representative attendance at the Forestry Congress which is to be held in Washington, D. C. the first week of this month.

The purpose of the gathering, as announced in the official call, is to establish a broader understanding of the forest in its relation to the great industries depending upon it; to advance the conservative use of forest resources for both the present and future needs of these industries and to stimulate and unite all efforts to perpetuate the forest as a permanent resource of the nation.

The men who are to constitute the congress have all made a study of the various perplexing questions upon which they are expected to express opinions. They are all cognizant of the commercial necessity and value of timber, and each of them realizes the dire results which must occur to any large tract of country which is denuded of timber.

The problems which confront these gentlemen are so complex—so apparently diametrically opposed to each other—that at first glance they seem impossible of solution; and yet under a system of state and national control they might be solved as easily as procuring the land, planting, cultivating and harvesting so many acres or square miles of corn or wheat.

Two things are certain: Timber is an industrial and commercial essential, and timber is a "sine qui non" to Nature's plan of irrigation, which involves water supply for agricultural, commercial, municipal and domestic purposes. The drought which has caused stagnation of river traffic for the past seven months would probably not have occurred if the ridges within a circle of 200 miles of Pittsburgh had been covered with timber.

The government can and should make the Ohio river navigable the year around, and it can aid its own work by co-operating with the Forestry Movement.

Let us hope for large results from the deliberations of the Forestry Congress.



NEXT—

Provision has been made for digging, constructing and operating the Panama Canal. That question is settled; the work will proceed and be accomplished. The next duty of the government is to make perpetual navigation possible from the Great Lakes to the Gulf of Mexico.

Captain Dravo, in the brief article which appears in another column, merely hints at the commercial necessity, feasibility and profit of a navigable stage of water throughout the year from the fountain heads of the Ohio to the delta of the Mississippi rivers. The expense may appear enormous but the profits which would accrue to the nation are beyond the possibility of estimation. If the venerable "Dean of the Water-ways" could have the attention of the business men in the districts adjacent to the rivers for one brief hour he would arouse such enthusiastic unanimity of action that Congress would consider expense only as a factor to incalculable profit.



PREVENTION OF MINE ACCIDENTS.

That was an important suggestion and one worthy of most serious consideration which Chief Mine Inspector James Roderick placed before the inspectors of Luzerne County at their meeting, Dec. 17, at Wilkes-Barre. The inspectors were considering some effective plan to be established which would prevent accident by falls of coal and rock. Mr. Roderick said: "The law imposes many duties on foremen, and the companies expect, and justly too, that as they pay them, their first duty is to guard their interests, especially in seeing the coal is taken out. The safety of the men at the 'working faces' is almost the last thing that is to be considered.

"I do not desire to criticize the overworked official mine foreman because he does not comply with the requirements of the law. I know that it is a physical impossibility for him to do so and at the same time do his duty to his employer. It is my opinion, however, that the

coal companies should engage a sufficient number of assistant foremen for the very important duty of examining the working places of the mine.

"These foremen should direct that every working place be examined every day and properly secured by props or secured so that safety be assured, so far as possible. They should also see that no person be permitted to work in an unsafe place except for the purpose of making it secure."

Daily visits of assistant mine foremen to all dangerous places, and legislation which would impose a penalty on those who enter, or allow others to enter a chamber before it is deemed safe by the proper authorities, would doubtless prevent many accidents and save many lives.

That the present law does not meet the requirements, and that direct legislation bearing on this particular and important question necessary is not only the opinion of Mr. Roderick, but of most of his assistants.

BRITISH COLUMBIA ANTHRACITE.

Coal mining interests in British Columbia expect to show a record breaking production this year, American capital having become interested in marketing the foreign product.

The entire product of two Vancouver Island Mining Companies is now sold in San Francisco where the Company handling the anthracite has its head offices and is making vigorous efforts to extend its business. Such success is being met that there is reasonable possibility that before very long the bulk of the entire Pacific Coast supply will be drawn from this rapidly developing field.

How the inroads of the British Columbia coal trade will effect our own mining industries, is of course purely conjectural.

The Great Northern Railway Company will have the big steamships of the Seattle-Oriental Line supplied with hard coal from the Comox Mines. The Crow's Nest Pass Coal Company has made contracts for the delivery at Montana points of large quantities of coal and coke, while the extension of the Great Northern Railway to New Westminster, British Columbia, will largely increase coal consumption, as will also the extension of the Great Northern Branch Railway from Jennings, Mont., to Fernie, British Columbia, which is to be completed this winter.

It is announced that the anthracite mine at Bankhead, Alberta, is proving most successful, and is more important than those located at Anthracite, near Banff, or at Canmore, ten miles farther east. It is expected that the coal from the Vancouver Island mines at Comox, and the Canadian Pacific Railway mines at Bankhead, will enable householders in the West to use anthracite as freely as has been the custom in the east.

No doubt sooner or later the extension eastward of the British-American trade will make its influence felt on the producers in the eastern fields.

Congressman Henry Kirke Porter declares that "President Roosevelt is heartily in sympathy with the project to canalize the Ohio river its entire length with ample

depth." The provision for and inauguration of this immense national benefaction ought to be one of the greatest achievements of this administration.

GOOD NEWS.

Good news comes from Washington with the new year. Assurance is given that the nine-foot channel from Pittsburgh to Cairo will, within the next few years, be an accomplished fact.

In the river and harbor bill which is to be reported to Congress about January 15, will be two items which commit the United States Government to the undertaking and eventual accomplishment of this mammoth improvement. One item provides for a survey of the Ohio river from the mouth of the Big Miami to Cairo for a nine-foot stage, with a probable appropriation of \$200,000 to cover cost of same. The other item provides an appropriation of \$382,000, for the purpose of altering the dams and locks from Pittsburgh down to lock No. 6 below Beaver, extending the Pittsburgh harbor and providing a nine-foot stage to that point. There will be other appropriations for Western Pennsylvania, but these are the two most important ones.

Now what is needed is the continued and persistent activity of not only the great commercial, industrial and political interests, but the direct influence of individuals and the public at large. If there is apparent public indifference, there will be legislative apathy. The Ohio and Mississippi rivers form a great national highway of such immense commercial value as to directly affect more people financially than any other public highway on this continent;—it affects YOU. The ball is moving; use YOUR influence to keep it going.

THE BITUMINOUS MARKET.

Mr. W. R. Woodford of the Pittsburgh Coal Company summarized present market conditions in the bituminous field for "Coal and Timber" as follows: "There is not much to be said. Naturally prices are stiffening a little, principally on account of the difficulty in obtaining cars and the uncertainty of delivery by the railroads. However, the market is in a very satisfactory condition; the supply is sufficient, and the outlook for the immediate future is very encouraging."

The vast influence which the Panama canal is going to exert upon the flow of commerce is beyond all computation. It will certainly work great industrial transformations, and the states of the interior of this continent should make ready for the momentous change. A work whose national value is indisputable is the canalization of the Ohio with a nine-foot channel, and now is the time to begin.—"Pittsburg Gazette."

In spite of its close proximity to enormous coal deposits Knoxville is paying \$4.25 a ton for domestic coal which is almost as high as Pittsburgh coal in New Orleans, more than 2,000 miles by water from where the coal is mined.

THE POSSIBILITIES OF RIVER TRANSPORTATION

By Captain John F. Dravo.

The writer, for nigh three quarters of a century of active hand and brain toil, has lived on the banks of the Monongahela and Ohio Rivers, an eye witness of the various moods of these great waterways of commerce, sometimes at flood height when with resistless force their accumulated waters push their way out into the Gulf of Mexico—or, as the days went by, the flood currents gave place to mere rivulets, as at present writing, winding their way along the deserted pathway of retiring floods that had filled the river highway from shore to shore, and which, if properly utilized, would have extended boating facilities sufficient to move the surplus tonnage of half a dozen Greater Pittsburgs.

In view of the ever recurring congestion of freight traffic, and consequent commercial distress, it seems strange that these recurring floods have not been used for an extension of shipping facilities; for as great as are our rail facilities, commanding an army of employees and many millions of capital, such is the ever increasing tonnage of the Pittsburg district that freight congestion seems to be a normal condition. The possible relief from such an embarrassing and disastrous condition is made clear by the figures of one day's river shipment from the Port of Pittsburg, June 24th, 1903, amounting to 399,350 tons as reported by the Pittsburg Chamber of Commerce, and if multiplied 365 times would amount to 124,772,750 tons, or divided 4 times, 31,193,187 tons, which backed by present rail capacity would relegate freight congestions to the history of the past. The great want of Pittsburg's vast industries is the continuous navigable conditions of our rivers the year 'round, which added to the enormous rail capacity at command, assure prompt delivery of the various forms of merchandise and the reliable incoming of needed supplies. This has been the aim and hopes of river men for all these years of strenuous efforts. Such possible river conditions are not among the unsolved problems of curent times. The Monongahela river is under the lock and dam system from the mouth to head waters, Fairmont, W. Va., bringing about a magnitude of trade conditions, considering the length of improved river, without parallel in the world's history. The process by which such marvelous results are secured is exceedingly simple, by artificial means retarding the flood of waters and holding them for service during the non-flood periods of the year. The system of pooled waters is under construction in the Ohio river but not yet sufficiently advanced to be available for transportation use and as a matter of fact, the upper Ohio river at the present time has less water than at any former

period within the memory of its navigators. The people below want our coal while mines and miners are idle for want of means to move the millions of tons in loaded crafts.

Continuous navigable conditions of our vast systems of rivers and lakes are essentially necessary for the largest industrial and commercial prosperity which, when secured will so dwarf present conditions that the disturbing problem of costs for improvements will be forgotten. When the great inland waterway is completed and joined to Gulf and Ocean, starting at the head waters of the Monongahela river and for two thousand miles traversing three great valleys stored with inexhaustible resources of wealth and power, an empire of colossal possibilities, the envy of nations and the pride of the great Republic, a magnificent accomplishment of the original



CAPTAIN JOHN F. DRAVO
"Dean of the Water-ways"

delegated authority to man to subdue and possess.

The contention for larger shipping facilities is justified by the growth of population and the increase of industrial plants in the lower valley, increasing the demand for such requisites that it is the mission of the upper valleys to supply. The cost of rail delivery of coal, iron products and other heavy material in the lower Mississippi valley is so great as to render their use for commercial and industrial purposes impracticable. In view of the writer's ardent defense of river interests, lest the above averment be misunderstood, it may be in point to say that in his opinion the rail system is as necessary for a full supply of the wants of the valleys named as the water system. The largest possible mutual development of both systems is a pressing necessity. There ought to be no unnecessary hindrances, no limitations to the full capacity of both systems. It is ardently hoped that coincident with the

completion of the Panama Canal there will exist a condition of continuous navigation adequate to the wants of commerce from the headwaters of the Monongahela river to the mouth of the Mississippi. The cost of the Panama Canal added to the cost of continuous river navigation connecting with the canal by way of the Gulf of Mexico may be large, enormous, if the reader so conceives, but in view of the assured results such cost ought not to be a discouraging factor. In national developments, some things must be done, regardless of cost. A continuous navigable outlet at the lowest possible cost for inland commerce to the oceans of the world is one of these overmastering necessities.

The stupendous agencies of nature in the past, dating back for uncounted centuries, have conferred upon this marvelous valley, reaching from head waters to the Gulf of Mexico, legacies of immeasurable value. The importance of the carboniferous deposits is beyond computation. The Coal measures of the Monongahela portion of the great valley are sufficient to furnish motive power for all demands for a thousand generations. Coal is the basic factor of the world's industries, an essential requisite for great national development. It is, therefore, hoped that the large men in our national congress who are giving shape and form to the present and future of the Great Republic will recognize the priceless value of the legacies which in the processes of Providential allotment have fallen to the American people by a wisdom which forecasts and provides for the wants and possibilities of the present and the coming years of Anglo-Saxon occupation of the land of the free and home of the brave

MODEL OF COAL PLANT

Of the Fairmont Coal Company at the World's Fair Has Been Purchased by the U. S. Government.

One of the most unique and interesting features of the World's Fair at St. Louis was the exhibit of the Fairmont Coal Company in the Mining and Metallurgy building. The exhibit covered a large part of the hall, but the thing in particular which interested most people was the exact representation on a small scale, of one of the Fairmont Coal Company's mines. The mining exhibit showed a complete coal mine, tippie, elevators, washing apparatus, coke oven and all the necessary equipment to the successful operation of a plant. The exhibit cost in the neighborhood of \$15,000 and attracted much attention.

The United States Government deemed the exhibit of sufficient importance and of such exactness that it made a proposition to the coal company's officials to take the exhibit and place it in an institution to be erected in the capital. The exhibit is now in charge of the government and has passed entirely out of the hands of the coal company.

HARWICK MINE

Again in Operation—Stockholders of Allegheny Coal Company to Vote on New Bond Issue.

The Allegheny Coal Company has called a meeting of stockholders for January 23, to vote on a proposition to increase the bonded indebtedness of the company from \$300,000 to \$450,000.

George E. Alter, counsel for the company, said that the repairs of the mine were practically complete and that the mine was now in operation, increasing its output and putting in more men almost daily.

The money is needed to pay the expenses of the repairs and to increase the capacity of the mine, and that there is no call upon the company to pay damages for injuries sustained by the victims of the explosion. The company does not expect to be called upon to pay any such claims, according to Mr. Alter's statement.

COKE FOR ARIZONA.

Thirty Cars Travel Nearly 3,000 Miles.

A solid train of thirty new steel cars loaded with-coke was sent in December from the Geneva coke plant of the Pickands-Magee Coke Company, near Mazon-town, Pa., to the smelters of Phelps, Dodge & Company, at Douglas, Arizona, a distance of nearly 3,000 miles.

In explanation of this unusual shipment, Mr. W. C. Magee said: "Phelps, Dodge & Company of New York, who own the largest smelting interests in this country, also control the El Paso and Southwestern Railroad. They ordered 30 cars from the Pressed Steel Car Company for use on the railroad and when the cars were finished they were loaded with coke, as a matter of economy and not because of any scarcity of coke in Arizona. The incident has attracted considerable comment and many erroneous conjectures have been made, but we did not consider it as worthy of any special attention."

—Prospects of the successful mining of coal at Walnut Cove, in Stokes County, N. C., appear now to be bright. For years coal has been used locally, it cropping out above the surface at many points in the vicinity. Some months ago the Virginia Anthracite Coal Company of Camden, Va., secured leases on about five thousand acres in the surrounding country. Its headquarters are at Walnut Cove, and it began actual operations December 1st. It is said that a six-foot vein has been struck, and that the same vein had been found at two points, one a mile, the other two miles below the first point, and that every indication showed a rich, easily worked deposit of anthracite coal.

THE PITTSBURG COAL EXCHANGE ITS WORK ESSENTIAL TO IN- INDUSTRIAL PROSPERITY.

By J. Frank Tilley.

The Pittsburg Coal Exchange is an organization which has for its object the protection and preservation of navigation, which condition, like liberty, in this respect, is only secured by eternal vigilance. The officers of the Coal Exchange are Samuel S. Brown, president; John A. Wood, vice president; John F. Dravo, secretary; J. Frank Tilley, assistant secretary and treasurer.

The ideal conditions of navigation which the Coal Exchange set out years ago to secure, namely, a cessation in river encroachments, free navigation, wide channel spans in bridges crossing the rivers used by Pittsburg's commerce, the removal of obstructions from the rivers, and the slack-



J. FRANK TILLEY
Assistant Secretary and Treasurer, Pittsburg
Coal Exchange.

watering of the Ohio river, have been and are being largely realized and broad-minded men in both branches of the Congress have recognized the justice of rivermen's claims in the enactment of legislation that has resulted in bringing about the ends desired.

There never was a keener appreciation of our waterways as arteries of trade, relieving the plethora of the greatest throbbing center on earth to-day, namely, the Pittsburg district, which is abundantly able to act as the heart of the universe, throwing the vitalizing blood of commerce along every channelway to the uttermost limb of the universal body politic, assimilating and building up a healthy trade condition, which by re-action shall stimulate the great central organ to inconceivable activities, making Pittsburgh indeed the very heart of the world's latest and most material progress. Now every loyal Pittsburger should study these questions and do all in his power to

ward off heart disease. Fatty degeneration is threatened and it is very dangerous. Circulation, so far as it can be provided by rail, has about reached the limit, and our waterways now offer the only channels to relieve the vital congestion. Relief should come at once to avoid the so much to be feared degeneration. A little fat on some parts of the body is all right, but it is no sign of health to have it accumulate around the heart, a condition with which Pittsburg has been threatened for several years, with the acutest stages yet to come, unless every man turns doctor and sees to it that the head surgeon, Congress, orders new outlets for our stagnating life blood.

FRIGHTFUL RIVER ACCIDENT.

Tow Boat Defender Blown Up and Many Lives Lost.

As we go to press word is received of the terrible disaster to the big tow boat, Defender, at Huntington, W. Va., on the night of January 3rd. As she was rushing back to Pittsburg her boilers exploded, blowing the crew of 36 or more into the icy waters. Ten dead bodies have been recovered; five or six men are so badly burned and scalded that their lives cannot be saved, and six of the crew are unaccounted for. The boat and several of the barges are a mass of ruins and a total loss.

The Defender was one of the largest and was one of the first boats out of Pittsburg on the recent rise, taking a heavy tow of coal to the Cincinnati market. She was owned by the Monongahela Consolidated Coal & Coke Company of Pittsburg, and was in charge of Captain James Woodward of Pittsburg, who is considered one of the most efficient men on the river. The captain was blown into the river but after a separate struggle in the freezing waters he was rescued and taken to the Ohio shore. The extent of his injuries is unknown.

Among the injured is a woman whose name is not known. Her condition is described as "horrible."

Those rescued from the steamer are all so seriously injured that they can give no information concerning the accident, not even names. Many of the dead are burned to a crisp and can never be identified.

—More than \$100,000 worth of timber land is involved in the trial of a test which is being heard before Judge Endicott in Camden, N. J. A dozen or more parties have brought suit against the Central Railroad of New Jersey for damages for timber burned by fire caused, it is alleged, by locomotive sparks. Judge Gaskill, of Burlington, Lawyer Barcalow, of Freehold, are counsel for the railroad and Ex-Judge Westcott and Lawyer Rex, of Camden N. J., are counsel for the plaintiffs.

Subscribe for "Coal and Timber," \$1 yearly.

THE RUSH ON THE RIVER.

By Fred L. Long.

About six million bushels of coal were sent from the Pittsburg harbor to Cincinnati and cities south on the recent rise in the rivers. The boating stage came after one of the longest suspensions in the history of navigation on the Ohio and ended one of the severest drouths this section of the country has ever known.

The coal shipments were made under peculiarly difficult conditions this year, which curtailed the amount sent out about one-half. Rivermen had confidently believed that fully 14,000,000 bushels would get out on this rise but a series of accidents and bad weather conditions prevented this.

The long drouth had lowered the water in the Monongahela to such an extent that comparatively little coal had been brought down from Pool No. 4 to the lower harbor and the first boats out took with them just what was lying in the Davis Island pool awaiting a rise. All the boats in the



"BON VOYAGE"

R. SIDNEY SMITH in "The Post"

harbor were hurried into service and the work of rushing coal down from the upper pools was carried on night and day. The first boat through the lock at Davis Island the morning of December 26, when the water was at a stage that permitted of shipments being made, was the Tom Rees, with 17 barges. Following the Rees were the Export, Enterprise, George Cook, Ranger, Volunteer, Mary C. Jones and Twilight, all of the Monongahela River Consolidated Coal & Coke Company's fleet. The United Coal Company sent out the Harvester, Flint and Helen White. The Oakland and Crescent, for the same Company followed later. The Gleaner was among the boats sent south by the A. R. Budd Company.

Shipments continued briskly Monday and Tuesday and rivermen were calling it one of the nicest rises on record and had high hopes of getting out practically every boat laden in the rivers. Wednesday one of the heaviest gales in the history of the weather

bureau struck this section of the country, and all navigation ceased at once. For a time the velocity of the wind reached a speed of 54 miles an hour, a record breaker for Pittsburg. All that day and part of the night it continued, while great towboats lay helpless at safe landings, not daring to face the waves which were rolling in the river and would have swamped any barge that ever floated in a few minutes. Thursday the wind had died away and navigation was again resumed.

An unfortunate accident to the Crescent, of the United Company's fleet, at Merriamans, closed the channel Thursday afternoon, and that day and the next, government employees were busy blowing out the wreckage with dynamite. This caused another lost day and before the wreck had been finally cleared away the rivers were commencing to fall. The Monongahela Company had got out about 3,000,000 bushels, and the other river companies about as much more. By Saturday the coal shipments were done. The rivers had dropped to a point which made towing dangerous.

The long shutdown due to the drouth was productive of one good thing, at least. It convinced the rivermen that more decided pressure would have to be brought to bear upon the national legislature to secure the improvement of the Ohio river to a nine-foot stage. The millions of dollars invested in the river coal business had been tied up, unproductive, for months, awaiting a rise in the river which came at last and then left the navigators comparatively helpless, owing to adverse weather conditions.

As a result of accidents about 200,000 bushels of fuel was lost on the trip down. Practically all of the rest reached its destination in safety. The value of the cargoes sent out, it is estimated, would run considerably over a half million of dollars. This was a comparatively small sum, however, to what the shippers had at first counted upon. The rise was productive of good, also, in permitting resumption at the river mines on the upper Monongahela. Fully 10,000 men were ordered back to work this week as a result of the stage of water being such as to permit of empty coal boats and barges to be brought up the river. All summer over a thousand boats and barges have been lying at various landings along the river. These are now being brought up and distributed at the various coal works. The result on the monetary situation in Western Pennsylvania will be a most important one within the next month.

—Suit has been filed in the district court at Trinidad, Colo., by the Victor Fuel Company against the United Mine Workers of America, John Mitchell and 11 other officers of the organization for \$941,000 damages alleged to have been sustained by the Company during the strike of coal miners.

THE EASTERN OHIO DISTRICT.

By Emerson Campbell.

Wheeling, W. Va., Dec. 31, 1904.—The month of December in the coal fields in Eastern Ohio has not proven a prosperous one for either the operator or the miner. With the exception of only a few mines the average time will not exceed one-half, which has made the business very unsatisfactory. The tonnage for the month of December compared with that of 1903 is far short. Some operators say it has fallen off over one-third with little prospects for improvement for at least two months. The cause is the total inability of the railroads to furnish the mines with cars, and especially has this been felt by the operators on the Wheeling and Lake Erie Division of the Wabash. This latter road has a large number of new cars ordered and expects them soon, as the railroads have lost much in not being able to take care of their trade.

Since the closing of the lake trade some of the operators have had to hunt for new



JUPITER PLUVIUS—"Sammy, if you had watered this plant as you should have done I wouldn't have to work during the holidays."

Jamison in "Pittsburg Dispatch."

markets, and on this account coal is being sold on a very close margin, as the Ohio operators have to compete with the mines of West Virginia, and the latter are able to sell coal very cheap. The coal from this section is now shipped mostly to the west, as follows: Indiana, western Illinois, and Michigan, while a good bulk of it goes to northern and northwestern Ohio.

The twenty some mines on the Wheeling and Lake Erie and its system, have only made half time and the greater part of the trouble is on account of not being able to secure cars. On this road the M. A. Hanna Coal Company, which has four mines, and the United States Coal Company, which has ten openings, have fared the best, and can sell all of the coal they can mine. The other operators on this road have had work probably three days a week. The Long Run Mine on this road resumed this week after being idle for almost a year, the

greater part of the trouble being over a difference with the miners, which has now been settled.

On the Wabash and Adena road Troll Brothers' mine has worked more than half time and has been able to mine their full capacity when in operation. The Provident Coal Co., on this same road, has made about half time.

On the C. L. and W. division of the Baltimore and Ohio the operators have suffered much from not being able to get cars. The Lorain Coal and Dock Co., the Youghiogheny and Ohio Coal Co., the largest operators, have not made better than half time on account of cars. The other mines have suffered from the same cause. On this road the mines have been promised better treatment in the way of cars from now on.

The Cleveland and Pittsburgh road have been able to treat the mines better than the other roads, and the half dozen mines on this road in this district have made about two-thirds time. Among the mines that have fared well is the Gaylord Coal Co. That has the W. and L. E. to ship on, giving it two roads and this mine made almost full time. The Yorkville Coal Co. and the Russell Coal Co. at Tiltonsville have done well, considering all.

On the main line of the B. and O. west of Bellaire, the mines have suffered the same, and the best record is half time; but they are promised more cars after the first of the year.

During the month one strike was reported. This occurred at the Pultney mine of Morgan & Co., south of Bellaire. The company objected to the check weighman that was elected by the miners, and refused to allow him to go on the tippie. The men then went out on a strike, which lasted for two weeks, and was ended by the check weighman that was elected resigning, and the miners electing one that was satisfactory to all. One hundred and forty men were affected.

The small operators have been holding conferences in Wheeling for the purpose of establishing a selling agency, or, at least,

to agree on a minimum selling price, but the result is not yet known.

The new rules adopted by the mine inspectors of the state of Ohio and to be first tried in the Fifth sub-district for the prevention of accidents, has now been in force for one month, and while it is yet early to form conclusions, it is the opinion of the deputy inspectors that it has done much good.

J. Edward Johnson, of Columbus, general manager of the Lorain Coal and Dock Co., who have three mines in the district, stated to your correspondent last week that at the present time the operators were selling coal on the smallest possible margin, but that he expected prices soon to advance.

The miners' union of the Fifth sub-district of Ohio, including also the Panhandle

take possession February 1st. This is said to be the largest coal deal ever made in the United States. It covers 13,000 acres of land and coal rights and several mines, one of which has the largest output of any in the state. It also includes company stores and miners' cottages.

COMPANY TO PAY MORE TAX.

Assessment of One Coal Company Increased \$400,000—Others Must Pay More

Cumberland, Maryland—The Allegheny County Commissioners have summoned before them representatives of all the coal companies in the county, with the view of readjusting the assessment of their property. It was decided to increase the assessment of the Consolidation Coal Company, the largest operator in the county, \$400,000. Several companies, which recently opened small veins and which were not on the books, including the Rock Vein Coal Company, were noted for assessment. As a result of the reassessment the county treasury will be enriched by at least \$6,000 a year in taxes. Representatives of coal companies, including managers and attorneys, were present, and the matter was amicably arranged.

—The extension of a short railroad line from Artemus, Knox County, Kentucky, up Brush Creek in the direction of the Jellico coalfields has again aroused a great deal of interest there. Some say the short line will be used as a connecting link of the proposed Burgin road, which, it is said, is being engineered by the Southern, and the southern terminal of which is to be Jellico, where it will connect with the K. & O., and thence into Knoxville. Notwithstanding the extensive work done in this section by both the Southern and the L. & N. within the last two years, the work in the coalfields through mountain and dale by civil engineers of both roads within the last few months would seem to indicate that the plans of these two Companies are to see which can be first in their attempt to tap every coal vein through the mountains of Kentucky and Tennessee.



GOT OUT AHEAD OF OLD BOREAS.

O. C. SHIRAS in The "Chronicle Telegraph."

district of West Virginia, will hold their annual convention in Bellaire during the early part of February. No scale will be made at this meeting as the present scale will be in effect for one more year. The only business they will have is that regarding the welfare of the union. The district has 11,000 miners.

Thomas L. Lewis, national vice president of the United Mine Workers of America, is ill at his home in Bridgeport with rheumatism.

—Mike Kelly has sold his coal interests near Danville, Ill., to an eastern syndicate represented by Congressman-elect W. B. McKinley for \$3,200,000. The new owners

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NEW STANDARD STEEL MINE CAR

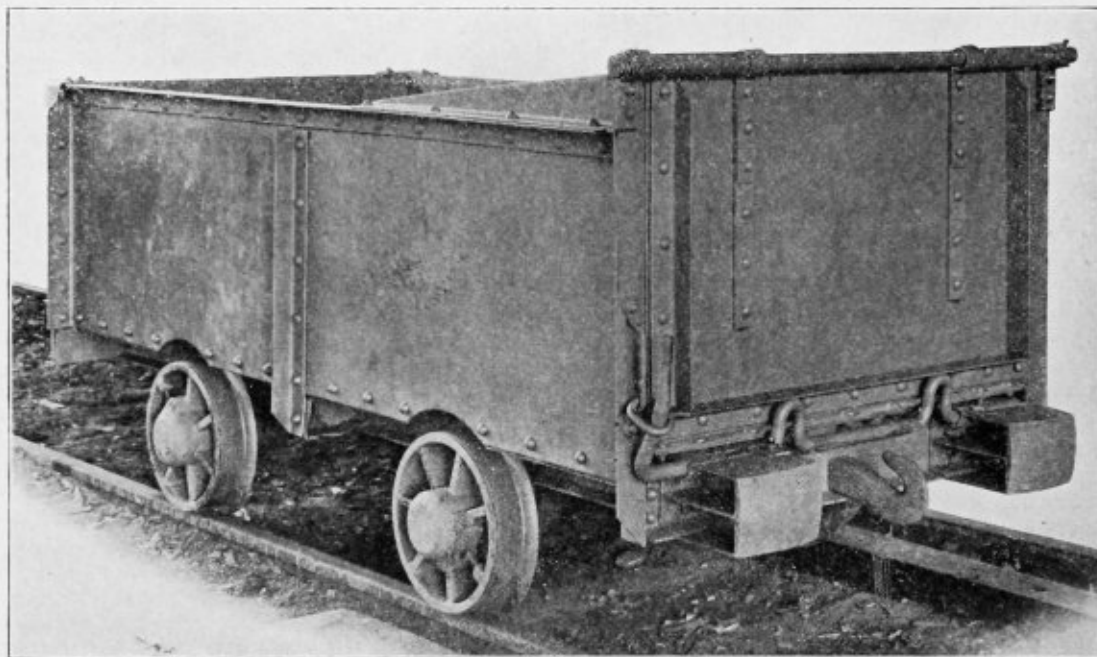
Made For Lehigh Valley Coal Company By
Standard Steel Car Company.

The use of steel in mine car construction, while not a new subject, is at the present time, however, interesting those having to do with the operation and maintenance of such equipment. We believe we are safe in making the statement that the steel mine car has passed out of the experimental stage in so far as the question of economic operation is concerned. Steel mine cars

are thus facilitated and presumably they would cost much less as no special forms are used in its construction.

The car herewith shown is of two tons capacity. The sides, floor and end sheets are of one-quarter inch ($\frac{1}{4}$ ") material; the end bumpers are of malleable iron. One commendable feature of this car, while in itself very small, is noticeable in the arrangement of the angles on the rear end of the car; a small steel cap fastens the corners of the car at this point, which is flanged down, forming a smooth round surface at the corner, thereby protecting both men

the impracticability of the extended use of steel plates in mine car construction. This argument has been dispelled through the practical results obtained, and for the information of those who are interested in this phase of the subject we would mention the use of steel plate on locomotive tenders, where these plates, we believe, are subjected to the most severe treatment possible in this direction, being in contact continually with the coal and in addition to this that of constant exposure to the chemical action of the elements. From best information obtainable as to the life of these



NEW STANDARD STEEL MINE CAR. Made by Standard Steel Car Co.

have now been in service a sufficient length of time to prove the desirability of the general adoption of this form of car by many companies. The above cut is representative of standard design of mine car adopted by the Lehigh Valley Coal Company, and a number of which have just been built and delivered by the Standard Steel Car Company. This car is arranged to meet local conditions, but in a general way is representative of the designs adhered to in the construction of steel mine cars wherein structural shapes are used, these being obtainable in the open markets. The repairs

and animals from serious injury due to sharp projecting flanges.

This class of car has proved to cost materially less for repairs than the wooden car, and the life of the car is approximately twice that of the wooden car. Another thing to be considered in connection with the steel car is the fact that this car has a scrap value when unfit for use as a mine car.

The question of the serious deterioration of steel through the effects of sulphur in a high sulphur coal is an argument which has been advanced by the skeptical as to

tank sheets it is materially greater than the life of the wooden car.

The weight of these cars vary, of course, in accordance with the thickness of material used in the sides and the accoutrements used in the car, such as wheels, boxes, draw bars, bumpers, etc.; but in most cases the weight of the steel car designed to take the place of wooden car is materially less than that of the wooden car. The general construction and special features of the car are clearly shown in the cut, and we believe that they will need no further detailed description.

We have printed and distributed 5,000 copies of this issue of **COAL AND TIMBER**, and we want every reader to subscribe. We will send the paper one year for \$1.00.

Coal and Timber Publishing Co.

\$200,000 COMPANY**Begins Mining Operations in Washington County, Pa.**

The Pittsburg and Washington Coal Company, made up mainly of Pittsburg capitalists, and capitalized at \$200,000, have put in operation one of the principal coal plants in the western part of Washington County. The company has about 1,400 acres of coal territory and several hundred acres of surface in Independence Township. The price paid was not made public. Among the farms purchased were the J. E. Perrin, D. A. Brownlee, J. E. Vance, J. B. Painter, M. T. Murdock and the Rev. W. F. Brown.

The coal block is located in the northern part of Independence Township near the Wabash Terminal Railroad line, the mine being in the D. A. Brownlee farm next to the S. S. Campbell farm.

The West Middletown station on the Wabash is also located at this point. A petition is now under circulation in that part of the county to have the name of this station changed from West Middletown to Independence. The mine will have two entrances. The main shaft has a slope of 260 feet, having 27 degree grade. The Pittsburg vein of coal was reached at a depth of 72 feet. The vein is five feet two inches in thickness.

The company already have their railroad connections and tipples complete, as well as their power house, boilers, pumps, compressors and chain-haul, and began driving entries about the first of January. Ten blocks of miners' houses have been built.

The officers of the new coal company with the directorate are as follows: President, Edward J. Kent, of Pittsburg; secretary and treasurer, George E. Turner, of Pittsburg; directors, W. L. Dixon, V. M. Moss, Edward J. Kent, W. B. Bennett, George E. Turner, Lawrence Barr, J. J. Mackin, John Graham, of Pittsburg; B. M. Blake, of Altoona, and B. M. Moss, of Youngstown, O.

1,000 ACRES, \$1,000,000.

H. C. Frick Coke Company Buy Large Coal Tract.

A coal deal running up into the millions has been closed at Uniontown. The H. C. Frick Coke Company have purchased the holdings of J. V. Thompson in Fayette county. This comprises several tracts of fine coal. Most of it is in the Lower Connellsville region. The coal is the regular nine-foot vein and most of it joins tracts already held by the Frick Company.

The Frick Company is a subsidiary company of the United States Steel Corporation, and the property bought is said to be the last piece of coal land held by private individuals in the Connellsville region. The property lies in North and South Union Townships, near Uniontown, Pa., and the price paid was approximately \$1,000,000.

The deal includes sixty-three acres in the Klondike region and 100 ovens known as the Crossland plant. The deal was for a total of 1,000 acres.

PITTSBURG COAL COMPANY AND PITTSBURG-BUFFALO CO.**Make An Important Deal.**

As a result of a deal perfected by Francis L. Robbins, president of the Pittsburgh Coal Company, and John H. Jones, president of the Pittsburg-Buffalo Company, the Pittsburg Coal Company has purchased from the Pittsburg-Buffalo Company their Blanche and Rachel mines, located on the Wheeling division of the B. & O. Railroad, and the Peters creek branch of the Monongahela division, Pennsylvania Railroad, respectively, in exchange for an acreage of coal ad-



FRANCIS L. ROBBINS,

Executive Head of the Largest Bituminous Coal Interests in the World.

acent to the Bertha mine of the Pittsburg-Buffalo Company, located on the Wheeling division, Baltimore and Ohio Railroad, and stock in the Pittsburg Coal Company.

In this transaction the Pittsburg-Buffalo Company renews its contract with the Pittsburg Coal Company for the handling of its lake coal for a term of three years, and agrees not to make any new developments of coal properties in the Pittsburg district for a certain term of years. This will postpone the building of the extensions of the Pennsylvania and Baltimore and Ohio Railroads into the large coal properties owned by the Pittsburg-Buffalo Company for a number of years, and eliminates the Pittsburg-Buffalo Company as an aggressive competitor of the Pittsburg Coal Company, as their increase, under this arrangement, during the coming year, will only be about 20 per cent. over the present year's tonnage, instead of more than doubling their present year's output, as originally

contemplated. With the Jones interests interested in the success of the Pittsburg Coal Company, this should create a very harmonious feeling in the coal trade.

The Hazel, Francis and Bertha mines, owned by the Pittsburg-Buffalo Company, are three of the largest mines in the Pittsburg district, and are capable of producing a very large tonnage. In addition to these mines the Pittsburg-Buffalo Company operates two mines on the B. & A. V. division of the Pennsylvania Railroad.

PITTSBURG COAL COMPANY'S LAKE SHIPMENTS.

The Pittsburg Coal Company's shipments over the Great Lakes for the season of 1904 amounted to over 4,200,000 tons. This record is second in the company's history only to the great record of 1903, when the total lake shipments reached 4,500,000 tons. The figures of the past year show an increase of 900,000 tons over 1902 and of 1,000,000 tons over 1901.

The showing for 1904 is considered the more remarkable in view of the entire loss of two months of the lake shipping season on account of the strike of the Masters and Pilots Association. All shipments on the Great Lakes were tied up by that strike.

While the December tonnage figures have not yet been compiled, it is estimated the total output for the year will reach 14,400,000 tons.

That an output reaching 14,400,000 tons could be obtained during the past year with the unfavorable conditions the coal industry faced, is taken as evidence that new and important markets have been found for the company's production.

PITTSBURG-BUFFALO COMPANY Make Changes in Official Staff.

The official staff of the Pittsburg-Buffalo Company has been slightly changed. Mr. H. P. Jones has resigned as general manager of the Pittsburg-Buffalo Company and has accepted the position of president of the Big Hill Coal Company, of Richmond, Ky. Mr. Thomas R. Jones, formerly vice president of the Pittsburg-Buffalo Company, has also severed his connection with that company and accepted the presidency of the Pittsburg-Buffalo Company, of Buffalo, N. Y. He will hereafter make his headquarters at Buffalo. The present officers of the Pittsburg-Buffalo Company are Mr. John H. Jones, president; Mr. David G. Jones, vice president and general manager, and Mr. William I. Jones, secretary and treasurer.

—Joe P. Davis has just negotiated a timber-land deal in Greene county, Tennessee, near Greenville, on the Southern railway, whereby the Price & Heald Lumber Company, of Baltimore, becomes possessed of a tract of timber land valued at \$35,000, consisting chiefly of high-grade oak and poplar.

PENNSYLVANIA

WILMORE-SONMAN COAL COMPANY

New Development Near Wilmore Indicated

Ebensburg, Pa.—Two real estate transfers recorded here are generally interpreted as indicating that in a short time the Wilmore-Sonman Coal Company will begin building a new coal town on the south side of the P. R. R. tracks between Wilmore and Summerhill. The settlement will surround operations of the concern named, and the men who claim to know say the new interests will add considerably to Cambria County's many thriving industrial developments.

The recorded deeds show that the Wilmore-Sonman Coal Company paid the Grosser Brothers—Frederick and William—\$10,000 for 161 acres in Croyle Township, and to Samuel Hess and wife, of Summerhill Township, \$902.50 for eighteen and five-one hundredths acres. The Grosser and Hess places afford the Wilmore-Sonman Coal Company more advantageous use of a tract of 5,000 acres in Croyle and Summerhill Townships, which it purchased some time ago from interests represented by the Hon. Lyman D. Gilbert of Harrisburg, as Trustee. The 5,000 acre deal, it was then known, would in due time be followed by the beginning of operations, and the purchase now of surface which gives the Company room on which to build a coal town of the scale planned is generally accepted as showing that work will be soon under way.

The Wilmore-Sonman Coal Company was incorporated under a Pennsylvania charter about a year and a half ago for the purpose of mining coal and other minerals incidentally developed and the manufacture of coal and other by-products therefrom. The corporation was chartered for a period of 999 years and has a capital stock of \$17,000, divided into 340 shares of \$50 par value each. The incorporators named in the charter were J. M. Cameron of Harrisburg, who holds 140 shares of the stock; B. Dawson Coleman, of Lebanon, who holds 100 shares, and Vance C. McCormick, Mayor of Harrisburg, who holds 100 shares and was the treasurer of the Company upon its organization. The three stockholders above named compose the Board of Directors.

—Patrick Markey, of 5 White street, Pittsburg, will receive free coal for a year from the Pittsburg-Buffalo Company for making the best estimate of the popular vote for president in competition with 4,000 contestants. Markey's estimate was 13,976,107 or 450,000 more than the official count. The company allowed all local purchasers of a ton or more of coal from April 7 to November 7 to make an estimate, the majority of which were over 14,000,000.

BIG CHANGE AT ERIE.

The Susquehanna Coal Company Succeeds the W. L. Scott Co.—Will Make Extensive Improvements.

ERIE, PA.—The Susquehanna Coal Company succeeded the W. L. Scott Company on January 2nd. New improvements will be made which it is estimated will cost many thousands of dollars. Engineers of the new Company have gone over the plants in this city and extensive improvements will be made both at East Avenue and at the lake. The Company has engaged offices on the third floor of the Scott building.

S. G. Walker, of Shenandoah, Pa., who has been connected with the William Penn colliery, has accepted the position of superintendent under the new management. He has had long experience in the colliery business and comes to this city well equipped for his new position.

Mr. Thompson of the Scott Company, said: "It is a pleasure for us to be able to state that the Susquehanna Coal Company have taken offices on the third floor of the Scott block for their general western agency, and also that improvements are contemplated here, engineers from the Susquehanna Coal Company having gone over the trestles at East Avenue and the lake, and it is expected that both of these plants will be rebuilt and modernized.

"It is expected that fully as much business will be done by way of Erie as formerly. As the W. L. Scott Company ceased to do business December 31st, the Susquehanna Coal Company opened for business on January 2nd."

SEWICKLEY VALLEY BOOMING.

New Coke Ovens.

The Sewickley Valley bids fair to be the center in the near future of a great development of the coal and coke industry, says the Greensburg Pa. "Tribune." New Mines have been opened and new ovens fired.

Preliminary work has begun on the construction of the new coke ovens at Blackburn. Lumber and other materials are being sent to the grounds. The ovens are being built for the Penn Gas Coal Company and are seventy-five in number. It is said a number of negroes will be used in their construction. Frank McConegly of Pittsburg and W. J. Weakland of Greensburg are here supervising the preparations.

—The Morss Hill Coal Company has recently been organized at Carbondale, Pa. The new Company has secured a lease of forty-two acres of coal land from the Morss estate and one hundred and eighty-three acres of the tract formerly occupied by the Franklin Coal Company. In this latter tract is the Franklin breaker, which is being repaired and newly equipped for the

Morss Hill Company's operations. This Company, which will do a general mining business, has as its president, John Scott, of Scranton, and as general manager, J. W. Wilce, of Simpson.

IS WAR COMING?

In a recent issue, the Shamokin Herald published the following article under the caption: "Coal Companies Prepare For War."

"Indications point to a lively coal trade for months to come and the probabilities are that work at the mines will be constant and consecutive for the next half year at least.

"This idea is based on the fact that in addition to a good winter demand, many of the large consumers and dealers are gradually loading up with reserve stocks, particularly those who are getting their coal at the usual low contract price.

"The various railroad companies are pushing the work on the addition to their storage plants, with the idea of having these extra facilities ready for use not later than the first of April, when the lowest price of mining companies prevails, and then it is said to be the intention of the corporations to stock up everything that they possibly can during April and May for their own personal reserve supply based on the probable indications of some kind of labor contention between that and the following year. The coal operators say that they will not agree to any arrangements that will increase the price of coal higher than the present figures, that the prevailing rates of the past few years are all that the public will stand, and that if the labor organizations are going to make any new demands they will have to be fought to a finish because nothing that tends to increase the present expense will be considered. On the other hand, there is even talk that the corporation people will insist on the labor organizations reducing prices and getting back to the old time 10-hour work day. This, no doubt, will be the corporation counter move against the labor organization demand for an increase, and the hope is that a compromise will be arranged between labor and capital whereby the mining conditions will not be more costly after 1905 than they have been for the past three years, and in order to bring about a compromise and be prepared for probable strikes and trouble, the corporations are largely increasing their reserve capacity for the coming year.

"Should a battle royal be fought between the coal companies and their employes, after 1095 expires, it is going to be the greatest struggle of the kind ever witnessed."

—The Mifflin Coal Co., of Duquesne, has booked from the Carnegie Coal Co., an order for its entire output the coming year. This will insure 300 men steady work.

—The Ada mine of the Eleanor Coal & Coke Company, at Cheat Haven, Pa., has been leased by the Royal Coal & Coke Company of Uniontown.

—The Mount Carmel colliery, owned by the Lehigh Valley Coal Company and employing 600 men and boys, has ceased operations indefinitely because of a body of water in the mine being in danger of flooding the gangways.

—J. W. McClain of Rostraver township, Westmoreland county, Pa., has returned from a trip to Saline county, Illinois, where he and S. C. Cover of Crafton secured an option on 12,000 acres of land bearing seven veins of coal.

—The mine at Coal Center, Pa., formerly owned and operated by C. Jutte & Co., and which has been idle since April 1st, has resumed operation under a partnership arrangement between Messrs. C. H. Drum, W. H. Greeg, A. C., Wm., and E. E. Bradford.

—The Connellsville Central Coke Company is reported to have purchased 50 acres of coal and 63 acres of surface in Menallen township, Pa., paying \$55,000 for the same. The coal underlies the farms of Oliver B. Jeffries and Jacob B. Graham.

—The Johnetta Coal Company, a concern of the Pittsburg-Buffalo Company, is surveying its 10-mile coal field in the southern part of Washington county. The Pennsylvania Railroad Company is under contract to extend the Monongahela & Washington branch across the National pike into the field and is starting work. The Waynesburg & Greene railroad and the Baltimore & Ohio Short Line also will be built into the heart of this coal field. Eight mines will be constructed in the spring.

—Coke and coal are being shipped regularly now over the Connellsville Central railroad down Dunlap's Creek, from the works at Footedale, Shamrock, Connellsville Central and Buffington, at New Salem, Brier Hill and Orient. Trains of 25 or 30 cars come this way, while other plants continue to ship via the Monongahela railroad river route. Cross-over tracks are being laid near the Albion Hotel in Brownsville, which will be used to switch these trains to the main line of the Monongahela railroad.

—The new shaft of the Westmoreland Coal Company at Rillton, Pa., known as the "Criterion" mine, was put in operation, the cages and hoisting machinery being completed and the first coal dumped December 8. This is one of the most complete mining plants in Western Pennsylvania, the Company having spared no expense in its outfitting, all the machinery as well as the tipples being of the most improved pattern. George W. Wilkes, formerly with the Bessemer Coal Company at Bradenville, is the mine foreman.

—Two masked men entered the Leahy Coal Company's office in the Masonic temple, Altoona, Pa., at noon, December 10,

knocked down clerk Wilbur Ale, bound and gagged him and stole over \$2,000, which had been placed in a satchel ready to be taken to Lilly to pay off the miners. Ale was alone in the office at the time, Paymaster Charles Leahy having gone to lunch. The robbers knocked at the door and as Ale opened it, felled him with a blow in the face, rendering him unconscious. After tying him to the safe the men took the money and disappeared. Leahy found Ale on his return.

—No. 31 mine of the Shawmut Coal Company, at Weedville, Pa., which has been idle for eight months, has started up again and a goodly sized force of men will be given employment. No. 31 is the mine where armed guards were placed last summer for some mysterious reason and have been kept on in varying numbers ever since. A contention over the ownership of the property and a possibility of a forcible attempt at seizure in the hands of Ridgway parties is supposed to have been the cause of the display of arms. It is said the company intends building a tipples at the operation, instead of running the coal to No. 21 mine to be screened.

—The Lynn Coal mine at Milesville, Pa., is on fire. The burrow of a groundhog is said to have been the cause. Over 100 miners are out of work. It will cost the Glassport Coal Company, owners of the mine, several hundred dollars to extinguish the fire. For several weeks Superintendent W. A. Wilson has been aware that fire existed in the mine, but it could not be located until George Crossland, the pit boss, discovered smoke coming from a hole in the surface that had been a groundhog's retreat. Flames from the recent forest fires swept into the groundhog's hole and set fire to the coal. One thousand feet of pipe were laid to the Monongahela River, and engines installed to pump water to flood the mine.

—A suit for \$13,800 was filed recently at Uniontown, Pa., against the H. C. Huston Lumber Company by Thomas and William Flanigan, doing business under the name of Thomas Flangan & Son. The amount is claimed as result of the defendants' failure to carry out a contract alleged to have been made in December, 1902. A second suit against the Huston Lumber Company instituted by Thomas Flanigan claims \$800 on the grounds that the defendants employed him to superintend the construction of a trestle and coal tipples in Springhill township and have failed to pay him for the same. There was no agreement as to salary, but the plaintiff says he worked eight months and believes \$100 per month to be reasonable. Attorney Lee Smith represents the plaintiff.

—The Vinton Colliery Company, operating coal mines at Vintondale, Pa., will also operate at once, mines Nos 1 and 2, owned by the Lackawanna Coal and Coke Company at that place. The Lackawanna Company ceased operations at these mines

shortly after the shut-down at Wehrun. The lease secured by the Vinton Colliery Company covers all the coal property and plants in Cambria County, as well as a portion of their holdings adjoining Vintondale, in Indiana County. According to the term of the lease at least 100,000 tons must be mined annually. The announcement of the resumption of work at Vintondale will be good news to the people of that neighborhood. The Vinton Colliery Company owns one mine at Vintondale, but the new operations will give employment to many additional men and will greatly improve business at that point.

WEST VIRGINIA

CONSOLIDATION OF FUEL COMPANIES.

Another big deal in soft coal which includes the consolidation of the Fairmont and Somerset Coal Company and the Clarksburg Fuel Company, has just been effected by securing control of the Pittsburg and Fairmont Fuel Company, formerly controlled by Archer Brown, of Rogers, Brown & Co., New York.

The company has a capital stock of \$2,250,000 and \$1,500,000 of first mortgage 5 per cent. bonds. It operates five mines and owns 17,966 acres of coal land on the Monongahela river, along what is known as the West Virginia Short Line of the Baltimore & Ohio railroad. The combined companies own about 140,000 acres of coal lands in West Virginia, Maryland and Pennsylvania and large piers and coal distributing plants at Chicago, Milwaukee, Superior, Wis., and Boston. The officers are: C. W. Watson, president; J. H. Wheelwright, vice president; S. L. Watson, treasurer, and T. K. Stuart, secretary. The offices of the company have been removed from New York to Baltimore.

—The tracks of the Coal & Coke R. R. are now laid from Sago, W. Va., to Frenchton, a distance of twelve miles. This road, when connected up to Charleston which will not be long, will be one of the busiest in West Virginia. It runs through a fine coal and timber section.

—A West Virginia charter for the purpose of mining and drilling for coal, oil and gas and dealing in timber lands, etc., has been granted by the Secretary of State to E. C. Twiggo, H. M. McCune, and others, of Clarksburg, W. Va., with a capital stock of \$50,000. They are to operate in Harrison County.

—The Kanawha and Michigan are putting in an extra siding at Black Betsy, W. Va., to accommodate the increasing rail shipments of the Black Betsy Coal Mining Co. This company, under the able management of Mr. Frank Tyree, is making an enviable record for production.

--The Hadley mines on Four Mile, in Lincoln county, W. Va., have put on an increased force and are now ready to ship coal. The mines on the west side of the Guyan river at Hadley have changed hands and are now owned by the Steinberger Coal Company. Forty miners are now at work and the new company expects to put on additional men.

--The Alpha Coal Mining Company, Plymouth, W. Va., are now ready to ship. This company has been working night and day since the first of July, 1904, driving entries, building trestles, tipples, houses, stores, grading for railroad, etc., until now it is prepared to ship about 300 tons per day. This is considered remarkably rapid work.

--The Secretary of State of West Virginia has issued certificates of incorporation to the Pennmont Coal Company of Baltimore, Md., for the purpose of dealing in coal lands and mining coal. Capital stock, \$5,000. Incorporators, L. Walter Lord, Charles H. Schanze, Edward M. Lerp, Harvey H. Wilson and Louis Loters, all of Baltimore, Md.

--The J. W. Mahan Lumber Company of Mahan, W. Va., which has been idle for the last six weeks on account of scarcity of logs, has a supply on hand now and more are being collected for a splash. When this is accomplished it will, with what is already in Paint Creek, produce 10,500,000 feet of lumber and a continuous run for the next eight months.

--The mines at Junior, Barbour County, W. Va., owned and controlled by the Davis Colliery Company, have again resumed active operation after an enforced idleness of six months. Work at these mines was suspended last May on account of the poor condition of the coal and coke trade. The ovens are now in blast, and the mines will be worked to their full capacity.

--W. F. Taylor, president of the Meadow Mountain Lumber Company, Fairndsville, Md., has just purchased 20,000 acres of timber land at Haurer, on the Coal & Iron extension of the West Virginia Central railway, from Mohen and Haurer. The tract is five miles north of Durbin. Mr. Taylor has commenced the installation of a plant to handle from fifteen to twenty cars of lumber a day.

--The Kanawha & Eastern Railway Company is the name of a new coal road recently chartered in West Virginia. The new company will connect with the Kanawha & Michigan Railway at Plymouth, Putnam county, W. Va., and run east for several miles, giving the Alpha Coal Mining Co., the Plymouth Coal and Mining Company and others, rail connections with the Kanawha & Michigan.

--The Secretary of State for West Virginia has issued a certificate of incorporation to the Plaitino Mining & Manufacturing Company, of Waynesburg, Pa., for the purpose of mining and dealing in coal and

mining fire clay and manufacturing fire bricks, etc. Capital stock, \$100,000. Incorporators, J. A. Dunne, J. D. Orndoff, W. E. Spragg, James E. Wood, W. H. Bailey, D. S. Hoover and H. C. Stagers, all of Waynesburg, Pa.

--It is estimated that on the first open day more than 5,000,000 bushels of coal passed out of the Kanawha river into the Ohio on its way to Cincinnati and the Southern market. This is the largest run that ever left the Kanawha. The coal had been lying at the mouth of the river for weeks awaiting a boating stage and fearing that in case of a freeze both the coal and barges would be a total loss, the owners had appealed to the United States engineers for assistance.

--The work on the big coal works of Lewis Findley & Co., at Colliers, W. Va., is in rapid progress, there being a large force of men at work, and the weather has been most favorable for making the outside improvements. The mines are now dumping on an average of 200 tons of coal per day, which is all used for coaling engines on the Panhandle, but as soon as the improvements are completed they will mine hundreds of tons for shipment, making Colliers one of the most important coaling places upon the road. The big improvements consist in the erection of a large coal tipple with all modern appliances for running and unloading coal into cars. At the mines, railroad tracks and sidings are being built and last but not least in these improvements is the bridge over Harmon Creek. The bridge is being built upon concrete block piers.

OHIO

OHIO MINE STATISTICS.

COLUMBUS, O.—Labor Commissioner Ratchford has issued the following figures on coal mining investigations:

Number of mines reporting, 575; increase, 42; number employed (monthly average), 36,460; increase, 5,880; number superintendents, salesmen and office help (monthly average), 901; increase, 168; capital invested in grounds, buildings and machinery, \$32,854,018; increase, \$9,868,445; value of products, \$28,135,893.33; increase, \$4,424,035.65; amount paid for rent, taxes and insurance, \$297,956.44; amount paid in wages, \$19,113,466.75; increase \$3,345,829.92; amount paid superintendents, salesmen and office help, \$900,286.92; increase, \$205,780.56; average number of days worked per employee, \$2.60; increase, \$0.36; average yearly earnings per employee, \$496.60; increase, \$55.32; average hours of daily labor per employee, 8; number affected by advance in wages, 26,950; average per cent. advance in wages, 12.57.

--The strike of coal miners in Massillon district, in which 1,000 men have been in-

involved, has been settled, the employers granting a concession of two cents more per ton for loading.

--Over 100 men are now employed at the Labelle Coal mines, near Steubenville, O. The Company has installed some fine electrical machinery, which greatly aids their work and adds to their output.

--The former Jones & Leady coal mine at Mineral Ridge, O., has been leased by the Jones-Cook Coal Company, of Youngstown, which will operate it on a large scale. New mine machinery will be installed, a switch run in from the Erie, and coal shipped in large quantities.

--The Fair Oaks Coal Mining Company of Columbus, Ohio, capital \$10,000, was incorporated by Hugh F. Dalrymple, Alexander B. Mullen, Matthias Stone, Thomas F. O'Neil and William J. Ford. They will buy or lease coal lands, mine coal and deal in it in a wholesale and retail way.

--The Capital City Fuel Company of Columbus, Ohio was incorporated December 7, by Paul W. Potts, A. W. Shields, W. M. Williams, John W. Seeds and William S. Dresback, all of Columbus. It is to deal in coal and coal lands and operate mines. For the present the company will confine its attention entirely to the wholesale coal business, but later will open mines.

--Officials of the Block House Coal Company, a Wellsville, Ohio, corporation, have let the contract for the construction of a mammoth tipple at the mouth of their mines on the Cleveland & Pittsburg Railroad, near Yellow Creek. This mine has an opening on the Ohio River a short distance east of the Yellow Creek station. It may be that the company in the spring will arrange to load coal on the river. Electricity is to be the motive power used by the company in operating the mine machinery. According to the charter obtained by the company, the right is granted to deal in coke, clay and the disposing of coal either by wholesale or retail. The matter of building a railroad switch to the mines is now under advisement by the Company officials and the railroad interests. The entrance to the mine is through a tunnel under the Cleveland & Pittsburg railroad, and it is likely a grade switch will have to be constructed in the end. Harry H. Leith is president of the Company, and others interested in the deal are H. W. Sinclair and John W. Smith. The Company is capitalized at \$12,000, and incorporation papers were obtained last summer from Ohio.

--Prison Commissioner W. T. Murray, of Tennessee, has given out a statement in regard to the condition of the Brushy mountain mines. He says that the mines have yielded \$140,815.76 over and above expenses for the year. During the year \$25,000 has been spent in improvements, and during the month of November \$73,000 was turned into the state treasury.

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Vol. 1, No. 2

PITTSBURG, FEBRUARY, 1905

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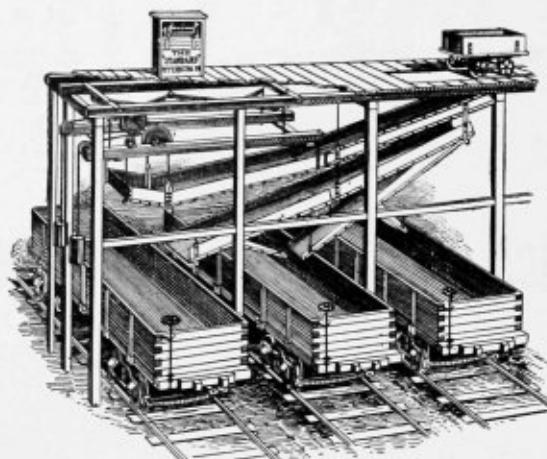
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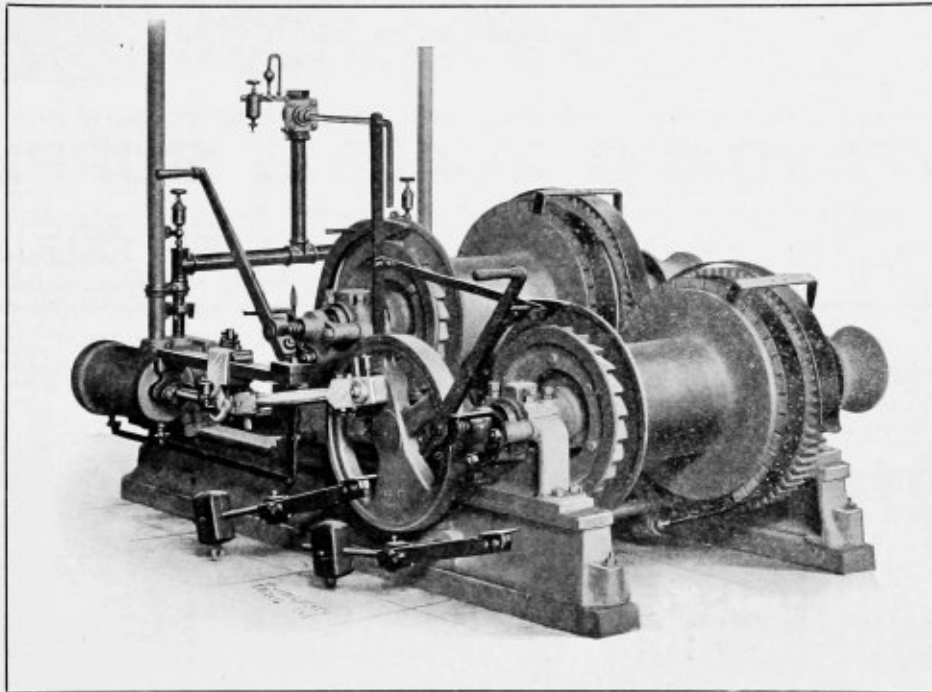
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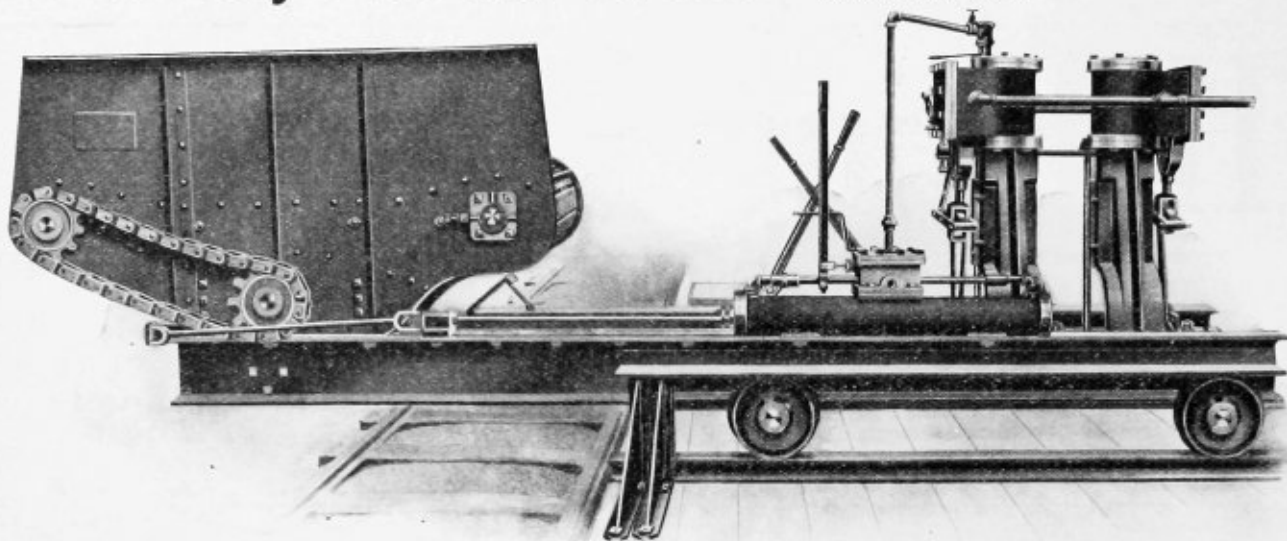
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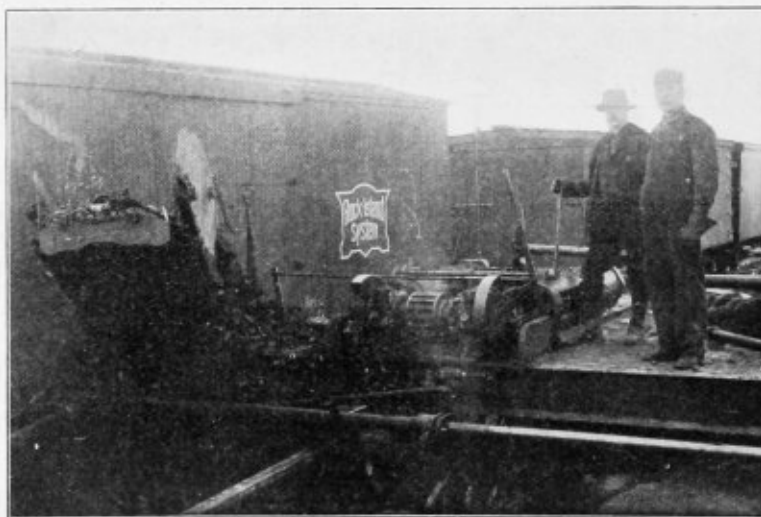
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COAL AND TIMBER

Vol. 1, No. 2

PITTSBURG, FEBRUARY, 1905

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BRIQUETTES

INTERESTING EXPERIMENT

Made by Robert Devillers and Frederick Wood Meeker.

Mr. Robert Devillers, of Noel Sart Culpert, Belgium, and New York, has favored "Coal and Timber" with the results of an experiment with briquettes and some statistics of the manufacture, sale and exportation of this fuel in Belgium, France and Germany.

Mr. Devillers has been engaged in the manufacture of briquettes since his boyhood days and we believe is the inventor of

from Anthracite and Bituminous coal dust with an American machine. As you will notice from this report, Anthracite coal dust can be made into good burning briquettes with the proper machine and binder at a cost which will secure a market for it and leave a reasonable profit to the manufacturer showing many advantages to the consumers as to price compared with Anthracite coal, being free from clinkers and slate as shown from the burned briquettes and also much cleaner to handle.

The stove used for the experiment was an ordinary "drum stove" under "forced draft."

Experiment made December 8th, 1904, by Robert Devillers and Frederick Wood Meeker with a coal briquette made with

stopped giving flame as soon as taken out of the fire.

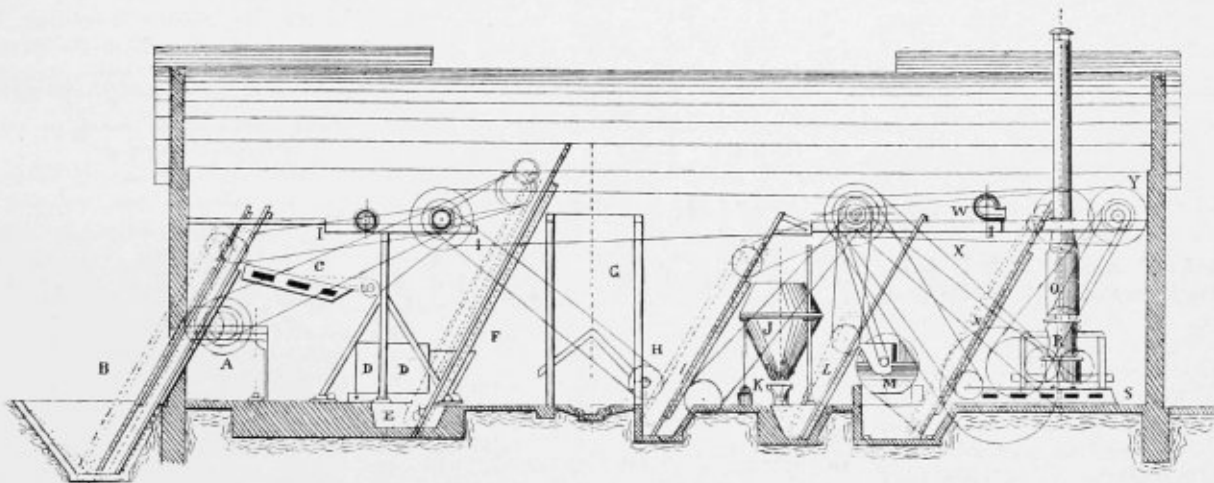
Water stopped boiling, European made, at 1:16 o'clock; American made, at 1:21 o'clock.

European made briquette, no shaking of grate needed. American made briquette, from 12:35 to 1:20 o'clock; grate had to be shaken 11 times to keep up the fire.

Evaporated Water.	European Made.	American Made.
Water put on the fire.....	13½ lbs.	13½ lbs.
Water left in boiler.....	4½ "	8 "

Water evaporated—European made, 9lbs. in 2 hours, 34 minutes; American made, 5½lbs. in 2 hours, 39 minutes.

Ash—19¼lbs. of briquettes burned in 2 hours, 50 minutes, European made, left 2½lbs. ash; American made, left 5¾lbs. ash.



SECTIONAL VIEW OF BRIQUETTING PLANT AT NOEL SART CULPART, BELGIUM.

Briquette Machines in use in many plants in Belgium and the northern part of France. He says:

"For about twenty years experiments have been made in this country to utilize coal dust in shape of briquette but without any success commercially. To ascertain if the failure of success to make good burning coal briquettes from coal dust or waste coal did not arise from the coal itself and not from the machine, I had sent to my plant in Belgium five barrels of pure Anthracite coal dust to be made into briquettes which have been sent back to me in satisfactory condition, equal in burning qualities to Anthracite coal. With this coal briquette I have made an experiment which is compared with American coal briquette made

European machine and pure American Anthracite coal dust, compared with American machine briquette, made with Anthracite and Bituminous coal dust:

Weight of coal briquette put in the fire, 19¼ lbs. Weight of water put on the fire, 13½ lbs. Fire started at 10:40 o'clock. Water put on the fire at 10:42 o'clock.

	European Made.	American Made.
Stove bottom got red hot at.....	10:50	10:55
Stove top got red hot at.....	10:58	11:04
Stove pipe got red hot at.....	11:02	kept black
Water boiled at.....	11:05	11:12½

At 11:17 o'clock took out of the fire one red hot European made briquette and one red hot American made briquette. European made briquette kept the flame for 4 minutes. American made briquette got black and

Flame—European made briquettes kept bright and long to the end; American made briquettes, very small flame, bright at the beginning and got dark rapidly.

Bottom of the stove—European. Kept very bright to the end; American, kept very dark.

Clinkers and slate—European made briquette, none; American made briquette, none; but briquette crumbling at the end of the fire.

Report on the Production of Briquettes in Belgium in 1902.

There were in Belgium in 1902 34 factories making briquettes; 29 were located in the Province of Hainaut, having 65 presses and employing about 1,300 working men

and 5 in the Province of Namur, having 13 presses and employing about 90 working men. The quantity of coal used for manufacturing briquettes in the Province of Hainaut was about 1,450,000 tons, and this produced about 1,570,000 tons of briquettes valued at 30,615,000 francs, or about 19.50 francs per ton.

Compared with 1900 and 1901 the production has increased, though the price has decreased about 4.33 francs per ton from that of the year 1900.

Production.

	Tons.	Per Ton.
1897	1,140,330	12.50 Francs
1898	1,279,180	13.40 "
1899	1,250,290	16.21 "
1900	1,200,150	23.83 "
1901	1,240,060	19.31 "
1902	1,570,000	19.50 "

Countries Where the Belgium Briquettes Have Been Exported.

	Tons 1901.	Tons 1902.
Argentine Republic	4,350	4,670
Chili	2,782	2,980
China	5,900	6,700
Congo (Free State)	9,420	11,800
Egypt	2,150	3,200
England	6,475	7,320
France	469,500	498,900
Germany	45,200	46,260
Grand Duchy of Luxemburg	24,100	23,800
Greece	1,120	1,350
Holland	9,180	11,200
Italy	12,190	14,520
Japan	6,300	7,100
Portugal	3,450	3,890
Russia	3,650	4,220
Spain	34,200	36,800
Switzerland	13,697	11,127
Tunis	2,100	1,920
Turkey	4,820	5,390
United States	81,460	82,320
Total	740,049	788,647

These coal briquettes are used by Manufacturers, Railroads and Steamship Companies.

Report on the Production of Briquettes in France in 1902.

There were in France in 1902, 27 factories making briquettes and bullets; the principal ones being in the Northern section and Pas de Calais. These 27 factories have produced together in 1900 about 780,600 tons; in 1901, about 910,900 tons; and 1902, about 1,260,600 tons. This compared with the year 1900 shows an increase of about 130,300 tons for 1901, and 420,000 tons for 1902. The railroad companies of the East manufacture for their own personal use about 200,000 tons per year.

Report on the Production of Briquettes in Germany in 1902.

The making of briquettes in Germany is under the control of a trust, which includes about 35 firms or companies. This trust manufactured in 1900 about 1,600,000 tons of briquettes. In addition to this trust there are several other small independent works, which together manufactured in 1900, 98,000 tons; in 1901, 125,000 tons, and in 1902, 146,200 tons.

Production.

	Tons.	Per Ton.
1897	1,020,400	10.10 Marks
1898	1,170,200	10.32 "
1899	1,320,900	10.60 "
1900	1,600,000	12.55 "
1901	1,690,000	13.40 "
1902	1,782,000	13.85 "
Total	8,583,550	

These briquettes are used by Manufacturers, Railroads and the Navy, and are exported to the German Colonies.

ELECTRICITY AS APPLIED TO MINING

By Harry C. Hubbell, Newark, N. J.

NOTE.—Paper read before the Central Mining Institute of Western Pennsylvania at the Winter Meeting. Mr. Hubbell was ill and unable to be present, so the paper was read by Mr. Joseph Simpson, one of the vice-presidents of the Institute.

Gentlemen—I see that I am down on this program for a paper on electricity as applied to mining. This is rather a broad subject, and as I have made no particular study as to the question of mine haulage, whether mule, pneumatic, or electric, I guess I will have to side step this and talk about something that I am familiar with, that is, mine illumination, and mine signalling. Electric mine signalling in gaseous mines can be done with perfect safety, if the following method is used:

Construction should be rubber covered wires, and porcelain knobs; signal button should be of the "break circuit," instead of the "make" circuit variety; about four cells of ordinary blue stone gravity battery should be placed in circuit connected with a high wound relay. Now the current from four cells of blue stone gravity battery, operated through a relay of such high resistance will produce hardly a perceptible spark, if circuit wires should be broken. In the engine house or pumping station, or wherever the place to be signalled is, an auxiliary set of three or four cells of some good type of salomonic battery can be placed in circuit with repeating side of relay, and electric bell; this brings no high power onto the wires running through mine, and any break in wires will immediately be noticed by the ringing of the bell. To say any more on this subject, would be mere play on words, as this is, in my opinion, the only practical way to accomplish mine signalling, whether mines are gaseous or not, as the relay will operate a very feeble current, and it will not be necessary to maintain a large bank of batteries to operate over long distances.

In regard to the circuit breaking signalling buttons I would suggest that they be placed in tin or sheet iron boxes, and wires coming down into same should be in small iron pipe. I will state right here that wherever electric signalling is done by the ordinary methods that a dangerous spark can readily be made from the same, as I have demonstrated time and time again, in the laboratory. This is due to the inductance of the circuit caused by the electromagnet of the bell, which would not be the case with a relay wound to 150 ohms, where not more than six cells of blue stone battery were used. The spark from a high power magneto, such as used in telephone work, is very feeble; but that from a low power magneto is quite strong, and can

ignite; for instance, magneto blasting machine.

I do not know as though I ought to say anything against the lighting of bottom, stable, etc., by the use of the ordinary 110 volt electric light. Perhaps when conductors are run through iron conducts and lamp bulbs are placed out of reach of everybody, and switches operating in oil are used, it can be considered as practically safe. One hundred and ten volts is really the safe and economic voltage to be used on mine circuits. If insulation is poor at any particular point, leakage lost will be considerable, increasing with rise in voltage. Should this be too high, a dangerous arc is liable to follow and consequent ignition; therefore, conducting lines must be placed as far apart as practical, insulation must be moisture proof, and every precaution taken to prevent short-circuiting. In mines where the soldering of joints would be accompanied by danger and the wires are simply twisted together, and taped, the action of the copper on the rubber of this tape is injurious and soon rots it. The best plan is to cover the joint with two, or three turns of ordinary tin-foil and tape over this in the usual manner. The tin protects the rubber from the copper and thus greatly lengthens the life of the tape. This is the reason that all copper wire is tinned before the rubber insulation is put on. One might as well strike a match as to open an ordinary knife switch, and the flash from a short circuit on conducting wires would ignite wood, or set coal afire, not to mention mine gas.

Some one well known to you told me that he knew of one instance where the electric lighting wires actually set coal on fire; but this I suppose you all know just as well as I do. The incandescent electric light must appeal practically to every one; no smoke, no heat and no odor. The question of smoke is in itself an important factor in mine ventilation, to say nothing of the vitiating of the air by flame light, due to its great demand for oxygen and the formation of carbonic acid gas.

I am the inventor of a portable electric miner's lamp, which cannot explode gas. Even if the terminals are short circuited there is no possible way of causing an igniting spark from same, and yet this little lamp will maintain a three candle power electric bulb for 12 hours, and give as much light as half a dozen oil safety lamps. I do not want to infringe upon the rules of this association by using this paper as an advertising medium, but I am simply stating facts. The same current that it would take to maintain one 32 candle power ordinary incandescent lamp for eight hours, would suffice to charge nine of these miner's lamps, which would burn 12 hours.

I have frequently been asked how to prevent the accumulation of moisture upon telephone boxes, and other electrical apparatus in mines. This is quite easily ac-

completed by first placing the article in a metal or wooden box whose joints have been leaded; second, by the use of a quantity of calcium chloride. By this I do not mean chloride of lime, ordinary bleaching powder, but a chemical which is obtained by the action of muriatic acid on slaked lime; this dry calcium chloride should be spread upon a saucer and placed in the box containing the instrument to be protected. It has the power of absorbing moisture from the air; when it becomes too wet, it can be regenerated by heating in an iron vessel, driving off the water. This chemical can be purchased from any first class supply house, or can be cheaply made by dissolving slaked lime calcium oxide, in muriatic acid and evaporating to dryness.

Explosives can be kept dry by a similar method. It should be placed in a box containing a quantity of dry calcium chloride and left there until ready to be used.

I am very sorry that I will be unable to be present at this meeting. I have some good friends among you already and I hope to make some more, so I will have to call upon my good friend, Mr. Simpson, to inflict you with this in my stead.

IMPORTANT TRANSACTION.

12,000 Acres W. Va. Coal Land, Two Railroads and An Ohio River Bridge Involved.

Definite information from Cincinnati straightens out the many rumors and conjectures which have been circulated the past few months in regard to large transactions in coal lands in Wise and Dickinson Counties, W. Va. It is learned that H. B. Hollins & Co., of New York, and Eugene Zimmerman, of Cincinnati, have purchased 1,200 acres of coal lands in Wise and Dickinson Counties from the Clinchfield corporation. This purchase is also thought to be the explanation of the recently announced determination of the Cincinnati, Hamilton & Dayton railroad to erect a bridge across the Ohio at Huntington or Ironton, and 50 miles of track to connect that road with the coal fields of West Virginia which will thereby be connected directly with the Great Lakes and Chicago.

The purchase of these coal lands includes also the purchase of two railroads, the Virginia & Southeastern and the Virginia & Southwestern. The total price is \$3,300,000. Hollins and Zimmerman assume the bonded indebtedness, amounting to \$600,000 and a general indebtedness of \$1,100,000, or a total of \$1,700,000 and also pay \$1,600,000 in cash.

—The Cambria Steel Company is erecting 100 additional coke ovens at its Franklin plant, where eleven new open hearth furnaces are soon to be put in operation.

WHEELING LETTER

By W. H. Woodruff.

WHEELING, W. VA.—The status of legislation at Charleston, now that a fair idea may be had of the tax reform bills to be introduced, is such as gives the coal and timber producing districts of the state less concern than formerly, and barring any untoward developments in other particulars the year 1905 should be a fairly successful one throughout West Virginia. It cannot be denied just now, however, that natural conditions are a trifle unpropitious, but experienced coal operators believe that later, when the weather becomes more open, the situation will improve very perceptibly.

Immediately after the legislature convened and the more vigorous adherents of tax-reform had announced their program, the coal producers were somewhat alarmed, for it was hinted that besides the special legislation of last August other measures would be adopted all with the view of increasing the state revenue from coal mines. Fortunately, the recommendations of Governor A. B. White in his message to the lawmakers, adopted a different plan from that originally proposed, a special tax at so much per ton upon coal at the mines, and this will go a long way towards relieving any apprehension that may have existed. Prominent coal men have since stated that they can see no particular cause for alarm in the governor's recommendations. He seems to favor the establishment of a commission, which shall appoint an inspector, whose duty will consist in determining what mines are liable to an annual tax, ranging from \$100 on small mines, to say \$200 on larger ones. If this plan is approved it will mean the payment of a lump sum annually and will not put the producers to the trouble, expense and annoyance of making tonnage returns to the state at set periods. Governor White is known to be largely interested in coal himself, and it is conceded that he has taken a liberal view of the conditions confronting the trade. By way of remark, it is interesting to note that the governor is heartily in favor of some measure that will afford the producers, irrespective of their financial or commercial status or connections, a more equitable proportion of cars. The car shortage has been the bugaboo of the trade in this state for several years.

The cold weather is stimulating demand at the mines, but at the same time, unfortunately, is productive of conditions that tend to retard the movement of coal. Prices are very low, as the following schedule in force in the Fairmont district will demonstrate: Run-of-mine, 85 cents; three-quarter, 95 cents; lump, \$1.05 or \$1.10, all f. o. b. mines. A slight stiffening of rates has been experienced the past week, and with continued cold may grow measurably better.

The Beech Bottom Coal Co., a comparatively new concern in business, near Wells-

burg, is doing well, and increasing output gradually. Seventy-five men are employed and 10 cars a day is the average.

Hon. John M. Birch, former secretary of the Wheeling Board of Trade has sold his interest in a large tract of Washington County coal, not far from Waynesburg, for something like \$30,000.

That West Virginia capitalists realize that dullness is merely a temporary condition is evidenced by the renewal of speculative activity, the formation of new concerns and the gradual completion of plans for future development. Since the first of the year a score of concerns have been chartered by the secretary of state. Among the latter ones is the Lens Creek Coal & Improvement Co., of Charleston, with a capital of \$10,000, to work mines on Lens Creek in that section of the state.

The Laughorn Construction Co. has been formed at Huntington, with a capital of \$500,000 to construct railroads and do a general railroad equipment business.

The Provident Coal Co., which operates mines near St. Clairsville, Ohio, although out of the state, yet in the Wheeling district, has just bought 400 acres of coal at \$70 an acre from John Wilkins, W. J. Thompson and A. L. Bumgardner, of St. Clairsville. The company has completed a fine new steel tippie.

The payroll Saturday, January 21, in the Fairmont district was the largest for many months.

The Koontz mines in North Benwood have resumed operation after being idle the past month or two.

The miners of the Fifth Ohio sub-district will hold their annual convention, at Bellaire, February 23. The district has 12,000 diggers, scattered throughout Belmont County, Ohio, and the West Virginia Pan Handle.

Postmaster, James K. Hall, of Wheeling, who is interested in a large acreage of land in the Parkersburg district says 1905 will be a banner year for speculation in West Virginia coal. Prices are stiffening even for land far removed from railroads.

Gen. Morris Horkheimer, of Wheeling, who is associated with Governor A. B. White and others in the Briar Hill Coal Co., a new corporation which purposes operating on the Parkersburg branch of the B. & O., is in Europe, and will spend several months on the continent.

—Edward B. Whitney of New York, in a paper upon "Governmental Interference with Industrial Combinations" read before the American Political Science and Economic Associations at Chicago declared that Congress has the direct power to put an end to the United States Steel Corporation, the anthracite "coal pool" and similar corporations. He asserted that a law forbidding a company engaged in interstate commerce to engage in productive industry would prohibit such "agglomeration." He urged the need of such action on the part of Congress.



Coal and Timber

PUBLISHED MONTHLY BY

Coal and Timber Publishing Co.

ARROTT BUILDING, PITTSBURG, PA.

Communications relative to news of coal and timber lands, mines, shipments, equipment, etc., as well as items of interest concerning owners, operators, shippers and officials, are invited and should be addressed to the Editor of Coal and Timber.

Checks, drafts and remittances and all matters pertaining to the business department should be addressed to COAL AND TIMBER PUBLISHING COMPANY.

Telephones—Bell, Court 2388; P. & A., Main 1790.

Subscription \$1.00 per year. Single copies 10 cents.
Advertising Rates on Application.

PITTSBURG, FEBRUARY, 1905.

PENNSYLVANIA MINING LAWS.

One of the most efficient and conscientious public officials of this Commonwealth is James E. Roderick, Chief of the Department of Mines, and he is anxious that the present session of the Legislature shall appoint a commission to revise the mining laws of the state. He suggests that the commission be comprised of eleven persons; two miners, one operator and one engineer from the anthracite, and the same number, representing the same interests, from the bituminous coal fields. These ten men will be presided over by a gentleman, appointed by the Governor, who will represent the Commonwealth. In addition to these, the members of the commission are to employ a competent lawyer to pass upon the constitutionality of the laws proposed by them. When the gentlemen so appointed have completed their task, the amended laws, according to the recommendation of the chief, should be passed without amendment by the Legislature, for the reason, that not ten per cent. of the men sent to Harrisburg to enact laws know anything whatever of mines and mining, and so are wholly incompetent to pass upon the question as to what are the requirements of the industry in the matter of legal enactments for the safety of life, limb and vested interests.

The suggestions of the chief certainly deserve prompt and careful consideration. In his last annual report he expresses regret that the amendment to the present law, which was introduced by Hon. D. J. Thomas, Senator from Schuylkill County, and formerly a practical miner, foreman and superintendent, did not become a law. Mr. Roderick says: "I am of the opinion that if this amendment had become a law and been properly lived up to, at least one-half of the accidents from 'falls' would have

been avoided. I hope that Senator Thomas or some other equally expert miner, will take this matter up again and that the passage of this law will not be opposed."

Mr. Roderick is in earnest and he is probably the best informed and most competent men in the state to judge of the changes in the laws, which are required to promote the safety of life and the protection of property. The lives of the hundreds of thousands of mine employes and the millions of dollars invested in mine property and equipment, are entitled to such legislation as will afford them the greatest possible protection.

COAL TAXATION.

Governor Pennypacker, of Pennsylvania, and Governor White, of West Virginia, have both recommended to their respective Legislatures a special tax on coal.

Pennsylvania produces three times as much coal as any other state in the Union and West Virginia ranks third in point of production.

General Pennypacker advocates a tax on each and every ton of coal mined in Pennsylvania, while Governor White wants a special tax of \$100 or \$150 from every mine in West Virginia.

Fuel is an industrial and domestic necessity and a tax on coal directly affects every man, woman and child in the country.

Owners of coal lands, coal operators, shippers and all the great army of men, who are engaged in the industry, are taxed as other men are, and it is difficult for them to understand why they should be compelled to contribute an extra fee to the state for bringing a ton of coal to the surface.

Would it not be as reasonable and just to place a special tax—"so small in amount that it would not prove burdensome to the consumers, or interfere with trade"—on every bushel of grain, vegetables and fruit produced in the state?

The proposed tax in Pennsylvania would amount to considerably more than a million dollars a year and coal men are very naturally making a vigorous protest against such a handicap being placed on the industry.

RIVER APPROPRIATIONS PROVIDED.

At last the congressional committee on rivers and harbors begin to manifest a degree of appreciation of the immense importance of creating and maintaining a nine-foot boating stage on the Monongahela and Ohio Rivers. In the bill, which has just been reported, a start is made on the nine foot stage by the following appropriations for local river improvements.

An allowance of \$520,000 cash and contracts amounting to \$1,281,376 is made for the completion of the locks and dams be-

tween Pittsburg and Beaver. Of this sum \$340,000 is to be used for increasing the depth of the gates and wickets so as to impound the water to a depth of nine feet. Pennsylvania fares well, receiving \$942,850 in cash and authority to contract for works costing \$1,320,425 more. The items are:

Eric, \$125,000; Pittsburg harbor, \$10,000, usual amount; Monongahela river maintenance, \$7,850, usual amount; locks and dams, Herrs Island and Springdale, \$100,000 in cash and authority to contract for \$181,226 more; and lock No. 3 on the Monongahela, \$200,000 in cash and \$389,196 in contracts, which complete the reconstruction of that work.

The Ohio river gets \$960,000 in cash, and contracts amounting to \$1,441,316. The cash appropriation for general improvement in the first draft of the bill was \$400,000, but one-fourth of that was sliced off. The details are:

General improvement, \$300,000; locks and dams between Pittsburg and Beaver, \$500,000 in cash and contracts for \$1,281,376, and locks and dams Nos. 8 and 11, \$169,000 in cash and an equal amount in contracts. This allowance was cut, but it is large enough to permit substantial progress.

It is probable that the bill will pass the lower house of Congress in this shape, but its fate will depend on the action of the Senate, where it may be so padded with amendments as to result in the defeat of the bill in a conference of the two branches.

It is impossible to overestimate the necessity and value of these improvements and every influence should be brought to bear to hasten the accomplishment of this enterprise.

THE FORESTRY CONGRESS.

Such an assemblage as that which convened at Washington the first week in January when the Forestry Congress held its first meeting is indicative of an epoch in the industrial history of our nation.

The delegates were mostly professional and business men, and the problems of preventing the ruthless and wanton destruction of timber and re-timbering devastated sections of country, received scientific and business-like consideration.

Re-forestation is no longer a matter of sentiment and "Woodman, spare that tree," was not quoted by a single speaker. The imperative necessity of forests for commercial and industrial profit and as an essential to the protection and perpetuation of the water supply of the country demanded serious consideration, and all the discussions were of practical and economic importance.

The timber in all parts of the country is rapidly disappearing before the advancing army of axmen; fire also destroys thousands of acres of forest every year, and out of the destruction grows some momentous problems, as the proceedings of the congress have made plain. Among the sub-

jects considered were the relation of public forest lands to irrigation; relation of public forest lands to grazing; lumber industry and the forest; the importance of the public forest lands to mining; forestry in relation to railroad supplies; national forest policy and state forest policy—all pertinent topics.

The prime necessity is salvation from the impending ruin of our woods, since that implies the ruin of industries, of waterways, of agriculture, of pasturage, and, of course, of health, comfort and beauty.

As the forest is the source of our springs, it is in that sense the source and conservatory of all water power. Water provides highways for our boats and barges. Water is a vital necessity for household use, for sanitary purposes, for mining and manufacturing, and for protection against fire. A shortening in the quantity of water, with a common resultant of fouling the remainder, concerns the cities every whit as much as it concerns the country.

The remedy is practical forestry, patiently and perseveringly pushed to a successful climax, and the Bureau of Agriculture deserves much credit for the inauguration of a scientific and systematic Forestry Movement.

INDICATIONS OF TROUBLE?

Much apprehension exists that when the present agreement between both the anthracite and bituminous coal operators and the miners in their employ expires, a year from this spring, there will be the most serious labor trouble that has ever occurred in the coal mining industry in this country. This apprehension appears to be justified by the open preparations which both sides are making to be in a position to protect their interests and contentions in case of failure to reach an amicable adjustment of their differences.

The facts of the case are that both sides most sincerely and profoundly desire to avoid a rupture of peaceable industrial relations, and are making these extensive preparations thus far in advance simply because they realize that "the best assurance of peace is to be prepared for war."

In case there should be a test of strength and endurance between the operators and miners, it will undoubtedly be the most bitter and vicious in which they have yet engaged, and not only the contestants themselves must suffer, but every industry and home in this broad land will feel the baneful effects of the strike.

The whole nation hopes the parties directly concerned may come to a satisfactory mutual understanding.

The West Virginia laws relating to rights of way for corporations of public utility need revision, and that soon, if she is ever to take her place in the front rank. As it is now, some owner of a piece of land, of no particular value, can indefinitely keep

back operations, which would be of inestimable value to the whole commonwealth, or compel the payment of a ridiculously high price for the land. We have in mind an instance where a railroad company was compelled to pay at the rate of \$5,000 per acre for a small tract of land that cost the owner \$5 per acre two years ago. We suggest a substitution of the Pennsylvania statutes as a remedy for this evil; this would enable corporations to go ahead with their operations without delay, leaving the matter of compensation to the courts for equitable adjustment.

WHARFAGE ON THE RIVERS.

While East Liverpool, Ohio, a busy little manufacturing town on the banks of the Ohio river, opposite Chester, W. Va., is receiving such excellent service from the one railroad that passes through the town that it feels justified in imposing a wharf tax on every steamboat that stops there to deliver or receive freight, the great industrial and commercial cities along the Ohio and Mississippi rivers are offering free wharfage as an inducement to the river boats to relieve freight congestion and to reduce to a minimum freight charges.

That such action is inspired by the men who have money invested in manufacturing or mercantile enterprises located in or near East Liverpool, is too absurd a proposition for serious consideration; it can not even have their consent. That it can have the approval of those who receive their daily wage from the manufacturers or merchants is equally as improbable.

Bankers and real estate owners would hardly be supposed to be in favor of espousing a proposition to tax a relieving agent, consequently the dusky-hued individual concealed in the wood pile must be dodging artfully between the political and the railroad end of said wood pile.

BRIQUETTES.

There are wonderful possibilities awaiting the genius and capital that will establish a successful briquetting plant to utilize and market the millions of tons of slack and waste which contains more than 50 per cent carbon, and which is now, above ground, commercially worthless.

We print in another column a report of an interesting briquette test and some statistics of the manufacture and use of briquettes in foreign countries.

The U. S. Geological Survey has issued a preliminary report of the Government Coal Testing Plant at St. Louis. A portion of the report referring to the briquette experiments follows:

"The operation of the briquetting plants has been most interesting, as it has shown that there are many problems involved in this really pioneer work which require more careful study than is possible under the conditions under which these plants have

been operated. As this is almost entirely pioneer work in the utilization of American coals, not only must each coal be carefully studied, but the character of the binder, the heats to which the material should be subjected, and the pressure to be placed upon the briquette, are all matters of individual research.

"It was not until September 23 that the plant of English manufacture was in condition for operation. Considerable difficulty was encountered with the binding material which had been provided for the purpose. This was coal-tar pitch furnished by the Barrett Manufacturing Company, and was found to be rather too hard for the coals with which it was desired to use it and for the heat which it was possible to obtain in the steam-jacketed reservoir attached to the machine. After experimenting for a week it was found necessary to close down the plant for alterations and repairs. On October 3 experimental work was begun on a cargo of pitch received from the Chatfield Manufacturing Company, of Cincinnati. This pitch also was found to be too hard for successful use under existing conditions. After some laboratory experiments, however, those in charge of the work were able to ascertain what the physical qualities of the pitch should be for briquetting certain coals, and through the co-operation of both the Barrett and the Chatfield companies plentiful supplies of pitch suited for the purpose were received.

"The plant installed by the National Compressed Fuel Company was given a trial on September 27, but mechanical difficulties developed which necessitated changes, and it was not until October 10 that a successful run was made. This plant has the advantage of permitting tests to be made on small quantities of material, but the binder must be added in liquid form after being melted in the steam-jacketed tank. This limits its use to the more fusible binders, and has prevented any tests with the pitch now on hand.

"The principle work of the briquetting division was of an experimental nature. During the time the plants were in operation 11 runs were made on briquetting tests in the boiler room. Six others were successful laboratory tests, but no runs were made on them. In some of these the results were satisfactory, but in most cases it was demonstrated that much more study will have to be given to the character of the coal, the binding material, etc., before a really successful commercial briquette can be made. A detailed statement of the operation of these plants will be published at a later date."

We want agents to solicit subscriptions for "Coal and Timber." Liberal commission. Write for terms. Coal and Timber Publishing Company, 801-2-3 Arrott Building, Pittsburg, Pa.

PENNSYLVANIA RAILROAD SUED.**Two Coal Companies Ask \$2,000,000 Damages.**

According to press dispatches of Jan. 27 two large coal companies have brought suit against the Pennsylvania Railroad Company, in the United States Circuit Court, in Philadelphia, under the Interstate Commerce Act, to recover for alleged damages aggregating nearly \$2,000,000. The Webster Coal and Coke Company seeks to recover \$1,483,838, and the Pennsylvania Coal and Coke Company, \$420,174.24.

The coal companies allege that the railroad company arbitrarily assumed the right to estimate and determine the capacity to produce coal from the mines of the plaintiff companies. From this estimate was fixed the number of cars necessary to carry the coal from the mines.

The actual capacity of the mines, it is alleged, was far greater than that estimated by the defendant. A demand was made for more cars, but the railroad company, it is averred, refused and neglected to furnish them.

A rebate of 15 cents a ton on coke hauled from collieries was allowed other concerns, it is alleged, and was not allowed to the plaintiffs.

The Pennsylvania Railroad Company say they will fight these cases to a finish, claiming there has been no discrimination, and they further say there will be no compromise or settlement out of court.

REPORT OF ACCIDENTS.**Fourteenth Bituminous District, Pennsylvania.**

F. W. Cunningham, mine inspector, of the fourteenth bituminous district, makes the following report of accidents in that district for the year ending December 31, 1904.

Number of fatal accidents in mines, 21; number of fatal accidents outside of mines, 1; total number of fatal accidents, 22.

Harwick disaster, 179, which can hardly be considered for a comparison to the previous year, when there were 27 fatal accidents in the district, or 18.5% more than in 1904 (not considering the Harwick fatalities).

Number of non-fatal accidents, 56; 2 were killed by fall of coal; 12 were killed by fall of slate; 2 were killed by fall of roof rock; 4 were killed by mine cars; 1 was killed by the breaking of a steam-pipe; 1 was killed by railroad car, under a tippie. Nationalities of the victims of fatal accidents, American, 4; Scotch, 1; Irish, 1; Polish, 5; Hungarian, 1; Italian, 4; Austrian, 2; Russian, 1; Bohemian, 2; Tyrolean, 1.

You can't "keep house" without "Coal and Timber." Subscribe now, only \$1 per year.

HECLA COKE COMPANY**May Be Absorbed by the H. C. Frick Coke Company.**

Negotiations are reported to be nearly completed, by which the H. C. Frick Coke Company will obtain possession of the Hecla Coke Company interests. The amount involved in the deal is said to be \$7,000,000, the largest amount involved in any one coal and coke transaction since the United States Steel Corporation secured control of the Frick interests.

The Hecla Company operates 1,100 ovens in the Connellsville region and owns 5,000 acres of coal land in that field. Next to the Rainey interests, it is the largest independent coke producer in the Connellsville territory. Sometime ago the Frick company purchased the Crossland plant of the Atlas Coke Company, which included 100 ovens in the Connellsville locality.

In addition to this it is securing the entire output of the 1,100 ovens of the Oliver & Snyder Coke Company. This production is being shipped to the mills of the United States Steel Corporation. The Frick Company also controls half of the Hostetter possessions in the Connellsville field. The Hostetter Coke Company operates 700 ovens.

APPOLOGIA.

Owing to the rush incident to the last hour in the make-up of the January number of "Coal and Timber" the advertisement of the Kanawha Fuel Company on the back cover contained an error. The proof had been marked "kill,—reset, follow copy." The ad. was reset and approved, but in the make-up the "dead" ad. got into the forms.

The Kanawha Fuel Company's advertisement on the back cover of this issue is correct. The officers of the company are: M. T. Roach, president and general manager; J. B. Lewis, vice president; William Brown, secretary and R. H. Richardson, auditor and assistant to general manager. This company handle the output of 75 mines with an annual capacity of six million tons.

West Virginia has a bright future before her, provided the Solons at Charleston do not erect barriers, which capital cannot overcome. She needs the assistance which outside capital can give in developing her rich mineral deposits, but she can only secure it by opening wide her doors. Tax legislation, that will have a tendency to keep out capital, will retard her advancement and be a serious loss to the state.

—The Ottumwa box car loader referred to in William Affelder's article on Box Car Loaders, at the Western Pennsylvania Coal Mining Institute, has an advertisement on page 6. It will be to your interest and profit to examine the same.

NEW COKING SCHEME.**Carbene, It Is Said, Will Bring Good Results From Poor Coal.**

Carbene is the name of a substance claimed to be discovered, the presence of which in coal renders the latter a good coking coal, and which, it is thought, may open up a new field in the manufacture of high-class coke from poor coals. Starting from the observation that a good coking coal will not make good coke when suddenly heated in small quantity, and inferring that something must have been present which was driven away by the sudden heating, the discoverer looked for the something in the tar produced, and ultimately found that it was not destroyed by being driven off, but remained in the tars.

After investigating, he succeeded in isolating the new substance in a state of purity. It looks exactly like bituminous carbon; it is black, solid, friable, shows a tendency to crystallize. With bromine, fuming nitric acid, concentrated sulphuric acid, and similar reagents, it acts energetically, forming a series of curious additions—properties of which the nitration products seem worthy of particular attention. When a grain or so of carbene is heated in a test tube the whole interior of the tube becomes lined with a tenacious, hard, bright, black varnish and in the retort it is the varnishing that does the work of sticking the particles of coal together, always a little in advance of the travel of the higher temperatures, which effect the actual distillation. That this explanation is correct is shown by experiment, for a poor coal, with the addition of two per cent. carbene, makes splendid coke even in the crucible.—Connellsville "Courier."

Washington Run Will Have Connection at Fayette City.

The Washington Run R. R. is to be extended from its present terminus at Star Junction to Fayette City. This will bring the Monongahela Valley into much closer relations with the Yough region than it has been.

The extension, it is said, will be taken up the coming spring by the Washington Run R. R. Company. The stockholders in the road are identical with those of the Washington Coal & Coke Company, who have interests worth millions in Perry, Franklin and Jefferson townships. The extension of the road, which now runs from Layton station on the B. & O. to Star Junction, will open up some new coal for the company and also develop that territory in other lines of industry.

The Washington road is now within three and a half or four miles of Fayette City. The grade is easy from the present terminus to a connection with the Pittsburg, Virginia & Charleston.

BOX CAR LOADERS

PAPER READ BY WILLIAM L. AFFELDER BEFORE THE CENTRAL MINING INSTITUTE OF WESTERN PENNSYLVANIA.

Winter Meeting, Pittsburg, Dec. 21-22, 1904.

NOTE—Mr. Affelder used a working model of a box car loader and also exhibited photographs and drawings of other loaders to illustrate his paper.—*Editor.*

The introduction into Western Pennsylvania of mechanical devices for loading coal into box cars dates back very few years, but their number is increasing with quite marked rapidity. Until very recently, the only method of loading coal into box cars was that which could be seen two years ago at every way station in the coal producing district when a farmer and his boys succeeded in bribing the station agent to let them have a box car, into which they shoveled coal which they had mined in their private coal banks.

Alas, what changes have occurred in the coal business in the two short years that have elapsed since a box car of coal—no matter how poorly loaded, nor how badly the coal was broken, and no matter how many men were needed to load the car—netted the operator more than a full day's run under present conditions. It is now essential that coal be loaded into box cars as quickly, cheaply, uniformly and with as little breakage as into open cars. In former years Pennsylvania operators loaded box cars only when the scarcity of gondolas made the demand for coal so great that the consumer was satisfied to accept it in box cars and to pay a price sufficiently high to warrant the additional expense incurred in loading, but now the Pennsylvania operators have extended their markets to Western points which require coal in box cars, and it is due almost entirely to the increase of shipments to the far west that Pennsylvania has witnessed the introduction of box car loaders. The keen competition in the eastern markets forced Pennsylvania operators to become more aggressive in disposing of a portion of their coal in the west, and with this encroachment into western markets came the introduction of western methods to meet western requirements.

Box car loaders are decidedly of western origin, as without exception they have been invented, manufactured, introduced and perfected in the west. This does not seem strange when the railroad conditions of that section are compared with those of the east. In the latter section the gondola and hopper cars constitute by far the greater proportion of the freight cars owned by the railroads. Employed as they are in hauling a great variety of products, they frequently travel in one direction loaded with coal and return loaded with iron ore or some other commodity. In the west,

gondola and hopper cars are very scarce and freight is hauled almost exclusively in box cars. Grain and cattle are hauled east to the large grain and stock centers, and in as much as the railroads cannot afford to haul the cars back empty across one state after another, they are used for transporting coal on the return trip. Aside from the nature of the equipment owned by the railroads in the two sections, it is necessary to load coal for western shipment in box cars, which can be closed and sealed in order to prevent theft. When coal travels such short distances as it generally does in the east, the loss of weight in transit is quite small, but in traveling such great distances as it does in the west, open cars are entirely impracticable, as the railroads do not hold themselves responsible for such losses. Besides, the eastern railroads will not allow their gondolas to go into the far west. These differences in local

est types of box car loaders, but according to his investigations, the first practical box car loader was invented by Richard Ramsey, of Illinois, and was first placed on the market in 1885. Loaders of this type were manufactured by the Ottumwa Iron Works, of Ottumwa, Iowa, and the Litchfield Foundry & Machine Company, of Litchfield, Ill., but are no longer being made. It consisted of a table on rollers, which entered the car door furthest away from the tipple and upon which the coal fell from a chute which entered the other door. The coal was swept from the table towards both ends of the car by a heavy wooden beam which swung horizontally about a permanent pivot just outside the car. The outer end of the beam was connected to the connecting rod of an especially designed steam engine which was located beside the track with its cylinder parallel to the track. This loader was successful so far as capacity was concerned for the beam swept the coal off the table as fast as it could be dumped, but the coal was so badly broken and the cars were so much damaged by the impact of large lumps that the loader soon lost favor.

Two years later, William Ramsey, of Iowa, invented a loader, which was manufactured by the Ottumwa Iron Works, Iowa. It consisted of a steel shaft which extended horizontally through one door into the car above the floor, and which carried a pair of iron plates in the shape of an inverted letter V. As the coal fell onto these plates, the shaft was made to rotate rapidly forward and back so that the coal was thrown towards both ends of the car. This oscillating movement was accomplished by means of a connecting rod attached to a crank on the shaft, and the eccentric of a specially designed steam engine. Like the Richard Ramsey loader, this one was too hard on both the coal and the cars, and the ordinary shovel still continued to be considered the most practical box car loader.

The third box car loader worthy of notice was patented in 1894 by F. W. Bond, and manufactured for a time by the Litchfield Foundry & Machine Company, but it is now obsolete. The Bond loader consisted of a stationary reversible engine, and a movable frame resting on rollers. By means of a pair of bevel wheels at the end of the engine shaft, a small pinion wheel, engaging the rack beneath the movable frame, moved the entire frame into and out of the cars. When the frame was in the proper position for loading, the engine was connected with the horizontal shaft of the frame by an intermediate gear wheel supported on the frame and engaging a gear wheel on the engine shaft and one on the loader shaft. The end of the shaft inside the car carried a pair of blades or shovels which revolved in a curved chute at the end of the movable frame. Coal was discharged from the tipple into this curved chute through the car door nearest the tipple and swept from it into either end of the car by the revolving



WILLIAM L. AFFELDER

First Vice-President Central Mining Institute of Western Pennsylvania, and Superintendent Mosgrove Coal Company

conditions account for the fact that the majority of the box car loaders in this country are used in the states of Illinois, Indiana, Iowa, Missouri and Colorado, while they are considerably more scarce in Ohio and West Virginia, and Pennsylvania boasts of only 35 of the 350 or 400 in use in the country.

The peculiar construction of box cars has been responsible for the difficulties encountered in perfecting machines to load them. All coal must pass through the small car doors and be piled principally in the ends so that the greatest weight is upon the trucks. It is therefore necessary for the machines to carry or throw the coal some distance, but with due regard to the requirements of capacity, economy, durability, and minimum breakage of coal.

The writer experienced some difficulty in the collection of dates regarding the earli-

blades. After one end of the car was loaded the engine was reversed and the other end was loaded, after which the frame was removed from the car by again bringing the bevel friction wheels into play.

An old circular describing the operation of the loader sang its praises in part, as follows:

"The action of the shovel on the coal is much less severe than any other form of loader; the coal being swept away as fast as deposited, not by a heavy blow, but with a pushing motion, the larger lumps being elevated on the point of the shovel and slipping therefrom easily onto the pile being formed, for the most part reaching a lodgment just at the crown of the arc described in their passage, thus landing lightly and doing little or no damage to themselves or the coal beneath." The fact that very few of these loaders were ever used appears to make it evident that

er are carried on a movable platform, and the coal is carried instead of thrown to the ends of the car. While two loaders of later design include the former feature, the latter one is found exclusively in the Ottumwa.

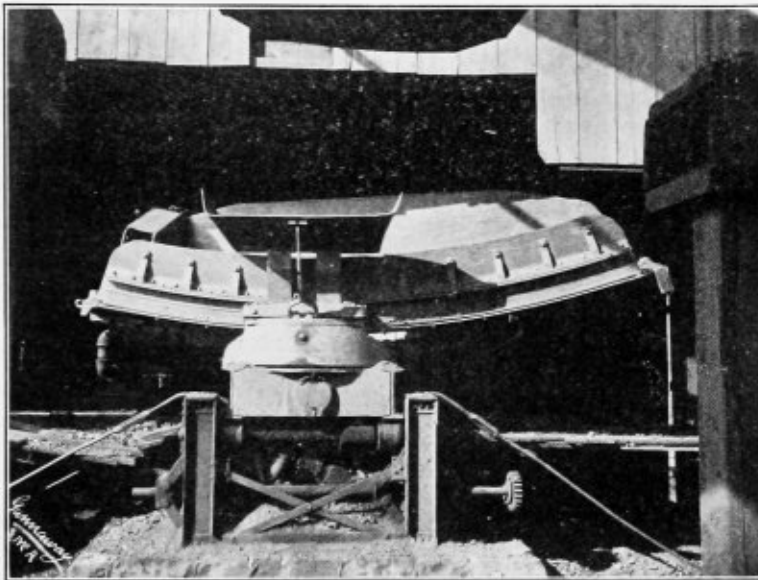
The Ottumwa loader consists of a platform 18 feet 6 inches by 3 feet 9 inches, made from two 12 inch steel I beams, carrying a pair of reversible engines and a movable steel hopper. The platform is perpendicular to the loading track and can be moved far enough forward and back to admit the hopper into the car or to remove it, upon two sets of iron rollers, so placed as to keep the loader in equilibrium in any position. There is an 8 foot steam cylinder at the side of the platform by which the platform is moved, but in a number of the loaders in use this cylinder is placed beneath the platform. In the latest type of the 200 Ottumwa loaders in use, this cyl-

to allow it to pass in or out of a car door, but it must always be in line with the car while the machine is in operation. It is constructed of heavy sheet steel and is 13½ feet long, 2 feet wide, 1½ feet deep on the front side and 3 feet deep on the side nearest the engines. When the loader is ready for operation, the hopper is close to the chute which conveys the coal from the tipple into the car through the door opposite to that through which the machine extends.

An endless sprocket chain driven by a sprocket wheel beneath the hopper on the 3 inch shaft previously mentioned passes beneath the hopper from end to end and through the bottom of the hopper. This chain carries a traveling gate which pushes the coal from the hopper. The chain serves both to move the hopper and to discharge the coal from it. The hopper travels back and forth towards either end of the car, past the tipple chute and carries with it the coal which is received from the chute. When it has traveled its full length, a steel pin is automatically pushed into a socket in the side of the hopper, which holds it securely in place. The operator then reverses the engines and the chain moves the end gate through the hopper, pushing the coal into the end of the car. When the gate reaches the end of the hopper, a chain attached to it operates a lever which automatically disengages the pin holding the hopper and leaves the latter free to move towards the opposite end of the car. Without reversing the power the hopper moves in the opposite direction to that through which the pusher has just moved, for in as much as the latter is so constructed that it can move no further in that direction, the entire pull is exerted upon the end of the hopper furthest from the driving sprocket. In traveling towards the other end of the car, the hopper is reloaded from the chute, and the engines are then reversed in order to push the coal into the end of the car to which the hopper has just moved. Coal is carried and discharged into the two ends of the car alternately until the car is loaded, and the hopper is then backed out and the platform moved back far enough to admit of replacing the loaded car with an empty one.

At one mine, which the writer visited, the superintendent stated that the best record which he had made in loading a 50,000 pound capacity car was 9½ minutes, and that it required 3½ minutes to remove the machine and move it into another car. In the latest type of loader, a car moving device, placed underneath the loader and operated by the engines which run the loader, reduces to a minimum the time lost between finishing one car and starting another.

The writer requested several mining companies using the Ottumwa loader to favor him with a statement of their experiences with this loader, and found that they all agreed in their opinions that the loaders were decidedly satisfactory and the repair



OTTUMWA BOX CAR LOADER

Made by the Ottumwa Box Car Loader Co., Ottumwa, Iowa

while the machine was quite simple in construction, it found a great drawback in being too hard on the coal.

The first really successful box car loader appearing upon the market was the Ottumwa, manufactured by the Ottumwa Box Car Loader Company, of Ottumwa, Iowa, although their first loader, built in 1895 for the Phillips' Fuel Company's Ottumwa mine, was a decided failure. After a number of changes had been made, a successful loader was installed two years later at the mine at the Whitebreast Fuel Company, at Forbush, Iowa. Subsequent alterations and improvements have been made until the loader has reached such a stage of development that the manufacturers guarantee it to handle 150 tons of coal per hour under normal conditions. Two features are embodied in the construction of the Ottumwa loader, which differ radically from its predecessors, the engine and load-

inder is discarded and the platform is moved in either direction by the engines upon it, by means of a side chain, which method gives the operator better control of the movement of the platform than he had with the cylinder.

The pair of engines have 11"x14" cylinders, which are set perpendicular to the long axis of the platform and are securely bolted to the I beams. They are so constructed that they can be stopped, started or reversed by operating one lever. The engines are connected by means of a pair of heavy steel gears to a 3 inch shaft which extends to a point beneath the hopper. Both the live and exhaust steam lines are provided with sliding joint connections to admit of moving the engines with the platform.

The hopper, at the forward end of the platform, is so mounted that it can be turned on a pivot through a sufficient angle

bills comparatively light. On account of the coal being carried the full length of the hopper before being pushed into the car, the breakage of coal is very slight. One objection raised by a company using a number of these loaders is that the coal is not pushed far enough into the ends of long box cars, on account of which fact it is impossible to load them to their rated capacity. This difficulty has been overcome in the latest machines which have longer hoppers than the earlier ones.

An Illinois mining engineer wrote: "The coal at this mine is delivered to the loader by a shaking screen and it works admirably, with very light repair bills. It is the only loader with which I am familiar which allows the pickers to get into the car and pick the impurities out of the coal while loading at alternate ends. It will handle all the coal delivered to it by a large shaking screen. I should rate its capacity at from 100 to 125 tons per hour." The general manager of the largest coal company in West Virginia wrote: "We have several of these loaders in use, and our experience with them has been decidedly satisfactory. We load from 20 to 25 box cars a day with each loader. The cost of repairs at one mine at which we have kept an accurate record amounts to about \$8 to \$10 per month." The superintendent of a Maryland Company wrote: "Our Ottumwa loaders have been doing very satisfactory work, although they require considerable expenditure for repairs. This item has not been so heavy recently as heretofore on account of improvements made, but even at its worst, the machine effected a very decided economy as compared with loading by hand. If everything is working right, we can count on loading about one car in 25 minutes. They break the coal very little." The superintendent of the mining department of one of the western railroads, in discussing the Ottumwa loader at one of their Wyoming mines, wrote: "We have been using this loader for a number of years and believe it to be superior to any other loader on the market. The first loaders we had were continually breaking down and causing a great many delays, but since then most of the parts have been made heavier and reinforced so that breakage is reduced to a minimum. We still have breakdowns, but they are caused mostly by loading small cars to large capacity when the loader has to force the coal into the ends of the cars. About 1000 tons per day is what the loader can handle without very much cost for repairs. It does not break the coal much, except in cases where the cars are small for their rated capacities, and then in crowding the coal back, there is some slack made by the constant grinding of the hopper and chain on the coal."

The Christy loader, invented by J. M. Christy of Des Moines, Iowa, and manufactured by the Christy Box Car Loader Co., of that city, was the first successful loader which operated by throwing the coal

into the car from an endless conveyor. The first loader was installed at a Des Moines mine in 1898 and the second at the Divernon, Ill., mine of the Madison Coal Co. One hundred of these loaders have been placed on the market since 1900. Numerous changes and improvements have been made and the "Christy" is now recognized as one of the few really successful types of loaders. It is made to run with either steam or electricity.

The Christy loader is built on a movable platform consisting of a pair of 10 inch I beams 15 feet long carried on four 12 inch wheels, which are keyed to two 2½ inch axles and run on a pair of rails set 40 inches apart. The long axis of the platform and the rails upon which it moves, are perpendicular to the track upon which the box cars are loaded, and the platform rests upon a timber foundation of sufficient height to bring the bottom of the I beams a little above the height of the bottom of a car.

one at each end. The center shaft is geared to the main engine or dynamo shaft, and by means of a link chain and sprockets at the rear of the belt, drives one of the end shafts. Each end shaft carries a pair of 17½ inch sprocket wheels around which pass two endless link chains. To these chains are bolted ½"x3¼" steel plates, 30 inches long, and 2 inch angle irons are fastened to the belt at intervals of 2 feet. The belt being too long to pass through a car door when in position to load, is turned on its pivoted support through an angle of 90 degrees by means of a 4"x6" steam cylinder in the steam machine or a 4"x2" screw in the electric machine. The entire platform is then moved forward on its wheels until the belt is inside the car, when the cylinder or screw returns the belt to a position in line with the car. Two 5"x3½" angle irons, just above the platform wheels on each side, hold the loader in equilibrium in all positions.



OTTUMWA BOX CAR LOADER

Made by the Ottumwa Box Car Loader Co., Ottumwa, Iowa

The engines or dynamo are securely bolted to the I beams at the inner end of the platform and a conveyor or loading belt is located at the outer end. In the steam machines, a pair of 10"x8" reversible Christy engines are connected to a 3 inch shaft running the full length of the platform between the I beams, while in the electric machine a 50 H.-P. Western Electric Co. motor wound for 220, 250 or 500 volts is geared to the shaft. In either style of machine the platform is moved forward and back a sufficient distance to place the loading belt in a car or to remove it, by bringing a bevel gear on the main shaft into play with one on the front axle of the platform, motion being produced by traction.

The loading belt is 8 feet long over all, 30 inches wide, and at the center is 3½ feet above the rails upon which the platform moves, but curves upwards at each end. Its sides are heavy sheet steel and support three shafts, one at the center and

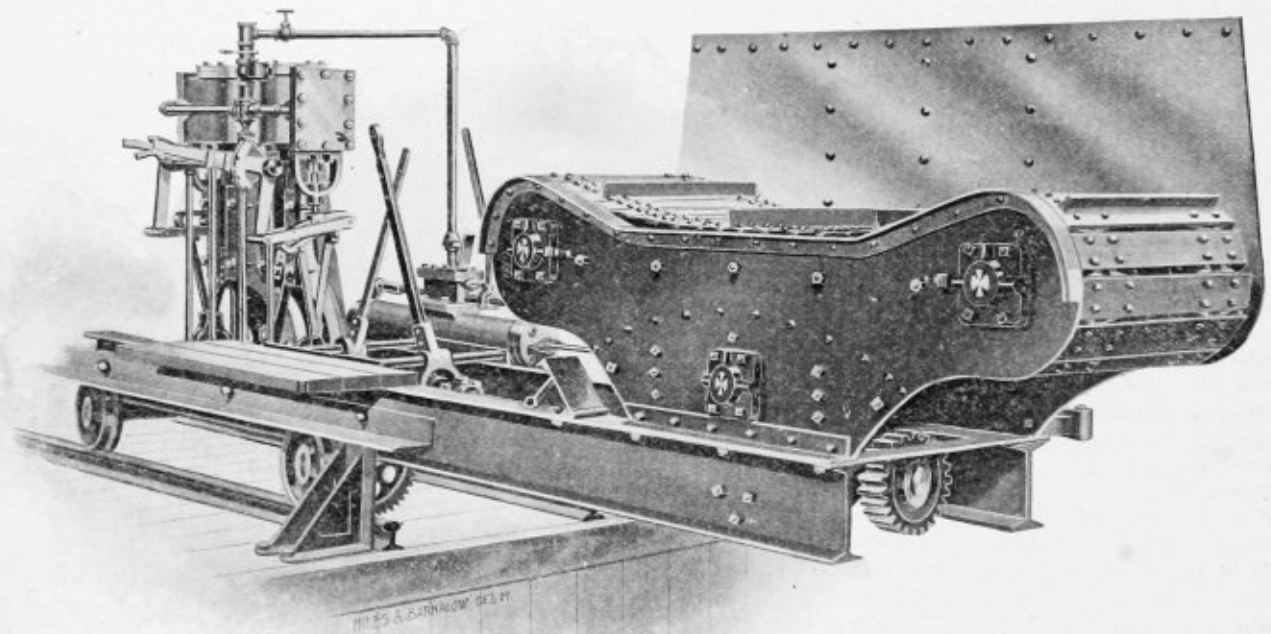
When the belt is in position to handle coal, the engines or motor are started up and coal is discharged upon the moving belt from a chute which passes through the other car door. The coal is carried to the end of the belt and is thrown towards the end of the car with somewhat of an upward thrust. After the extreme end of the car is loaded the speed of the machine is gradually reduced and the coal pile recedes towards the center of the car. After one end has been loaded, the direction of the machine is changed by reversing the engines or motor and the other end is loaded. The belt is then turned and the platform is backed sufficiently to remove the belt from the car, and a few wagons of coal are dumped directly from the chute into the center of the car if it is not already loaded sufficiently.

It takes longer to describe how a car is loaded than it actually takes to load it. At the mine of the Lorain Coal & Dock Co., at Bridgeport, Ohio, which the writer

visited, 30 ton box cars are loaded and the machine moved out of the way in 5 or 6 minutes, with a machine propelled by electricity. That this loader is a decidedly satisfactory one is evident not only from the writer's personal observations, but from a number of confidential letters from companies using it. One prominent Illinois operator having three loaders wrote: "As regards repairs on the Christy loader, would say that these are very light, and our repair bill has been so small as to be scarcely worth mentioning, besides which we have never been delayed on account of the loaders breaking down." The superintendent of the company operating the first two loaders made by the Christy Co. wrote: "We can handle 1600 tons per day with one loader; in fact it will take care of

on an actual tonnage of 45,000 tons handled by it, but even this figure of less than one-fifth of a cent per ton would be far less if we had one of the improved types. We do not consider that this machine is hard on the coal. Before putting in the loader we used eight men but since putting it in we have only used two, one to run it and one to pick impurities from the coal in the end of the car opposite to that in which the coal is being delivered." The president of an Illinois company using three Christy machines wrote: "At one of our mines where we are producing 1200 tons per day of large lump coal, about half of which is loaded in box cars, it works entirely satisfactorily. The work is unusually hard as the lumps are very large and the machine must be handled very carefully to prevent

upon which coal is delivered from a chute extending through one of the car doors. The apron consists of a pair of endless chains carrying curved steel flights $\frac{3}{8}$ inch thick. The flights are so attached to the links that when they go over the end of the conveyor, the rear end of the flight describes a larger circle than the end attached to the chain, thus tossing the coal clear of the end of the conveyor. The speed of the conveyor depends upon the distance required to throw the coal. The apron is raised and lowered by the operator, starting with the end near the bottom of the car and delivering the coal with the least fall possible, thus preventing breakage of the coal. As the coal piles in the car, the loader is elevated and delivers the coal upon the pile already formed, allowing it



CHRISTY BOX CAR LOADER. MADE BY THE CHRISTY BOX CAR LOADER COMPANY, DES MOINES, IOWA.

all the coal we can dump on it. After the operator gets accustomed to the machine, the loader does not break the coal very badly. A neighboring company has an improved "Christy" which has not cost them a cent for repairs although it has been in operation for more than a year." Another operator wrote: "We installed two Christy loaders four years ago when they had passed very little beyond the experimental stage. One of them has been in continuous operation since its installation and during the entire time has never been known to have caused any delay on account of breaking down. It is a fact that it has broken occasionally but its great advantage lies in the fact that the parts are small, inexpensive and easily replaced in a few minutes' time. Our repairs on this machine have amounted in three years to \$881.40

it from breaking the ends of the cars. Our repairs are very light."

The Victor loader which was designed in 1899 by Mr. D. A. Chappell, president of the Victor Fuel Co., of Denver, Col., and first put into operation at that company's Gray Creek, Colorado, mine, somewhat resembles the Christy loader. It is being built by the Link-Belt Machinery Co. of Chicago. It is propelled by either a steam engine or an electric motor. Like the Christy loader, the Victor consists of a movable I beam platform on wheels, carrying the engine or motor and a loading belt or apron which is moved into the car. The machine is moved by a gear wheel which engages a rack beneath the platform and the apron is operated by bevel gears and endless chains. The operator of the loader has complete control of the apron

to roll to the extreme end of the car. The loader has a lateral motion in the car which enables the operator to load the car uniformly. After one end of the car is loaded, the platform is partially withdrawn and the conveyor turned around into the other end of the car. The manufacturers claim that large box cars can be loaded at a uniform rate of ten minutes each, including the time necessary to shift cars, and that the loader will handle coal from either shaking or gravity screens or strong bins, regardless of the size of the lumps. Statements received from companies using Victor loaders bear out this claim. A few companies have stated that on account of its numerous parts which are subject to considerable wear, breakdowns are not infrequent.

The most unique type of box car loaders

in use is the Smith gravity loader, invented in 1900 by S. Kedzie Smith, a civil engineer of Billings, Montana, and manufactured by the Duncan Foundry & Machine Works of Alton, Ill., and the Dodge Coal Storage Co. of Philadelphia. The first Smith loader was built for the Northwestern Improvement Co. of Roslyn, Wash., and that it was a success is evident from the following letter to the writer from the general superintendent of that company: "We have two Smith box car loaders, one of which has been in operation for four years. The expense of repairs has been very light, so light, in fact as to be unworthy of mention. These box car loaders load the cars very evenly and up to their capacity with very little breakage to the car or coal, the breakage of coal going practically the same as dumping into open cars. We have loaded 1500 tons with one loader in nine hours, but this does not represent the capacity of the loader as it was the output of the mine. I believe that one of them could load 2000 tons a day and handle that tonnage nicely."

The term "box car loaders" does not apply in the same sense to the Smith loader as it does to any of the other loaders previously described, as it is in reality a device for handling the cars while they are being loaded. It consists of a platform large enough to accommodate a box car of any size, supported and moved upon a cradle. The platform and cradle are built of wood or steel and are contained in a masonry pit 66 feet long, 18 feet 4 inches wide, and about 16 feet deep. The platform is very much like that of an ordinary track scale, having upon it a section of track meeting the tippie siding at each end. It also has two car stops, one at each end, which are set securely against the drawheads of the car on the platform by means of track and lever devices. Each stop is dropped down enough to clear a moving car and raised into position by a vertical hydraulic cylinder. The sides of the cradle which carries the platform are almost semi-circular, with a radius of 15 feet 9 inches, and each side has a pair of 56 pound steel rails fastened to its circumference.

These sides rest and turn upon two pairs of 18 inch steel rollers, and by means of hydraulic pressure the entire cradle and platform can be tilted about 40 degrees out of horizontal at either end, about a centre just above the centre of the car door. The hydraulic equipment consists of a 16"x8½"-x12" duplex pump with a maximum working pressure of 250 pounds, and a 14 inch horizontal cylinder along each side of the pit. The piston and 4½ inch hollow piston rod of each cylinder are stationary, and the cylinder itself moves. By means of 1¼ inch steel cables, which are attached both to the cylinder heads and the circumferences of the sides of the cradle, the tilting of the cradle is accomplished. Steam is used in the pumps and water in the hydraulic cylinders, the water being used repeatedly.

Quoting the manufacturer's catalogue

a car is loaded as follows: "It is run on the cradle and locked in position by means of two power operated stops. The chute is inserted and loading begun. The center of oscillation of the car and cradle is midway between the top of the grain door and the top of the car so that it can be rotated through the necessary angle without interfering with the operation of the chute. A pile of coal reaching from the chute is formed before the car is tilted. The car is then slowly inclined, the coal from the chute falling without breakage over the pile already formed until the coal is up to the desired level. The car is then brought rapidly back to the horizontal and slowly tilted in the opposite direction. Very little coal runs from the end first loaded, as the coal from the chute slides down over the face of the pile already formed, which will not start from a position of rest. When the car is loaded it is returned to a horizontal position, the stops are removed, and the incoming empty car ejects the loaded one. The car and cradle may be mounted on scales and the weight of the empty car and the coal delivered to it, exactly determined. Experience has demonstrated that this machine will handle the largest and most friable lump coal with a minimum of breakage; that it will load box cars evenly and to capacity; that it will not break the cars; that only one man is necessary to operate it; that the cost of repairs and delays are small; that it will load the coal as fast as it can be discharged from the chute, and that practically as many box cars can be loaded in a day as open cars. The loading chute can be so arranged as to load open cars whenever necessary without tilting the table."

That these claims are fair, is shown not only by the letter previously quoted but by the following letter from the general superintendent of one of the largest coal companies in British Columbia: "We have tried other kinds of loaders but have not found any to give the same satisfaction as the Smith, which we have had in use for two years. Our coal is soft and friable, and breaks easily in handling and we find that the Smith loader is a great benefit to us in saving breakage of coal."

There are now four Smith loaders in use and three in the course of construction. The great first cost of the installation of this loader is a serious drawback to its popularity. The inventor states that \$7,500 may be taken as a fair estimate of the total cost including foundations, in the Central and Eastern states.

Before concluding, the writer wishes to draw a brief comparison between the various box car loaders described. The two Ramsey loaders and the Bond being almost obsolete, no further mention of them is necessary. It is not within the province of this paper to state which of the four actually successful loaders is the best, as it has been the aim of the writer to be entirely impartial. It is, however, worthy of note that in the dozens of confidential

letters received from representative coal men, exclusive of printed testimonial letters, each man, with but very few exceptions, thinks that the particular one of the four loaders which he is using is the best on the market, even though he has, in some instances, used one or more of the others. In several instances one make has been replaced by another, and vice versa. From these statements, it is reasonable to assume that each of the four loaders—the Ottumwa, the Christy, the Victor and the Smith—is a good one.

In first cost, the Christy has the greatest advantage, as it sells for \$1,500, while the Victor and Ottumwa sell for \$2,000 each. The foundation of the Ottumwa is a little more expensive than that of the other two. As previously stated, the first cost of the Smith is very high. The Smith probably leads the others in capacity, with the Christy or Victor next, and the Ottumwa last. The Smith is also first in minimum breakage of coal as it should not break the coal any more than it would be broken in loading open cars. Of the loaders which enter the cars, the Ottumwa breaks the coal the least because it carries the coal almost to the end of the car and then pushes into the car. The Victor probably stands second to the Ottumwa, having an advantage over the Christy in the raising and lowering of the apron. Repairs are higher in the Ottumwa and Victor than the Christy, and the Christy is the most easily repaired. One objection to the Ottumwa is that when the endless chain breaks, as it occasionally does, and the coal is piled around the hopper, it takes considerable time to remove the hopper from the car. The Christy and Victor have great advantages over the Ottumwa in the ease with which they can be operated by electricity, as this feature often prevents the necessity of piping steam a considerable distance or of bearing the expense of installing an extra boiler. The Ottumwa can also be run by electricity, but the continual reversing would probably mar its success.

The writer concludes with thanks to the manufacturers and coal operators who assisted him in the collection of much of the data used in the preparation of this paper, and with the hope that the members of the Institute have received a better insight into the construction and operation of an important part of the equipment of a coal mine which until recently has been an alien to this—the greatest coal producing center in the world.

Robert W. Johnson, a representative of the Ottumwa Box Car Loader Co. assisted Mr. Affelder in explaining and demonstrating the mechanism and operation of the model exhibited.

Address by Mr. Christy, of the Christy Box Car Loader Company.

Gentlemen: I am the inventor of this machine. I had hoped to be at this meeting and was delayed, just arriving in this

city from Chicago this morning; I came in while Mr. Affelder was making his speech. I want to compliment Mr. Affelder on the very able paper which he prepared. I think he treated all box car loaders fairly, I certainly had no objection to what he said of the Christy, and I would not thank him or anyone else for saying anything that was not strictly true in regard to the Christy loader. I realize there are objections to all mechanical appliances for loading coal. The perfect loader has not yet been made in my mind, but I hope it will be made, because I believe the time is coming when a very large percentage of the coal that is shipped in flat cars will be shipped in box cars. In the western country the railroads are becoming anxious to get freight both ways; therefore they endorse the installation of box cars.

Two years ago, when coal was very scarce, owing to the hard coal strike, it was pretty difficult to get coal in the western country. Some people went cold because they could not get coal. Other places, some of our people would stop a train and unload the coal, and when the coal dealers, the railroads and others had them arrested and took them before the magistrate they would be discharged by them saying it was no crime to steal coal. The dealer has gotten to the fact that he must ship his coal in something that will protect his coal, therefore, the box car is becoming very necessary. The time will come when the shipper will be asked to ship the coal in something that can be closed up.

My friend, Mr. Johnson, made a nice talk in connection with the Ottumwa loader. I believe it is right that every competitor and every manufacturer should have a fair show, and I have nothing to say of my competitors—they all have good devices.

As Mr. Affelder has said there are four leading loaders, they all serve a good purpose. Some are good for one purpose and some for another. But I take exception to a remark that some of them made, that some loaders will break more coal than others. All of the four loaders mentioned here will not break coal as much as shoveling; which will break the least the matter of competition will settle.

Mr. Christy here gave several illustrations of his loader by means of photographs.

COAL COMPANY LOST.

A jury at Washington returned a verdict of \$6,500 for William T. Rabe, who sued the Schoenberger Coal Company of Donora, to recover for alleged damages done to his farm by mine posts having been removed. He sued for \$50,000.

--Four new 13 ton Jeffrey electric mine locomotives have been ordered for the Vssita mine at California, Pa. This is said to be the largest mine in the world.

Discussion On Coal Dust

Winter Meeting of Central Mining Institute of Western Pennsylvania.

Held in Pittsburg, December 20-21, 1904.

NOTE—The paper on "Coal Dust," as read by Mr. Jackson at the Winter Meeting of the Central Mining Institute, was published in full in our January issue.—Editor.

Remarks by President Keighley.

Mr. Jackson's paper is one of the most important papers that has been read at this meeting. The other papers, of course, are all very good, but when it comes to a matter of safety, a paper of this kind has really more weight and is of more importance than anything we could have in the way of mechanical appliances, etc. These are all very necessary things and reduce the cost of mining, but safety of the men is the most important thing connected with the industry, so this coal dust paper is really the most important paper of this meeting and I think Mr. Jackson has done himself great credit, and no doubt the members of the Institute think so, too.

A few things occurred to me during the reading. There seems to be an intimation all the way through that the presence of fire damp is more or less necessary to get up a good sized explosion. As you all know every coke works has a very large coal bin connected with the operation and the object of that bin is to accumulate enough coal the first four days of the week to carry them over Friday and Saturday, and I know of several explosions that have been caused by laborers getting down in the bin and stirring up the dust and causing a fire. Explosions in flour mills are also a very common occurrence.

By Mr. Shellenberg.

I think I agree with the author of the paper, that without flaming gas the coal dust is not likely to take fire. I don't see how it can take fire. It takes a large volume of air to consume the dust. It takes 160 volumes of air for one volume of dust, which is about 12 or 13 to one. So I agree with the speaker that coal dust ought to be hauled out of the mine. The mine ought to be tidy. We know that tidy mining is in itself a preventative of accident; it is slovenliness that brings on all these accidents. The word economy means good housekeeping. Tidy mining covers everything.

By William Hearne.

I don't think that we could get anything better than Mr. Jackson has given us in his paper on "Coal Dust," but his method of watering the dust behind the drop is out of date. The spray will only water one-quarter of the dust, consequently the water will raise the dust which sticks there; again, there is no means then to remove that dust. The only means we

have at the present time is to get high pressure fans, take one heading, open up everything, give the fan full force under that section of the mine and blow out the dust. In machine mining we have to load the dust; that is a rule; it is necessary to load it, and where we have no machines and coal dust to contend with, we have more than a water wagon to look to.

By the Chairman.

I believe Mr. Hearne has made a very good point.

By Mr. Adams.

I would like the gentleman to explain his idea of blowing the dust out of the mine; what system would we adopt, and what would we do with our present methods? What would become of the dust when we get it up to the top of the shaft, and what pressure would be requisite for taking this dust up?

By Mr. Hearne.

Mr. President, I obtained the idea from Lambert's shaft and the pressure of the fan was 6 2-10 at the top of the shaft.

By Mr. Roby.

Mr. President, it appears to me that the high pressure fans such as have been installed at our large and up-to-date mines to-day, could be used to a decided advantage in removing a portion of the dust from the mines, especially along the haulage roads and air ways, where the higher velocities would catch the dust in connection with the greater pressures produced by the fan. However, the greater dangers from dust exist at or near the working faces and in advance of the stronger air currents, when the very finely divided particles of dust hang suspended and floating in an almost still atmosphere. Here the dust particles being so very fine may continue to float and dance where the air has no true current motion, but only an eddy motion such as is found in closed rooms where minute dust particles are seen dancing in a sunbeam. The graduation of dust particles, with reference to the air movements by which they are suspended, is especially important with regard to the inflammability of coal dust when suspended in the air of the mine; the finer particles of dust being so much more easily ignited than the coarser particles, increases the danger, due to the fact that the work in the mine is mostly done in advance of the current motion of the air. After the initial explosion is once started the concussion due to this stirs up and sets floating in suspension larger particles of dust, which increases in size in proportion to the hurricane velocities set up by the initial explosion; the larger particles add to the intensity and fierceness of the explosion. It has been noticed that the dust found in mines after an explosion consists wherever the fire has been of particles of coke that can only have been

produced at such a temperature as would be generated by the burning of inflammable matter, such as the gases given off by coal when it is heated. It is evident that in such occurrences it is not the fixed carbon but the volatile matter of the dust that is the cause of the rapid ignition that makes coal dust in air explosive.

When coal dust that contains much volatile matter is heated above 212 degrees F., it gives off inflammable gas and when the temperature is still further increased, the gas is disengaged with increasing rapidity; consequently, every particle of dust in the air, as well as on the roof and sides, projects or spurts into the surrounding air little jets of gas that will mix with the air and make a violent explosive mixture. According to the data given by Mr. Jackson's paper when a violent dust explosion occurs, the temperature is raised to about 6000 degrees F.; this I am inclined to doubt. However, the temperature was raised to such great heat in the Harwick mine that we found the sides of the ribs blistered and spoiled by the heat. This intense heat doubtless would have fired the mine in a number of places had there been any uncombined oxygen left in the air to support combustion. You may have some slight idea as to the rapidity of this force and the great pressure produced as a result of the combination of dust along with an unknown quantity of fire damp, when we remember that it caught a mule up from the bottom of the shaft, and hurled it some 75 or 100 feet above the top of the shaft. Including the depth of the shaft, the mule was thrown to a height of some 300 feet.

There are several very dry mines in my district, and I notice after the miners have been working for a few hours, their lamps become very dusty from this fine dust that is floating in the air which silts through the shield on to the gauze and renders the lamps unsafe in the presence of fire damp; so that by the careless use of lamps they are rendered unsafe in a few hours after they are taken in the mine. There is no doubt these lamps are the safest thing we have, and a God-send to those who have to work in mines that generate fire damp, yet where the mine is so very dry the dust adds very materially to the possibility of the safest lamp itself starting an initial explosion, if gas was to suddenly back down on the lamp. It is a problem that is pretty hard to deal with efficiently and safely in a mine. Fire damp alone can be very readily disposed of by circulating large volumes of air through the mine, but coal dust is not near so easy to get rid of as fire damp, and where you have coal dust you have a dangerous element, and it adds very materially to the dangers that exist in the mine and that might lead up to an explosion.

By Mr. Cunningham.

Speaking of watering the mines, we have a mine on record now where the system is carried on very thoroughly; that is, a sys-

tem of pipes all over the mines—in the rooms and plugs at intervals, and a man to keep all roads, roof and sides sprinkled. In that way we keep the dust down. Now for instance, take the Harwick mine where the explosion was mostly due to the coal dust; you can go into the mine since they have these pipes in there and you will find that it is practically a damp mine, and where there are fans that can't run to a very high water gauge, I think that their system is the best one to employ.

By Mr. Roby.

In regard to the Harwick mine, in our recommendations for safeguarding the mine, we recommended that the coal dust be carefully cleaned, and that the pipes of the mine be arranged that the water could reach the working faces before shots are fired. We also recommend that the least flaming and safest known explosives be used. As it has been shown by Mr. Jackson's paper that it is possible to get an explosion even though there is no fire damp present, it certainly is very necessary that extra precautions be taken along the line where flaming explosives are used; that is, in the way of keeping the dust practically all cleaned out and well watered before they fire the shots.

By Mr. Joseph Williams.

I have been giving this matter serious attention for some time and I have learned that where the heat of the mine is the greatest and the driest, coal dust becomes the most dangerous. In shallow mines where I have found considerable dust, I have not found anything to occur from the dust, but in shallow mines where it has been dry, excessive explosions have been effected until the atmosphere beyond the current of air has become hot and lives lost every time. I have been in a mine where a room was turned off from the current of air and the room gone in about 20 feet at a pitch of about 45 degrees where considerable blasting was being done by men not used to working in bituminous mines, but who were anthracite miners using the drills which they had used in the anthracite mines and also using an excessive powder. They put the condition of the atmosphere in that place of work so that you could feel the heat in there, and upon firing a blast, the flame would extend 18 feet out of the rooms and go in a direction at right angles outside of the room for a distance of 200 feet. The entrance was driven over 100 feet inside of this room and, I presume, it also extended in there. One man, who had gone inside and another man on the outside both lost their lives when the explosion occurred. I have come to the conclusion that where the mine is very dry and where the atmosphere is very warm, coal dust is a very dangerous element.

By the Chairman.

What Mr. Williams has said confirmed something that had come under my obser-

vation some time ago, and this was in a very wet mine. There was no dust in the mine, but there was a distance of about 100 feet, where about 70 head of stock passed through every morning and night, and it is only a few feet from an engine, which is operated by steam and not very far from the pump room, and close to the shaft where all the return air from the return mine comes, and that point is so dusty that if it is not cleaned out every day or two the dust will accumulate to a depth of six or more inches in one week, and there is no dust in any other place in that mine. There is a great deal of truth in Mr. William's statement, but it is a fact that dust is there, always will be there, and must be taken care of every few days.

By William Duncan.

Coal being an organic matter, we know that it is undergoing decomposition from the exposure to air, from the fact that when coal is shipped any great distance it loses some of its value from being exposed to the air. I care not whether it is in a coal field or wherever coal may be, the carbon hydrogen is escaping from that coal, and the more finely the coal is pulverized, the more rapidly will the carbon hydrogen escape. I took a bag of air out of a coal bin and applied it to the test and I cannot say that there was any fine particles of dust in the air, but I applied it on the instrument and found that the air which I took out of the coal bin contained one per cent. of carbonate of hydrogen and for that reason, I believe, that carbonate of hydrogen is always present wherever there is coal or coal dust, as it is always escaping from the coal, and the higher the temperature, the more rapidly decomposition takes place.

By Mr. Phillips.

I would like to ask Mr. Duncan whether, he thinks that new fresh coal is more dangerous than coal that has been exposed to the air for some time.

By Mr. Duncan.

I would say yes; the fresher the coal, the more powerful the gas and the more rapidly will it escape from the coal.

By H. H. Stoek.

I think it is now generally admitted as a fact that you can have a dust explosion without the presence of gas, though for many years a combination of the two was thought necessary.

In Colorado there is a plant where there was an outside plane down which coal was lowered from the mine to the tippie. One day a trip of cars broke loose and came down the plane and over the tippie stirring up a great deal of dust. There was a stove in the tippie and an explosion occurred inside the tippie, the flames shooting out some distance in front, giving a conclusive proof to my mind that you can have an ex-

plosion of coal dust without gas being present.

In flour mill dust explosions you might have illuminating gas or something of that kind mixed with the dust, though I do not think it is necessary to assume this to be the case. I believe, though I have no data upon the subject, that the more bituminous or volatile a dust is, the more dangerous it will be. Anthracite dust is certainly not so dangerous as bituminous.

It is certainly true that the flame from a blown out shot will be carried much further in a dust laden atmosphere.

I believe there is something in the physical condition of the coal which affects its explosibility. A number of years ago I carried on a number of tests on Nova Scotia coals. First I made chemical analyses, but I do not remember just what the analyses were. I rigged up an ordinary stove pipe into the top of which I could drop the dust, and by means of a gas jet below, test each of the samples. Sometimes I would get an explosion and sometimes I would not with the same sample. Sometimes one sample would explode and another of about the same composition would not. As far as I could see, the condition of the samples seemed to be about the same.

M. LeChattellier has shown that gases are given off by a coal face for a very long time. He showed that gas was being given off no matter how long the faces were allowed to stand.

When we say there is no gas present we speak comparatively, but wherever you have coal you are bound to have a certain amount of fire damp being given off.

In the case of a blown out shot incomplete combustion takes place and explosive gases remain, such as C. O. These gases, mixed with the dust undoubtedly produce a very explosive mixture, so that even in a mine, which is free from fire damp and other explosive gases under ordinary conditions, a blown out shot may generate sufficient explosive gas to render the dust which it stirs up explosive, even if this dust was not explosive without being mixed with the gas.

By Mr. Phillips.

I understand from Mr. Duncan that there will be more gases in new coal and that it will disintegrate much quicker. The fact is that some of the worst explosions which have been attributed to coal dust, have occurred in old main roads of mines.

By Mr. Evans.

I believe that dust which is found tramped along main haulage roads for several reasons has no danger in it. Following Mr. Duncan's theory, it has left off its gases and becomes dead, but I will admit that great explosions have occurred on main roads, but not from the dust, but from new dust which had gathered around the top.

It must have heat, and that will occur with a room that is turned and driven up 40 or 50 feet; there is more danger there, because there is more heat, and especially with this strong current passing through, all the dust is kept in there, and there is a certain amount of heat there more than anywhere else. I think it essential that each mine should have an analysis made of its coal.

I believe I once said that the volatile matter in the Harwick mine was 37%, but I heard today that it was only 33 or 34. I have an analysis that runs to 38.

In my region I don't think that we have any coal that runs much above 27 and I don't think we have very much danger of dust explosions for the reason that the volatile matter is very low. When it becomes 30, it becomes very dangerous and one should find out the amount of volatile matter in the coal and extra precautions should be taken. I do not believe the dust itself is dangerous. I know in my district when I get into a dry road, I talk wetting it immediately. I want to be on the safe side; I want it sprinkled. I think the greater danger lies in the volatile matter.

By Mr. Fole.

I would like to ask the Institute whether there is any record of a dust explosion in the Pittsburg seam of coal, or in the Connellsville seam of coal? I have seen lots of mines in the Pittsburg seam which seem to me to be ripe for an explosion.

By the Chairman.

I think the physical structure of the coal has something to do with it aside from the volatile matter of it. A man told me last night that they had a flint coal in which the volatile matter was 47%. He also said that in their operation, the whole waste was less than 100 pounds to the ton, so it shows there is a physical factor as well as a chemical factor there.

By Mr. William Clifford.

The fineness of division is the gauge of explosions, but there is dust from mines that won't explode, while there is some dust from other mines that will explode, and it has puzzled the best scientists to account for this. The fineness of division in some dust is such that when coal is rubbed between the fingers like granules it will explode, but, of course, the greater the surface to apply that action to, the quicker the explosion takes place.

By the Chairman.

I think the fact, and it is a fact, that of two coals that analyze almost exactly alike in volatile matter, carbon, ash, sulphur and phosphorous, one will coke and the other will not coke, and you cannot make it coke. There is something lacking and it must be in its physical make-up, and if that applies to the coke process, it

certainly would apply to the volition of gases or whatever you may term it.

By Mr. Mollison.

In answer to Mr. Fole's question about explosions in Pittsburg seam, I know of a slight explosion which I think was a dust explosion. About ten years ago there was a slight explosion in the Galitzin mine by which one man was killed, and I have arrived at the conclusion that we can have a dust explosion without the presence of fire. All that is necessary is sufficient heat to distill gas out of the dust, and I believe that dust is lower in volatile matter than coal, but it requires more heat to start it.

In the Connellsville region in 1901, an explosion occurred in Southwest No. 4 mine, and I would say that explosive gas has never been detected in that mine. The place where the explosion occurred was very dusty and there was ice a very short distance from where it ignited. I do not think there was any gas present.

In Margaret mine, two men had fired a shot in a heading which was comparatively damp, the bottom being damp all around. It was about 6:30 in the morning, before they had mined very much and they had built a well about five feet deep, and fired, and men, who claimed to be 150 feet away, were burned. This occurred on Saturday and on Monday I was unable to find the slightest trace of gas with a Wolf lamp, notwithstanding some of the men said I could find it out on the hill, and I believe all that prevented a greater explosion in the Margaret mine that day was the fact of its dampness. I believe there was very little dust, except what was pulverized by that shot. After investigating this matter, I came to the conclusion that with a blown-out shot we can very easily get a dust explosion in any mine.

By Mr. Fole.

I will have to object to an argument about the theory that the highly volatile coals are the most explosive, because as far as it has been brought out here, it is merely a theory.

By Mr. Clifford.

I agree with Mr. Fole. We have a mine at Creighton a very few miles from the Harwick mine, working the same coal, with the same chemical composition, and we have never had any explosion of dust. Creighton runs 38% of chemical, but the cover there is not so heavy and I think it is purely a physical matter and not a chemical one.

A paper on "Coal Dust Considered Physically and Chemically" will be one of the features of the next meeting of the Institute.

Every mine superintendent should receive "Coal and Timber" regularly. The way to get it is to subscribe. Only \$1 per year.

EASTERN OHIO DISTRICT.

By Emerson Campbell.

The first month of the new year was not a prosperous one for the mines in Eastern Ohio, and the outlook for the month of February is not very much brighter. The cause of the unsatisfactory condition is the fact that the railroads do not seem to be able to furnish sufficient cars for the mines. In the past month, with one or two exceptions, the mines have not worked more than half time and in some cases only one-third time, and one can see by this that the operator in this territory has not added much to the dividend fund for the companies.

With the mines being only able to operate, as above stated, has not been all that the operator has had to contend with, as during the month the price of coal in this territory declined and the price of the run of the mine is now from ninety to ninety-five cents per ton. This is a very low price and is equal to the summer months or the dullest of the season.

During the month of January the small operators in this district met in Wheeling, and organized a selling agency, which will be known as the Producers Coal Company and will have its principal office in Cleveland, and if its work is successful, agencies will be formed in other cities. The company has secured an Ohio charter, and have effected the following organization: President, J. S. Johnston of the Johnston Coal Company, Bellaire; vice-president, F. P. Jones of the Moores Run Coal Company, the offices of which are in Pittsburg; secretary and treasurer, Samuel Kinsey, president of the Portland Coal Company, Wheeling; directors, these officers, and H. J. Lewis of the Lewis Coal and Coke Company, and George M. Anderson of the M. L. Williams Coal and Coke Company, whose offices are in the Park building in Pittsburg.

The following companies are in the combine: Russell Coal and Mining Co. office in Steubenville; Moores Run Coal Co., Wheeling, W. Va.; Johnston Coal Co., Bellaire, Ohio; Williamson Mining Co., Martins Ferry, Ohio; Pultney Coal Co., Bellaire, Ohio; Portland Coal Co., Wheeling, W. Va., and Oneal Coal Co., Wheeling, W. Va. All of those in the new combine operate in Pittsburg Seam No. Eight, and the lowest estimate of the daily output is 4,000 tons and the highest 9,000 tons. The sole purpose of the organization is to market the product of the mines in the combine and it will be a gigantic sales agency.

The Youghiogheny and Ohio Coal Co., despite the weather during the month, have made good progress in the work of opening their new mine on Glens Run, about two miles west of Martins Ferry. The company will not be able to mine coal for at least two months. The mine will be equipped with the most modern machinery in all its departments. With 11,000 acres of

coal it will have four entries at the opening and a good part of this work has been completed.

The six mines on the main line of the B. & O. west of Bellaire have fared badly this month in the way of securing empty cars. One of the operator on this road stated to your representative that the time made in the month would not average half. Time after time they have appealed to the railroad for better service and always received assuring promises, but that was as far as the situation was relieved.

On the C., L. and W. division of the B. & O. the mines, with about one exception, which is one out of twenty, failed to make a better average than half time for the same reason that the road could not give them cars. The operators joined together and asked the company for better service on the week of the twentieth and the company assured them that the following week would find them furnishing the required amount of cars, but on the very following Monday the mines were without cars and again they were asked to better conditions, but so far their efforts have been in vain. On this line all of the mines have fared the same. The Lorain Coal and Dock Co., with their four openings, have not quite made half time.

The mines on the Cleveland and Pittsburg road, including the mines as far north as East Liverpool, have worked about half time, but they have been assured that in the near future they will have all the cars that they will need. This promise has given the operators some hope of a better month.

The mines along the Wheeling and Lake Erie have certainly suffered during the month and the hopes of the owners for a good month went glimmering as the road was not able to furnish them cars to operate their mine half of the time. This is on account of the fact that the road has not sufficient equipment for their trade, but is making preparations so that in the near future they will be able to meet their demands, as their first allotment of new cars will soon arrive.

On the Adena branch of the Wabash the mines fared better than on any other road and made better than half time. During the month Troll Brothers secured a large contract for coal from the Grand Trunk Railroad in Montreal, Canada, and their two mines did well during the month.

The Provident Coal Co. on this road has just purchased four hundred additional acres of coal, paying \$70 per acre, or \$28,000 for the tract. The company will soon open their second mine on this line. It is also rumored that three new mines will be opened soon on this road, and with this rumor the price of coal territory has advanced.

The Oglevee Scott Coal Co., located at Tippecanoe on the C. L. and W. division

of the B. & O. have sold their mine and territory to the White Ash Coal Co. of Columbus, Ohio, who are now operating the mine. The works are about two years old and have been worked successfully.

Thomas J. O'Gara of Chicago has purchased a valuable tract of coal land in Noble and Guernsey counties of this district, which include the Brown and Devore mines. The price paid for these holdings was \$600,000.

The operators in this district feel that this year should be a profitable one and they advance some good reasons for this belief, as follows: With the coming of April a year the present scale will be run out, and with it also expires the agreement with the Anthracite people, and on this account they anticipate trouble. It is the reasoning of some of the most conservative operators that on this account the public will not be caught without a good supply of coal on hand. That, with the anticipation of coming trouble, they think will not only stimulate buying but the price as well.

One of the largest deals in this section of the state during the month was that of the Youghiogheny and Ohio Coal Co. in buying the Amsterdam mine near Steubenville, Jefferson county. The price paid was \$250,000. With this the company has two openings on the C. L. & W. division of the B. & O. near Barton, Ohio, and is as stated opening a large new mine near Martins Ferry, and in these two tracts have over 11,000 acres of splendid coal. It is rumored that this company is fighting the Pittsburg combine and that the vengeance of the Osbornes will be felt by the combine. This company is welcomed in this district as they are hustlers.

Toledo parties represented by W. H. Vance are optioning a large tract of coal lands in Harrison county, Ohio, near Jewett, and has now near 2,000 acres of good territory at a reasonable price. Somer and Davis of Cleveland and Canton are testing the same vein at Millers Station. The Toledo people will have one advantage, that of having the Panhandle Railroad and the W. and L. E.

MASILLON COAL OPERATORS

Reduce Price To Retailers 25 Cents.

Coal operators in the Masillon, Ohio, district have notified the retail dealers of a reduction of 25 cents a ton on Masillon coal, becoming operative on and after February 1st. This is the rate which was in force prior to December 1, 1904, when the 25-cent advance was put in effect. The retailers announce a similar reduction to their customers.

The bituminous coal situation in Ohio at the present time is in a very unsettled condition, and prices are being cut right and left by the operators, so much so that standards are not being maintained, and no general price is now in effect.

PENNSYLVANIA

--A contract for 400 new coke ovens, with orders to rush construction, has been placed by the Republic Iron and Steel Company. The ovens will be located in the Connellsville region.

--D. L. Frazee has just consummated the sale of 7,000 acres of Lone Pine coal in Amwell township, Washington County, Pa., the purchasers being Pittsburg and Cleveland capitalists. The purchase price was \$700,000.

--Cleveland furnace interests have purchased 186 acres of the 9 foot vein Connellsville region seam coal which lies under the farm of Leonard Sapper in Menallen township, Pa. This coal brought \$1,300 an acre, the same price paid for the Bowman-Taylor tract a few days earlier.

--Options on 3,000 acres of coal and a right of way in the neighborhood of Plumville, Indiana County, Pa., have been secured by agents of the New York Central R. R., and it is reported that the Central is to be extended through Indiana County and connect with the Allegheny Valley R. R. at Kelly.

--Beall Brothers have added to their already large holdings of valuable coal tracts in Washington County, Pa., by the purchase of 130 acres from C. P. Buchanan, near Independence township. The price paid for this tract is understood to be \$50 per acre and is considered very low for coal in that vicinity.

--John Guiler and J. L. Kendall of Connellsville have purchased the old Tyrone coke ovens formerly operated by Jones & Laughlin. It is the intention of the new owners to make necessary repairs to the ovens which have been idle for some years and then put them in blast, running the coal from their mines near Dickerson Run.

--The Pittsburg Coal Company have brought suit against James Shearen and John Shearen doing business as Shearen Bros., to recover \$30,000. The Company claims the Shearens in mining in Chartiers township, appropriated \$10,000 worth of their coal. Under the law treble the value of the coal thus taken can be recovered.

--Motive power officials of the B. & O. R. R. indignantly deny the report that the new Maller compound locomotive, the largest engine in the world, had proven a failure. As a matter of fact, the big locomotive is giving satisfaction, is running every day and promises to be one of the most valuable purchases of the B. & O. in the way of locomotives in recent years.

--A large timber cutting job is going on in the northwestern corner of Pennsylvania, where 12,000 acres are being denuded of timber, 80 per cent. of which is white pine. The Grandin Lumber Company have 350 men at work on the estate of E. E. Clapp where they have installed an up-to-date band mill with complete equipment and

expect to clear the entire tract, saw, plane and ship the product in three years.

--Congressman Cooper has introduced a bill in the House of Representatives at Washington, granting the right to the Leckrone & Little Whitely Railroad Company to construct and maintain a bridge over the Monongahela River between German township, Fayette County, and Cumberland township, Greene County. The road is to be a line, 15 miles long, to open up some coal lands in that region and will connect with the Pennsylvania and Baltimore & Ohio at Leckrone.

--The Silverbrook Coal Company, near Hazelton, Pa., has made an unusual move by demanding that the mine workers at their colliery, who twice recently went on short strikes, should pay the company \$2,000.

The company officials say the strikes were a violation of the strike commission's findings and were unauthorized, and that as the company was put to considerable expense in maintaining the colliery without workers the mine workers who struck should pay for the loss.

The demand will be considered by the conciliation board.

--A rich vein of coal has been reached by workmen in the employ of the Miner's Mills Coal Mining Company at Miner's Mills, Pa. The Company was organized in 1902 through the efforts of M. J. Headley, who is the present president. Operations were begun by sinking a slope. When a depth of 150 feet had been reached a vein of coal three and one-half feet in thickness was found. The slope was driven down past this vein to a depth of 500 feet, then a tunnel was driven through the rock in the direction in which Mr. Headley thought the most important vein was located, and after weeks of difficult work, a vein over four feet thick of excellent quality and almost entirely free from rock was found.

The officers of the company are: President, M. J. Headley, Miner's Mills; Vice President, Attorney John McGahren; Treasurer, Philip Reilley; Secretary, Dr. N. J. Graeber, Wilkesbarre.

--The new pumping station of the Southwest Water Company, at Connellsville is completed and is now one of the finest pumping stations in the coke region. It is located on the bank of the Yough river, a short distance south of Connellsville. The building is a fire proof brick 40x115 feet in dimensions. It is equipped with a duplex compound Epping-Carpenter pump with a capacity of 3,000,000 gallons every 24 hours. Four 170-horse power boilers are used to furnish the steam for driving the pump machinery. The water is pumped to a big reservoir at Mt. Braddock, a distance of four miles. From there the water runs to the plants of the Oliver & Snyder Company, near Uniontown, the Lemont plant of the H. C. Frick Coke Company, and the Mt. Braddock plant of W. J.

Rainey. For some time this company has been supplying most of the water used in Uniontown. Next summer another pump similar to the one now in use will be installed and a second 12 inch main will be laid to the reservoir.

CONNELLSVILLE COKE REPORT.

The year 1904 was a disappointment to the coke producers of the Connellsville and Lower Connellsville regions. This was the result of several causes, the first of which was the low average price, the gross revenues of 1904, amounting to only a little more than one-half what they were in 1903. There was a decided slump during the month of depression previous to election. A poor car supply and the prolonged drouth were the other contributing causes.

In spite of the unsatisfactory conditions which prevailed throughout the year 1904, there seems to be a very general feeling of confidence that 1905 will prove to be the banner year of the coke industry in the Connellsville regions.

The aggregate output of the Connellsville and Lower Connellsville regions for 1904 was only 12,427,468 tons, which is nearly a million tons less than in 1903, and the average price for the year was only \$1.75 a ton.

Reporting conditions for the week ending January 21, the "Courier," the official organ of the regions, says: "The output for the week shows a total of 255,393 tons, compared with 254,164 tons the previous week. There was a slight gain in the number of active ovens reported. Only 1,423 ovens in the entire region are now out of blast. Prices have been very firm. Three dollars for furnace has been freely offered and better than this figure has been secured by some operators for prompt delivery coke. The H. C. Frick Coke Company have every one of their ovens making coke. This is the first time on record where every plant of the Frick Company was in full blast. Where short time is being made it is owing to the fact that cars are short. Shipments aggregated 12,662 cars, distributed as follows: To Pittsburg, 4,172 cars; to points west of Pittsburg, 7,207 cars; to points east of Connellsville, 1,283 cars. The shipments the previous week were 12,428 cars. In the Lower Connellsville region there are 6,408 ovens, of which 6,087 were active and 321 were idle. The plants or parts of plants idle have been affected by the car supply.

Our March number will contain valuable and practical information for the "practical miner." Our subscription price is \$1 per annum. Send it in now.

--The Wheeling and Lake Erie Coal Mining Company, Lute Hornickel, general manager, Cleveland, O., has intalled an Ottumwa box car loader.

UNIONTOWN NOTES

By H. G. Lawrence

The Taylor-Jeffries tract of thirty-one acres of coal in Menallen township has been sold by Leonard Sapper for \$36,800, or about \$1,200 per acre, the purchasers being Uniontown men, headed by W. A. Stone, who will develop the coal which is. They have formed the Prospect Coal & Coke Company and will build fifty ovens, for which the plans have already been made.

Mining operations are going ahead at the plant of the W. A. Stone Coal & Coke Company near Morgantown, W. Va., where Uniontown, Pa., men have 300 acres of the Pittsburg vein of coal. The B. & O. is across the Monongahela river from the coal and it is proposed to run the coal across by trolley. Samuel Brownfield, of Uniontown, is superintendent of the plant.

The Puritan Coke Company, of German township, is the first one in the Connellsville region to get complete electric power for all its operations from the West Penn Railways Company. No boilers or steam are used. An alternating line is being built from Uniontown to the coke plant and thirty-six miles of wire are required to take care of the compressor. The plant is in operation with 132 ovens, the output being ten cars of coke daily.

Within the last three weeks the Fayette County Gas Company has brought in two big producing gas wells in Greene county, both being in Dunkard township and the two producing between 10,000,000 and 12,000,000 feet per day. Both wells have been turned into the 12-inch line from West Virginia which supplies Uniontown, Connellsville, Dunbar, Scottdale, Youngwood, and other towns. Locations are being made by the Fayette County Gas Company to drill two more gas wells in the Greene county field.

James S. Amend of Uniontown, who has been for seventeen years general auditor for the H. C. Frick Coke Company, retires February 1st and is succeeded by C. L. Farson, a clerk in the Scottdale office, who started as payroll clerk at Lambert three years ago. Mr. Amend enters the hotel business at Connellsville.

O. W. Kennedy of Uniontown, general manager for the Orient Coke Company, returned this week from a southern trip which included a visit to the coke region of Alabama.

Work has begun on 50 new ovens for the Sunshine Coal & Coke Company in Nicholson township, Fayette county, and later the number will be increased to 100. Francis Rocks of Connellsville is the principal stockholder and the company has 100 acres of coal.

The Little Kanawha Coal and Coke Company met in Uniontown and re-elected the old officers and directors, including A. C.

Sherard of Vanderbilt, president, and A. P. Austin, Uniontown, secretary. The company has 10,000 acres of coal in Gilmer county, W. Va., which they are holding as an investment.

The new fan installed at the Redstone shaft of the H. C. Frick Company near Uniontown by the Robinson Machine Company of Monongahela City was tested Sunday, January 22, in the presence of many superintendents and mine foremen of the Frick Company, mine inspectors and others, and all were pleased with the working. The fan is 20x10 feet and the last of the five tests recorded 144 revolutions per minute. The fan ventilates the entire Redstone workings which extend to Brownsfield, two miles from the shaft. The mechanical end was in charge of G. E. Huttelmaier of the Frick office at Scottdale. It was installed at a cost of about \$10,000.

One of the Uniontown coke brokers who ships into Canada recently paid a bill of \$10.15 per ton for freight alone, or about \$203 per car on coal shipped to Melita, Manitoba, which is north of the line between North Dakota and Minnesota. The freight on coke averages from 25c to 50c per ton higher than that on coal. The duty on slack coal is 13c per ton and on lump coal 53c.

The biggest coal deal of the month in Fayette county was the transfer of the Naomi Coal Company's possessions near Fayette City to the United Coal Company, composed of Pittsburg and McKeesport capitalists, for \$1,250,000. The plant is for mining coal but no coke is manufactured. About two years ago the Naomi Company purchased on a royalty from Mrs. Elizabeth S. Moore of Greensburg 1,200 acres and secured leases on other farms near Fayette City. Coal land in that section is now held at about \$1,000 per acre. The plant is a large and modern one. James S. Kuhn is president of the United Coal Company, which is backed by ample capital.

Another big deal was consummated in Uniontown, 600 acres of coal land in Menallen township being sold by M. H. Bowen, Isaac Taylor and J. C. Work of Uniontown, to Cleveland men, presumably furnace owners, for about \$700,000 or \$1,150 an acre. The three Uniontown men held the coal five years and made a handsome profit. In addition to the purchase the Ohio parties optioned the Leonard Sapper farm of 190 acres near the land they purchased.

S. L. Smith & Company of Wilkinsburg, who some months ago purchased the plant of the Evans Coal Company near Uniontown, will increase the output from two to five cars of coal per day. They have 38 acres of the 4½-foot vein and the coal is shipped east.

Two new officials with the title of assistant general superintendent have been created by the H. C. Frick Coke Company.

One of the new officials is Clay Frick Lynch, for some time a superintendent at Calumet and Tarr, who is now located in Uniontown. The other is James A. Cowan, who had been for some time division superintendent in the Morewood district. Patrick Mullen, who has been superintendent at the Buffington works, has been appointed mine inspector for the Frick Company. Burgess B. Boyd of Uniontown, who had charge of the government coal testing plant at the St. Louis Exposition, has been appointed Frick superintendent at Alverton and Tarr. He is a brother of Harry Boyd, superintendent at Lambert.

John R. Stewart, who is in the lumber business in northern Minnesota, has been visiting his old home in Fayette county, Pa. He is in a company which owns between 4,000 and 5,000 acres of cedar timber. Joseph R. Laughrey, formerly of Dawson, Pa., is one of the Clipper Mills Lumber Company which owns 2,500 acres of valuable timber in northern California and Mr. Laughrey, who lives at Pasadena, writes his Pennsylvania friends that his company will cut 3,000,000 feet of lumber this year.

The Hogsett Coal and Coke Company of Uniontown are building a switch 1,500 feet long to the P. R. R. The company has 100 acres and will ship raw coal and also build some ovens and make coke.

The Brier Hill Coke Company, whose plant is in Redstone township, near Brownsville, Pa., is driving 1¼ miles, or 6,600 feet, of headings every month and soon the coal will be opened up for all the operations. About 150 men are employed and the present output is 320 tons of coke per day, which is shipped to the Brier Hill furnace at Youngstown, Ohio.

The Pittsburg-Wabash Coal Company of Monessen about the last of the year purchased from John J. Buttermore, J. W. Buttermore and J. M. Herpick of Connellsville 330 acres of coal in Brooke county, W. Va., on the Wabash Railroad, for \$40,000.

Isaac Reckard, formerly of Fairchance, Pa., who was for nearly two years superintendent of a coke plant near Birmingham, Ala., returned the middle of January and is now with the Brier Hill Coke Company near Brownsville, Pa.

J. V. Thompson of Uniontown, who has been an extensive dealer in coal lands, has recently completed his handsome mansion "Oak Hill" and gave a New Year's house warming there for the people of Uniontown. Mr. and Mrs. Thompson returned in November from a fifteen months' tour of the world, including thirty-three countries and over 58,000 miles of travel. Since his return Mr. Thompson has put through several big coal deals.

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WEST VIRGINIA NOTES.

By Regular Correspondent.

Coal men of West Virginia are looking to an advance in prices in the near future, and in this view of the market they are governed by the hopeful tendency in the iron and steel trade. The stagnation in the iron trade for a large part of 1904 fell pretty hard on the coal operators, more particularly the coke trade, and as a result the tonnage for the year fell below 1903 and at present the coke ovens are not up to a normal output, half of them, in fact, being idle.

New River operators have formed a compact to stiffen the price of tidewater coal by April 1. The Wheeling district operators are also restive under present prices, and throughout the state there is a movement to get better prices. Unsatisfactory car supply continues to be a factor in depressing the trade, for with the small margin of profit there is not much for the operator unless he can ship in bulk quickly.

Just now the legislature in session at Charleston is devoting its attention to matters of vital interest to coal men. In the message to the members Governor White has declared for a State inspection tax of \$100 on small mines and \$150 on larger ones, according to their tonnage. He makes this suggestion as a substitute for a production tax of one-third cent a ton, which he urged two years ago. He also advises doubling the present force of mine inspectors and the West Virginia legislature will add one more, making a total of six, and increase their pay from \$1,200 to \$1,500 or \$1,800 a year, but it will not double the number of inspectors. The Governor in the interest of independent operators, asks for a law to restrain railroads from engaging in the coal business, but this will hardly be granted.

The Beury Coal and Coke Company, one of the principal operations on New River, has become the Stone Cliff Coal and Coke Company. The original company converted its property by lease to T. C. Beury, who was the principal stockholder, and the lease provides for a royalty of 15 cents a ton on all coal mined, the minimum royalty being fixed at \$6,000 a year. This royalty is the highest ever paid in the New River field. The Stone Cliff Company was organized with a \$60,000 capital.

Reviewing the mining industry in West Virginia, Gov. White makes the following comments on Chief Mine Inspector Paul's report for 1904:

"The annual report of the Chief Mine Inspector for the fiscal year ending June 30, 1904, is one replete with information and shows a gratifying increase in this, the leading industry of the State. The mines during that period produced the greatest tonnage in the history of the State, being nearly three times the production in 1894,

ten years ago. The increase over 1903 was 4,071,617 tons or a production for 1904 of 26,984,715 tons of 2,240 pounds to the ton. There are now twenty-five producing counties. The greatest year for coke production was 1900, when it aggregated 2,469,107 tons. The production for last year was 2,276,451 tons of 2,000 pounds to the ton. The greatest number of men employed in and about the mines and coke ovens was during the last year, when 45,492 were employed, being an increase over the previous year of 6,050. The average wages received for pick mine work per gross ton, run of mine, was forty-nine and one-half cents, the days worked at the mines were 209, and the average yearly wage received per miner was \$484.96. The selling price of coal per long ton at the mines was \$1.05, being a decrease of twenty-seven and two-thirds cents, compared with the previous year. The selling price of coke per short ton was \$1.83 $\frac{1}{2}$, or a decrease of eighty-two and three-fourths cents as compared with the price of 1903. The total gross revenue realized upon the coal and coke production for the year placed on the market was 28,667,-391.19.

During the months of April, May and June there were strikes in the Wheeling district and in the Kanawha Valley, pending the settlement of new wage scales, affecting forty-two operators and throwing out of employment 2,926 men. A most gratifying feature of the report is the showing that during the year there were no great disasters at the mines in this State, though a number of mining accidents occurred, which are always incident to the operation of coal mining. Most of these accidents were due to carelessness on the part of the persons injured or killed. The fatalities were, by falls of roof, 95; explosions of gas, 3; mine cars, 22; and by all other causes, 20; a total of 140 fatalities.

There are now in this State 630 mines, being an average of 126 mines for each of the inspectors, necessitating 504 thorough inspections by each officer to comply with the law. Sixty mines is the greatest number that should be assigned to one inspector, if he is to carry out the law and inspect every mine thoroughly at least once in every three months. It is therefore necessary that the mine inspector's force should be increased by five additional inspectors. If the present force should merely go to the main entrance of each mine in the district four times a year, without doing any inspecting or examining, it would consume every working day of the year. When it is known that there are mines in each district that are of such extent as to require two or three days each to make the necessary inspections, it can readily be seen that the efficiency of the inspectors' work is much reduced by having so many mines, and so little time to devote to each. It would appear to be the part of wisdom and the exercise of a proper spirit toward the

building up of our State's greatest commercial asset, if the department of mines should be given enough force with which to do its work and this force adequately compensated. District inspectors in Pennsylvania receive a yearly salary of \$3,000 and the chief of the department \$4,000. Consequently a better class of men can be secured. Certainly no more important work is undertaken by the State than the supervision of the mining operations, and it is at present inadequately compensated."

Another recent deal in the New River region was the sale of a 712-acre tract to a syndicate for \$300,000, which represents an 85 per cent. increase in value in two years, the land having been acquired two years ago by A. S. Guthrie and others for \$160,000. The Berwind-White Syndicate attempted to purchase this land but was outbid.

Former Sheriff J. W. Grim and other Tyler county men are organizing a company to take over 2,500 acres of coal land in Barbour county, near the Tygarts valley river, owned by S. A. Moore and others. Barbour coal has good coking properties and much of it has been developed the last year or two.

The West Virginia Sawmill Association recently held a meeting at Marlinton, Pocahontas county, and among other things fixed the weight of standards and strips used in loading lumber and logs on flat and gondola cars. An allowance of 500 pounds was decided on and will be asked for from the railroads.

Some of the most important coal and lumber corporations given West Virginia charters recently include the following:

George Craig & Sons of Philadelphia, Pa., to buy and sell coal and timber lands, and to buy and sell lumber, staves, shingles, and other products. The chief work of the firm will be done in Pocahontas county, W. Va., and the company is capitalized at \$150,000. The incorporators are as follows: George F. Craig and Augustus Craig of Rosamont, Pa.; Joseph E. Gillingham of Villa Nova, Pa.; Isaac H. Rhoads of Landsdowne, Pa., and Harry W. Britton, of Moorestown, N. J.

Pike Coal Company of Lookout, Pike county, Ky., to mine, ship and sell coal and coke. Capital stock \$100,000. The incorporators are W. H. Warren of Thurmond, W. Va.; Lowry Lewis of Fire Creek; H. D. Gast of Kaymoor; Wm. Verner Dunlap of Rush Run, and A. W. Lang of Fire Creek.

Ashland Creek Coal Sales Company of Philadelphia, to mine, manufacture, cut, haul, buy, sell and deal in coal, coke lumber and other commodities or products. To own, buy, sell and deal in West Virginia lands not to exceed 10,000 acres. Capital stock, \$50,000. The incorporators are J. E. Davis of Davis, W. Va., John K. Beury, Harlan F. Stone, E. R. Owen, all of New York, and Kenneth K. McKenzie of East Orange, N. J.

GENERAL NEWS NOTES.

—The Colfax Consolidated Coal Company, of Colfax, Ia., has ordered two Ottumwa box car loaders.

—The National Coal Company of Akron, Ohio, has received authority to increase its capital from \$50,000 to \$200,000.

—The cities of Ashland, Ky., and Huntington, W. Va., are making strenuous efforts to have the C. H. & D. R.R. locate their proposed bridge across the Ohio River at their respective points.

—Oil well drillers report having gone through "a 12 foot vein of fine coal" near Cadiz, Ohio. Perhaps these are the same fellows who struck "a 12 foot vein of fine coal" in Mason County, W. Va., about two months ago.

—Messrs. Douglas G. Putnam, E. W. Strack and M. W. Thomas appeared before the River and Harbor Commission in Washington, January 12th, at the instance of the Commercial Club, of Ashland, Ky., relative to the location of Dam No. 29 at this point.

—Coal operators, of Canada, are falling into line and ordering box car loaders. The Souris Coal Mining Company, of Winnipeg, Ont., has just ordered an Ottumwa, and the International Coal & Coke Company, of Coleman, Alberta, has installed an Ottumwa since January 1.

—The State Railroad Commission of Kentucky, has ordered the A. C. & I., and the C. & O. Railroads to re-establish old rates at once on mileage basis. Rates will be 80 cents out of Kilgore to Cincinnati, and \$1.10 west, to Lexington, both railroads to be treated as one and the same railroad hereafter. This change in rates will allow of several mines now idle on Lexington division of C. & O. R. R. to commence operations at an early date.

—The Acrogen Coal Company composed of Frostburg, Md., capitalists is opening a mine near Paintsville, Ky., on Big Sandy extension of the C. & O. R. R. This company is installing tipples and plant for operating electric chain cutters. They expect to be shipping coal within the next 90 days. This operation promises to be one of the largest in the Johnson County, Ky., coal fields and preparations are being made to eventually mine 1,000 to 1,500 tons of coal daily.

—A company has just been organized at Lexington, Ky., with \$50,000 capital, to develop the Bell County coal fields. A mammoth coal elevator is to be erected at Lexington to handle the output of the mines when opened. C. K. Oldham was elected president of the new company, and associated with him are State Treasurer Henry M. Bosworth, Judge J. F. Bosworth, Bosworth Brothers, John C. Fitzpatrick, Charles J. Bronston, Judge F. A. Bullock, Major H. E. Helburn and J. W. Keyer.

—A large deal in Kentucky coal lands has been consummated at Ledington, by the sale of two large tracts of coal lands in Lee County, near Beattyville. Messrs. J. P. Amsden, A. E. Richards and J. C. Thompson sold one tract of 1,900 acres to Attila Norman of Frankfort, and another tract of 1,100 acres to the Kentucky Block and Cannel Coal Company, of Lexington. Both purchasers will install machinery and push the work of development as rapidly as possible. Mr. Norman expects to have on output of 600 to 800 tons per day, and the Cannel Company 1,000 tons daily. The consideration of the transfer was not made public.

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BERTHA COAL & COKE COMPANY.

The Bertha Coal and Coke Company, a West Virginia corporation, with \$320,000 paid in capital stock and owning about 6,000 acres of coal lands in Marshall and Wetzell Counties, W. Va., held their annual stockholders' meeting in the office of Mine Inspector, I. G. Roby, Uniontown, Pa., January 17. The following board of directors chosen: James E. Roderick, Hazelton; J. D. Evans, Johnstown; Albert Gaddis, L. C. Mechling, David Junk and I. G. Roby, Uniontown; W. A. Stone, Hopwood; George M. Davies, Lansford, Pa., and Charles McCamic, Moundsville, W. Va. The new board is the same as the old, except that Messrs. Mechling and Junk take the places of S. M. Simpson, of Brownfield, and J. W. Byers, of Fairchance, who declined re-election. The old officers were elected as follows: James E. Roderick, president; Albert Gaddis, vice president; W. A. Stone, treasurer, and I. G. Roby, secretary.

RAILROAD TIMBER.

Pennsylvania Railroad Planting Thousands of Trees.

The Pennsylvania Railroad has undertaken to grow the timber for its future supply of crossties. Already it has planted over 280,000 trees and intends to set out 800,000 more this year.

This will require 2,000 acres of land, which has already been selected along the principal divisions of the system. It is estimated that it will require 30 years for the trees to attain their full growth, and that to supply the road's demand, it will be necessary to plant 39,000,000 trees.

The Pennsylvania road has experimented with the yellow locust trees, and its plantings have all been of that kind. Ties made of this material are more durable and last-

ing. The trees planted have been seedlings two or three years old, and cost, including labor, about 8 cents each. They were spaced ten feet apart, averaging about 400 to the acre, although 54,871 trees planted recently were placed six feet apart and 88,127 were set eight feet apart. The total number planted by the railroad company is as follows: Newton Hamilton, 13,610; Conewago, 68,460; Pomeroy, 20,280; west of Atglen, 16,537; Atglen, 8,108; Juniata Stage, 50,300 and along the Atglen and Susquehanna branch, 53,000, a total of 280,530 trees.

The land, except a tract of fourteen acres at Newton Hamilton, is owned by the railroad. To supply the increasing needs of the Pennsylvania alone it is estimated that it will be necessary to plant 1,300,000 trees each year for a period of thirty years, the time required for a tree to mature. If planted ten feet apart, or 400 to the acre, it will entail the continuous use of 97,500 acres, or 152 square miles of land.

CAMDEN INTERESTS

Control Northern Coal & Coke Company.

Senator Camden, who has been a large stockholder in the Northern Coal & Coke Company since its organization by J. C. C. Mayo, has been buying all of the stock of the company, which he could find for sale during the last few months, and the "Camden interests" now control the company.

The value of the property of this big corporation runs into the millions of dollars. Their coking coal is of superior quality and will be developed on a large scale, as they will have several hundred ovens ready for operation by the time the C. & O. Railroad reaches their property in the upper valley of the Big Sandy.

The offices of the company will be moved from Chicago to Ashland, Ky., and Parkersburg, W. Va. Ashland is the home of the General Manager, J. W. M. Stewart, and Senator Camden's headquarters are at Parkersburg.

W. C. JUTTE RESTRAINED.

In the case brought by the Monongahela River Consolidated Coal & Coke Company to restrain W. C. Jutte from engaging in the coal business in the State of Pennsylvania, for a period of ten years from the time when the plaintiffs purchased the defendants' coal business, the Supreme Court of Pennsylvania has handed down a decision affirming the decree of Judge Shafer of Allegheny county.

Judge Shafer had issued a restraining order against Jutte which was stayed, pending appeal, and which now becomes effective.

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WEST VIRGINIA

—A new tippie is to be erected by the Moore's Run Coal Company at their mine at Devil's Elbow, W. Va., as soon as the lumber, which has been contracted for arrives.

—The Standard Scale Company, of Pittsburgh, is installing a 100 ton track scale and a six ton tippie scale at the mine of the Alpha Coal Mining Company, at Plymouth, W. Va.

—General George W. Curtin has just purchased 13,000 acres of timber lands in Nicholas County, W. Va., on the line of the West Virginia Central Railroad and will begin to market the timber at once.

—A new corporation, the Red Rock Fuel Company, has been chartered with a capital stock of \$1,000,000. The company will operate in Upshur County, W. Va., but the headquarters will be located at Wheeling.

—About 400 acres of coal and surface all lying on the south side of Buffalo Creek, in Donegal Township, W. Va., have recently been purchased by D. H. McPherson, as he believes the old State Line Railway will soon be run up Buffalo Creek from Wellsburg, W. Va.

—Butts, McCormick & Wilson Company have purchased the entire holdings of Henry Spies, in Webster County, W. Va. The property transferred consists of several thousand acres of coal and timber lands and the narrow gauge railroad, which extends up to Hacker Valley.

—Large purchases of coal lands are being made in the region of Broad Top, W. Va., and it is rumored that the Wabash is about to secure control of the Huntington and Broad Top Mountain R. R. and Coal Company, and will extend the road up Stone Valley to connect with Beech Creek.

—A charter has been issued by the Secretary of State of West Virginia, to the West Virginia Timber Company, of Charleston, to deal in timber and timber lands. Capital stock, \$100,000. Incorporators: George E. Breece, George E. Price, R. P. Flannary, Buckner Clay, and Harrison B. Smith, of Charleston.

—Receivership proceedings for possession of the steamer Clifton at Parkersburg, while she was enroute from Pittsburg to the Tennessee river with 27 barges of coal belonging to Walfoik & Co. of Pittsburg caused a temporary tie-up of the coal, which was later released. The removal of the steamer's license by one of the parties to the suit was the beginning of the trouble.

—The Lorain Coal and Dock Company expect the new opening at the Lansing mine to be ready for use in a short time when they will abandon the present one and do away with the incline to the tippie. With the use of the new opening more men will be put to work so that the number of

miners employed will be greater than in the Wheeling Creek mine, which is now the largest in that section of West Virginia.

WHY NOT ARBITRATION?

In another column we print a Press dispatch, which states that certain mine operators have brought suit against a railroad company for damages, alleging discrimination against them in the distribution of cars.

There always has been, and always will be, a wide difference of opinion from the operators and railroad points of view, and we doubt if a jury or judge can be found competent to adjust the matter to the mutual satisfaction of all concerned. We suggest arbitration as a more reasonable and satisfactory solution of such difficulties, and thus save friction, cost and delays, incident to a suit at law.

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BESSEMER COAL AND COKE COMPANY.

Will Move Offices to Pittsburg.

The Bessemer Coal & Coke Company, which owns valuable coal properties in East Deer, West Deer, and Fawn townships, Allegany County, will move its general offices from Cleveland, O., to Pittsburg, on March 1, next. This was decided by the stockholders at the annual meeting at the Hotel Lincoln, January 31. No building for the location of the offices has yet been selected. The stockholders elected this directorate: C. J. Brokenshire, J. C. Trask, F. W. Wood and E. H. Baker, of Cleveland, O.; George H. Love, Johnstown; E. M. Love, Somerset; Dr. J. C. Lange, L. F. Demmler and William Steinmeyer, Pittsburg, and Colonel J. R. Branch and Wilfred Johnson, New York.

The directors organized by electing C. J. Brokenshire, president; George H. Love, vice president; J. C. Trask, treasurer; E. M. Love, secretary, and F. W. Wood, general manager. These are the old officers, as there was no contest. The company's property is to be improved during the year. The stockholders instructed the directors to increase the output of the mines by making more outlets for coal.

A FINE CALENDAR.

Altogether the most artistic and useful calendar which has come to our notice this year, is the one received from the Kanawha Fuel Company, Charleston, W. Va. It is of black leather with gilt metal ornaments, and contains an ingeniously arranged perpetual calendar, a "little beauty," of a clock,

a thermometer on one end and a barometer on the other. It is the most convenient and serviceable desk ornament we have ever seen.

WEST VA. COAL PRODUCTION.

Chief Mine Inspector, J. W. Paul, in reviewing the work of the past year in the coal mines of West Virginia, says:

"The mines in the State, as a whole, averaged 209 working days during the last fiscal year, and produced 30,222,880 net tons of coal; and the coke ovens turned out 2,276,451 net tons of coke, an increase over the previous year of coal, 4,559,539 tons, and of coke, a decrease of 206,925 tons.

For the calendar year the coal production will show, in round numbers, 30,500,000 net tons, and coke, 2,000,000 net tons.

"For the fiscal year ending June 30, the production of pick and machine mined coal was: Pick-mined, 20,907,065 tons, or 69.2 per cent., and machine-mined, 9,315,815 tons, or 30.8 per cent., respectively, of the entire production.

"There were twenty-eight companies, whose combined output was 48.5 per cent. of the entire production of the State, each of which produced not less than 200,000 tons.

"There are forty-nine companies, each of which produces over 100,000 tons, but less than 200,000 tons, and forty-six companies, which produce each between 50,000 and 100,000 tons; and of the 538 shipping mines in the State, the average production per mine is 56,176 net tons; but many mines exceed this tonnage and a greater number produce less.

"The machines in use have increased in number from 795 in 1903, to 988 in 1904, and gave an increased production of 2,245,374 tons.

—The Princess Land & Mining Company, of Princess, Ky., contemplates early resumption of operations at their mines, which have been idle for several months.

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Manufacturers and Jobbers are requested to send us their Catalogues and Circulars describing Mining Machinery and Supplies of all description. We especially desire information regarding new machinery and new devices used in Coal Mining. Prompt attention to the above request will be appreciated.

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802 Arrott Building
Pittsburg, Pa.

SMITH & IRELAND'S

Exceptional List of Coal and Timber Lands

Offices, Suite 801-2-3 Arrott Building, Pittsburg, Penna.

510—1371 acres, coal rights, Monongalia Co., W. Va., at Pennsylvania State line, fronting two miles on Pools 8 and 9 of the Monongahela River and two miles from B. & O. R. R. Freeport coal, six foot vein, 237 feet deep. Shipped by rail and river from same tittle. Natural drainage; fine coking coal. \$35 per acre.

511—33,000 acres, coal rights, in W. Va., running from Great Kanawha River and K. & M. R. R. to C. & O. R. R., thus giving communications to Tidewater, Lakes and Gulf. 15,000 acres at rear on C. & O. R. R. can be cut off if desired. Pittsburg coal, 4 foot vein with 2½ feet additional close below. Fine property, looking to Panama Canal development. Price on application.

513—13,012 acres mineral rights of which, 2,500 acres are in fee, in Dickenson and Russell Cos., Va., on Dumps Creek, containing six veins of coal aggregating 33 feet, being all the well known seams of Southwest Virginia. A right of way to N. & W. R. R., and 1000 acres surface lands. Well timbered. Price on application.

514—11,000 acres in Braxton Co., W. Va., on Elk and Birch Rivers, B. & O. and C. C. & S. R. 4½ to 7 feet of coal. Price on application.

515—39,000 acres, coal and oil property in Knott and Breathitt Cos., Ky. 15,000 acres in fee, 10,000 of which is finely timbered; remainder is mineral rights with necessary privileges. 5 well defined coal veins. 10 to 12 miles from R. R., but soon to be reached by extension connecting with N. & W. R. R. Located on Kentucky River, which is being locked and dammed by U. S. Government. Oil prospects fine. Price on application.

516—1,000 acres of coal rights and 120 acres in fee in Barbour Co., W. Va., on Grafton and Bellington branch B. & O. R. R. Six foot vein of Freeport coal lying well for R. R. tracks and tipples. Price on application.

517—2,200 acres virgin forest land on Shaffer's Fork of Cheat River, 9 miles from W. Va. Central R. R. and 16 miles from Coal & Iron R. R., Randolph Co., W. Va. Also 555 acres virgin forest on C. & I. R. R. and same stream, same county. Estimated 1400 feet timber to the acre. Price on application.

518—300 acres of oak and other hard woods, estimated 800,000 feet, at Arden Station, W. Va., on G. & B. Branch of B. & O. R. R. Write for prices.

519—10,000 acres coal rights, including timber, of which 5,000 acres is in fee, on Little Coal River and other streams in W. Va. Price, \$17.50 per acre for limited time.

520—600 acres, coal lands in Jackson Co., Ohio. Two veins, four feet eight inches and three feet. Two mines opened and in operation. Electric machines in use. Miners' houses, R. R. Switches, etc. Price \$35,000.

521—1200 acres of Pittsburg seam on the

Fayette County side of the Monongahela River, Pa. An extraordinarily fine opportunity. Write for price.

522—610 acres coal at Bainbridge, Williamson Co., Ill. About fifty feet to coal. Price \$45 per acre.

523—694 acres, coal under lease, plant in operation, now shipping 250 tons per day, McDowell Co., W. Va. 25 Miners' houses, commissary store, tittle, etc. 900 acres adjoining this tract can be secured. Coal averages 4 feet.

524—30,000 acres, coal and timber lands, Wyoming and Raleigh Co., W. Va. R. R., within four miles of property, two seams of coal, Pocahontas, No. 3 and No. 6, four and a half and six feet in thickness. Timber original forest growth. A bargain.

525—3,000 acres, coal lands in Clay and Braxton Cos., W. Va. R. R. within half mile of boundary. Good bargain.

526—600 acres, coal lands in Clay and Braxton Cos., W. Va., about two miles from Coal & Coke R. R.

527—15,000 acres, coal lands, portion of tract including surface in timber, on Coal & Coke R. R., W. Va. A low price if sold soon.

528—3,000 acres, Pocahontas Coking Coal, McDowell Co., W. Va. U. S. Steel Corporation have large holdings adjoining this property. Coal is clean and without partings. If this property is purchased at once, a very low price can be secured. Coal five feet three inches thick. Property covered with heavy growth of oak and poplar.

529—2,500 acres, coal in Marion Co., W. Va., on Wabash R. R. Drift formation, five feet thick, upper Freeport. A bargain.

530—5,600 acres Pocahontas Coking Coal, seven feet thick, drift formation, McDowell Co., W. Va., on the N. & W. R. R. Heavy growth virgin timber. Property sold in fee at extraordinary low price if taken at once.

531—10,000 acres, coal in Raleigh Co., W. Va., property contains Pocahontas, New River No. 1 and New River No. 5 and Sewell No. 4 coal. Low freight rates to Tidewater. Analysis of coal shows fixed carbon nearly eighty per cent. Prof. White says: "Pure Anthracite, equal to Pennsylvania."

532—7,500 acres, New River Coal, Webster Co., W. Va., on the B. & O. R. R. Drift formation, self draining, excellent proposition at a very low price. Write for particulars.

533—1,600 acres, Pocahontas coal on Ivy River, McDowell Co., W. Va., on the Norfolk & Western R. R. Property fronts one and one-half miles on the R. R.

534—3,000 acres, Pittsburg Coal, Marion Co., W. Va., on the line of the B. & O. R. R. Coal nine feet thick. Shaft proposition. 160 and 170 feet below water level. Sewickley vein, one hundred and twenty feet above the Pittsburg seam, five and six feet in thickness.

535—4,000 to 5,000 acres, Pittsburg coal in Lewis Co., near Roanoke, W. Va., on the B. & O. and Wabash R. Rs. Coal five feet three inches thick. This is one of the cheapest propositions in the state of West Virginia. Write for particulars.

536—100 acres, coal and timber lands, seven miles west of Elkins, W. Va., on the line of the Coal & Coke R. R. Timber, red oak, and will cut four thousand feet per acre. Coal, Roaring Creek seam, six feet thick. Write for particulars.

537—3,413 acres, coal and timber lands in Logan Co., W. Va. Coal very high quality. Highland Creek seam, five feet nine inches to nine feet. Timber is of high quality and can be sold separately from coal rights. An excellent proposition. \$38 per acre.

538—11,000 acres of coal on Horse Creek, Cobbs Creek and Mud River, Boone and Lincoln Counties, W. Va. Two seams have been opened above water level, both six feet thick. The new Pocahontas, Coal River and Kanawha R. R., connecting with C. & O., at St. Albans, is now graded and track laid nearly to the property. A very low price if purchased at once.

539—700 acres of coal on the new line of the Norfolk & Western R. R., in W. Va., now under construction. Five veins of coal and valuable timber on this land. Price \$40 per acre, in fee. Title good.

540—5,000 acres of coal in Martin Co., Ky., across the river from the new line of the Norfolk & Western R. R. Six foot vein of coal, known as Warfield seam, drift formation, property covered with splendid timber, mostly White Oak. Low price in fee simple.

541—3,000 acres of coal on Marrowbone Creek, W. Va. One and one-half miles from new line of Norfolk & Western R. R. Coal, known as Warfield seam, six feet thick, free from partings; 25 feet above water level. Property has plenty of timber for mining, sold in fee simple.

542—3,000 acres on Wolf Creek, Eastern Ky., across the river from the new line of N. & W. R. R., about ten miles distant. Coal, Warfield vein, six feet thick at water level. Timber very heavy; both oak and poplar; about 8,000 feet per acre. Price very low per acre in fee.

543—22,000 acres of coal on the Ohio River in Monroe Co., Ohio. Finest natural harbor. Coal, five and five and one-half to seven feet thick. Pittsburg vein. One hundred and sixty feet deep. Low price on good terms. Write for particulars.

544—1,000 to 29,000 acres good timber lands on floating streams in W. Va. Timber can be floated within two and one-half miles of C. & O. R. R. Will cut 6,000 feet per acre. Can sell to suit customer.

545—Stumpage 2,500 to 3,000 trees, White Oak and Chestnut. Sixteen inches and up. Four miles from N. & W. R. R., W. Va. Write for price.

546—2,600 acres of timber in Pocahontas Co., W. Va. Five miles from R. R. Will cut of hard wood 5,000 feet per acre. Good easy grade. Owner controls right of way. Write for price.

547—20,000 acres of virgin timber land for sale in N. Alabama. Six miles from R. R. Can all be logged by valley roads. The timber is large, smooth and tall. Almost the entire tract is underlaid with iron ore of extra quality. Big iron mines now running near this tract. The title is in fee simple. Warrantee Deed, and abstract furnished. Write for price.

548—4,000 acres of coal lands in Boone Co., W. Va., on the Little Coal River. Six foot vein Cannel Coal and four and one-half foot vein clean, clear coal. Low price, in fee.

549—3,000 acres, Anthracite Coal in Virginia on R. R., forty-two inches to forty feet. As good as is found in Pennsylvania. One vein forty feet. Write for price.

550—500 acres, Silica Sand, 98% silica, forty feet vein in W. Va. Several veins of Clay, one four and one-half foot vein of Yellow Ochre worth ten dollars per ton. This is a great bargain for some one. This white sand has been tested for glass. A No. 1. Write for price.

551—Coal Mine. Two-thirds interest for \$15,000 on the N. & W. R. R. in W. Va. Great bargain.

552—100,000 acres, Coal and Timber Lands in Buchanan and Dickenson Counties, Va., on the Levisa Fork, above Grundy, and extending over Russell Fork, of Big Sandy River. This tract has several veins of good coal from seven to eleven feet, also the Pocahontas vein. The timber is good; some poplar taken off. We can sell this in tracts or to suit customers, at \$12.00 per acre. Title perfect; can deliver this on short notice. Deal direct with owner. The owner will take one-third or one-half interest and help to operate.

553—1,500 acres Pittsburg coal on Wabash R. R. in Pennsylvania, twenty-nine miles west of Pittsburg, Pa. Drift coal; high tippie; self draining. Nine feet solid coal. \$128 per acre, one-third cash, balance, one and two years.

554—4,300 acres same vein as No. 553. Few miles further away from R. R. Thirty-five miles from Pittsburg. Shaft coal. About two hundred-fifty feet shaft. Price \$128 per acre, same terms as No. 553.

555—22,000 acres, coal lands on Ohio River in Ohio with finest natural harbor. Oil tests show seven feet prime No. 1 Pittsburg vein underlying all, average at 160 feet depth. Can be had at very low price. Write for information.

556—300 acres, Pittsburg seam, near Clarksburg, W. Va., on B. & O. R. R., 9½ feet solid coal. Fine openings and switch accommodations. Drift coal; self draining. No streams or gulleys. Smooth surface. \$230 per acre.

557—6,000 acres, Pittsburg coal, near town of Buchanan, W. Va. Nine feet solid coal on B. & N. R. R. Undeveloped. Price \$70 per acre.

558—208 acres, Pittsburg seam, 8 feet solid coal, 3 miles east of Clarksburg, W. Va. Smooth surface; drift coal; self draining. \$205 per acre.

559—4,000 acres of coal on Short Line R. R. in Harrison Co., W. Va. 10½ feet of Pittsburg coal right on the R. R. Best large proposition of Pittsburg coal in this State. Was bought before the R. R. was built. \$230 per acre on easy terms. Owner has refused \$300 heretofore.

560—15,000 acres, coal rights in W. Va., branch of B. & O. R. R. running through.

Adjoining is 9,000 acres, offered in fee. Half of this 24,000 acres is drift mining 200 feet shaft will pass through two 9½ foot veins, Genuine No. 1 Pittsburg seam. 9,000 acres are well timbered, White Oak and Poplar, which will cut 5,000 feet per acre merchantable timber, besides enormous amount of pulpwood and R. R. ties. Price, \$38.50 per acre for 9,000 acres in fee, \$29.50 per acre for 15,000 acres coal rights. The 9,000 acres carries oil.

561—747 acres, Pittsburg coal, 6 miles east of Clarksburg, W. Va. 2 miles from B. & O. R. R. Four openings show 9½ feet solid coal. Price, \$130 per acre.

562—40,000 acres of coal adjacent to Ohio River in W. Va. Vein at river is 4½ feet thick; is underlaid with another 3½ foot vein. Further inland, vein increases to 10 feet thick with slate partings. Will sell all or part of tract. Write for prices.

563—About 4,000 acres, No. 6 Pittsburg Coal from 3½ to 4½ feet thick, Muskingum Co., Ohio. Coal lies near surface. Inexpensive to operate. Z. & W. R. R. switch leading to tract. Wide, open valley through center, making ideal mining site. Price on application.

564—7,000 acres, timber land in fee, or timber rights only, in North Carolina. Two miles from Murphy Branch of Southern R. R. Down grade to R. R. Oak and other hard woods, poplar, chestnut, etc. Price \$7 per acre in fee, \$6 for timber only. Terms, half cash, balance on short credit.

565—32,700 acres, timber land, mineral reserved, in North Carolina, 10 miles from Murphy Branch of Southern R. R. Finest piece of timber in the Southeast. 450 million feet of finest Spruce. 150 million feet of fine Red Oak, Poplar, Ash, Cherry, Walnut and Hemlock. Price, \$12.50 per acre. One-third cash, balance on fair terms. Will build R. R. to property on reasonable basis. Shipping rate on application.

566—Coal lands in Lincoln Co., W. Va., on G. V. Branch of C. & O. R. R., 232 acres being operated on R. R., 143 acres adjoining on R. R. undeveloped; 375 acres adjoining but off R. R. Sell together or separately. Write for terms.

567—About 50,000 acres, Timber lands on Dee Pee and Antee, navigable rivers and few miles of R. R., near Georgetown, S. C. This is a large but grand proposition and will show superb returns on investment. Write for details.

568—750 acres of coal and timber land on Spurlock Fork of Middle Creek, 4 miles from C. & O. R. R., in Floyd Co., Ky. One 5 foot and one 4 foot vein of coal in front of mill; 500 acres timber. Nothing cut but first growth of poplar and walnut. Price on application.

569—A magnificent operating coal plant for sale for private reasons. \$50,000 improvements, 1,500 acres mineral rights only. In Fayette Co., W. Va., on branch of C. & O. R. R. and Paint Creek. 6 veins of coking, steam and domestic coal from 3 to 5 feet thick. Drift mining aggregating 27 feet. Property thoroughly developed for operation. Other details and price on application.

570—600 acres, timber rights near Pisgah, Preston Co., W. Va., on Big Creek. 10 miles from R. R. First growth Oak, Hickory, Pine, Ash, etc. Price on application.

571—17,000 acres, undeveloped coal and timber land in fee in Boone Co., W. Va. Will dispose of large interest in this property. Located on Big Coal River, 2½ miles from branch of C. & O. R. R. Another R. R. will shortly pass through this property. 6 veins of fine coal from 4 to 6 feet thick. Write for particulars.

572—3,000 acres, coal and timber land, Boone Co., W. Va., on Big Coal River, 2 miles from branch of C. & O. R. R. and another R. R. in immediate prospect through property. Same coal as in property No. 571. Write for particulars.

573—1,100 acres, fine coal and timber land on the New Louisville & Nashville R. R., known as the K. L. & J. R. R., near Morley and Jellico, Tenn. 5 seams of coal from 2 to 5 feet, covered with fine White Oak. Timber estimated to cut from 2 to 5 thousand feet per acre. Price \$32 per acre.

574—710 acres, thirty-year old leases, at Bluefields, W. Va. Renewal privilege on same terms. 10c per royalty. 3 foot 8 inch seam being profitably operated; 3 other seams above this one. Tenements, stores and all necessary buildings and machinery for operation. Good reason for selling. Price, \$70,000.

575—4,000 acres, coal lands, 17 miles Northwest of Clarksburg, W. Va., on both sides of Short Line railway. Mineral rights. Five workable veins. Pittsburg and Freeport coal, 6 to 9 feet thick. Good steam and coking coal. Price, \$205 per acre. Shipping facilities unusual, east and west.

576—24,000 acres of Black Mountain steam and coking coal in Harlan Co., Ky., on Cumberland River. Very extensive coking operation adjacent. The Elkhorn seam, which is the No. 1 in this section, is 87 to 97 inches thick. Ten distinct seams of coal, above water; self draining; aggregating over 50 feet of coal. Three railroads within 15 miles, one 2 miles distant. Easy grade for R. R. connection. If property shows prospective development, R. R. will without doubt build branch. Tract covered with good timber. Price, \$25 per acre. Write for terms.

577—About 3,000 acres of coal lands in Tazewell and Buchanan Counties, Va. One half in fee, remainder mineral rights, on Town Hill Creek and less than a mile from Norfolk & Western R. R. Twelve openings showing coal veins from 40 inches to 6 feet thick. R. R. graded half way through property. Rare bargain at \$30 per acre.

578—1052 acres, of stumpage on Norfolk & Western R. R. in Virginia. Soft and hard wood. Price \$15 per acre or \$4 per tree. Eight years to remove. Terms half cash, balance reasonable terms.

579—8,500 acres of timber on Tombigbee River in Alabama, and on Mobile & Ohio R. R. Good cotton land after timber is cut. Price, \$94,000 on fair terms.

580—10,000 acres, timber in Caldwell Co., North Carolina. Estimated 8,000 to 10,000 feet, White Pine, White Oak and Poplar to acre. All accessible to R. R. Large variety of woods. Shipping and other data on application. Price, \$19 per acre.

581—40,000 acres, timber land in Western North Carolina. Best poplar tract in the country; also Oak, Hemlock, Chestnut and other woods. Virgin forest, no squatters. 14 miles from Southern R. R., which has surveyed to it and constructed almost 10 miles. Terms to suit purchaser; 261,000,000 feet estimated. Price, \$12 per acre for timber alone; one-third cash, balance in one and two years or longer if larger cash payment is made. Title perfect.

582—21,000 acres, timber in Western North Carolina on Tennessee lien, T. & N. C. R. R. runs through property. Equipped for immediate operation with mills and machinery. Large variety of hard woods. Price on application.

583—2,500 acres, coal near Richlands, Tazewell Co., Va., and on N. & W. R. R. Two seams of coal; upper, 40 inches thick; lower, 5 feet, 6 inches, both without partings. Price, \$32 per acre.

584—2,000 acres, coal just east of No. 583, at \$19 per acre.

585—3,000 acres, coal lands on Bull and Horse Creek, McDowell Co., W. Va., carrying fine coal. \$17 per acre.

586—5,000 acres, coal. Same description and price as No. 585.

587—3,200 acres of Freeport coal, 5 and 9 feet thick, in W. Va., near a R. R. Price, \$22.50 per acre. Further details on application.

588—5,000 acres of Freeport coal in West Virginia on the B. & O. R. R., carrying three veins of 4, 3 and 8 feet thick, of fine, clear coal. Price \$42 per acre.

589—3,500 acres, fine coal land in Boone Co., W. Va. Price, \$22 per acre. Further particulars on request.

590—4,000 acres, Pittsburg coal on B. & O. R. R. in W. Va., with 9 foot vein. Very cheap for this coal and location at \$183 per acre.

591—An unusually attractive and rare Anthracite coal proposition in Montgomery Co., Va., of which we will send full data upon request.

592—2,300 acres of hard wood timber, with 2,800 acres same woods adjoining, on Clover Creek, Branch of Greenbrier River, Pocahontas Co., W. Va. Good, easy grade all the way to R. R., 5 miles distant. Fine large timber, never culled. Mostly White and Red Oak; fully 25 million feet of same. 250,000 feet of fine cherry wood. Tract never had an axe in it. Price on application.

593—3,000 acres of Pocahontas coal in McDowell Co., W. Va., 7 miles from last station on R. R. now being built by Norfolk & Western R. R., which will be completed in 5 months. Five feet 3 inch vein finest Pocahontas coal and one of the very few Pocahontas properties left unpurchased. Price on application. See No. 594 below.

594—The timber upon tract No. 593. Virgin forest, carrying fine poplar, oak and other woods, estimates upon which will show a net profit of \$314,800, not counting beech, maple, sugar, buckeye, etc. Price on application. Timber can be sold with No. 593 above, or separately.

595—25,000 acres of coal rights on Levisa Fork of Big Sandy River in the south-western part of Buchanan Co., Va. Ten miles north of Norfolk & Western R. R., in the great coke and steam coal field of south-west Virginia. The river offers fine location for cheap R. R. connection. The South & Western R. R. surveyed to 8 miles of property. Four to 5 veins workable coal above water level and 3 Pocahontas seams below water level. Rare opportunity for this kind of coal. Price \$17 per acre.

596—60,000 acres, uncut timber in Swain Co., N. C. Hard woods, yellow poplar, oak and spruce. Boundary may run nearer 70,000 acres. Price, \$8 per acre. Title perfect. Two and one-half miles from So. R. R.

597—28,114 acres, coal and timber lands, in Raleigh and Wyoming Counties, W. Va., to which 30,000 adjoining acres can be added. Timber runs 6,000 feet per acre, virgin growth. Poplar, oak and other hard woods. Several fine coal mines underlay tract. All above water and self draining. No. 3 Pocahontas vein 93 per cent. of entire tract, averages 53 to 60 inches clean coal. Carries also veins of No. 4 and No. 5 of this coal. Land lies on Guyandotte River and several creeks. The C. & O. and Deepwater R. Rs. are now building through this land. Price for 28,114 acres in fee is \$52.50 per acre, and of the 30,000 acres adjoining \$37.50 per acre.

598—25,000 acres, coal land, adjoining tract described in No. 595, and having same

description, but better developed. Price, for mineral rights alone, \$18 per acre. Full particulars on application.

599—60,000 acres of timber lands in Watauga, Wilkes and Caldwell Counties, N. C., on the Yadkin River. None better in the south. Principal timbers, white pine and poplar; also many others. Eight miles from So. R. R., which promises facilities to these lands. Price, \$22.50 per acre. Title perfect.

600—10,000 acres of fine timber lands near Rasar in East Tenn. Two miles from Little Tenn. River, which is navigable, with R. R. now building to within 1½ miles of tract on down hill side of same. Poplar, oak, hemlock, white and yellow pine, chestnut, ash, cherry, gum, hickory, etc., estimated conservatively at 33 million feet besides ties, poles and tan bark. Tract in fee simple and title is perfect. Price, \$9.50 per acre.

601—Two tracts of 24,000 and 30,000 each of hemlock and spruce timber in eastern Tennessee, on the Tellico River, and a branch of the Southern R. R. Two tracts adjoin and will be operated together. First tract estimated to carry 113 million feet poplar, pine, hemlock, oak and other woods. Other tract averages like first, but heavier in hemlock. Fine shipping facilities. Small timber not estimated above includes 30 thousand cords chestnut, oak and tan bark. Title perfect. Price of 24,000 acres is \$9 per acre in fee; 30,000 acre tract \$7 per acre in fee.

602—Timber tract consisting of 19,000 acres on Clinch Mountain Range in Russell, Smythe, Tazewell and Washington Counties, in the southwestern part of Virginia. Heavily timbered, chiefly in poplar, oak, spruce and hemlock, principally the latter; also cherry and birch timber could be conveniently assembled 3 miles from R. R. at Saltville, Va. See No. 603 below for terms.

603—8,000 acres, timber in Washington and Russell Counties, Virginia, 5 miles from above tract and timber is very similar. Terms of sale and time for removal, etc., on application; 60 day option for inspection. Price \$8 per acre. Same owner as No. 602.

604—100 acres of coal rights reserved for 5 years on the Wabash R. R., between Elkins, W. Va., and Cumberland, Md. Carries the 3 foot 6 inches, 4, and 9 foot veins. Price, \$85 per acre. Back of this lies 1,000 acres, which cannot be worked without above tract. Can be bought for about \$35 per acre. The only coal lands in this location not absorbed by some large corporation.

605—3,200 acres, coal in Indiana, with 7 developed and working mines. 400,000 tons produced in 1904. On C. & E. I. Vandalia and Indiana Southern R. R. Price, \$450,000. Will pay 25 per cent. on investment.

606—1,600 acres of coal near Springfield, Ill. 185 miles from Chicago, on Illinois Central R. R. Two developed mines with 220,461 tons last year. Price, \$250,000. Good terms on this, and No. 605, will be given. Write for details.

607—Operating coal mine property on the S. E. A. & W. Ry., in Jefferson Co., Ohio. 109 acres at 6 cents royalty, and 170 acres 8-12 screened coal. Plenty of adjoining land can be bought reasonably. Description of equipment, freight rates, etc., on application. Price, \$20,000.

608—23,000 acres of timber in Haywood Co., N. C. 6 miles from R. R. Estimated to cut 410,000,000 feet. Write for price.

609—70,691 acres, timber and mineral lands in fee on Wolf Creek, in Giles and Bland Counties, Va. One mile from Norfolk & Western R. R. Estimated to cut

940,000,000 feet poplar, white, red, chestnut and black oaks, white pine and other woods. Also finest body-iron ore in southern states underlying. Write for price.

610—55,000 acres, timber lands in N. C. (10,000 in fee) on Atlantic Coast Line R. R. and Charleston & Savannah R. R. Estimated to cut 400,000,000 feet. Adjoins Oyster Bay. Twenty foot water on shoals. Write for price.

611—16,821 acres, timber lands in fee on C. & O. R. R., Greenbrier River and Laurel Creek, in W. Va. Estimated to cut 100,000,000 feet, 30,000 cords hemlock bark and 7,000 cords oak bark. Write for price.

612—25,000 acres, timber in Bath and Highland Counties, Va., 2½ miles from C. & O. R. R., principally white oak. Estimated to cut 250,000,000 feet. Write for price.

613—13,000 acres, timber in Giles Co., Va., 2 miles from R. R., 40 per cent. white oak. Estimated to cut 5,000 feet per acre. Write for price.

614—20,000 acres of virgin forest in Bland County, Va., 4 miles from narrow gauge R. R. and 7 miles from Norfolk & Western R. R. Never been culled. Write for price.

615—70,000 acres, timber land in fee, 50 miles from Norfolk, Va. Almost surrounded by water from 12 to 15 feet deep. Estimated to cut 600,000,000 feet. Land very desirable after timber is removed. Write for price.

616—30,000 acres, coal and timber land in Pike Co., Ky., near 2 R. Rs. Three seams excellent coal, from 4 to 6 feet thick. Timber estimated to cut 5,000 feet per acre. Write for price.

617—10,000 acres of timber in N. C., 4 miles from Southern R. R., 2 navigable rivers through property, floating logs to R. R. Oak, poplar, chestnut and white pine estimated to cut 70,000,000 feet. Write for price.

618—32,000 acres, timber, near Asheville, N. C., near Southern R. R. Can be floated to R. R. by several non-failing streams. Claimed to be the finest timber tract in N. C. Estimated to cut 775,000,000 feet. Write for price.

619—26,000 acres of timber, near Hot Springs, N. C. R. R. passes through corner of tract. Estimated to cut 175,000,000 feet. Write for price.

620—12,000 acres, timber in N. C., (8,000 in fee) on navigable water and R. R. Estimated to cut 70,000,000 feet; 40 feet above sea level, and land valuable for farming. Write for price.

621—12,000 acres, timber, near Asheville, N. C. Guaranteed to cut 14,000 feet per acre. Logs floated to R. R. by 2 deep rivers and creeks. Good titles. Write for prices.

622—5,000 acres of coal on the Coal & Coke R. R. and near the new B. & O. extension in Upshur Co., W. Va. Fine vein of coal, \$27.50 per acre.

623—37,000 acres, valuable manganese land, in Virginia, covered with timber, principally white oak. Estimated to cut 70,000,000 feet; other woods, 105,000,000 feet. Four miles from Norfolk & Western R. R.; \$6.00 per acre.

624—About 4,000 acres, coal lands, in Logan Co., W. Va. Branch of C. & O. R. R. being constructed to property. Openings shows 5 veins from 5 to 8 feet thick, well timbered with white oak, maple, beech, etc. Price, \$32 per acre.

625—10,000 acres, very fine hard wood timber land in South Carolina. Poplar, oak, chestnut, hickory hemlock and yellow pine will average fully 4,000 feet per acre. First class timber. Price, \$3.50 per acre for the timber.

626—133 acres, coal and timber land on Big Sandy River, 1½ miles from Cheat River, in W. Va. Final survey for R. R. made to property. Write for price.

627—127 acres, coal and timber land on Guyandotte River, in W. Va. Well timbered with hard wood. Write for price.

628—500 acres, fine coal land in Fayette Co., W. Va., near Sewell, on C. & O. R. R. Valuable timber on tract. Price, \$16 per acre

629—1,600. acres of coal land in Upshur Co., W. Va. Three seams of coal, 4, 6 and 9 feet, the latter 100 feet deep. On Coal & Coke R. R., and B. & O. R. R. and French Creek. A rare bargain at \$80 per acre.

630—2,380 acres, producing coal property on C. & O. R. R., in W. Va., New River district. Working Fire Creek and Sewell seams. Present capacity 1,000 tons per day. \$170,000 improvements in last 2 years. Will lease for amount of improvements and royalty, or sell in fee for \$350,000. An unusual opportunity.

631—3,500 acres of coal, oil and gas land in Lincoln Co., W. Va. Four seams of coal from 4 to 10 feet thick; 3 miles from the R. R. Price, \$12.50 per acre.

632—6,000 acres of coal fronting the branch of the B. & O. R. R., in W. Va., a distance of 1½ miles. Perfect title. Write for price.

633—A few thousand acres of excellent coal, near the Pennsylvania Line in W. Va., fronting on B. & O. Survey, along Sandy Creek. Write for price.

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639—1,320 acres, coal and timber land in Boone Co., W. Va., near 2 Railroads; containing different coal veins aggregating 40 feet. Oak timber estimated at \$18 per acre. Price on application.

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644—930 acres, timber land, near Bois, W. Va.; 207 acres bearing fine coal and 194 acres coal rights adjoining; all at \$25 per acre.

645—1,200 to 1,400 acres, fine coal land in Brooke Co., W. Va., on Ohio River and Buffalo Creek. One mile from Government Dam No. 11. Pennsylvania R. R. and Wellsburg & State Line R. R., both within few hundred yards of tract. Several hundred acres Pittsburg vein; balance, shaft coal, 4 to 8 feet thick. Write for price.

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647—425 acres of coal and timber lands on Gauley River, W. Va. Coal 8½ feet thick, without partings, 40 feet above water level, being worked in small way. Can secure 3,000 acres of similar land adjoining, if desired. Land lies between 2 railroads, about 4 or 5 miles to either. Can be had very cheap. Write for prices.

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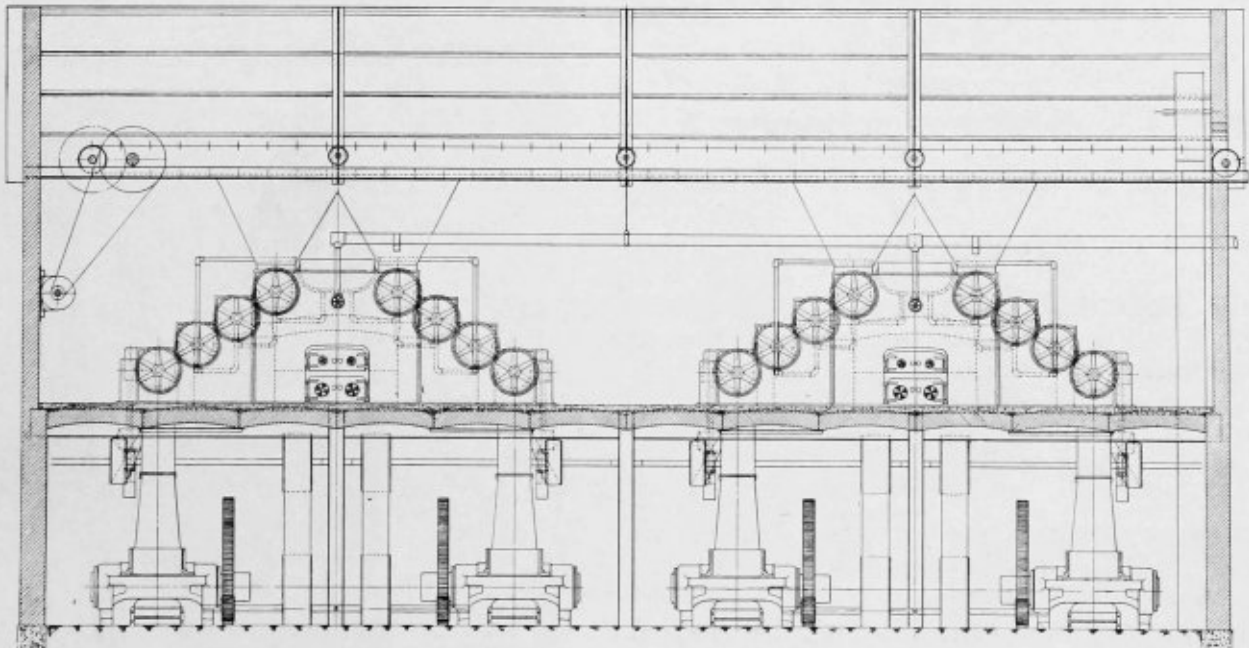
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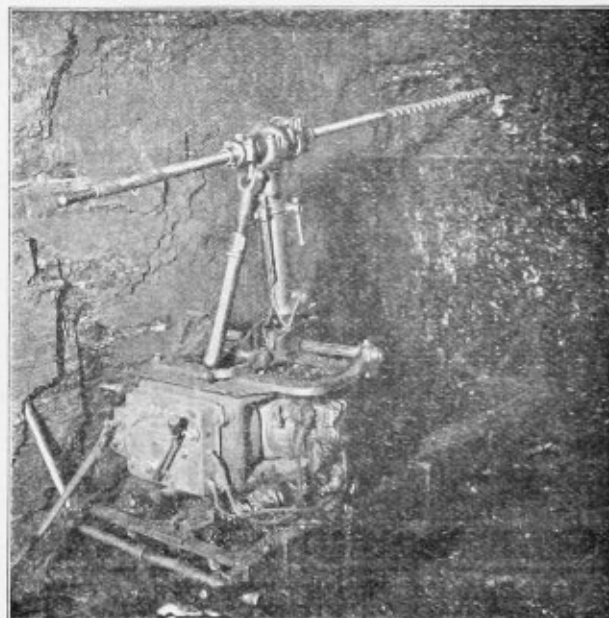
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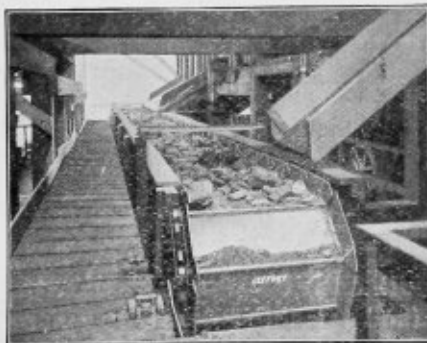


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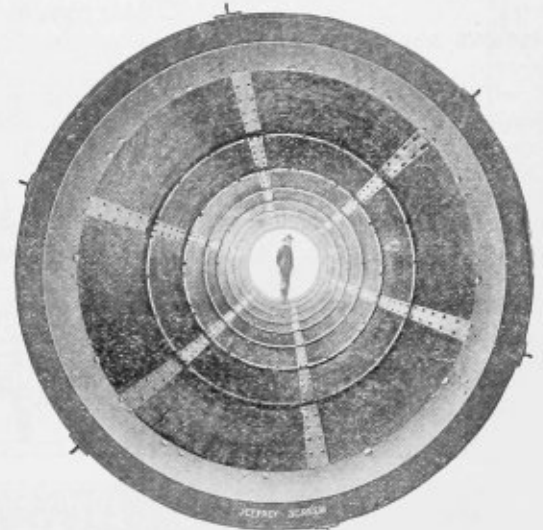
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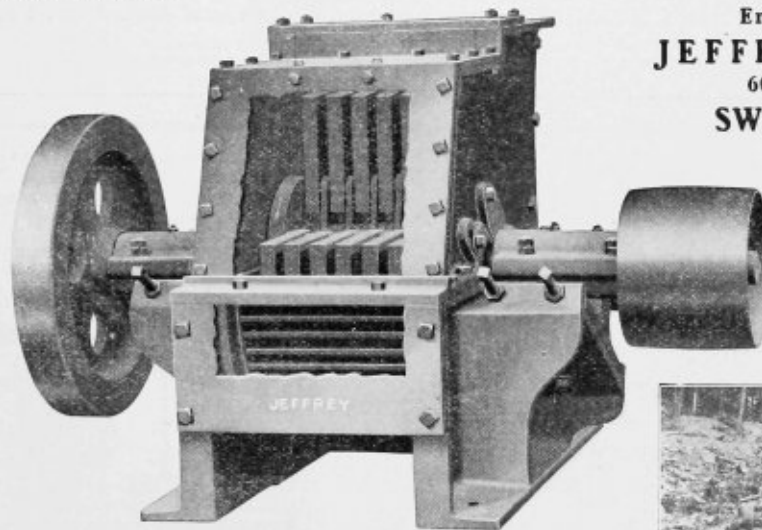


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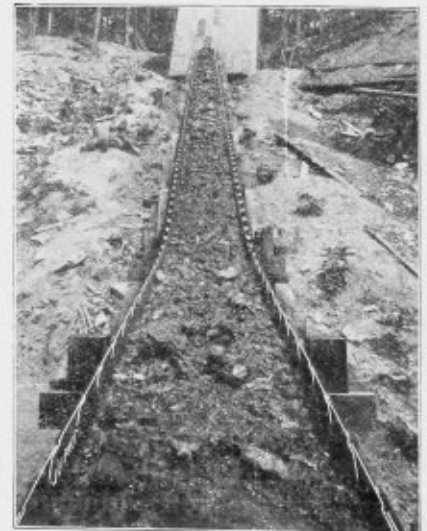
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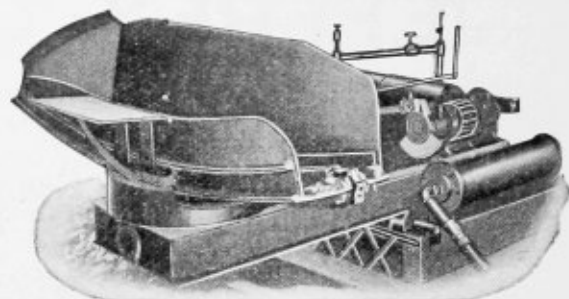
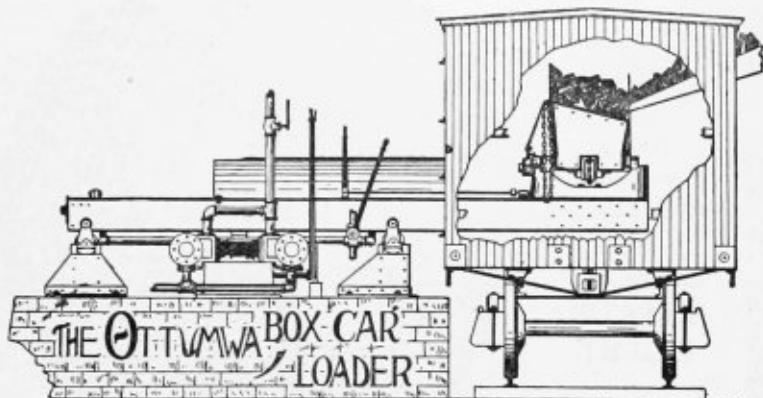
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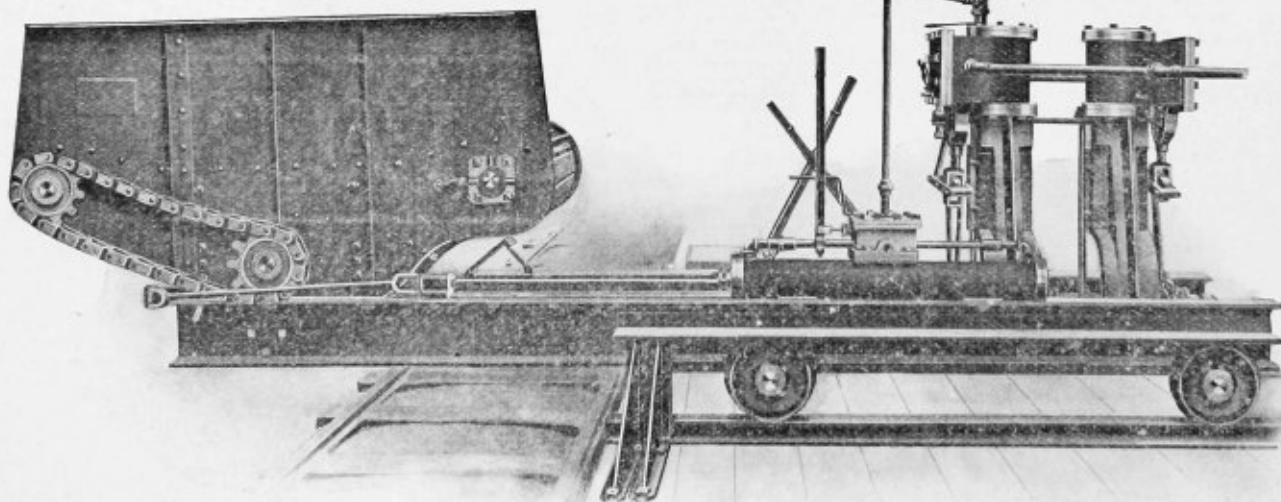
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Christy Loaders are in daily use in some of the largest mines in the United States.

Our References All mines having our loaders in use.

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COAL AND TIMBER

Vol 1, No. 3

PITTSBURG, MARCH, 1905.

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MACHINE MINING.

NOTE—With this number of "Coal and Timber" begins a series of articles on "Coal Mining Equipment," which is intended to embrace a description of all the various mechanical devices—their construction, operation and utility—that are now recognized as being adjuncts to economical coal mining operations.—Editor.

Every coal mine owner and operator is interested in machine mining. This is proven by the rapidity with which machinery is supplanting hand labor in the mines of this country. Last year probably more than one-third of all the bituminous coal produced in the United States was machine mined.

Economy and effectiveness of operation are causing mining machines to be placed in general use and they soon demonstrate the superiority over the old time hand pick. Although of comparatively recent invention mining machines have reached such a degree of perfection that the work of each machine can be calculated exactly and the operator knows that it will work successfully under almost all conditions.

There are a number of different styles and makes of mining machines all of which perform the work for which they are designed in a satisfactory manner, but of course there is, and probably will be, an honest difference of opinion as to the merits of economy and effectiveness of the different makes.

With mining machines as with machinery and labor saving devices in all industrial lines the attitude of the working class was antagonistic. Naturally the workingman looked upon the innovation as a supplanter of labor and a reducer of wages, but it is a fact that in the Pennsylvania bituminous fields, where the most machines are in use, the supply of labor is not equal to the demand at the present time. Mining machines have made the work easier, having eliminated the most laborious and dangerous part, and since their introduction, wages have materially increased, while for the operator the output is greatly increased, the cost of production minimized and the conviction is general among owners today that mining machinery is essential to success.

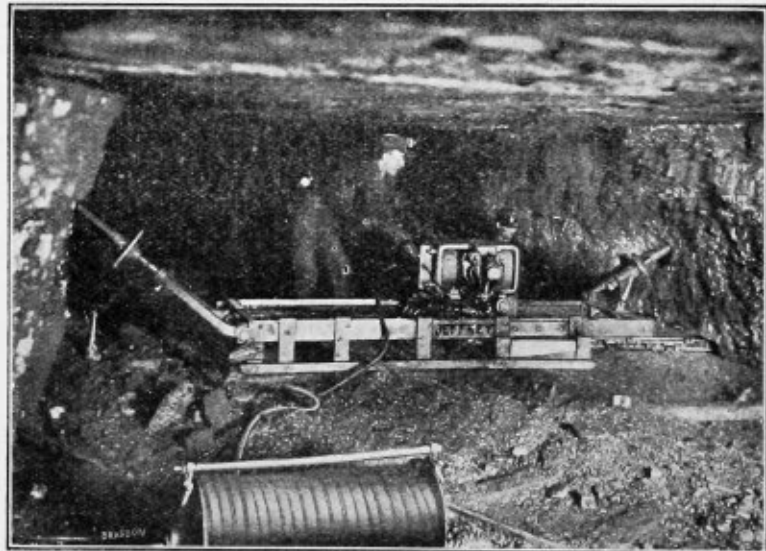
As an illustration of the efficiency of machine mining it may be stated that in mines where the average production per miner by pick is about five tons per day, the machine mining will average from 12 to 15 per man per day, run of mine, and in good mines frequently nearly 20 tons per day.

The mining machines are operated by either compressed air or electricity and there is a strenuous rivalry between the exponents of the two kinds of power. Both the air machines and the electric machines produce good results, so the kind of power to be used often depends chiefly on the character of the mine in which the machines are to be used.

While machines are valuable in all mines, whether they are fully developed or in course of development, they are peculiarly valuable in the opening of mines when rapid work is required. Entries can be driven with about three times the usual speed, and where entries are so wet that it is difficult to do the work by hand the machines will

value to the miner also depends on the amount of work which he can do, as well as the amount of repairs required, which will determine the amount of time during which the man can operate the drill or machine. The miner cannot afford to work at a less price than he is able to obtain by performing other work about the mine and the mine owner cannot afford to invest his money in machinery unless it would make a reasonable earning for him.

The amount which can be deducted from the loader in having his drilling done by power has been determined and agreed upon in the various mining districts and is established. These fixed rates show that for the form of drill or machine which requires the



JEFFREY 17-A ELECTRIC MACHINE MADE BY JEFFREY MFG. CO., COLUMBUS, O.

do the work four times more rapidly than hand labor. If the cars be loaded out the machines will cut an entry 9 feet wide and 5 to 6 feet deep in from one-half to three-quarters of an hour.

The whole question of "machine or hand mining" comes down to the item, "expense."

As the only way to provide for the payment of labor to operate the power drill or machine is by deducting an amount from the loader which would properly represent the amount of time consumed by him in drilling by hand, the value of the drill or machine to the mine owner is limited and its saving power determined entirely by the amount of coal which can be mined in a given time and the cost of repairs. The

entire time and attention of a man and a boy, there is very little left for the mine owner and that when the cost of repairs is taken into consideration the reduction in the cost of coal is practically nothing.

A description of a standard pick machine or coal cutter which is illustrated here will serve to give an idea of these machines in general. It is mounted on wheels 16 to 20 inches in diameter, according to the requirements, weighs from 500 to 900 pounds and is easily moved from one place to another, the average length of time required to move from one room to another being about 10 minutes, including loading and unloading. In operation the machine is placed on a platform made of 2-inch planks

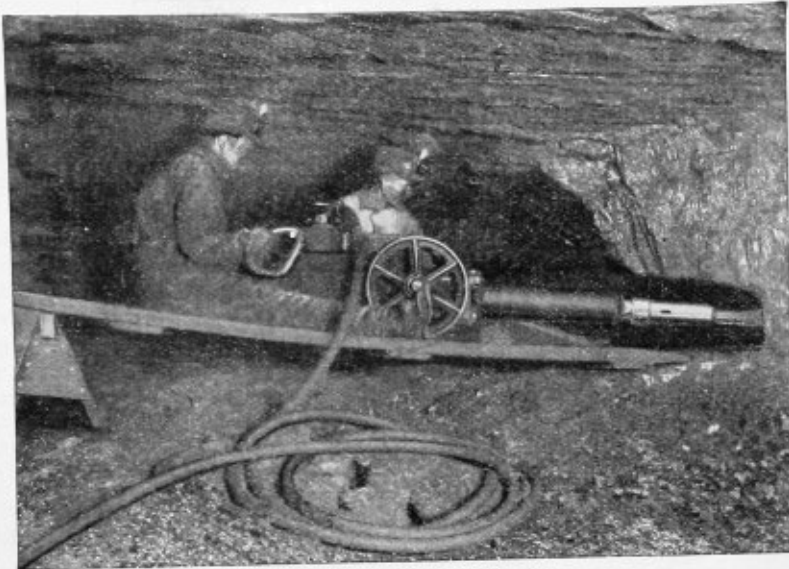
about 8 feet long and 3 feet wide, which is so inclined towards the face by means of a trestle under the outer end that the recoil of the machine is neutralized by gravity and feeds down to the coal. The method of

and slack are desirable, and the mining may be done without producing lump. When the first cut, from 4 to 5 feet wide, is finished, the board is moved across the face and another cut commenced, this shifting

be easily handled by the runner and his helper without a mule.

The manufacturers of a certain make of drill claim to have solved the problem of minimum cost by combining the drill with the undercutting machine, both being run by the same motor and the drill operated by the man who runs the machine. They say: "The time taken to drill a hole 7 feet deep is about 1 minute. It is, therefore, apparent that the amount of time taken from the operation of the cutting machine is very small. The time consumed in moving the drill from place to place must of necessity not be considered as the drill is a part of the cutting machine and must go wherever the machine goes, so that the only time to be paid for by the mine owner is that actually occupied by the machine runner in adjusting the drill and boring the hole. The flexibility of the drill and the small number of working parts enables the runner to adjust it quickly and very little time is occupied in the entire operation of setting the drill for placing the hole where required and boring the hole. The necessity for high rates of wages for this part of work is accordingly overcome and the mine owner has an opportunity to share the gain with the regular machine runner. This does not in any way change the relation of the loader to the mine owner and the reduction provided for by the scale can be properly made the same as in the case of the portable drill.

"The drill, being attached to the machine at all times, readily changed so the holes



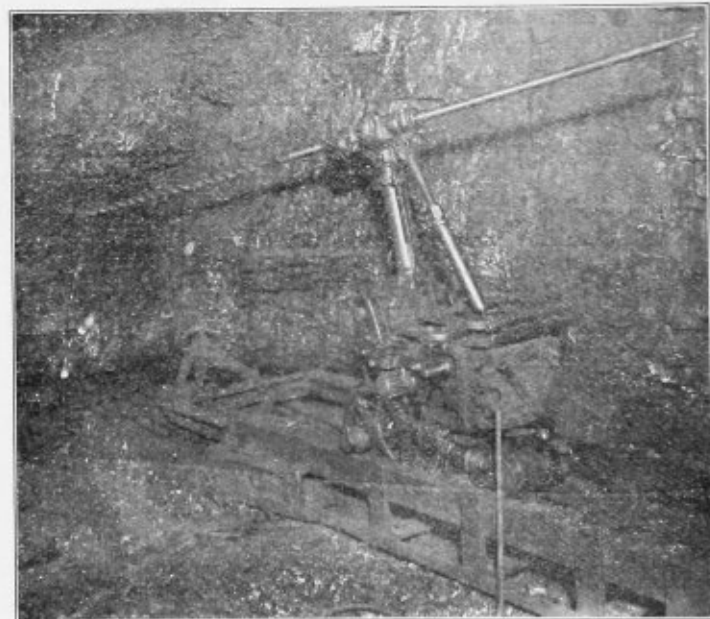
SULLIVAN PICK MACHINE AT WORK IN EUREKA No. 35 MINE OF THE BELWIND WHITE COAL MINING CO., WINDBER, PA.

mining is as follows: The runner sits on the platform behind the machine which he holds by the handles; the pick is shot against the coal by means of compressed air at a pressure from 40 to 75 pounds, striking with a force and speed which can readily be adjusted to range from 160 to 250 blows per minute, at a force per blow of from 5 to 1,500 pounds.

The adjustment admits of long, slow, hard blows, the reduction of speed not reducing the force of the blow unless desired; any kind of a blow can be secured by the regulators.

The runner uses a block attached to his shoe by a strap to chock the wheels of the machine against the recoil, and undermines to the depth of about 12 inches with an average height of 4 inches. With a few blows placed higher up, the coal is blocked down in chunks to a height of 14 inches, sloping towards the back. This process is repeated until there is no longer any necessity of blocking, and the last 2½ feet are finished by undermining only an average of 4 inches in height, about 5 feet of face being cut with one setting of the board. By undercutting in this way a large proportion of the minings are lump and nut, with but a small amount of slack. In most coal the blockings from the mining are so large that the helper has to lay aside his shovel constantly and lift them out by hand. By ordinarily careful work more than one-half of the undercuttings will go over a 1¼ inch screen, and of the remainder most is nut and pea. On the other hand, high wheels can be used if nut

of the board taking only a couple of minutes, or the helper may have a second board set ahead, in which case the cutter need not even stop until the room is finished; the same process is repeated until the under-



POWER DRILL—MADE BY THE WAGNER PALMROS MFG. CO., FAIRMONT, W. VA.

mining of the room is completed. The machine is then loaded on a truck and run into another room, where it can be at work in from 5 to 10 minutes, the truck and machine together weighing so little that it can

be placed wherever desired and capable of being placed flat on the top of the motor when the cutting machine is being moved from place to place in the mine, permits the drilling to be done properly and the cut-

ting machine to be moved without any appreciable loss of time on the part of the machine runner. It has also been conclusively demonstrated that more coal is produced at every cutting when the machine runner does his own drilling. This in itself is a source of increased revenue to the machine runner and has developed to be one of the most important advantages in the adoption of the drill to the mine owner. It has been found that a rate not to exceed one-half cent per ton, where the vein is thin, fully compensates the machine runner for the time occupied in doing the drilling."

Coal cutting machines offer several points of advantage than merely the cost of the

be considered when the advantage of machines as compared with pick mining are under discussion.

SHOT-FIRING IN ILLINOIS MINES.

The following is an extract of a bill introduced in the Illinois Legislature:

"Section 1. Be it enacted that all persons, companies, corporations, lessees or owners of mines who are engaged in operating a mine when or where miner or miners are employed or engaged in mining where gas exists, or where two or more pounds of powder or its equivalent is used for any blast, shall and are hereby directed, under penalty, to secure practical, experienced

judgment, were not properly prepared, and which they refused to fire, giving reasons for same, the record to be in the custody of the mine manager, and to be available for inspection at all times by parties interested.

"Section 3. The superintendent or mine manager shall not permit the shot firers to do any blasting, exploding of blasts, or to do any firing whatever, until each and every miner or employee is out of the mine.

"Section 4. Any wilful neglect, refusal or failure to do the things required to be done by any section, clause or provision of this act on the part of the person or persons herein required to do them, or any violation of any of the provisions or requirements hereof, or any attempt to obstruct or interfere with any person in the discharge of the duties herein imposed upon them, or any refusal to comply with the provisions of this act, shall be deemed a misdemeanor, punishable by a fine of not less than \$100, and not to exceed \$200, or by imprisonment in the county jail for a period not exceeding three months, or both, at the discretion of the court: Provided, that whoever shall discover that any section of this act, or part thereof, is being neglected or violated, shall order immediate compliance therewith, and in the case of continued failure to comply, shall through the State's attorney, or any other attorney, in case of his failure to act promptly, take the necessary legal steps to enforce compliance therewith through the penalties herein prescribed."

The bill is now in the hands of the Senate Committee on Mines and Mining.

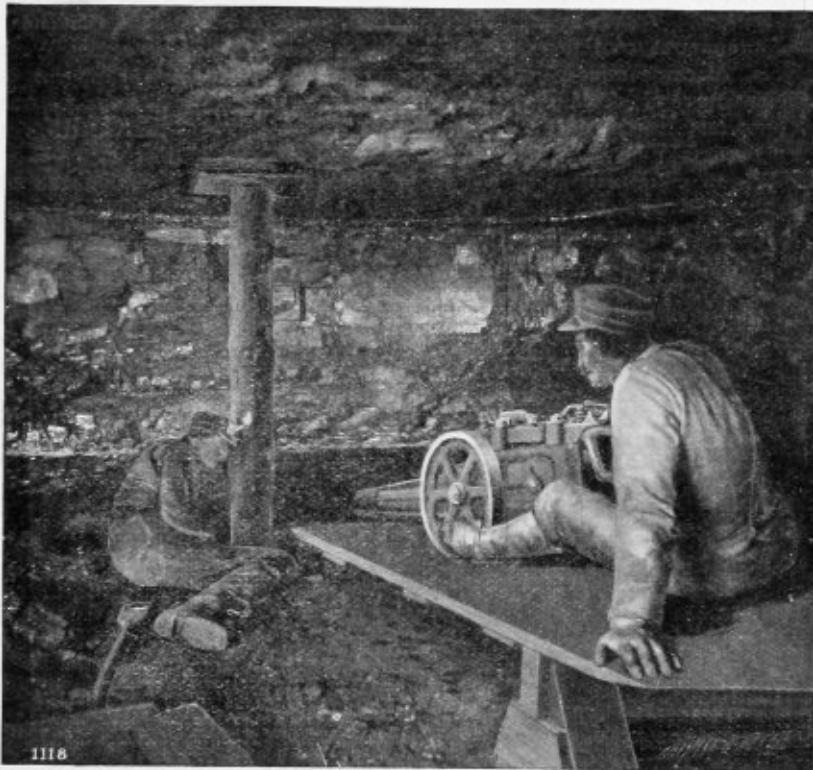
STRIKE PROBABLE

In Butler-Mercer Mining District.

The wage scale for this year in the Butler-Mercer coal mining district is just now causing a good deal of uneasiness to both operators and miners and both sides are organizing for a possible conflict, and if it comes to that, it is probable that both sides will be almost solidly arrayed, one against the other, with few if any breaks.

At present miners in the district are receiving 52 cents a ton for coal mined by them, and it is said that they would like a little higher wages, though they have not yet said what they will expect for the next scale year mining. The operators think the 52 cent rate too high when the price of coal and the sharp competition they have to meet is taken into consideration and they will probably offer the miners 45 cents a ton as the maximum price they will be willing to pay. This, they say, is a liberal price with coal selling at its present figure.

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COMPLETING AN UNDERCUT WITH A "NEW INGERSOLL" COAL CUTTER IN A MINE IN PENNSYLVANIA.

coal on the mine car. In pick mines nearly every employee is a skilled workman requiring several years of experience before being able to perform good work. The use of machines reduces the proportion of this skilled labor and at the same time increases the production capacity per capita. This means that, for a given tonnage, fewer miners are necessary, resulting in less dissension between employer and employee, a smaller investment for houses, etc.; in fact, the saving in the number and the cost of houses alone will usually pay for a coal cutting machine plant. Further, in machine worked mines the work is more concentrated, resulting in less area to support, drain and ventilate. These points should

men, who shall be known as shot-firers, so that there will be a sufficient number at all times to inspect and do the firing of all blasts prepared in a practical manner in said mine or mines.

"Section 2. The shot-firers shall, at the expiration of each day's operation of the mine, post a notice in a conspicuous place at the mine, in which shall be indicated the number of shots fired; also the number of shots they did not fire, if any, and giving reasons for firing same. In addition, they shall also keep a permanent daily record, in which shall be entered the number of shots or blasts fired, the number of shots or blasts failing to explode, and the number of shots or blasts that, in their



Coal and Timber

PUBLISHED MONTHLY BY

COAL AND TIMBER PUBLISHING CO.
ARROTT BUILDING, PITTSBURG, PA.

Communications relative to news of coal and timber lands, mines, shipments, equipment, etc., as well as items of interest concerning owners, operators, shippers and officials, are invited and should be addressed to the Editor of Coal and Timber.

Checks, drafts and remittances and all matters pertaining to the business department should be addressed to COAL AND TIMBER PUBLISHING COMPANY.

Telephones—Bell, Court 2388; P. & A., Main 1790.

Subscription \$1.00 per year. Single copies 10 cents.
Advertising Rates on Application.

PITTSBURG, MARCH, 1905.

Mr. Geo. A. Williams, formerly Editor of "Coal and Timber," is no longer connected with the paper.

Mr. B. E. Schnatterbeck, for many years private secretary to the late Mr. Richard P. Rothwell, editor and publisher of "The Engineering and Mining Journal," and for the past 18 months manager of the Pittsburg office of that publication, has been placed in charge of the advertising department of "Coal and Timber."

MACHINE MINING.

Consider for a few moments the part which "King Coal" plays in the world. Never mind minute details nor even general statistics. A mere thought of all steamships, locomotives, manufacturing plants, office buildings, hotels and private houses being suddenly and simultaneously deprived of all possibility of obtaining coal will form the thought—outline for a picture cold and sombre enough to fasten your attention for the moment to the fact that coal is not only a very convenient and comfortable commodity, but is also one of the things without which our present reasonably comfortable mode of living would be impossible.

And yet, do you know that until a very few years ago coal was dug from the bowels of old mother earth by almost the same primitive methods that the earliest coal diggers used?

Mechanical devices that have come into the coal mining industry, have come among the latest of modern inventions, but the inexorable law of supply and demand has attracted the highest grade of inventive ingenuity. The trite adage "Necessity is the mother of Invention" has been paraphrased by some wag so that "Laziness" is substituted for "Necessity" in the quotation.

But the fact remains, that, notwithstanding its maternity "Invention" has ever been an indomitably industrious fellow, and one who has had to fight hard battles for every nod of recognition which he has ever received, even when he was garbed in his most philanthropic and humanitarian habiliments.

Think of what other men's inventions have been worth to you. Whether the inventor made a fortune or died a heart-broken pauper, you enjoy the beneficent results of his years of study, worry and labor. Progression, development, evolution; via improvements on present methods and the invention of new methods, are the rungs of the ladder which civilization is climbing.

Twenty years ago "machine mining" was talked of as a possibility by "visionaries," but as being impossible or impracticable, by "practical miners." Today, at least one-third of the bituminous coal produced in this country is "machine mined," and the field for invention and development of mining machines may be said to have only recently been opened.

The timidity and conservatism of capital; the blind selfishness of labor; the jealous sensitiveness of inventive genius, all tend to make the possibilities in the field of mining machines one of the most attractive to which competent ingenuity could be directed.

To take liberties with a paragraph from an authority: "Coal being the most powerful factor in the industrial life of the world today, its production is the most important industry of the age."

Marvelous strides have been made along these lines in the past few years, as the series of articles on the subject which is begun in this number of "Coal and Timber" will show.

COAL LANDS—PROSPECTS FOR 1905.

"The year 1904 was a bad year for coal!" This statement has been heard on so many sides and with so many bearings as to have passed almost into the trite stage of a proverb. The force of the condition expressed in those few words was felt by coal operators, shippers, wholesalers, retailers, equipment and supply houses, rail and river transporters, trade papers, the myriad employees of all these interests and correlatively, by the general public. Certainly it was felt by the owners of coal lands and by brokers and dealers in the same.

The year 1904 would have been a good, normal year, so far as concerned coal and its kindred interests, except for causes and hindrances chiefly natural or elemental. The long and distressingly persistent drouth was the principal deterrent to business in the mining and manufacturing sections east of the Mississippi. There was no water for mine uses nor for river shipments—with all that that condition implies to the coal trade west from Pittsburg. The

Presidential campaign and the disturbing influences of the far-eastern war were incidental factors in the situation but, beneath a fairly smooth exterior which at no time took on the set expression of panic, there was a feeling that "times were hard." When the coal trade slackens, coal-land operations pause as a rule and that is especially true of a year like last when, added to the dullness in operations and sales of mine products, there was a tightness and hesitancy in investment circles.

The transfers of coal acreage in 1904 were, comparatively, few and circumscribed in the larger proportion by the necessary extension of holdings by companies whose veins were working out and by the purchase of acreage at hard-times prices by a few far-sighted men with money enough to disregard a passing stringency.

The wave of investment that has been rising in the east, flowing across West Virginia and breaking on the shores of the big Sandy in eastern Kentucky, was felt again last year but in decreased force.

The Pocohontas district was most favored, the high-grade coking and smokeless coals being especially fancied and sought for.

Pennsylvania capital has been looking to West Virginia in the counties along the state line, and Ohio operators have crossed the river and quietly taken up many of the good things of the Great Kanawha valley to cke out their exhaustive operations in the Hocking and other central fields. Pittsburg capitalists, in several active groups, paid sharp attention to Washington county and vicinity and many high prices for coal rights were registered despite the bad year.

The west-central district of this state, especially bituminous No. 5, showed some transactions on the few remaining "ungobbled" bodies of coal rights, several Connelville-field sales being at figures which would have created a "boom" had there been anything more to sell.

The large coal companies have about preempted the so-called Pittsburg field in this state and sales can be noted principally along the Monongahela river and the southwestern section where some vigorous younger companies, organized in Pittsburg buy, develop and sell moving on to the next tract which they can acquire, where they repeat the plan.

Freeport coal is attracting more attention than ever before from the expert opinions recently given upon its desirability and good shipping qualities. Increased good opinion of this coal will bring into the market large bodies of fine thick veins of it which have lain fallow for years during the perhaps purblind and unreasonable belief that the "old Pan Handle coal" was the only sort worth mining.

West Virginia is, of course, the field par excellence for coal land deals at the present time and the state has about clinched her position as the premier coal-producer of

the Union, her showing at the St. Louis exposition being a marvelous revelation even to her own people. Investors and operators looking for anthracite, coking, splint, cannel or smokeless coals can be supplied in the state in infinite variety as to location, quality and price. West Virginia's citizens are now thoroughly aroused to the Golconda lying beneath her watered valleys and rugged hills and are doing some important development and investment on their own account, though they seemed not to realize their opportunity until after the canny easterner had slipped in and taken over many of their choicest properties, an instance being the Boston people who got the cream of the Logan county measures.

The mineral values of this state are, as the saying goes, "only scratched," and profitable transactions in coal bodies will be made there for many decades to come.

Fully two-thirds of the geographical extent of Kentucky and more than half of Tennessee can also be classed with West Virginia in the matter of development and prospects for coal operations and the overflow of capital and interest is showing in those states near the Virginia and West Virginia lines.

The chief transaction in coal lands in Eastern Kentucky in 1904 was the sale by J. C. C. Mayo of his immense holdings in the upper Big Sandy valley to the Northern Coal & Coke Company, composed principally of Chicago men, but in which ex-Senator Camden, of W. Va., has recently acquired a controlling interest. This company proposes a thorough and modern development along the lines of that done by the United States Coal and Oil Co. in the Logan district of W. Va. Coal rights and fees in Eastern Kentucky have jumped in price since the Pocahontas development until, from Boyd county to Pike and beyond, accessible acreages are held at figures equaling those in Southwestern Pennsylvania, \$200 an acre being a not at all uncommon figure asked and paid. W. Va. prices are advancing with more moderation, owing to the universality of the coal deposit of some sort or other and the paucity of transportation facilities in a large portion of the state. Seven to ten dollars an acre for mineral rights and fifteen to thirty dollars for coal land in fee being the prevailing prices, excepting in the coking ranges where values are rapidly approaching the Pennsylvania standard.

The old buggaboo of faulty titles in Eastern Kentucky and some parts of West Virginia, is rapidly disappearing under judicial settlements and the determination of squatters' claims. Most offerings in those sections can be now safely taken as regards title, especially where merely the mineral rights are involved. Several parties of Pennsylvania coal operators are already "cruising" in West Virginia, hailing from the bituminous fields and looking to the not-distant future when they must use the Mountain State for their surplus capital.

West Virginia coal lands offer the unusual combination of shipping to the Lake, Seaboard and Gulf markets, oftentimes all three facilities inhering in one tract.

The slack-watering of her rivers, Ohio river improvement coming on and the Panama canal prospect, makes river and gulf shipments a great desideratum. Several companies of Panaman and New York capitalists are looking over the West Virginia and Kentucky fields at this time with a view of operations five to ten years hence when the great Isthmian water-way is completed.

1905 shows every sign of being a big coal year. The barometric indices all foreshadow big manufacturing operations and this means coal. Orders for coal for foreign account are also coming in increased ratio, figuring last year as an average one, which it was not. The great drouth of last summer can scarcely be expected to encore itself and there is every reason to expect a renaissance of the coal dealings of two or three years ago and with increased production and sale over any year in the history of the trade. Coal land brokers already feel the pulse of trade quickening and inquiries are coming from every quarter for good accessible properties and operators are not shying at good, stiff prices, so long as the coal is there.

We expect this spring will be the most active season in coal land transactions ever known on the Apalachian fields—all signs point to it. Inquiries are coming rapidly and as soon as the snow admits of better examination of the ground, many sales are sure to be recorded.

The cold and stormy weather during the past month disturbed the Western Coal Market and brought on an increased demand for fuel, shortage of cars for transportation, delays in delivery and the usual irritation which naturally follows

COMPULSORY EMPLOYMENT OF SHOT-FIRERS.

A bill is now before the Illinois Legislature providing for the compulsory employment of shot-firers in the coal mines of that state. The law, when operative, will provide heavy penalties for its violation. It is understood that the unusually large number of accidents from the use of explosives in mines provides this motive for the introduction of the bill.

Shot-firers are found in a large number of our largest mines, but accidents still occur and it is questionable whether their employment works a decrease in the number of casualties.

Since the run-of-mine basis was established in certain Illinois districts, complaints of carelessness in placing shots have increased. It is natural for the miner to try to bring down the largest quantity of coal, regardless of its condition, or of the risk incurred in blasting, when working under

a run-of-mine scale. The result is an increased number of accidents—and slack.

A bill providing for a fixed quantity of powder for each shot would more properly suit the exigencies of the case, and be a compelling force for conscientious service on the part of the miner.

WHAT FOR?

A bill which provides for an increase of fees for home corporations and a reduction of fees for foreign corporations has been presented to the Legislature at Charleston, W. Va.

It is alleged that the present laws governing corporations are altogether wrong and the proposed bill is to remedy the evil. This explanation does not explain, and we are of the impression that there is something more to be told regarding the motive back of this measure.

NATIONAL PIKE COAL.

It is the opinion of the Chief of Engineers of the United States Army, that the coal underlying the National Pike in Western Pennsylvania does not belong to the Government, and that title to this coal never passed from the owners who first gave right of way to the National Government.

The matter of ownership has attracted attention all over the state and was referred to the authorities at Washington by representatives from the Twenty-third and Twenty-fourth districts. While the question has been most liberally discussed the ownership of the coal has not been finally settled and will probably require an authoritative opinion from the attorney general.

As there are several hundred acres involved, the greater part of which is underlaid with coal, it is a matter of some importance as to who owns this valuable deposit.

1905 OUTLOOK.

The year 1905 holds out every promise of being a year of exceptional business activity and industrial development and growth, specially in West Virginia.

A sure indication of the improvement is the growing demand for soft coal and coke. West Virginia coal is no longer a mere convenience, or occasional substitute for anthracite even in the Eastern markets, where the best grades are in demand with quotations hardening. Indeed, according to Mr. Frederick E. Seward in Cent per Cent., Pennsylvania shippers are complaining of the conditions, inasmuch as a great deal of tonnage has been contracted for by the West Virginia producing districts. This is owing to the cheaper cost of production in those districts and necessitates the development of other markets for the Pennsylvania product.

"THINK IT OVER."

The following communication was inspired by our editorial, "Think it Over," which appeared in the January issue of "Coal and Timber." The subject of "timber preservation" is timely and we shall be glad to receive suggestions along that line from others. Mr. Deloche points a way to a speedy relief from the evils arising from the ruthless destruction of our forests, and we believe it would prove a profitable experiment to import a quantity of Norway and Sweden pine seed and cultivate a "new generation."

Monongahela, Pa., Feb. 17th, 1905.
Editor, "Coal and Timber:"

I have read your article, "Think it Over," in the January number of "Coal and Timber." It may interest your readers to know of a method of forest preservation which has been successfully used in France. Two years ago next month, I had the pleasure of visiting, after twenty-nine years' absence, the district where I was reared, the southern mining district of the Cevennes mountains in the south of France. The greatest change I noticed there was that, when I left in 1874, the mountain tops were almost bare of vegetation, only a few old chestnut trees and briar bushes of different kinds could here and there find nourishment among the crags and between boulders of lime, shale and silicious rocks, large expanses of country were totally barren.

At this time and before, the mining companies were using oak for timbering the mine, which was very expensive and only used where a good timber was necessary. Willow, poplar, sycamore and other trees growing along the river valleys were of a very poor quality, heavy to handle, soft and brittle and needed replacing often two or three times. For special purposes, where a good timber was necessary, and when oak timber was thought too dear, pine was used; pine that was purchased and cut on the Alps in Savoie and Switzerland, floated down the Rhone a distance of 200 or 300 miles and then hauled on railroad cars about 100 to 150 miles. Some was secured in southern Russia and shipped to Marseilles, via the Meriterranean and from there hauled on the railroad 200 to 250 miles.

Just about that time, or three or four years before (1870 to 1874), the coal companies began to plant on the mountains a certain kind of pine seed, secured from Sweden and Norway, which I was told grew trees 25 to 30 feet high, and 8 to 12 inches in diameter in nine to ten years. Since 1880, the mining companies in that district are using these pine timbers almost exclusively in their mining operations, except in some few instances where a first quality of wood is necessary, when they still use oak.

The mountains are now almost covered with pine forests, which make the country far more salubrious, and they tell me they

have less danger from floods in the valleys, and the country is 1000% more attractive to look at.

A great deal more than was done in that country could be done in this district at less cost and with greater results.

L. V. Deloche.

THE COAL TRADE.

There is a larger use of fuel of all grades than was expected would be the case last month. This condition is due to the widespread continuance of the cold weather.

While this cold spell has helped to increase the consumption of fuel, and to make stocks in yard and cellar show a decrease, it has been of equal value in the direction of retarding the output of coal and the delivery of the same with any degree of promptness.

On the hard coal roads there has been a great congestion of freight, due to the many storms that have been experienced in the past four weeks. When the coal does reach destination it is in a frozen condition, and this is responsible for delays and the report of car shortage to a very large degree. Shippers east of the Alleghenies to tide-water have had a very embarrassing time of it, with only half a car supply, and the delays incident thereto.

During the latter part of February, there was a shortage of coal in all parts of the country, and in some towns, both east and west, there was extreme suffering on this account. New England especially suffered owing to the delays in rail lines and loss of cargoes along the Atlantic coast.

There is no change probable from the general conditions, which are now prevailing, for the month of March.

COAL PRODUCTION.

The total coal production of the United States is now at the rate of 1,000,000 tons a day and the consumption of coal by railroads is equal to 40 per cent. of this, or 400,000 tons a day. The fuel bill of a railroad contributes about 10 per cent. of the total expense of operation and 30 to 40 per cent. of the total cost of running the locomotives. A locomotive will consume on an average of \$5,000 worth of coal per annum, and for a road having an equipment of 1,000 locomotives the coal bill is approximately \$5,000,000.

WEST VIRGINIA'S GROWTH.

The development of West Virginia's coal product in the past 5 years has been marvelous. In that time it has grown 50%. Alabama's development has increased in the same proportion, but it is to be remembered West Virginia's tonnage is 3 times as great as Alabama's, so that the increase means vastly more output.

BRIQUETTE MAKING A MINING INDUSTRY.

New York, February 23, 1905.
Editor of "Coal and Timber:"

The success of making coal briquette lies not only in the secret of the binder but principally in the secret of the machine as well as in the knowledge of that industry, as the report of the Department of the Interior issued last month on Fuel-Testing Plant of the United States Geological Survey demonstrates.

It is a well established fact that the making of coal briquettes from dust and waste coal in Belgium, France and Germany is a great success, that the production is increasing every year, that a saving of over 25 per cent is effected in valuable coal space for transportation and that the briquette made out of coal dust is economic, as it has been proved that 165 to 175 pounds of coal have been consumed in three hours to maintain a steam pressure of 4 atmospheres, while with 145 pounds of briquettes made out of coal dust of the same quality, the same pressure was kept up three and one-half hours, besides, this coal fuel is absolutely free from dust and clinkers.

England, since about 10 years, has taken up that industry and has already 15 plants which are operated with success commercially. Japan (Collieries of Amakusa at Nagasaki) has also a plant in operation which gives entire satisfaction.

This is an industry which, although it has no foothold today, for briquettes are not manufactured commercially yet in this country, is bound to come to the front, conditions which have been unfavorable for it in the past are rapidly changing.

I intend to install a plant very shortly in this country to demonstrate that dust and waste American coal can be utilized in the shape of briquette with success commercially the same as in Belgium, France, Germany, England, Spain and Japan, where our machines are in operation.

I am now experimenting in my plant in Belgium on the briquetting of non-lump ore of which there are millions of tons above ground commercially worthless and expect to succeed and will favor your readers with the result.

R. Devillers.

FORESTS AND NATIONAL PROSPERITY.

As a living example of the consequences of deforestation we need simply look to Spain, a country which centuries ago was rich in timber and agricultural products, a proud seafaring nation of world conquerors. Spain's decadence dates from the time when her timber supply became exhausted, her shipbuilding relaxed and her barren, unprotected soil ceased to bear fruit.

—Extensive coal mines are now being operated on the Island of Sumatra.

NATIONAL LEGISLATION.

The final session of the present Congress has been most interesting to coal operators and the fate of the yet-unsettled rebate and rate question will be awaited with tense attention by everybody in anywise connected with the coal industry.

The action of several representatives from Western Pennsylvania in bolting the Republican caucus decision to support the President's measure (the Townsend-Esch Bill) was noteworthy in that the recalcitrants represented, both in their private interests and their constituencies, the coal mining and shipping interests in the heart of this great producing and manufacturing section.

Senator Depew, in a banquet address late last month, said:

"President Roosevelt's suggestions go no further than that the hand of the government shall be so strengthened it can reach abuses, remedy wrongs and protect rights. There is no intelligent and patriotic railroad man in the United States who does not wish, both in the interest of his own corporation and of the public and of his own reputation, to destroy every form of discrimination and favoritism, and to have the great carrying corporations of the country so managed that there shall be reasonable rates and equality for all."

The main tenor of this philippic must be taken as sound and philosophic reasoning and doubtless echoes the higher and better thought which—if outspoken—would emanate from the brains of railroad officials generally. But it glitters and is general. The question of regulating railroad rates, as viewed by the coal producing Representatives in Congress, seems to be a question of choice of evils. The tearing open and unsettling of the question, the great and devious power of the railroads under all conceivable conditions, the menace of car-shortage of a dark-lantern variety, seem to these gentlemen to be a jump into "evils we know not of" but strongly suspect.

President Roosevelt seems determined to push his pet measure through Congress even to the point of calling an immediate extra session. The Senate can be depended upon at least to "deliberate" the question, and it will not be so easy to apply the usual gaff and goad to members of that body as would be the case were the Federal offices not already filled by "our people" for four years to come. The courage of the Executive, in pushing to the forefront a vastly mooted problem and asking that it be arranged in consonance with his own decided but doubtless honest views, is obvious and to be commended when it is considered that his political axes are all ground, set and very sharp and he is not all in need of any manufactured campaign thunder.

The general economic and ethical questions involved in this matter seem to call for the sane and patriotic support of all

classes of the people in favor of all that it purports to affect. But when objections are made to the sweeping and horizontal character of the proposed legislation by such sane and successful business men and publicists as Messrs. Huff, Dalzell and their protecting colleagues, it might be well for less well-informed folk to suspend judgment until further debate and light is had and shed in the Upper House, and the prospects are that there will be "light for all" before the Rate and Rebate Bill goes into the Statutes of the United States.

TAX ON COAL OUTPUT.

If a bill introduced in the Pennsylvania legislature by Representative Thomas, of Lackawanna county, runs the gauntlet of the legislature, upward of \$3,000,000 additional revenue will be collected by the state and practically all of the amount devoted to school purposes and the improvement of public highways.

Following out the recommendation by Governor Pennypacker, in his message, that a tax be placed on the output of coal mines, Representative Thomas to-night introduced a bill affecting both anthracite and bituminous coal. Mr. Thomas would have the state levy a tax of 5 cents a ton on every ton of anthracite coal and two cents a ton on every ton of bituminous coal mined in Pennsylvania.

Mr. Thomas would have the entire output taxed and the individuals or corporations engaged in the mining of coal compelled to make reports to the Auditor General on the first day of January, April, July and October as to the number of tons turned out from each mine. The bill provides that two-fifths of the money derived shall be devoted to public school purposes; two-fifths to improving the public highways and the remaining one-fifth to a "miners' relief association."

Provision for the creation of such an association is made in another bill by Mr. Thomas. The duty of such association shall be to distribute certain moneys to miners sustaining injuries while at work in the mines. The association shall be under the management of 5 persons to be appointed by the Governor, who shall receive a salary of \$500 annually and shall give bond in the sum of \$20,000. It is further provided that persons or corporations engaged in the mining of coal shall file with the secretary of the association a list of all miners injured while at work. Such reports shall be filed quarterly.

—Fire has been raging in Sumter coal mines of the Tennessee Coal, Iron & Railroad Company. In the Blue Creek region, near Blocton, Ala., since February 12, and all efforts to extinguish the flames have so far been ineffective. The mines are among the finest in the state, and the damage will reach in the thousands of dollars.

RAILROAD OFFICIALS MEET.

Rates to Lake Ports Will Remain Unchanged.

Leading freight traffic officials of all the railroads of Western Pennsylvania, Eastern Ohio and West Virginia held a conference at Pittsburg February 21, to fix the rates on coal from the various fields to the lake ports. All the roads catering to this traffic were represented by the executive officials of the traffic department of the several lines and owing to the strong requests made by the coal companies for a reduction in the freight tariffs an interesting discussion was indulged in. The sentiment expressed indicates that the railroads will re-establish the rates of last year and will refuse any reductions that may be sought by the coal concerns.

The question of coal rates has always been an important one with the railroad companies and shippers and each year earnest efforts are made to have the railroads grant a reduction in the rates to the lake ports. The demand of the coal companies is viewed by the traffic officials as uncalled for by reason of the fact that there has been no reduction in the price of coal, while the shipments to the lake ports each year have shown a material increase.

The amount of money invested by the railroad companies in steel cars for the shipping coal and the expense of keeping up the equipment supply necessary to meet the demands of the business is another argument used by the railroads against granting any reduction in the prevailing rates.

The meeting was held in the Pittsburg Union Station building and was presided over by Joseph Wood, second vice president of the Pennsylvania Lines, in charge of traffic, Vice President George Randolph and Freight Traffic Manager C. S. Wight, of the Baltimore & Ohio were present to represent that company. Besides the executive officials the various other freight men were present.

The new rates will become effective on all the lines April 1.

SAY FRICK IS INTERESTED.

Surveyors at Work on a Railroad Near Waynesburg That May Be Extended to Wheeling.

The corps of surveyors working on the proposed railroad from Leckrone up the Little Whitley creek toward Waynesburg, is now 3 miles from town. The corps is in charge of U. N. Arthur, formerly in the employ of the Wabash in this county.

It is understood that J. V. Thompson, of Uniontown, is the chief backer of the project that H. C. Frick is interested, and that the intention is to continue the road to Wheeling.

UNIONTOWN NOTES

By H. G. Lawrence

The Savage Hill Fire & Brick Co., of Fairhope, has purchased the plant and property of the Delaney Fire Brick Co., at Fairchance, of which McClellan Leonard, of Uniontown, was the principal owner. The Savage Hill Company includes these Uniontown men: Harry Whyel, president; George B. Burchinal, secretary and treasurer; J. M. McKinley, general manager. Both plants will be operated continuously, as large orders have been booked for coke oven material. The Fairhope plant has been running continuously for 4 years and the output has not been sufficient for the demand.

Hugh A. Burchinal has sold out his interest in the brick firm of J. V. Williams & Co., of Uniontown, to his partners, J. V. and Allen D. Williams. J. V. Williams has been connected with the plant 30 years and Mr. Burchinal was his partner the last 6 years.

Clyde G. Brehm, chief electrician for the Oliver-Snyder Steel Co., at three Oliver plants near Uniontown, sailed Friday for London, where he is the youngest of a class of 720 who will take electrical lectures. Electrical men will be present from all over the world. The next grand convention will be held in Pittsburg in 1907.

The stockholders of the Chieftain Coal & Coke Company met at Scottdale and elected the old board of directors and officers, as follows: E. A. Humphries, Scottdale, president and treasurer; Harry Dunn, Connellsville, secretary, and these directors: E. A. Humphries, J. A. Barnhart, W. H. Clingerman, Scottdale; Harry Dunn, Cyrus Echard, Connellsville, and Judge R. E. Umbell, Uniontown. C. J. Warnock was re-elected general superintendent. The company has large developments at Wilsonburg, W. Va.

James Hart, who has been since last October superintendent at Ronco, has been made superintendent of the Buffington works at New Salem. He is succeeded at Ronco by Mr. McCaffrey, of the Pittsburg Coal Co. at Belleverson.

Attorneys W. L. Gans and W. H. Martin have returned to Uniontown, Pa., after spending several weeks examining titles to a tract of 15,000 acres of timber land in Upshur and Randolph counties, W. Va., which it is expected will be sold soon.

The High House Coal & Coke Co. met in Uniontown and elected these directors: Thomas F. Wiley, L. D. Sisler, Capt. O. C. Coon, Dr. T. H. Sedgwick, G. C. Murphy, and these officers: Thomas F. Wiley, president; Capt. O. C. Coon, vice-president, and L. D. Sisler, secretary, treasurer and general manager. The company has orders for its entire output and will start at once 3 8-hour shifts.

The Republic Iron & Steel Co. has started work in Redstone township, near Browns-

ville, Pa., and 400 ovens will be built there, the construction engineer being W. H. E. Royce. The company has 1,200 acres of coal on the Connellsville Central Railroad. The coke will be used by the Republic furnaces at New Castle, Pa., and Youngstown, Ohio.

As a result of the recent big coal deal whereby M. H. Bowman, Isaac Taylor and J. C. Work, of Uniontown, disposed of their Menallen township coal to Cleveland furnace interests a large coke plant of not less than 500 ovens will be erected and a number of Uniontown men will be interested along with Cleveland furnace men. The location for the plant will soon be made and work begin on the shaft. As a preliminary the Hibbs Water Co. has been formed to supply water for the proposed new coke plant and its operations and M. H. Bowman, John M. Taylor and J. C. Wurk, of Uniontown, are the incorporators.

All previous records for quick work were surpassed at the plant of the Sunshine Coal & Coke Co., in Nicholson township, southwest of Uniontown, where a block of ovens was fired 3 weeks after work was begun on their construction on January 23. The mortar was mixed with hot water to facilitate the work. The Sunshine plant is owned by Francis Rock, of Connellsville, who has 100 acres of coal. At present 75 men are employed. The number of ovens will be 50 for the present but later be increased to 100.

A. A. Straub has resigned as real estate and claim agent for the H. C. Frick Coke Co. and together with J. S. Amend, formerly auditor for the Frick Co., has gone into business at Connellsville.

The Atlas Coke Co. has let to Eggers & Graham, of Uniontown, the contract for a \$10,000 store room and office building at Waltersburg. It will be 60x80 feet and 2 stories high.

Operations were started 2 weeks ago by the new company at the plant of the Chemical Lime & Manufacturing Co., at Fairchance. The company has the lease and option on the Union brick works, comprising 10 acres, and are making a new process chemical lime fertilizer. The officers are J. D. Bailey, East Brady, president; A. C. Bailey, Ford City, general manager, and John C. Shaw, Connellsville, secretary and treasurer.

The Standard Car & Foundry Co., of Uniontown, has the contract to furnish 1,000 tons of locomotive castings for the Baldwin locomotive works of Philadelphia for \$35,000 and they will be used to build locomotives for the government of Japan.

The big Stewart tract of about 2,700 acres of land near Ohiopyle, which is covered with much fine timber and under several hundred acres of which is a 7-foot vein of coal, has been sold to John A. Guiler, and J. L. and S. A. Kendall, at a consideration said to be \$125,000. The new owners will cut the timber and mine the coal.

During the coming summer the Orient Coal & Coke Co. will add 100 ovens to the

300 already built at the plant in Redstone township. Work has already begun for 200 additional ovens for the Brier Hill Co. at the plant in Redstone township. Monti Gilardi, of Connellsville, has the contract.

The John Ross farm of 133 acres in Monongahela township, Greene county, at the head of Big Whiteley, has been sold for \$70,000 or about \$525 per acre. It is said the Frick Co. is the purchaser. The Frick Co. owns nearly all of the adjacent territory.

O. W. Kennedy, of Uniontown, general manager for the Orient Coke Co., who returned about February 1 from a southern trip, made an inspection of the Alabama coal fields for a large syndicate. A field of 80,000 acres has been acquired by men who will form the Pratt Consolidated Co. One of the promoters is ex-Gov. Jackson, of Maryland, who recently purchased 21,000 acres from Charles Lockhart, of Pittsburg, for \$525,000, this tract forming a part of 80,000 acres. The consolidated plants of the Pratt Company have an output of 8,000 to 9,000 tons of coal per day and it is proposed to spend about \$1,125,000 on development during the coming year and double the output.

M. P. Dill, foundry superintendent for the Standard Car & Foundry Co., of Uniontown, has resigned and returned about February 1 to Pittsburg.

The First National Bank of Dunbar, Pa., is a new institution started in February. It has \$50,000 capital stock and \$12,500 surplus.

During the last week there has been activity around Indian Creek, in Springfield township, Fayette county, where the Mountain Water Supply Co., composed of Philadelphia parties, is preparing to erect a mammoth reservoir which is said to be one of several to supply the P. R. R. and B. & O. Railroads. Nearly all of the necessary rights of way have either been bought outright or bonds filed to condemn as much of the land as needed for the overflow and pipe line from the dam. It is also thought the company may eventually furnish water for Connellsville. The company is closely allied with the American Pipe Manufacturing Co., of Philadelphia, of which Geo. M. Bunting is vice president and treasurer.

James R. Barnes, of Uniontown, who is a very extensive owner of coal lands in Greene and Washington counties, together with his wife, entertained about 250 guests the night of February 23 at a reception in honor of their daughter, Miss Estella Barnes. It was an affair which in handsomeness and appointments and in all ways has not been surpassed in Uniontown for years.

NEW SHIPPING YARDS.

The Philadelphia & Reading Railway Company have made inspections for a coal shipping yard on a level plateau at St. Clair, a mile in width. The company will abandon practically the yard at Paloo, which has been used as a shipping point for this region for the past 50 years.

WHEELING LETTER.

By W. H. Woodruff.

The long-anticipated taxation of coal by the West Virginia legislature at its regular session has not materialized, and the probabilities are there will be no extra duties imposed upon this highly beneficial West Virginia product. The tax legislation bills have been so bandied back and forth, so utterly befuddled by criss-cross motives and influences, that it is hard for the average West Virginia legislator to determine where he is "at" on the coal question. First, it was a special tax graded according to the size of the mine, ranging between \$100 and the Lord knows what maximum, then it was an inspection tax, under which mine owners were compelled to pay according to tonnage and finally some other features were suggested. Coal tax legislation went the way of the proposed special tax on oil. When that was broached, subtle wires were pulled, the legislative manakin jerked spasmodically, and the next thing the audience knew oil and coal taxes had shifted from view as the little pellet beneath the shells of the country fair fakir. The legislature's regular session is a thing of the past, and unless the coal tax bobs up in an extra session, there will likely be no further effort to place a financial embargo on the state's most valuable output. Thus endeth the first chapter of tax reform in West Virginia. Friends of coal men assert there will be no further installments of the story.

Little is doing in coal transportation circles, besides the usual shipments of fuel for immediate consumption, manufacturing and railroad. Shipments westward are heavy considering the source of demand. The roads running out of this state are taking large orders to Cleveland and Chicago, points of increasing importance in distribution, and the situation is one that is easily gauged. General demand for coal is better than usual, but since lake shipments are not the vogue, roads are not congested. It is therefore anomalous that there is still heard clamorous complaints against alleged unfair furnishing of cars. The operators along the Ohio, particularly those known as independents on the Ohio state side of the river, are claiming usual shortages, and some serious squabbles are on hands, smaller dealers threatening to sue. The governor's recommendation, made to the West Virginia legislature, that there be some method devised of regulating car supplies, is having the effect of stimulating the independents to new action, and they have taken heart. In the Federal courts of this district one or two suits are pending the determination of which will show conclusively what relief the Federal statutes can afford, and just how far the railroads may go in any attempt, real or imaginary, to cut down a mine's car supply.

The Lorain Coal & Dock Co., which owns several valuable properties in the Wheeling

district, it is announced, has just purchased another important mine—the Conesville, near Coshocton, Ohio. The company has offices at Bridgeport, opposite this city, and has a large output in the immediate vicinity of Wheeling.

Among the new coal concerns just formed in the Panhandle is the H. L. Seabright Co., of Wheeling, to lease, hold and operate coal properties. The incorporators are all well known coal men—H. L. Seabright, W. J. Hoburg, Charles A. Seabright and Henry A. Nolte, all of Wheeling; and R. M. Gilleland, of Bellaire, Ohio. Mr. Gilleland is one of the most versatile business men in the valley, so far as variety of enterprises is concerned. He owns large glue works in Wheeling, owns the Benwood & Bellaire bridge concern, and has large coal holdings. He is a type of the busy man in his most strenuous phase.

In the Fairmont field conditions prevail such as were features of last week. On several days the first part of the month the car supply fell far short of the average and the officials announced that they would take energetic steps to get more in the future. The coal company's management states that it has on the books large orders which cannot be filled under any circumstances with the car supply as it is now. Were supplies anything like they should be several hundred more cars daily would sweep out of Fairmont yard.

The Friends of Homan Pitt, of the Hutonsville Lumber Co., regret to learn that his son, a 16-year old lad, met with a terrible death a few days ago, falling across a circular saw. The boy was so badly mangled that he died in a few minutes.

The annual report of the shipments of Cumberland coal shows an output of nearly 6,000,000. The West Virginia Central output of coke is increasing amounting the past year to nearly 300,000 tons. In the Cumberland report is included the product of the George's Creek, and the Cumberland districts.

Roy Zeek, who has been temporary superintendent of the Mohawk Coal & Coke Co., for the past 2 months, has returned to Worth, W. Va., and resumed his post as bookkeeper for the Indian Ridge Coal & Coke Co.

J. U. Booth quits the commissary department of the Indian Ridge Coal Co., and goes in the mines in a responsible position.

Frank Gordan, buyer for the Roanoke Coal & Coke Co. has recovered from a serious illness.

The Zenith Coal & Coke Co. has just installed a large air compressor in its Zenith, W. Va., plant, and is fast adding other new, improved machinery. The company will begin construction of 100 ovens in a few days.

T. S. Gosnay has resigned as superintendent with the Zenith Co., and goes to the Mohawk Company, where he will be mine foreman.

George Moody has resigned his position with the Spring Coal & Mining Co., and will enter business elsewhere.

Wellington Thomas has purchased the timber of J. W. Shaw and Lewis Rice & Sons, in the Cameron field. Thomas Bros. will move their mill from Washington and cut the timber on the tract.

The Moorhead Coal Co., of Pittsburg, has just acquired from D. H. Piersoll, of Bentleyville, Pa., 3,000 acres of land for coal purposes in Hancock county, W. Va., for approximately \$350,000. Big mines and tipples are to be opened.

COAL COMPANY IN RECEIVER'S HANDS.

The Hart Coal Company, which owns and operates the coal mines at Franklin Station, Ohio, a short distance west of Bellaire, is now in the hands of a receiver, who will take charge of the company's business and wind up its affairs.

The mines were purchased by the above company from Mr. Owen Meehan, of Bellaire, some time ago, and they were operated very extensively until about three months ago, when they were leased by Columbus parties, who have since kept them in operation.

The Hart Company has been in considerable trouble for some time past, as a result of a disagreement among the stockholders, and it was finally decided that the only way out of the difficulty was to wind up its affairs. A petition was presented to Judge Hollingsworth in the Common Pleas court at St. Clairsville asking for the appointment of a receiver, which was granted, and Attorney Chas. J. Lynch, of Bellaire, named. Mr. Lynch will assume charge of the business at once, but will require some time to close up its affairs.

PHILADELPHIA OPERATORS**Capture Order For 1,000,000 Tons For B. & M. Road.**

Philadelphia coal operators obtained one of the largest coal contracts of the year. The Boston & Maine Railroad has placed an order with operators here for 1,000,000 tons of bituminous for use in its locomotives, and the greater part of the order will be shipped from this port.

The names of the successful bidders have not been made public but the contract was taken away in sharp competition from West Virginia coal operators, who use Newport News and Norfolk as their tidewater points. The Boston & Maine has 989 locomotives and the consumption is estimated at more than 100,000 tons a month. The order aggregates about \$1,000,000. Contracts for transportation by water will be awarded within a few days.

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WEST VIRGINIA NOTES.

By Special Correspondent.

Coal operators of the Fairmont but more particularly the subordinate Wheeling, or Panhandle district, regret the refusal of the railway traffic association, at its recent Pittsburg meeting, to reduce the freight charge differentials between both sides of the Ohio river, which gives the Ohio men the advantage of about 25 cents a ton over the Wheeling competitors, on hauls to the lakes and the west. Agitation for wiping out or equalizing this difference has been keen for 3 years and the determination of the railroads to renew last year's rates has naturally been received with poor grace.

The railroad phase of the trade continues to be the paramount question. There is no let up to the clamor for more cars. Mines are worked according to the car service, which is 40 per cent. of normal. This is a fair average for the Fairmont, New River and Pocahontas districts, including the auxiliary fields. Less complaint comes from the Pocahontas section, which is traversed by the Norfolk & Western road, where probably the railroads and mines work in greater harmony than elsewhere.

In that field there is a strong selling pool enjoying a large tidewater trade, in particular, and the combination is so perfect that there are not the little differences existing over cars that mark the other sections where independent operators have themselves to rely on. The Castner, Curran & Bullit agency controls most of the Pocahontas output.

In the northern part of West Virginia the fight for cars might be designated as fierce. Protests are filed almost daily with the head Baltimore & Ohio officials, who certainly have their troubles these days. One amusing story current is that the Fairmont people managed to outwit their brethren across the Ohio river by capturing on the return trip a hundred or more cars loaded with Eastern Ohio coal, but which were sent back over another division into West Virginia instead of to the Ohio men who enjoyed them for one brief loading. How true this is cannot be exactly shown, but it finds general credence, and in consequence considerable is heard about the evils of railroad discrimination.

Notwithstanding the agitation for more cars, the fact remains that the market is in poor shape. Run of mine for Fairmont is quoted at 95 cents and 90 cents, but there are grounds for believing this price is shaved at times to meet exigencies. On every hand there is a sharp contest for trade, so that sometimes it looks like the cries about lack of cars are merely covering up lack of orders, but this can be true only to an extent.

At Huntington, W. Va. there is a car-making plant, which within the last week or two has received a 200-gondola order from the Coal & Coke road, comparatively

a new railroad, and another order from the Kingwood & Morgantown is on the tapis. Within the present month the Chesapeake & Ohio gave a 500-car order, besides an order for a dozen engines of the big type.

A spurt in coal land deals in West Virginia has lately developed in contrast to a previous period of remarkable dullness, which, in turn, followed a year of gigantic operations, much of them based on the rumors of the Wabash Railroad's prospective routes. A large tract near Tunnelton, Preston county, has been sold principally to the Orr Coal & Coke Co.; a 25,000 acre tract, known as the Burr-Wakeman, on Coal and Spruce rivers, to a New York syndicate, and some minor deals,

Messrs. Jones and Dunn, of Scranton, Pa., heading a Pennsylvania group, organized as the Cranberry Fuel Co., of Beckley, W. Va., have secured several thousand acres in the New River field and have options on the contiguous Piney Creek branch, presaging an extensive business. Recent charters granted were to the Mauley Coal Co., office at Huntington, property at Logan county; Tristate of Pittsburg, property in Brooke county, W. Va., these being the most important.

In the lumber trade the principal development has been the purchase of a 13,000 acre timber tract in Nicholas county, by Gen. Geo. W. Curtin, the recognized lumber king of West Virginia. The land is on the line of the West Virginia Central Railroad and General Curtin will soon begin to market the timber.

At Bolar, Va., just over the state line, the Hot Springs Lumber Co. has just opened a mill that will cut 25,000 logs a day. They are taking options on timber and mineral lands in the surrounding territory and have charter grants for a branch railroad up Jackson river, running from the Chesapeake & Ohio. Pittsburg men are interested in the concern.

For a \$400,000 consideration Henry Spies has sold his timber holdings in Webster county and a narrow gauge railroad up Hacker valley to the Butts, McCormick & Wilson Co.

Fire at Davis did \$5,000 damage to the Blackwater Lumber Co., and timbermen along the Little Kanawha river lost much in logs carried out by rushes of ice on sudden rises.

May 1, the Hogg Lumber Co. will begin to cut on a 1,500-acre timber tract on Droop mountain in Fayette county, just purchased. The job will take 6 years, it is estimated.

NEW WEST VIRGINIA MINES.

Davis Elkins and Richard C. Elkins, sons of Senator Elkins, have bought machinery to install in the coal mines at Bretz, W. Va., on the Morgantown & Kingwood railroad, owned by their father.

There will be big developments all along the railroad. At Masontown coal bins and tipples are being built at the mines. The

contract has been let for the erection of 18 dwellings at the Richard mines at Richard. Senator Elkins owns the mines at Bretz, Masontown and Richard.

INTERNATIONAL POWER CO.

Gets Controlling Interest in Alabama Consolidated Coal and Iron Co.

It is announced that the International Power Company has purchased sufficient shares to give it a controlling interest in the Alabama Consolidated Coal and Iron Company. The Alabama Consolidated Coal and Iron Company owns coal, iron and limestone sufficient for its needs for many years to come and has almost unlimited room for expansion. Allowing for fixed charges and dividends on the preferred stock, the company is said to be earning from 15 to 20% on its common stock. It is expected that the earnings of the concern will be sufficient to pay nearly 6% on the outstanding common stock of the International Power Company.

The Tennessee Coal & Iron Company's directors held a meeting February 20, and issued the statement regarding talk of the merger of southern iron and steel companies.

"The daily press continues to report that this company has a representative negotiating for its amalgamation with other iron companies. We deem it wise at this time to place on record that no such negotiations have been authorized by the board of directors and that none of its officers are aware of such negotiation."

TO MINE COAL ON SURFACE.

Novel Undertaking in Pennsylvania Anthracite Region.

Open-air mining of anthracite on the largest scale ever known in the state is to be started at once by the St. Clair Coal Company. This company will strip 3,000,000 cubic feet of earth, which will enable them to mine enormous quantities of coal from the surface, a novel condition for Schuylkill miners.

Some of the best veins in the anthracite region will be tapped by these workings, and the fact that the mining will all be done by daylight will considerably decrease the cost. The veins in this section run close to the surface, which renders mining by this method profitable, although only two miles away is the Pottsville shaft, where the Reading Company spent \$500,000 to sink a shaft 1,800 feet deep, and to find coal in profitable quantities.

We want agents to solicit subscriptions for "Coal and Timber." Liberal commission. Write for terms. Coal and Timber Publishing Company, 801-2-3 Arrott Building, Pittsburg, Pa.

MINE INSPECTORS' BOARD**Will Meet in Pittsburg, March 14.**

The Mine Inspectors' Board will meet in Pittsburg, March 14, for the purpose of examining candidates for the position of mine inspector. The committee is composed of George S. Baton, mining engineer, of Pittsburg; George Whyel, mining engineer, of Uniontown; Edward Hughes, Rimersburg, James Delves, Munson Station, and J. W. Donaldson, of New Alexandria.

A meeting of the board was held in Pittsburg, February 13, at which the board was organized by electing Mr. Baton president and Mr. Whyel secretary. The committee is appointed for a term of 4 years and Mr. Whyel is now serving his third term.

The examinations will open March 14, and will be continued for the following 4 days. There are 15 mine inspectors to be appointed and it is expected that there will be at least 100 candidates. The appointments will be made by Gov. Pennypacker upon recommendation of the committee. Probably the most important feature of the work of the committee this year will be the recommendation to the Governor that additional mine inspectors be appointed.

It is believed that if the number of bituminous mine inspectors were increased the number of mine accidents in Pennsylvania would be greatly reduced. According to the laws of the state one mine inspector is not required to look after more than 80 different mines. Some of the mine inspectors at present cover territories in which there are from 90 to 100 mines. They are obliged to make a certain number of visits each year, and make a report to the chief of the bureau of mines. It is said that it will require 2 or 3 more inspectors to thoroughly cover the mining districts in this state. Mr. Whyel stated that it was generally believed that the mines in Pennsylvania contained far more gas than the mines of any other state, and although there were many more inspectors in this state than in any other, there was still not enough to thoroughly inspect the coal fields.

MINERS' UNION SUED.**Alabama Non-Union Miners Demand \$147,000 Damages.**

Twenty-one suits amounting to \$147,000 have been filed here. The suits were for \$7,000 each and were filed by the non-union miners at Brookwood, 16 miles north of Tuscaloosa, Ala., against the United Mine Workers of America.

The plaintiffs claim that during the month of October last the local organization held several mass meetings, the result of which was a demand upon the Alabama Consolidated Iron & Coal Company to dismiss from their mines all non-union workers, and that

if they should fail to grant their request a strike would be the result, and that on account of heavy contracts which the company was compelled to fill, knowing that a strike would greatly retard their output, they were compelled to do as the union miners demanded. They allege that for this reason on November 10 they were turned out of their homes and many of them deprived of the necessities of life.

MAKE NO SHIPMENTS.**Enough Water to Send Out Coal, But Rivermen Refuse to Take Risk.**

For the first time in years Pittsburg rivermen are confronted by a situation that prevents them from taking out tows of coal when there is enough water in the harbor and upper Ohio river to permit shipment. The gauge at Davis Island dam February 28, registered 7 feet and rising, while the marks at the Monongahela wharf showed 5 feet. At Herrs Island dam there was 5.4 feet and slowly rising.

A stage of 7 feet at Davis Island dam is enough to let out the light towboats and coal fleets, and light barges. However, there is no movement to ship coal, although there are about 5,000,000 bushels ready for shipment. The risk which would be taken if a shipment was attempted now is too great on account of the gorges in the Ohio river, and the ice which may come down from the Allegheny and Monongahela rivers at any minute. To get the towboats and barges caught between these two forces of ice would mean ruin. Until the gorges move out of the Ohio river there will be no attempt to get the coal out.

The slight movement of the gorge in the Ohio river at Wheeling Island February 26, has placed much river property in danger. There is over 15 feet of water at Wheeling and the river is still rising. At Bellaire the gorge moved 50 feet. Another break occurred at Boggs Island and the gorge moved down against the Bellaire bridge gorge. Movements are also reported from Steubenville and Wellsville.

Among the boats in danger is the H. K. Bedford, owned by Captain Gus Franz, and now being operated in the Parkersburg-Wheeling trade. The boat is lying just below the Empire Coal Company's tipple at Bellaire. Below the Bedford is the Bessie Smith. Crews are being kept on both boats day and night, waiting for the final breakup.

—The Auld Run Coal Co., Ebensburg, \$25,000, has been incorporated; directors, M. B. Courtright, Philadelphia; Frank J. Leib, Vicktown; William M. Smith, Thomas A. Estep, John E. Evans, Ebensburg.

—Cleveland capitalists are reported to be leasing land extensively in the vicinity of North Georgetown, Ohio, with the end in view of making a thorough test for coal.

MUST HAVE CERTIFICATES**Proposed Law Requires Applicants for Employment to Pass Examinations in English Language.**

A bill of vast importance to the coal miners of the Pittsburg district, as well as elsewhere in the bituminous regions of the state, has been introduced in the House at Harrisburg. It is radical in its provisions, but, if enacted, will safeguard the miner in regard to life and limb, as well as incidentally protect him from cheap foreign competition. S. J. Smith, of Indiana county, is the sponsor of the measure.

The bill proposes a mine examining board for the soft coal regions. The examining board is to consist of 5 practical miners in each of the nine inspection districts, and the members of the examining board are required to put a series of questions to those who may apply for work at any of the soft coal mines. The questions must be answered correctly in the English language, or the applicant will be refused a certificate, which he must have in order to secure employment.

Should the bill become a law it would not be lawful to employ a miner who had not been supplied with a certificate by the board of examiners. The examining board will be required to meet at least once a month, giving due notice of time and place of meeting, and shall be empowered to charge 50 cents for each certificate issued. The members of the examining board are to be paid \$3 per day for actual service and all necessary expenses.

The measure does not apply to those already employed in the various soft coal mines as their terms of service are accepted as sufficient qualification. The bill is almost identical with the law now in force in the hard coal regions and the members of the boards are to be appointed by the courts having jurisdiction in the various districts.

PENNSY ANSWERS SUIT.**Declares It Has a Valid Defense in \$2,000,000 Rebate Case.**

Affidavits of defense have been filed in the United States Circuit Court, Philadelphia, by the Pennsylvania Railroad Company in the \$2,000,000 rebate suits brought against it recently by the Pennsylvania Coal & Coke Company and the Webster Coal & Coke Company. The affidavits made by Lewis Nelson, secretary of the Pennsylvania Railroad Company set out that the company has a defense to the whole of the plaintiffs' claims.

The Pennsylvania Railroad Company contends that it is not required to file a more specific defense because the cause of action does not arise ex-contracte.

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INSPECTORS' REPORTS

Pennsylvania Bituminous Districts, Year
Ending December 31, 1904.

Thirteenth District.

OPERATOR.	Tons Produced Net.
Pittsburgh Coal Co.	3,500,872
Monongahela River Consolidated Coal and Coke Co.	1,618,096
United Coal Co.	544,704
Pittsburgh-Buffalo Co.	441,187
Patterson and Robbins	349,029
Blaine Coal Company	333,000
Mifflin Coal Company	116,565
Youghiogheny and Ohio Coal Company	115,193
Lynne Coal Company	74,091
Crescent Coal Company	63,898
Lake Shore Gas Coal Company	45,080
Glassport Coal Company	18,400
The Peoples Coal Company	18,195
Domestic Coal Company	1,476
W. S. B. Hays	9,803
Monessen Coal and Coke Company	7,446
Total tonnage	7,269,735

FIFTH DISTRICT.

Mines in district	76
Mines in operation	76
Tons of coal shipped to market	1,121,768
Tons used at mines for steam and heat	213,711
Tons sold to local trade and used by employes	96,071
Tons used in the manufacture of coke	7,154,326
Tons of coal produced	8,585,876
Tons of coke produced	4,952,126
Coke ovens in district	12,276
Coke ovens in operation	11,680
Tons of coal produced by pick mining	8,141,782
Tons produced by compressed air machines	294,228
Tons produced by electrical machines	149,866
Persons employed inside of mines	7,222
Persons employed outside, including coke workers	5,018
Persons employed at manufacture of coke	3,466
Fatal accidents inside of mines	39
Fatal accidents outside	2
Non-fatal accidents inside of mines	51
Non-fatal accidents outside	None
Tons of coal produced per fatal accident in- side	373,299
Persons employed per fatal accident inside	314
Persons employed per fatal accident outside	2,509
Persons employed per non-fatal accident inside	142
Persons employed per non-fatal accident outside	None
Wives made widows by fatal accidents	15
Children orphaned by fatal accidents	26
Steam locomotives used inside of mines	None
Steam locomotives used outside	24
Compressed air locomotives used inside	None
Compressed air locomotives used outside	None
Electric motors used inside	5
Electric motors used outside	15
Fans used for ventilation	54
Furnaces used for ventilation	12
Gaseous mines in operation	41
Non-gaseous mines in operation	35
New mines opened	2
Old mines abandoned	1

FOURTEENTH DISTRICT.

Westmoreland Coal Company	1,768,959
New York and Cleveland Gas Coal Company	1,498,136
Pittsburg Coal Company	455,987
Penn Manor Shaft Company	492,100
Penn Gas Coal Company	408,633
Manor Gas Coal Company	341,466
Keystone Coal and Coke Company	283,595
Pittsburgh Plate Glass Company	209,026
Pennsylvania Salt Manufacturing Company	185,522
Leechburg Coal and Coke Company	132,875
Osecola Coal Company	130,494
State Line Coal Company	121,757
W. B. Skelly Coal Company	102,318
Cornell Coal Company	95,394
McPetridge Brothers	88,963
Spring Hill Gas Coal Company	85,000
Allegheny Coal Company	75,000
Pine Run Coal Company	61,729
Valley Coal Company	55,032
Lucesco Coal Company	51,139
Apollo Coal Company	41,274
Louis Coal Company	40,997
Allegheny Coal and Coke Company	40,776
Bessemer Coal and Coke Company	36,719
Hamilton Coal Mining Company	35,825
West Penn Mining Company	35,371
Valley Camp Coal Company	33,449
McKean Coal Company	33,449
Jacob Weinman and Sons	27,784
Thompson Run Coal Company	26,819
Butler Junction Coal Company	24,140
Paulton Coal Mining Company	20,334
Bowman Brothers	18,296
Braeburn Steel Company	17,423
Penn Fuel Ice Company	16,000
Brackenridge Coal Company	13,300
Island Run Coal Company	10,056

OPERATOR.	Tons Produced Net.
Sterling Mining Company	7,688
Geoff Kirby Coal Company	6,632
W. F. Clayton	6,221
Steel and Scott	6,000
Central Coal and Coke Company of Pitts- burgh	6,000
Ben Franklin Coal Company	5,943
A. Davidson	5,357
James Watson	4,000
Allegheny River Coal Company	3,861
Douglas-Whistler Brick Company	3,342
Darlington Brick and Mining Company	1,960
	71,711,198
Mines in district	76
Mines in operation	69
Tons of coal shipped to market	6,732,244
Tons used at mines for steam and heat	297,547
Tons sold to local trade and used by employes	141,607
Tons used in the manufacture of coke	None
Tons of coal produced	7,171,198
Tons of coke produced	None
Coke ovens in district	44
Coke ovens in operation	None
Tons of coal produced by pick mining	4,659,819
Tons produced by compressed air machines	837,273
Tons produced by electrical machines	1,654,106
Persons employed inside of mines	*8,307
Persons employed outside, including coke workers	1,061
Persons employed at manufacture of coke	None
Fatal accidents inside of mines	198
Fatal accidents outside	3
Non-fatal accidents inside of mines	50
Non-fatal accidents outside	6
Tons of coal produced per fatal accident in- side	36,218
Persons employed per fatal accident inside	42.8
Persons employed per fatal accident outside	354
Persons employed per non-fatal accident in- side	170
Persons employed per non-fatal accident out- side	177
Wives made widows by fatal accidents	82
Children orphaned by fatal accidents	98
Steam locomotives used inside of mines	7
Steam locomotives used outside	3
Compressed air locomotives used inside	2
Compressed air locomotives used outside	None
Electric motors used inside	12
Electric motors used outside	None
Fans used for ventilation	44
Furnaces used for ventilation	26
Gaseous mines in operation	21
Non-gaseous mines in operation	58
New mines opened	4
Old mines abandoned	7

* This does not include the number in Harwick at
time of explosion.

ELEVENTH DISTRICT.

Mines in district	66
Mines in operation	59
Tons of coal shipped to market	973,881
Tons used at mines for steam and heat	161,232
Tons sold to local trade and used by employes	111,283
Tons used in the manufacture of coke	5,321,227
Tons of coal produced	6,567,623
Tons of coke produced	3,605,858
Coke ovens in district	10,256
Coke ovens in operation	9,000
Tons of coal produced by pick mining	6,081,623
Tons produced by compressed air machines	176,000
Tons produced by electrical machines	310,000
Persons employed inside of mines	5,443
Persons employed outside, including coke workers	3,498
Persons employed at manufacture of coke	2,394
Fatal accidents inside of mines	15
Fatal accidents outside	None
Non-fatal accidents inside of mines	80
Non-fatal accidents outside	3
Tons of coal produced per fatal accident in- side	437,842
Persons employed per fatal accident inside	363
Persons employed per fatal accident outside	None
Persons employed per non-fatal accident in- side	68
Persons employed per non-fatal accident out- side	1,166
Wives made widows by fatal accidents	12
Children orphaned by fatal accidents	19
Steam locomotives used inside of mines	None
Steam locomotives used outside	33
Compressed air locomotives used inside	3
Compressed air locomotives used outside	None
Electric motors used inside	3
Electric motors used outside	None
Fans used for ventilation	50
Furnaces used for ventilation	7
Gaseous mines in operation	26
Non-gaseous mines in operation	33
New mines opened	2
Old mines abandoned	8
Mines in district	73
Mines in operation	62
Tons of coal shipped to market	7,100,443
Tons used at mines for steam and heat	111,865

Tons sold to local trade and used by employes	48,427
Tons used in the manufacture of coke	None
Tons of coal produced	7,269,735
Tons of coke produced	None
Coke ovens in district	None
Coke ovens in operation	None
Tons of coal produced by pick mining	2,618,562
Tons produced by compressed air machines	734,534
Tons produced by electrical machines	3,916,639
Persons employed inside of mines	10,274
Persons employed outside, including coke workers	1,366
Persons employed at manufacture of coke	None
Fatal accidents inside of mines	34
Fatal accidents outside	4
Non-fatal accidents inside of mines	67
Non-fatal accidents outside	2
Tons of coal produced per fatal accident in- side	213,816
Persons employed per fatal accident inside	302
Persons employed per fatal accident outside	342
Persons employed per non-fatal accident in- side	153
Persons employed per non-fatal accident out- side	683
Wives made widows by fatal accidents	22
Children orphaned by fatal accidents	51
Steam locomotives used inside of mines	None
Steam locomotives used outside	6
Compressed air locomotives used inside	2
Compressed air locomotives used outside	None
Electric motors used inside (locomotives)	34
Electric motors used outside	None
Fans used for ventilation	50
Furnaces used for ventilation	22
Gaseous mines in operation	36
Non-gaseous mines in operation	26
New mines opened	1
Old mines abandoned	3

MUCH DAMAGE DONE.

Owners of Vessels Tied up at Cincinnati
Fear That Destruction Will Be
Widespread.

Thousands of dollars' worth of property has been destroyed at Cincinnati as a result of the ice gorge, and much other property is in danger. According to reports from there, the damage done since Saturday, approximates over \$100,000, the Monongahela River Consolidated Coal & Coke Co. being the principal sufferer. It is reported that the 105 barges swept away from different landings at Cincinnati, February 12, by the ice, were crushed during a movement of the jam February 25, when the ice moved 300 feet. The gorge is 75 miles long, extending from North Bend, past Cincinnati, to Moscow.

The Pittsburg and Cincinnati packet line has three steamboats at Cincinnati, the Keystone State, Virginia and Queen City. All are in danger of being crushed in the ice pack, should a sudden breakup occur.

—The Kennedy Coal & Coke Co., Johnstown, \$1,000,000, incorporated; directors: George B. Glenn, David Ott, George W. Reese, S. H. Cauffiel, Johnstown; H. H. Light, Lebanon; J. Blair Kennedy, Philadelphia.

—A mule was the cause of a strike today at the Black Creek colliery, Hazelton, Pa. A driver boy was discharged for alleged cruelty to the animal, and then the other employees numbering about 100 quit work.

—Fire at the plant of the Sharon Coke Company, Sharon, Pa., destroyed the boiler house roof and caused the sudden shutting down of the plant. The estimated loss is \$4,000 and 125 men will be thrown out of employment.

DETAILED REPORT FROM MINE INSPECTOR I. G. ROBY

NAME OF COLLIERY	Coal Consumed in Manufacture of Coke.	Total Product of Coal.	Total Production of Coke.	Coal not Consumed in Manufacture of C ke.	Total Number of Ovens.	Number of Men in Mine.	No. of Men Em-ployed outside of Mine.	Total No of Mem-ber employed	Number of Days Worked.
H. C. Frick Co.									
Leisurring	288,552	301,386	191,000	12,834	500	220	160	380	292
Youngstown	108,452	118,534	72,000	10,081	241	105	62	167	288
Lemont No. 1.....	149,582	170,976	99,000	21,394	227	100	82	182	308
Lemont Nos. 2 and 3.....	257,046	264,240	171,000	7,194	350	158	129	287	308
Leith	205,380	218,311	136,000	12,931	308	172	153	326	307
Redstone Nos. 2 and 3.....	195,974	262,057	130,000	66,083	445	152	133	285	307
Oliphant	164,850	175,560	109,000	10,710	252	125	98	223	299
Whynn	63,154	66,994	42,000	3,840	130	79	51	130	253
Kyle	193,843	201,994	29,000	8,151	306	163	129	292	301
Continental No. 1.....	244,034	251,007	162,000	6,973	400	180	109	289	288
Continental No. 2.....	199,827	209,370	133,000	9,543	300	141	92	233	292
Continental Nos. 3 and 4.....	207,846	218,994	138,000	11,148	300	122	103	245	305
Footdale	318,833	348,110	212,000	29,277	400	195	155	350	307
Buffington	268,852	269,082	179,000	230	400	204	122	326	311
Lambert	324,246	341,312	216,000	17,066	432	245	159	404	306
Leckrone Nos. 1 and 2.....	442,499	475,173	294,000	32,674	516	247	189	436	307
Ediborn	234,416	248,795	156,000	14,379	500	223	94	317	305
Gates Nos. 1 and 2.....		357,236		357,236		288	38	326	307
Smiley		73,182		73,182		89	15	104	234
Shoaf		5,718		5,718		45	23	68	78
Yoekrun		275		275		72	29	101	78
Total.....	3,867,387	4,578,306	2,569,000	710,919	6,007	3,346	2,125	5,471	2,753
Oliver & Snyder Steel Co.									
Oliver No. 1.....	284,384	295,478	189,589	11,094	328	232	196	428	281
Oliver No. 2.....	268,607	273,767	179,071	5,160	480	306	210	507	225
Oliver No. 3.....	213,835	220,008	142,567	6,172	300	208	115	323	306
Total.....	766,826	789,253	511,227	22,426	1,107	746	512	125	271
W. J. Ramsey									
Rivere, Nos. 1 and 2.....	266,227	274,693	212,696	8,665	650	287	203	490	310
Mt. Braddock	180,000	199,800	133,200	19,800	440	186	123	309	280
Total.....	446,227	474,493	345,896	28,466	1,090	473	326	799	295
Colonial Coke Co.									
Colonial No. 1.....	264,310	267,280	202,888	2,970	402	242	207	449	297
Colonial No. 2.....		97,049		97,049		88	20	108	223
Total.....	264,310	364,329	202,888	100,019	402	330	227	557	260
Sharon Coke Co.									
A. L. Kuster & Co.....	196,224	206,380	163,500	10,156	319	194	106	300	285
Bessemer Coke Co.....	186,072	194,175	134,988	8,103	590	299	527	826	259
Atlas Coke Co.....	181,473	186,482	155,369	5,009	220	121	111	232	308
Connellsville Central Coke Co.....	168,365	184,646	112,244	16,281	150	88	69	157	312
Fayette Coke Co.....	164,725	171,617	125,535	6,892	200	100	60	160	311
Riverview Coal & Coke Co.....	97,938	133,523	65,292	35,585	222	126	97	223	275
Stewart Iron Co., Ltd.....	103,667	109,237	90,139	5,570	155	95	83	178	294
Puritan Coke Co.....	62,000	91,400	40,547	29,400	162	73	66	139	259
Joseph Wharton.....	70,032	70,483	48,263	451	86	47	36	83	306
Masontown Coal & Coke Co.....	59,485	61,331	43,609	1,846	84	40	28	68	309
Penn Coke Co.....	39,809	60,149	26,539	20,340	82	53	53	106	309
Isaac Taylor & Co.....	59,361	59,913	39,574	552	80	49	27	76	234
Brier Hill Coke Co.....	51,911	58,500	35,275	6,589	200	100	80	180	184
Geneva Coke Co.....	52,000	55,826	35,000	3,826	132	52	40	92	285
Orient Coke Co.....	39,388	46,344	25,500	6,956	300	148	76	224	122
Gilmore Coke Co.....	45,000	45,075	23,000	75	50	25	25	50	232
Hero Coal & Coke Co.....	9,000	39,465	6,000	30,465	30	38	17	55	311
Whyel Coke Co.....	38,488	38,985	25,659	497	40	25	23	48	291
Sackett Coke Co.....	27,360	36,596	17,100	9,236	50	39	26	65	171
Cheat Haven Coal Co.....		36,445		36,445		92	15	107	138
E. A. Humphries & Co.....	33,975	34,695	24,981	720	54	42	24	66	257
J. R. Carothers.....	27,200	28,000	20,400	800	32	10	15	25	300
H. R. Sackett Coal & Coke Co.....	23,238	26,304	14,340	3,066	30	23	17	40	239
Fayette Mining Co.....		25,000		25,000		26	4	30	234
Rich Hill Coke Co.....	23,296	23,496	14,560	200	56	24	24	48	190
Newcomer Coke Co.....	14,400	14,451	11,000	51	30	11	11	22	218
Sunshine Coal & Coke Co.....		10,912		10,212		19	6	25	106
Smithfield Coal & Coke Co.....	7,200	10,125	4,800	2,925	12	8	6	14	250
Eleanor Coal and Coke Co.....	4,171	9,761	3,128	5,590	40	27	20	47	153
O'Connell Coal & Coke Co.....	9,200	9,275	5,750	75	35	13	12	25	182
Percy Mining Co.....		8,500		8,500		49	6	12	250
Republic Iron & Steel Co.....	7,690	7,790	5,720	100	138	65	60	125	41
Bute Run Coal & Coke Co.....	6,780	6,780	5,085		20	13	9	22	117
William Barton.....	327	5,105	218	4,778	21	6	6	12	205
John Snider and Sister.....		3,996		3,996		8	2	10	273
S. S. Smith & Co.....		2,498		2,498		15	4	19	171
Jacobs Creek Coal Co.....		750		750		11	3	14	27
Total.....	7,154,326	8,585,876	4,954,126	1,431,550	12,276	7,222	5,018	12,240	234

MISCELLANEOUS NEWS NOTES.

—The power house of the Keystone Mining Co., at Catfish Run, Pa., was destroyed by fire on February 17.

—The ownership of the Wilfred mine, near Currysville, Ind., has passed to the Dering Coal Co., of Chicago.

—The Wheeling & Lake Erie Coal Mining Co., Cleveland, has increased its capital stock from \$100,000 to \$160,000.

—Two miners were injured by an explosion in Youghiogheny No. 2 mine of the Pittsburg Coal Company, at Boston, Pa.

—The coal chute and tippie of the Cleveland & Pittsburg R. R., at Wellsville, Ohio, was partially destroyed by fire February 17.

—The Belleville & O'Fallon Coal Mining Co., Belleville, Ill., with capital of \$1,000 has been incorporated. They will mine coal.

—The Cumberland & Georges Creek Coal Company has bought additional coal lands in Garrett and Allegany counties, Maryland.

—The Great Lakes Coal Company has let the contract for the construction of 150 houses at the mines at Kaylor, Armstrong county, Pa.

—The famous old sand farm in Round Bottom, near Moundsville, W. Va., has become the property of the Chestnut Hill Sand & Coal Company. Consideration \$50,000.

—It is said that the Lackawanna Steel Company is trying to secure a permanent supply of the coke in the Connellsville region and has made offers for several properties.

—The Scottdale furnace, operated by Corrigan, McKinney & Co., of Cleveland, employing 400 men, has voluntarily advanced the wages of their employees 10 cents a day.

—R. R. Hammond, second vice-president and general manager of the Chicago & Eastern Illinois Railroad, has resigned to become President of the Dering Coal Company, Chicago.

—John V. Sloan and Chester A. Glass, of Pittsburg, have purchased the coal underlying 1,000 acres in West Finley township, Pa. They had secured more than 2,000 acres only recently.

—Mr. Whetton, of Little Washington, Pa., who recently acquired some valuable coal leases in the vicinity of New Cumberland, has put 15 men to work making an entry to one of the banks.

—The Kennerly Coal & Coke Company, of Johnstown, Pa., has been incorporated by J. Blair Kennerly, George B. Glenn, George W. Reese, David Ott, S. H. Cauffel, H. H. Leght and W. J. Watkins.

—The Hinsch Coal & Coke Company, of Cincinnati, capital \$60,000, has been incorporated by Chapman R. Hinsch, Charles A. Hinsch, William A. Hinsch, Harry S. Wilson and John J. Corry.

—The Hazel Kirk coal mine at Monongahela, Pa., and the Hazel Kirk Gas & Coal Co., owned by F. M. Kirk, of Cleveland, Ohio, have been sold to Kuhn Bros., of Pittsburg, Pa., for \$1,000,000.

—The Mutual Coal Mining Company, of Butler, Pa., has been incorporated. The company will mine and ship coal. Incorporators are Frederick Rowe, H. L. Miller, Harry Hamilton, and Fred J. Hamilton.

—W. D. N. Rodgers, of Pittsburg, has conveyed to Edward W. Boyd, of Uniontown, an undivided one-half interest in a tract of coal between W. & W. Railroad and Wabash survey; consideration, \$4,000.

—A. F. White & Co., Marion, Ill., have just consummated the sale of 12,800 acres of coal lands in Williamson and Franklin counties, Ill., to the C. B. & Q. R. R. This company is now building a new line to the lands.

—Preparations for an early abandonment of the McKinley coal mine, north of Lisbon, Ohio, are being pushed forward. Mining operations have ceased and a force is now engaged in removing the equipment from the mine.

—Twelve men were badly injured by the explosion of a stationary boiler at mine No. 1 of the Providence Coal Company near St. Clairsville, Ohio. Two of the injured have since died, and three others are believed to have been fatally hurt.

—The Putnam Lumber, Coal & Planing Mill Company, Hoopston, Ill., has been incorporated with \$50,000 capital. Fuel and building material will be handled. Incorporators: Charles T. Putnam, John C. McKibben, Geo. B. Putnam.

—J. Ami Martin, of Morgantown, W. Va., has sold to The Orr Coal & Coke Co., 3,000 acres of coal of the Upper Freeport vein, lying near Tunnelton. The consideration was \$90,000. The purchasing company will begin the development of the tract at once.

—Fire, supposedly of incendiary origin, destroyed the company store of the Pittsburg & Baltimore Coal Company at its Edna No. 1 plant near Adamsburg, February 11. The loss is \$8,000. The store was stocked with big quantities of general merchandise.

—The Republic Iron & Steel Company will build 400 more coke ovens in the Connellsville region this summer, and Brier Hill Coal & Coke Company 200 and the Orient Coal & Coke Company 100. Other coke concerns will probably build new ovens, and this year promises to be a busy one in the matter of erecting new ovens.

—As a result of the merging of the Westmoreland and Penn Gas Coal Company, the New York & Cleveland Gas Coal Company will probably develop the Ringer tract near Delmont, Pa. The Turtle Creek Valley Railroad will be extended from Export to Delmont if this coal is worked.

—Pittsburg coal is becoming a scarce article in New Orleans. Reports are that it will be about the middle of March before the above named coal will reach this southern market, owing to the frozen condition of the rivers.

—Fire destroyed the tippie and entrance at the Venetia mine of the Pittsburg Coal Co. last month. The loss will be several thousand dollars. All work is stopped awaiting repairs. The company will erect a modern and up-to-date tippie in place of the one destroyed.

—Mauley Coal Company, of Huntington, W. Va., to own, buy, sell, lease and operate coal lands and produce coke, has been incorporated. Capital stock, \$100,000. Incorporators: W. R. Thompson, Z. T. Vinson, T. J. Bryan, E. M. Watts, and A. E. Bush, all of Huntington.

—John R. Carothers, of Uniontown, Pa., has bought the Hughes Deffenbaugh farm, near McClellandtown, the consideration being about \$75,000. This includes about 100 acres of surface and 50 acres of coal. Coke ovens will be erected and the work of developing will begin in the early spring.

—Almost eight millions and a half tons of coal were mined in the Second Bituminous district of Pennsylvania in 1904, according to the report of Mine Inspector Chauncey B. Ross, of Greensburg. In the production of this big total Westmoreland mined the larger share, 7,476,534 tons, 972,153 tons being produced in Indiana county.

—Robert H. Large, formerly division freight agent of the Pennsylvania Railroad at Altoona, has been promoted to the office of coal freight agent. J. G. Searles is general coal freight agent and the new office which Mr. Large assumes is as assistant to Mr. Searles. J. M. Gross succeeds Mr. Large as division freight agent at Altoona.

—Springfield Coal Company, of Clarksburg, Harrison county, W. Va., has been incorporated to do a general coal mining business. Capital stock, \$300,000. Incorporators: Jasper S. Kyle, Sheridan R. Griffin, Albert B. Van Osten, James Edward Law, of Clarksburg, and W. A. Lewis, of Smithfield, W. Va.

—The Tri-State Coal Company, of Pittsburg, Pa., chief work to be located in Brooks county, W. Va., to buy, sell, lease and mine coal and to produce coke, has been incorporated. Capital stock \$150,000. Incorporators: H. Fred Mercer, Emma Sudowsky, Edith Boyd, Wm. O. Sprout and Carl Vandervort, all of Pittsburg, Pa.

—W. J. Oliver, the Knoxville railroad contractor, who recently purchased coal property near Careyville, Tenn., is preparing to make several openings on his land. The variety of coal in the territory near Careyville is known as block coal. The Southern Railway runs within a short distance of the proposed mines.

—Sixteen of the Whalebacks of the Pittsburgh Steamship Company's fleet, the vessel division of the United States Steel Corporation, have been sold and will be taken to the Atlantic ocean to be used in the coast trade. The loss of these "pigs," as they are called, will make a heavy inroad in that famous fleet of boats, leaving but 17, 8 steamers and 9 barges in the Pittsburgh fleet.

—The Mines & Metallurgical Co., of No. 11 Broadway, New York, has been appointed the exclusive agent in the mining, metallurgical and chemical industries of the United States, Canada and Mexico for the systems effecting economy in the combustion of coal owned by the Eldred Process Co., which are already in extensive and successful use.

—Delay in shipment of material has retarded the progress of work at the new W. J. Rainey car plant, Mt. Braddock, but the works are now running full time and the first lot of 15 steel cars of the most approved pattern are being rapidly pushed to completion. A number of skilled mechanics have recently moved to Mt. Braddock and most of the handsome new houses are now occupied. The plant expects to run steadily during the coming summer.

—In the case of the Connellsville Gas Coal Company against the B. & O. Railroad Company, the court has fixed May 1, as the latest date on which the defendants may file their abstract of title and defense. This is a dispute over certain property near Wheeler, below Dunbar, which is said to be very valuable. The matter was brought in the form of a suit in ejectment.

—The Baltimore & Ohio Railroad Company have plans under consideration for extensive freight yards at Smithfield on the Fairmont branch of the Connellsville division. A heavy volume of freight now centers at Smithfield and the facilities for handling it there are poor. There is not enough track room for the loads and empties that must be daily handled as the Baltimore & Ohio's share of business originating in the lower Connellsville district.

—The Burnwell Coal Company was incorporated at Birmingham, Ala., with a capital stock of \$50,000. The officers of the company are: W. J. Francis, of Birmingham, president; Alfred Stearns, of Cincinnati, vice-president; George Mesta, of Cincinnati, secretary, and Charles F. Francis, of Cincinnati, treasurer. The company has acquired extensive coal lands in Walker county, between Cordova and Bryan, and will open mines at once, expecting to have an output of 1,000 tons within a few months.

—The stockholders of the Belton Coal & Coke Company increased the number of their directors from 5 to 9. The directorate now consists of Albert Gaddis and T. S. Lackey, of Uniontown; W. L. Neff, Dunbar; D. P. Patterson and J. C. McClenathan, Connellsville; Joseph Knapper, Johnstown; I. C. Smutz, New Haven, and J. H. Humphries, Smock; Allan D. Williams re-

signed as treasurer and was succeeded by Dr. McClenathan. The company owns 7,037 acres of coal in Marshall county, W. Va., and fronting on the B. & O. railroad near Belton.

—Severe weather has seriously delayed the work on the 200 new ovens which Patrick Reagan, of Uniontown, is building at the Bitner plant of the H. C. Frick Coke Company, at Elm Grove Pa. Mr. Reagan also has the contract to build 44 ovens for the Rich Hill Coal & Coke Company at Outcrop, Pa. As soon as the weather is more favorable the work on these jobs will be pushed as rapidly as possible.

—The last tract of hemlock timber in the vicinity of Meyersdale, Pa. has been sold to be cut and placed on the market at once. Newman Brothers, of Salisbury, have purchased one-half of the Johnson tract, midway between Salisbury and Frostburg, and already have a mill in operation on the property. The Kendall & Delta Lumber Company have purchased the other half of the tract and will begin operations immediately.

—A. A. Straub has resigned his position as real estate and claim agent of the H. C. Frick Coke Company after a service of 9 years. In partnership with J. S. Amend, a former auditor of the Frick company, Mr. Straub will soon assume management of the Smith House in Connellsville, Pa., the firm having purchased the lease of that house from H. M. Kephart, the present proprietor.

—It is reported that a deal whereby a large block of coal land in the northeastern part of Marshall county, W. Va., will pass into the possession of parties from Rochester, N. Y., is now pending and likely to be consummated the coming spring. The property is now owned by parties from Uniontown, Pa., and comprises several thousand acres. The Rochester people have had the coal optioned for some time and it is said that they recently paid \$5,000 to have the option extended until the first of next May. The deal involves about \$300,000.

—The Miller Coal Company, with \$30,000 capital, has been organized and will apply to the state for a charter. The company will operate and develop coal mines and lands in Butler county, Pa., having recently purchased the properties of the Royal Coal Company at Hilliards, on the Bessemer. The incorporators, Frederick Rowe and H. L. Miller, of Meyersdale, and Harry and Fred J. Hamilton, of Hilliards, are the principal stockholders. They are already interested as individuals in the Standard Coal Mining Company, of Hilliards, and the Erie Coal and Coke Company of Ferris.

—The Wachevia Coal Company has been incorporated with an authorized capital of \$500,000. The incorporators are: William I. Young, of Greensboro, N. C.; George H. Proctor, of New York; William C. Robinson and A. Hunter Boyd, of Baltimore, and Frederick Mertens of Cumberland, Md. This company was organized for the pur-

pose of developing the coal fields recently discovered at Walnut Cove, N. C.

—Pittsburg and New York capitalists are securing options on the lands situated along Elk Creek in Elk district, Harrison county, W. Va. These lands are adjacent in route of the proposed branch of the Baltimore & Ohio Railroad from Belington to Clarksburg. They comprise in the neighborhood of 20,000 acres and the option price is \$25 an acre on each piece of ground. The lands are underlaid with the under vein of Freeport coal. It is understood that the options will be taken up when the proposed branch railroad is commenced.

—For the past month a force of men have been engaged in making tests of the coal in King's Creek region, Ohio, covering a part of the large scope of coal land optioned some two years ago and accepted by the Hancock Coal Company, a corporation chartered under the West Virginia laws, which proves even better than the projectors had hoped for. At none of the 7 or 8 openings did they get less than 5 feet of good coal, and some of the openings developed 5 feet, 6 and 8 inches of coal. Mr. McElfresh is in the east again and those who are in touch with the workings say that the entire deal will be closed before long and a large sum of money will be distributed among the farmers of the county.

—Announcement is made that the Deering Coal Company, recently formed, has made a contract with the United States Steel corporation to furnish bituminous coal to its mills in Illinois, Indiana and Wisconsin, for a period of 50 years from April 1, 1905. The company has taken over extensive coal properties in Illinois and Indiana, principally along the line of the Chicago & Eastern Illinois Railroad. It has an authorized issue of \$5,000,000 bonds and an equal amount of stock. Of the bonds \$4,000,000 have been sold and the subscription paid in to the Federal Trust & Savings Bank, which is trustee for the bond issue and transfer agent of the stock of the company. The other \$1,000,000 of the bonds is to be held by the trustee for future betterments and additions to the property.

—The Buffalo & Susquehanna Railroad Company has recently made a trackage agreement with the Buffalo, Rochester & Pittsburgh whereby it will use the latter company's tracks between Sanley and Juneau, a distance of about 15 miles. This agreement will give the Buffalo & Susquehanna immediate access to its coal properties at Sykesville, Big Run and Troutville, where upward of 30,000,000 tons await shipping facilities. It is said that below Juneau, the Buffalo & Susquehanna interests will construct their own road through to Plomville, where a tract containing about 55,000,000 tons of coal is used. Arrangements have been made to finance the extension and to provide funds for the immediate development of the coal properties mentioned.

BILL TO PROTECT MINERS.

Requires Pipes to Be Run Beneath Floors of All Tunnels in Which Twenty Men Are Employed.

A bill introduced in the Pennsylvania legislature by Mr. North, of Jefferson, provides for conveying air to workers imprisoned in subterranean excavations in case of accident.

In all pits which shall be started for the purpose of mining coal or clay after January 1, 1906, when 20 or more persons shall be employed therein, the owners must run pipes not less than 6 inches in diameter beneath the floors of all tunnels. These pipes must connect with a main tube and open into the various headings.

While the primary purpose of the bill is the humane one of supplying pure air to imprisoned workmen, the tubes will also be used as a means of hasty communication, or as a means of transporting water in case of fire.

Mine foremen must inspect the workings of the tubes and see that the entire system is in proper shape. Inspections must be conducted at intervals of not less than 7 days, neglect to do so on the part of the foreman being a misdemeanor. The punishment will be a fine of not more than \$100 or imprisonment of not more than 90 days, or both.

CLASS LEGISLATION.

Another bill has been introduced in the Pennsylvania legislature which ought to be killed in committee. It proposed a tax of two cents a ton on all coal mined. The proceeds are to be used for educational and charitable purposes. Governor Pennypacker recommended it.

This tax will not fall on the operator but upon the consumer. It will also increase the price of Pennsylvania coal and put it at a disadvantage as compared with the coal of other states in outside markets.

Is there any good reason why every other product of the state should not also be subjected to a similar burden?

NEW ALABAMA COAL COMPANY.

The Burnwell Co. Capitalized at \$50,000, to Open Mines in Walker County.

The Burnwell Coal Company, of Birmingham, Ala., has been incorporated with a capital stock of \$50,000. The company owns between 1,200 and 1,400 acres of coal lands in Walker county, Ala., between Bryan and Cordova, on the Southern Railway, just east of the Warrior river. Engineers are already on the property preparing to open mines. The Southern Railway will put in side tracks and assist the company as much as possible in its operations. W. J. Francis is president of the company, with Allen Stearns, of Cincinnati, vice president;

George Moesta, of Cincinnati, secretary, and Charles F. Francis, of Cincinnati, treasurer. The company expects in a few months to have an output of from 500 to 1,000 tons of coal daily.

FAVOR MINE WEIGHTS OF COAL

New Rules for Weighing and Billing Coal.

New rules for the weighing and billing of coal in car loads may be adopted by executive officers of Western railroads. Practically all of them are in favor of adopting the old rule that the car load weights fixed at the mines shall be adhered to in all cases, except when the seals on box cars are found tampered with and shortage of coal is alleged by the consignee.

During and after the strike in the hard coal district many claims of shortage in weight and consequent overcharge in freight were made by consignees of coal throughout the West. The roads controlling the hard coal mines refused to consider any claims for shortage based on weights of railroad scales or those owned by consignees. The connecting roads in some cases paid claims for shortage based on other than the mine weights, but did so only as a matter of policy, to hold the patronage of big dealers in coal.

Last summer the retail coal dealers of Iowa and Nebraska, who have a strong organization, demanded radical changes in the rules of the railroads as to the weighing of coal. When threatened with a law in those two states which would require them to build and maintain at every station a scale costing about \$2,500, on which to weigh coal, the railroads agreed to discard mine weights and base freight rates and consider only as a matter of policy, to hold the patronage of big dealers in coal.

As a matter of fact, the railroads continued to make their freight charges on the mine weights of coal, but when shippers demanded it would weigh cars also on railroad track scales. In rare instances would the mine and railroad weights agree. Instead of decreasing the number of claims of dealers in coal, the new rules increased them to such an extent that now the roads are anxious to return to the rule that mine weights shall govern in all cases where error in weight or freight charges are alleged.

It is stated that many of the coal dealers are also anxious to return to the old rule, having found by experience that the mine weights are much more reliable than those obtained on track scales, with cars in motion, and also more reliable than the ordinary wagon scales.

The railroads contend that to weigh coal en route and at destination entails unnecessary and unjust expense in many ways, and results in greater inaccuracy than is possible under the rule making mine weights govern. It is claimed that under the old rule the dealers are protected from imposi-

tion because inspectors of the Western Railway Weighing Association test the scales at the mines and compare the weights given on bills of lading with the books of the mine operators, showing exactly how much coal was charged for and how much the miners were paid for, car by car. Another check on the mine operator is the fact that the soft coal production is greater than the demand, and any operator who regularly gave short weight could not long hold his customers.

"In nine cases out of ten where claims are made for shortage of coal there is no shortage," declared an official of one of the greatest coal carrying roads in the West. "The market weight of cars is rarely correct. On account of snow and ice nearly all cars weigh in winter more than they are marked. Snow and ice also affect the scales of railroads and of the coal dealers.

"It is safe to say that the average coal operator is more honest than the average retailer of coal, if for no other reason than that there are more checks on the operator. No railroad seeks to evade the payment of a just claim for loss or damage, but all the roads have a right to protect themselves against unjust claims, even if the person making them is honest and bases his claim on scales which he believes to be correct, but which are not."

EMPIRE COAL MINING COMPANY.

Annual Meeting of Stockholders Was Held in Pittsburg.

The annual meeting of the Empire Coal Mining Co. was held in its office in Pittsburg last month and the directorate for 1905 was chosen. Some routine business was transacted and the report was made that the company has been unusually successful. The directorate elected was as follows: J. R. Paull, president of the Guaranty Title & Trust Co., and vice president of the Bank of Pittsburg; R. W. Frank, president of the United Engineering & Foundry Co.; W. L. Kann, president of the Penn-American Plate Glass Co.; Jacob Kaufmann, of Kaufmann Bros.; Edward Kneeland, of the United Engineering & Foundry Co.; Lewis S. Newman, general manager of the Empire Coal Mining Co., and George Paull, purchasing agent of the company. The directors later elected the following officers for the ensuing year: President, J. R. Paull; vice president, W. L. Kann; secretary, Geo. Paull; treasurer, I. W. Frank, and general manager, Lewis S. Newman.

—The Fort Ligonier Coal Company, whose holdings are situated near Ligonier, Pa., was granted a charter at Harrisburg. The company has a capital stock of \$10,000 and the directors are: James Peters, James F. Peters and Joseph C. Head.

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W. J. MOLLISON RESIGNS

As Mine Inspector of Eleventh Bituminous District.

W. J. Mollison, who has been State Mine Inspector of the Eleventh Bituminous District of Pennsylvania since the district was created, a little over three years ago, has resigned his position.

Inspector Mollison is a veteran miner and stood highest in the competitive examination for the inspectorship when the appointment was made. He resigned to accept a position as Inspector of Mines for the H. C. Frick Coke Company. He will be assigned to the Yough region division of the company's mines, which is one of the most important districts in the Connellsville region. It includes the mines on the Broad Ford and Mt. Pleasant branch between Scottdale and Broad Ford, Adelaide, Trotter, the Leisenring plants and perhaps up the Fairmont branch as far as Uniontown. Since his appointment as inspector, Mr. Mollison has made his headquarters at Scottdale, which is designated as the district seat.

HIGHLAND COAL COMPANY

Will Operate Extensively in Stoney Creek Township.

The Highland Coal Company, organized by Johnstown citizens, will make formal application for a charter Thursday, March 9. The gentlemen named in the application are Charles Leventry, Lewis Leventry, William Leventry, Frank E. Kuhns and Frank B. Sipe. The company will be capitalized at \$25,000 and it is understood that the stock will be held largely by the incorporators.

The scene of the operations of the company will be in Stoneycreek township, just outside the city of Johnstown, Pa. A tract of about 700 acres of what is said to be the finest kind of coal land has been purchased and will be developed. Charles Leventry at present conducts a small mine on the tract, but after the charter is received the land will be more fully developed. Everything will be arranged on the most modern scale and all that is new in mines will be adopted. The coal is known as the C seam and is about 5 feet thick.

OHIO COAL AND COKE CO.

Pushing Developments at New Salisbury, O.

The Cleveland & Pittsburg Railway Company is building a spur from the main line at New Salisbury, O., near Salineville, to the mines of the Ohio Coal & Coke Company. Seventy laborers are employed in the work.

Robert Bursner, secretary of the company, reports that the engines, boilers, shaft-

ing, screenes, scales, timber, pipe and other materials to be used in fitting up the mines, are now on the scene and that the work of driving entries is progressing at a very satisfactory rate.

Mr. Bursner states that it is not yet determined whether hydraulic or electrical apparatus will be used in the operating of the mines, which are to have a capacity of 1,000 tons a day, which, he says, is equal to 40 cars.

A brick and sewer pipe factory will be built near the mines, where fine veins of fire clay ranging in depth from 8 to 14 feet have been uncovered. The capacity of the works is to be 15 cars a day. Veins of coal from 3 to 5 feet deep are found in No. 3, 4, 5 and 6 veins. Coke can be made from the No. 4 grade.

The capitalization of the Ohio Coal & Coke Company is \$300,000, and the newly elected officers are: President, John W. Boch; treasurer, M. E. Miskall; secretary, Robert Bursner; superintendent, Isaac Thomas.

PLAN TO MERGE FOUR COMPANIES.

Alabama Consolidated, Republic, Tennessee and Sloss-Sheffield Steel and Iron.

A bit of sensation was occasioned at the Baltimore Stock Exchange last month by a jump of 10 points in the common stock of the Alabama Consolidated Coal & Iron Company, to \$61 a share. Last summer this stock sold at \$10 a share. Only a small amount figured in the dealings. The rise in the stock followed rumors of a big consolidation, including the Tennessee Coal & Iron Company, the Sloss-Sheffield Steel & Iron Company and the Republic Iron & Steel Company. This would make a huge merger of iron furnaces and steel manufacturers in the South, and include the ownership of ore lands and coal mines. It would be similar, although smaller, to the United States Steel Corporation.

The jump in the common stock of the Alabama Consolidated Coal & Iron Company is due to the belief that in the event of a deal the stockholders will insist on getting par for their holdings.

The control of this company recently passed from Baltimoreans to New York capitalists. Among the latter are J. H. Hoadley, identified with the International Power Company and the American Locomotive Company and other big interests.

CONTRACTS FOR OHIO CANAL.

The Ohio State Board of Public Works has awarded contracts which pledge the expenditure of \$75,000 appropriated for the northern division of the Ohio Canal. In addition, the board provided for work to the value of \$10,000 to be done by its own employees. This award, made just within the

time limit, practically insures ultimate improvements entailing an expenditure of \$575,000.

BELTON COAL CO.

Directorate Increased From Five to Nine Members.

At a meeting of the stockholders of the Belton Coal & Coke Company, Uniontown, Pa., the directorate was increased from 5 to 9 members, the new members being Albert Gaddis, Uniontown; Capt. W. L. Neff, Dunbar; D. P. Patterson, Connellsville, and Joseph Knapper, Johnstown. The old directors who were all re-elected are Dr. J. C. McClenathan, Connellsville; I. C. Smutz, New Haven; J. H. Humphries, Smock; Allen D. Williams and T. S. Lackey, Uniontown. The treasurer, Allen D. Williams, presented his resignation which was accepted, and Dr. J. C. McClenathan elected in his place. Dr. McClenathan resigned as vice president and the vacancy was filled by the election of Capt. Neff. The company owns 7,037 acres of coal in Marshall county, W. Va., at Denver station, fronting on the B. & O. and near the town of Belton, but has no intention of operating at present.

CONGRESSIONAL COMMITTEE

On Rivers and Harbors to Inspect Monongahela and Ohio Rivers.

The Ohio Valley Improvement Association has extended an invitation, seconded by the Pittsburg Chamber of Commerce, to the Congressional Committee on Rivers and Harbors, to visit the city and look into the improvement necessary on the local rivers. It is the intention to have the committee visit Pittsburg during the summer and to take the members by steamer from the head of navigation on the Monongahela river to Cairo, Ill., on the Ohio river.

Although the invitation was extended by the Ohio Valley Improvement Association, the Chamber of Commerce at once decided to appropriate \$500 to defray the expense of the trip. This amount will be increased if necessary. Several members of the Congressional Committee have never visited the rivers in this vicinity and only know of their needs by hearsay. The trip by boat, it is expected, will give them an insight into the wonderful possibilities of the rivers, if needed improvements and a deeper channel are authorized by congress.

The committee has not yet officially accepted the invitation to take the trip, but during a recent visit of Secretary George H. Anderson of the Chamber of Commerce to Washington, assurances were given by enough of the members to show that it will do so.

JUDGE RODGERS IS COUNSEL.

Pittsburg Coal Company Position Will Be Accepted by the Jurist.

Leaves Bench in Few Weeks.

Judge Elliott Rodgers of the Allegheny county bench has been chosen by the board of directors of the Pittsburg Coal Company to the position of general counsel of the company. It was the desire of President Francis L. Robbins that the head of the legal department should give to the company's affairs his undivided attention. It was impossible for A. M. Neeper, who has been general counsel from the formation of the company to the present time, to do this on account of his large practice, including other corporations of equal importance. Mr. Neeper does not terminate his connection with the company, but will be associate counsel, his knowledge of the company's affairs and his ability as a corporation lawyer being widely recognized.

Judge Rodgers has accepted the position. He expects to be able to close up the duties of his present office as a judge in common pleas court No 2 in a couple of weeks and will probably be able in less than a month to enter actively upon the conduct of the new position.

The full roster of officers chosen by the Pittsburg Coal Company board on its organization yesterday for the year, follows: Chairman and president, Francis L. Robbins; vice presidents, W. R. Woodford, C. E. Wales and L. R. Doty; secretary, F. J. LeMoyné; comptroller, J. B. L. Hornberger; treasurer, F. M. Wallace; general counsel, Elliott Rodgers; associate counsel, A. M. Neeper.

The only change, excepting that regarding the general counsel, is due to the resignation of M. H. Taylor from the board. He was elected last year a vice president.

COAL MINERS CARELESS.

Pennsylvania Inspectors Call Attention to Number of Unnecessary Accidents

In his annual report, Mine Inspector Moore, of the First Anthracite district, calls attention to the large number of deaths due to fall of roof and coal, and states that had more care and judgment been exercised, the number of accidents would have been much less. He urges that the miners should be more careful in examining their working places, and thus prevent the many fatalities. The output for the year was 3,638,194 tons, being 614,120 less than for the previous year. There were 28 fatal accidents and 60 non-fatal accidents.

Mine Inspector Prytherch, of the Third Anthracite district, calls attention to the large percentage of deaths due to the careless manner in which miners observed the rules for preventing these accidents. He

points out that the law provides regulations which are so simple that with a little care and attention to the warnings given from day to day, there would be greater safety. Until this is done, he states, the number of accidents from this cause will always be large.

During the year the total production in the district was 4,380,324 tons, with 36 fatal accidents and 84 non-fatal accidents. Twenty-one wives were made widows and 43 children made orphans.

SAVE THE FORESTS.

Our Supreme Court twisted the forestry law out of shape in the decision that the running of Senator Clark's smelters in Arizona was a form of domestic cookery that justified him in helping himself to all of the timber on our reserves that he needed. What we require now is a law that cannot be misconstrued. Our timber reserves are more important to the prosperity of the country than all the smelters in the world—or all the Senators.

POCAHONTAS COAL LAND.

Mr. H. C. Hull, of Altoona, Pa., obtained an option February 8, 1905, on 3,000 acres of Pocahontas coal land in McDowell county, West Virginia, for the Appalachian Coal & Lumber Company, at \$45.00 per acre.

This 3,000-acre tract is situated near Perryville, McDowell county, West Virginia, on the Dry Fork of Tug river, a branch of Big Sandy river.

A railroad is under construction to and through this property from Jaeger by the Norfolk & Western Ry Co. and 1,000 men are now at work on this road and by April 1 next, 5,000 men will be engaged upon it. The Berwind-White Coal Company owns a large tract adjoining and farther up the stream. A 5-foot 9-inch seam of No. "3" Pocahontas coal underlies the whole tract, 70 to 80 feet below the surface of the stream. A 5-foot 3-inch coal seam lies above the water level. Above this is a 3-foot 9-inch seam; in all four workable seams.

CAMBRIA'S NEW MINE.

Two Hundred and Fifty Men to be Put to Work in Short Time.

The lease which the Webster Coal & Coke Company held on the Lemon coal mines at Gallitzin, having expired last October, the property has fallen into the hands of the Cambria Steel Company, Johnstown, Pa., through whose efforts it has been made one of the most up-to-date mines in the state.

Thousands of tons of dirt have been removed from the mine and there have recently been installed 4 of the latest coal mining machines. An immense pump for

draining the mines of water is also one of the improvements. Forty-six sets of new timbers have been placed in the drift, adding protection to the mine and the employees. The mine will be lighted throughout with electricity.

Tracks have been laid from the mines to the Gallitzin "U," and 2 dinkey engines will arrive in a few days to haul coal from the mines to the new tippie. Two large boilers have been placed at the mine to furnish power to convey the cars from the mine to the top of the hill, where they will be received by the dinkey engines.

In about two weeks 50 coal miners will be placed at work, and it is expected to ship 1,500 tons of coal every 24 hours. The men will work 3 8-hour shifts.

When the new tippie is completed, which will be some time this spring, all Cone-maugh and Altoona helping engines will take coal at that place. The coal is considered superior for making steam to that which the company is now using. Two hundred additional men will also be employed when the tippie is in operation.

The mine is in charge of Superintendent John Buck and Mine Foreman William McHugh, who have had charge of the renovating of the mine. Through their labors the mine has been made one of the most productive in this section of the state.

QUICK COKE SERVICE.

Co-Operation Brings About Vastly Improved Condition in Pittsburg District.

Coke shipments from the Connellsville regions during the past few weeks have been conducted with such regularity and smoothness that they are attracting attention on the part of both the railroads and the shippers. Co-operation between the shipper, the railroad and the consignee is credited with much of the improvement in service. This was demonstrated recently by the Pittsburg & Lake Erie Railroad, which took heavy trains of coke from the Connellsville region to furnaces in the valleys, unloaded the cars and returned them to the ovens in a little over 20 hours.

When the custom has been from 4 to 6 days for the operation, the full extent of the gain is realized. Prompt loading, prompt handling and prompt unloading at the points of destination gave the cars double and even triple service, increased the tonnage and kept furnaces going that would have otherwise had to be banked, pending the arrival of supplies.

The demand for coke is greater than for years. In spite of the severe weather the movement has been kept up to a high standard, and there has been less inconvenience than ever before under similar conditions. There has been no change of importance in the prices, and while spot coke is above the established rates in some instances, the market remains steady.

WESTMORELAND COAL COMPANY**Absorbs Penn Gas Coal Company.**

A sensation was created on February 8 when announcement was made that the Westmoreland Coal Company had purchased the Penn Gas Coal Company, thereby creating one of the largest coal gas corporations in Pennsylvania.

By the purchase the Westmoreland becomes the owner of a total of 20,000 acres of gas coal lands in Westmoreland county. The Westmoreland owned 15,000 acres and the Penn 5,000. The properties adjoin. Stockholders of the Penn Gas Coal Company receive \$100 a share in cash for their holdings. There is \$1,500,000 of the stock and the par is \$50 a share. Control of the company was sold to the Hostetter interests in Pittsburg a few years ago at \$50 a share.

To pay for the stock of the Westmoreland Company will increase its capital from the amount now outstanding, \$3,000,000, to the full authorized amount, \$5,000,000. In addition to this, arrangements have been made to borrow about \$1,000,000 on notes to complete the \$3,000,000 needed to buy the stock.

It has not yet been decided whether the new Westmoreland stock will be put out at par or not. The shares of this company, par \$50, were bid up to \$100 on the local stock exchange recently without sales. The shares of the Penn Gas Coal Company were also bid for. The latter corporation was formed in 1861. The Westmoreland which has been a steady dividend payer, has mines at Shafton, Larimer, Export and Rillton, with an output of about 2,000,000 tons last year. The Penn Company has mines at Shafton, Penn, Irwin, Paintertown, and on the York branch, with coke ovens at the latter place. Its output for the new concern for the coming year will exceed 3,000,000 tons, employing 2,000 men.

MORRIS RUN STRIKE**Is a Closed Incident.**

It looks as if the Morris Run, Pa., strike is a closed incident. The miners have been out on strike since last March, during which time they have endured much privation and suffering besides an epidemic of small pox.

President John Magee of the Morris Run Coal Mining Company has sent an ultimatum to the strikers which removes their last hope. The collieries are closed and may remain so indefinitely. There is nothing for the impoverished men to do but take their families and seek work elsewhere.

The strike was begun last March. The miners' families have long since exhausted what earnings they had ahead and the failure of Mr. Wilson to end the strike for them is a knockout blow. Some of the miners involved in the strike have been at

Morris Run for 40 years working for the company and up to the time when the present trouble began to brew, about three years ago, Morris Run was one of the most prosperous towns in the state. Now Morris Run and her miners' families afford a pathetic picture—a town and people once prosperous and happy, strike-driven into a state of misery and impoverishment. And in the woof of the story a tragedy runs. Suicide, starvation and sickness, resulting from the long siege, have filled graves in the little cemetery, while broken hearts and weakened bodies testify to the bitter struggle, making one of the saddest tales in the history of Pennsylvania's mining troubles.

ANNUAL MEETING NEW YORK & CLEVELAND GAS COAL CO.

February 8, the New York & Cleveland Gas Coal Company held its annual meeting at the offices of the company in the Westinghouse building, Pittsburg, and the following directors were chosen: John A. Bell, W. R. Woodford, George T. Oliver, A. W. Mellon, Henry R. Rea, J. B. L. Hornberger, W. Hamilton Brunt, F. M. Wallace and George Z. Hosack. On reorganizing the board Mr. Hosack was elected president; Mr. Woodford, vice president; Mr. Brunt, treasurer; Mr. Wallace, assistant treasurer, and C. C. Kochendorfer, secretary.

The annual meeting of the Turtle Creek & Allegheny River Railroad Company, which operates about the New York & Cleveland Gas Company's properties, was held February 8. The directors chosen were Messrs. Rea, Woodford, Hornberger, Wallace, Brunt and Hosack. Mr. Hosack is president and Mr. Kochendorfer secretary.

OPENING NEW COAL FIELD.

The United Coal Company is making preparations to open a new coal field near Bentleyville, Pa. The Company owns a large coal tract near the Monongahela & Washington railroad, the outlet for the Ellsworth mines, and the plans now under way contemplate an extension of the road to the new field.

HADLEY COAL MINES PURCHASED.**John W. Perry Will Increase Output.**

John W. Perry, of Huntington, W. Va., has purchased the mines and property of the Lincoln Coal Company, at Hadley, thus becoming the owner of one of the most valuable mining plants in the Guyan valley.

Since the death of O. T. Brown, president of the Lincoln Coal Company, the mines have been operated under lease by the Coal Hill Coal Company until last spring when small pox put a stop to operations. However, all symptoms of small

pox have disappeared from the vicinity and there is nothing now to prevent the successful operation of the plant.

The working force which in the past has been about sixty men, will within the next few weeks be increased by the new owner to one hundred men.

WASHINGTON COAL COMPANY**Now Shipping Coal From Independence.**

The Pittsburg & Washington Coal Company is now shipping coal from its new mines in Independence township, Pa., where it recently took up about 1,400 acres. Since securing the abstracts to this block of coal about three months ago, the company has been at work day and night.

Two main slope entrances each 280 feet in length have been completed and connected. While this work was being done the coal was taken out of the entrance which will be used by the miners where a temporary tipple was constructed to be used until the permanent tipple at the main entrance is in readiness for a steady, heavy shipment of coal as soon as the permanent tipple is completed.

Twenty miners' houses have been built and are now occupied, while others are in course of erection and nearly ready for occupancy.

A new post office has been established at this place under the name of Avella, with S. D. Major as postmaster.

QUININIMONT SHORT LINE**Purchased by the C. & O. Railway.**

The Quininimont Short Line, a coal road which runs into Raleigh county, W. Va., from Quininimont, a station on the main line of the C. & O. railway system, has been purchased and will hereafter be operated by the C. & O. Improvements of the entire line are now under way which include building up the road-bed, laying 75 pound rails, overhauling and repairing all the rolling stock and the addition of new engines, freight and passenger cars.

Both the freight and passenger traffic over the C & O's new branch line will be very heavy, it is thought, when a regular schedule is put into effect. Raleigh county is a county of growing importance and will furnish a great deal of freight and passenger traffic for the short line. In addition, numerous coal mines extend the entire length of the road and when arrangements are made for adequate facilities for hauling the product of the mines, the coal output of the short line will become enormous.

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COAL PRODUCTION FELL.

Twelfth and Thirteenth Anthracite Districts Show Decrease.

Mine Inspectors M. J. Brennan and John Curran, of Pottsville, representing the Twelfth and Thirteenth anthracite mining districts, have filed their reports for the past year. In the former district there was produced a total of 2,961,468 tons, which, compared with the production of the previous year, 3,498,306 tons, show a decrease. The production of the Philadelphia and Reading collieries in this district was 1,762,274 tons, as against 1,818,592 tons for the previous year.

In the Thirteenth district, the total production for last year was 3,066,770 tons as against 3,476,312 tons for the previous year. The decrease in this district was due principally to the fact that Kaska William colliery, a large operation in the Schuylkill valley, worked but 125 days, and the Morea colliery but 135 days.

JANUARY COKE PRODUCTION.

The January record in coke production compared favorably with the month of December of last year and encouragingly well as compared to January of 1904. The estimated production of January, 1905, amounted to 1,108,551 tons as compared to 1,020,340 tons in December last year, and 686,020 tons in January, 1904. The shipments were not up to the high record of production last month but were greatly in excess of the shipments for December and January of last year. The estimates for January show a shipment of 1,015,626 tons as compared to 923,416 tons for December and 695,648 tons for January of 1904. The Masontown field last month sent out 236,303 tons as compared to 216,176 tons in December and 106,240 tons for January of last year.

Furnace production for January shows an equal if not a better gain than the coke trade. The American Manufacturer's report for January shows a net increase in active furnaces of 16 for the month and a net weekly increase in furnace production of 24,812 tons. On February 1, there were 279 blast furnaces in operation with a weekly capacity of 417,607 tons as compared to an active list of 263 furnaces on January 1 with a weekly capacity of 392,790 tons. The steady growth in production of iron and coke the past few months indicates the better condition the business of the country is in. Exceptionally strong claims are being made by many authorities of still better gains for the year but it is a guess as to just how much better it is possible for the trade to become. The season for real consumption is not on yet and buying at this time to say the best is largely contingent upon future consumption. There has been a perceptible showing up in

the buying of iron in the past few days with a considerable lowering of values. The tardy buying in iron stocks has not been reflected in the demand for coke but prices in the lesser grades of coke are showing a weakened condition. The past few weeks it has been a question of getting coke at most any price demanded. While there are no large stocks reported in the furnace yards there has been some hesitancy in paying the price demanded for coke from the outlying fields has fallen off to the extent of 50 cents per ton. With spring weather train movement will improve and coke supply greatly increase. The spring months will probably much lower values in coke and probably iron lines as well.

BALTIMORE & OHIO.

Said to Discriminate Against Ohio Operators.

Is the Baltimore & Ohio Railroad discriminating against the coal operators on the C. L. & W. division of the road, in favor of the operators of West Virginia? This is a question that the operators are discussing. If the railroad is guilty the matter will be reported to President Roosevelt.

It is said that the B. & O. hauls West Virginia coal over the C. L. & W. division to the northern trade. During this time the coal operators on the C. L. & W. have not been given sufficient cars to fill their orders. What does the railroad do with the empty cars? It is claimed that they have the empty cars brought back over the main line of the B. & O. west of Bellaire, in order that the operators on the C. L. & W. division will not know the railroad has them.

If such discrimination can be proved by the coal men on the C. L. & W., the B. & O. railroad will be up against a proposition that is new in this territory.

OHIO MINES

Must Have Two Openings.

A very important matter for all mining interests in the state was referred by Ohio State Mine Inspector Harrison to Attorney General Ellis.

The Ohio law says that all shaft mines except new ones which are to be connected with other mines by underground workings, and in which more than 20 men are employed, shall have at least two openings.

Mr. Harrison's interpretation of the statute is that no mine can be operated with but a single shaft where more than 20 men are employed. If the attorney general sustains this view of it and the law so interpreted is enforced by the State inspector, it will result in the closing of a number of mines in the northeastern part of the state, where practically all of the mines are shaft mines.

RECEIVER APPOINTED.

C. F. Evans Takes Charge of the Ruthven Company's Property.

Action for a receiver for the Ruthven Coal Company was filed in the common pleas court February 18, on request of the National Fuel Company. The petition asserts that the company owes debts amounting to \$10,000 and that its royalties are becoming due. The company is unable to pay these royalties and for that reason is in grave danger of losing its lease upon the mines in Jackson county. An account of \$1,600 is also said to be due working miners.

Judge Dillon upon a hearing of the petition appointed C. F. Evans receiver upon a bond of \$10,000. This company was formed but a short time ago. The petition claims an amount of \$326.02 due against the company.

FREEMPORT COAL.

Director of Geological Survey Describes Lower Vein in This District.

In a communication to Representative E. F. Acheson, Director Charles D. Walcott of the Geological Survey, Washington, D. C., throws some important light on the character of a vein of coal located about 500 feet below the Pittsburg coal that has attracted considerable attention in Washington county. Mr. Walcott says that although it is generally inferior to the Pittsburg coal in some localities it can be profitably worked. In his letter Mr. Walcott says:

"The coal referred to is undoubtedly what is known as the Upper Freeport. In oil and gas wells in Washington county it is the principal coal noted by the drillers below the Pittsburg bed, and occurs at an average depth of 650 feet below the Pittsburg vein. This interval, however, varies from 600 to 700 feet in the Amity quadrangle. The one other coal in this interval has been noted in a few wells only, and occasionally reaches a thickness of 3 feet, but is believed to be of little or no economic value.

"On account of its great depth we have at present no means of knowing the quality of the coal beneath Amwell township. The nearest outcrops are in the valley of the Youghiogheny river and Jacobs creek, 5 to 8 miles northeast of Connellsville. Where known in that region the Upper Freeport varies in thickness from 3 to 7 feet and it is often a good workable coal. It contains, however, considerably more sulphur than the Pittsburg bed. In the vicinity of Amwell township little is known regarding thickness.

—The Moorhead Coal Co., of Brownsville, Pa., have sold their holdings of 3,000 acres of coal land situated near Wheeling, W. Va., to eastern capitalists for \$360,000.

The Pittsburg-Salt Lake Oil Company

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This Company owns 125,000 acres in Utah, north of Salt Lake City, in the heart of the oil and gas territory, adjacent to the lands of Guffey & Gailey. 100,000 Shares of Capital Stock are now offered. We will mail booklet giving all details on request. Look at the above Board of Directors. There are fortunes to be made with this Company. It costs nothing to investigate. * * * * *

COAL COMPANY LOSES CASE.

Highest Court Sustains New Mexico Judge Against Caledonian.

The case of the Caledonian Coal Company against Judge Benjamin S. Baker, of the Supreme Court of New Mexico, to compel him to take cognizance of an action against the Atchison, Topeka & Santa Fe Railroad Company, was decided by the Supreme Court of the United States against the coal company.

The case was instituted by the coal company under the interstate commerce law and the anti-trust law, the company claiming damages under both acts. As the railroad company has no office in the territory, papers were served upon the president of the road as he was passing through. Judge Baker refused under these circumstances to assume jurisdiction in the case and the opinion rendered today sustained his action.

SHIPPING COAL TO CANADA

Canada's growth as a market for American bituminous coal is attracting increased attention since statistics for the year past show a decidedly big increase in exports. As it is not supposed the Canadian territory into which the coal went consumed more coal than the previous year, the reasonable inference follows that coal, coming from West Virginia, Ohio and Pennsylvania, has been gradually supplanting coal from Nova Scotia, at tidewater, and this is further shown by the decreased output of the Nova Scotia mines.

Central and western Canada offer the market for American coal, because of the shorter railroad haul from the United States than from Nova Scotia. Until a little over a year ago this market was not earnestly cultivated. Now, an aggressive invasion is being conducted by sales agents for the American companies who go after business there as hard as they did in this country.

Canada may offer a good field to dispose of a great deal of the present over-production of bituminous coal in the United States.

DEADHEAD TIMBER.

Recovering Millions of Feet of it From River Bottoms.

The Menominee river, which for half a century has been one of the most noted logging streams in all Michigan, is being forced to give up some of the wealth that has been concealed beneath its waters. "Deadhead" timber representing much money, says a Norway, Mich., dispatch, has been taken from the river so far this season. Crews of men have been operating through the ice between the first and second dams near the mouth of the stream since the beginning of the winter, hauling out sunken logs and piling them up along

the bank to dry. The men have already recovered fully 3,000,000 feet of timber in this manner, and before the break-up in the spring the amount will be heavily added to.

How many million feet of logs lie on the bottom of the stream it is impossible to estimate; yet for the past 50 years timber has been floated down the Menominee and always a certain percentage of it has become water-soaked and has sunk, until there is practically no limit to the amount that will steadily be raised from now on.

The "deadheads" are well preserved and are really worth more now than when they disappeared beneath the waters, a poor quality of timber today commanding a better price than did the best product years ago. At the height of its record as a driving stream, more than 700,000,000 feet of logs were floated down the Menominee in a single season, and the amount has ranged down to probably 50,000,000. It is roughly estimated that enough sunken timber can be recovered to keep a saw-mill in operation continually for years to come.

NEW COAL FIELD.

M. & W. Line Will Probably be Extended to Give an Outlet For Tract.

A new coal field will be opened up in the Bentleyville, Pa., district in the near future. A short extension of the Monongahela & Washington Railroad will give the new field a good outlet.

The United Coal Company has holdings near line of the Monongahela & Washington Railroad, the outlet for the Ellsworth mines, and the plans now under way contemplate an extension of the road or a spur to open up the additional acreage held by the United Company. The coal in question lies between 1 and 2 miles east of Bentleyville.

The move is regarded as an important one, not only by reason of the immediate acreage to be opened, but because it marks the first operation of the United Coal Company in the neighborhood. The company is

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a strong one, composed of Pittsburg and McKeesport capitalists, and is operating a number of mines in Western Pennsylvania.

—A joint meeting of the operators of the Western district of Kentucky and the United Mine Workers will be held in Louisville in March.

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FOR SALE.

The controlling interest in a mine—operating; capacity 500 tons per day. Tidewater, lake and river shipments. Acreage, 3,237; miners' houses, store, railroad, forty ton railroad, cars, etc. A bargain, if taken at once. \$75,000 cash required. Company free of debt and \$25,000 in treasury. Reason for selling, illness of manager and controlling stockholder. Address, A. B. C., care "Coal and Timber," Pittsburg, Pa.

COAL LANDS FOR SALE.

FOR SALE Coal lands in Williamson and Franklin counties, Ill.
5,800 acres in Franklin county; all in a body on and near two railroads.
3,200 acres in Williamson county; on and near three railroads.
800 acres on I. C. R. R.; only 40 ft. to coal; \$35 per acre.
Wanting a glass factory; give ground and cash bonus; have three railroads.
A. F. WHITE, Part Owner of Land,
Marion, Williams County, Ill.

SITUATIONS WANTED.

WANTED—To correspond with parties in need of a Superintendent or Manager for a coal property—either producing or about to be developed. Must be a place where a good man can make a reputation. Am a practical Engineer of several years experience in developing and working W. Va. operations. Best of references. Have a good position but want a wider field with better opportunities for advancement. Address "AT", care COAL AND TIMBER.

WANTED—Position as Accountant or Assistant to Mine Superintendent, twenty-three years experience in coal office work, eight years as outside superintendent. References given. Address T. W. R., care COAL AND TIMBER, Pittsburg, Pa.

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510—1371 acres, coal rights, Monongalia Co., W. Va., at Pennsylvania State line, fronting two miles on Pools 8 and 9 of the Monongahela River and two miles from B. & O. R. R. Freeport coal, six foot vein, 237 feet deep. Shipped by rail and river from same tipple. Natural drainage; fine coking coal. \$35 per acre.

511—33,000 acres, coal rights, in W. Va., running from Great Kanawha River and K. & M. R. R. to C. & O. R. R., thus giving communications to Tidewater, Lakes and Gulf. 15,000 acres at rear on C. & O. R. R. can be cut off if desired. Pittsburg coal, 4 foot vein with 2½ feet additional close below. Fine property, looking to Panama Canal development. Price on application.

513—13,012 acres mineral rights of which, 2,500 acres are in fee, in Dickenson and Russell Cos., Va., on Dumps Creek, containing six veins of coal aggregating 33 feet, being all the well known seams of Southwest Virginia. A right of way to N. & W. R. R., and 1000 acres surface lands. Well timbered. Price on application.

515—39,000 acres, coal and oil property in Knott and Breathitt Cos., Ky. 15,000 acres in fee, 10,000 of which is finely timbered; remainder is mineral rights with necessary privileges. 5 well defined coal veins. 10 to 12 miles from R. R., but soon to be reached by extension connecting with N. & W. R. R. Located on Kentucky River, which is being locked and dammed by U. S. Government. Oil prospects fine. Price on application.

521—1200 acres of Pittsburg seam on the Fayette County side of the Monongahela River, Pa. An extraordinarily fine opportunity. Write for price.

522—610 acres coal at Bainbridge, Williamson Co., Ill. About fifty feet to coal. Price \$45 per acre.

523—694 acres, coal under lease, plant in operation, now shipping 250 tons per day, McDowell Co., W. Va. 25 Miners' houses, commissary store, tipple, etc. 900 acres adjoining this tract can be secured. Coal averages 4 feet.

524—30,000 acres, coal and timber lands, Wyoming and Raleigh Co., W. Va. R. R., within four miles of property, two seams of coal, Pocahontas, No. 3 and No. 6, four and a half and six feet in thickness. Timber original forest growth. A bargain.

528—3,000 acres, Pocahontas Coking Coal, McDowell Co., W. Va. U. S. Steel Corporation have large holdings adjoining this property. Coal is clean and without partings. If this property is purchased at once, a very low price can be secured. Coal five feet three inches thick. Property covered with heavy growth of oak and poplar.

531—10,000 acres, coal in Raleigh Co., W. Va., property contains Pocahontas, New River No. 1 and New River No. 5 and Sewell No. 4 coal. Low freight rates to Tidewater.

Analysis of coal shows fixed carbon nearly eighty per cent. Prof. White says: "Pure Anthracite, equal to Pennsylvania."

532—7,500 acres, New River Coal, Webster Co., W. Va., on the B. & O. R. R. Drift formation, self draining, excellent proposition at a very low price. Write for particulars.

533—1,600 acres, Pocahontas coal on Ivy River, McDowell Co., W. Va., on the Norfolk & Western R. R. Property fronts one and one-half miles on the R. R.

538—11,000 acres of coal on Horse Creek, Cobbs Creek and Mud River, Boone and Lincoln Counties, W. Va. Two seams have been opened above water level, both six feet thick. The new Pocahontas, Coal River and Kanawha R. R., connecting with C. & O., at St. Albans, is now graded and track laid nearly to the property. A very low price if purchased at once.

541—3,000 acres of coal on Marrowbone Creek, W. Va. One and one-half miles from new line of Norfolk & Western R. R. Coal, known as Warfield seam, six feet thick, free from partings; 25 feet above water level. Property has plenty of timber for mining, sold in fee simple.

564—7,000 acres, timber land in fee, or timber rights only, in North Carolina. Two miles from Murphy Branch of Southern R. R. Down grade to R. R. Oak and other hard woods, poplar, chestnut, etc. Price \$7 per acre in fee, \$6 for timber only. Terms, half cash, balance on short credit.

565—32,700 acres, timber land, mineral reserved, in North Carolina, 10 miles from Murphy Branch of Southern R. R. Finest piece of timber in the Southeast. 450 million feet of finest Spruce. 150 million feet of fine Red Oak, Poplar, Ash, Cherry, Walnut and Hemlock. Price, \$12.50 per acre. One-third cash, balance on fair terms. Will build R. R. to property on reasonable basis. Shipping rate on application.

566—Coal lands in Lincoln Co., W. Va., on G. V. Branch of C. & O. R. R., 232 acres being operated on R. R., 143 acres adjoining on R. R. undeveloped; 375 acres adjoining but off R. R. Sell together or separately. Write for terms.

567—About 50,000 acres, Timber lands on Dee Pee and Antee, navigable rivers and few miles of R. R., near Georgetown, S. C. This is a large but grand proposition and will show superb returns on investment. Write for details.

569—A magnificent operating coal plant for sale for private reasons. \$50,000 improvements, 1,500 acres mineral rights only. In Fayette Co., W. Va., on branch of C. & O. R. R. and Paint Creek. 6 veins of coking, steam and domestic coal from 3 to 5 feet thick. Drift mining aggregating 27 feet. Property thoroughly developed for operation. Other details and price on application.

570—600 acres, timber rights near Pisgah, Preston Co., W. Va., on Big Creek. 10

miles from R. R. First growth Oak, Hickory, Pine, Ash, etc. Price on application.

571—17,000 acres, undeveloped coal and timber land in fee in Boone Co., W. Va. Will dispose of large interest in this property. Located on Big Coal River, 2½ miles of branch of C. & O. R. R. Another R. R. will shortly pass through this property. 6 veins of fine coal from 4 to 6 feet thick. Write for particulars.

572—3,000 acres, coal and timber land, Boone Co., W. Va., on Big Coal River, 2 miles from branch of C. & O. R. R. and another R. R. in immediate prospect through property. Same coal as in property No. 571. Write for particulars.

574—710 acres, thirty-year old leases, at Bluefields, W. Va. Renewal privilege on same terms. 10c for royalty. 3 foot 8 inch seam being profitably operated; 3 other seams above this one. Tenements, stores and all necessary buildings and machinery for operation. Good reason for selling. Price, \$70,000.

575—4,000 acres, coal lands, 17 miles Northwest of Clarksburg, W. Va., on both sides of Short Line railway. Mineral rights. Five workable veins. Pittsburg and Freeport coal, 6 to 9 feet thick. Good steam and Coking coal. Price, \$205 per acre. Shipping facilities unusual, east and west.

576—24,000 acres of Black Mountain steam and coking coal in Harlan Co., Ky., on Cumberland River. Very extensive coking operation adjacent. The Elkhorn seam, which is the No. 1 in this section, is 87 to 97 inches thick. Ten distinct seams of coal, above water; self draining; aggregating over 50 feet of coal. Three railroads within 15 miles, one 2 miles distant. Easy grade for R. R. connection. If property shows prospective development, R. R. will without doubt build branch. Tract covered with good timber. Price, \$25 per acre. Write for terms.

577—About 3,000 acres of coal lands in Tazewell and Buchanan Counties, Va. One half in fee, remainder mineral rights, on Town Hill Creek and less than a mile from Norfolk & Western R. R. Twelve openings showing coal veins from 40 inches to 6 feet thick. R. R. graded half way through property. Rare bargain at \$30 per acre.

578—1052 acres, of stumpage on Norfolk & Western R. R. in Virginia Soft and hard wood. Price \$15 per acre or \$4 per tree. Eight years to remove. Terms half cash, balance reasonable terms.

579—8,500 acres of timber on Tombigbee River in Alabama, and on Mobile & Ohio R. R. Good cotton land after timber is cut. Price, \$94,000 on fair terms.

580—10,000 acres, timber in Caldwell Co., North Carolina. Estimated 8,000 to 10,000 feet, White Pine, White Oak and Poplar to acre. All accessible to R. R. Large variety of woods. Shipping and other data on application. Price, \$19 per acre.

581—40,000 acres, timber land in Western North Carolina. Best poplar tract in the country; also Oak, Hemlock, Chestnut and other woods. Virgin forest, no squatters. 14 miles from Southern R. R., which has surveyed to it and constructed almost 10 miles. Terms to suit purchaser; 261,000,000 feet estimated. Price, \$12 per acre for timber alone; one-third cash, balance in one and two years or longer if larger cash payment is made. Title perfect.

582—21,000 acres, timber in Western North Carolina on Tennessee lien, T. & N. C. R. R. runs through property. Equipped for immediate operation with mills and machinery. Large variety of hard woods. Price on application.

583—2,500 acres, coal near Richlands, Tazewell Co., Va., and on N. & W. R. R. Two seams of coal; upper, 40 inches thick; lower, 5 feet, 6 inches, both without partings. Price, \$32 per acre.

587—3,200 acres of Freeport coal, 5 and 9 feet thick, in W. Va., near a R. R. Price, \$22.50 per acre. Further details on application.

588—5,000 acres of Freeport coal in West Virginia on the B. & O. R. R., carrying three veins of 4, 3 and 8 feet thick, of fine, clear coal. Price \$42 per acre.

589—3,500 acres, fine coal land in Boone Co., W. Va. Price, \$22 per acre. Further particulars on request.

590—4,000 acres, Pittsburg coal on B. & O. R. R. in W. Va., with 9 foot vein. Very cheap for this coal and location at \$183 per acre.

591—An unusually attractive and rare Anthracite coal proposition in Montgomery Co., Va., of which we will send full data upon request.

592—2,300 acres of hard wood timber, with 2,800 acres same woods adjoining, on Clover Creek, Branch of Greenbrier River, Pocahontas Co., W. Va. Good, easy grade all the way to R. R., 5 miles distant. Fine large timber, never culled. Mostly White and Red Oak; fully 25 million feet of same. 250,000 feet of fine cherry wood. Tract never had an axe in it. Price on application.

593—3,000 acres of Pocahontas coal in McDowell Co., W. Va., 7 miles from last station on R. R. now being built by Norfolk & Western R. R., which will be completed in 5 months. Five feet 3 inch vein finest Pocahontas coal and one of the very few Pocahontas properties left unpurchased. Price on application. See No. 594 below.

594—The timber upon tract No. 593. Virgin forest, carrying fine poplar, oak and other woods, estimates upon which will show a net profit of \$314,800, not counting beech, maple, sugar, buckeye, etc. Price on application. Timber can be sold with No. 593 above, or separately.

595—25,000 acres of coal rights on Levisa Fork of Big Sandy River in the south-western part of Buchanan Co., Va. Ten miles north of Norfolk & Western R. R., in the great coke and steam coal field of south-west Virginia. The river offers fine location for cheap R. R. connection. The South & Western R. R. surveyed to 8 miles of property. Four to 5 veins workable coal above water level and 3 Pocahontas seams below water level. Rare opportunity for this kind of coal. Price \$17 per acre.

596—60,000 acres, uncut timber in Swain Co., N. C. Hard woods, yellow poplar, oak and spruce. Boundary may run nearer 70,000 acres. Price, \$8 per acre. Title perfect. Two and one-half miles from So. R. R.

597—28,114 acres, coal and timber lands, in Raleigh and Wyoming Counties, W. Va., to which 30,000 adjoining acres can be added. Timber runs 6,000 feet per acre, vir-

gin growth. Poplar, oak and other hard woods. Several fine coal mines underlay tract. All above water and self draining. No. 3 Pocahontas vein 93 per cent. of entire tract, averages 55 to 60 inches clean coal. Carries also veins of No. 4 and No. 5 of this coal. Land lies on Guyandotte River and several creeks. The C. & O. and Deep-water R. Rs. are now building through this land. Price for 28,114 acres in fee is \$52.50 per acre, and of the 30,000 acres adjoining \$37.50 per acre.

598—25,000 acres, coal land, adjoining tract described in No. 595, and having same description, but better developed. Price, for mineral rights alone, \$18 per acre. Full particulars on application.

599—60,000 acres of timber lands in Watauga, Wilkes and Caldwell Counties, N. C., on the Yadkin River. None better in the south. Principal timbers, white pine and poplar; also many others. Eight miles from So. R. R., which promises facilities to these lands. Price, \$22.50 per acre. Title perfect.

600—10,000 acres of fine timber lands near Rasar in East Tenn. Two miles from Little Tenn. River, which is navigable, with R. R. now building to within 1½ miles of tract on down hill side of same. Poplar, oak, hemlock, white and yellow pine, chestnut, ash, cherry, gum, hickory, etc., estimated conservatively at 33 million feet besides ties, poles and tan bark. Tract in fee simple and title is perfect. Price, \$9.50 per acre.

601—Two tracts of 24,000 and 30,000 each of hemlock and spruce timber in eastern Tennessee, on the Tellico River, and a branch of the Southern R. R. Two tracts adjoin and will be operated together. First tract estimated to carry 113 million feet poplar, pine, hemlock, oak and other woods. Other tract averages like first, but heavier in hemlock. Fine shipping facilities. Small timber not estimated above includes 30 thousand cords chestnut, oak and tan bark. Title perfect. Price of 24,000 acres is \$9 per acre in fee; 30,000 acre tract \$7 per acre in fee.

602—Timber tract consisting of 19,000 acres on Clinch Mountain Range in Russell, Smyth, Tazewell and Washington Counties, in the southwestern part of Virginia. Heavily timbered, chiefly in poplar, oak, spruce and hemlock, principally the latter; also cherry and birch timber could be conveniently assembled 3 miles from R. R. at Saltville, Va. See No. 603 below for terms.

603—8,000 acres, timber in Washington and Russell Counties, Virginia, 5 miles from above tract and timber is very similar. Terms of sale and time for removal, etc., on application; 60 day option for inspection. Price \$8 per acre. Same owner as No. 602.

604—100 acres of coal rights reserved for 5 years on the Wabash R. R., between Elkins, W. Va., and Cumberland, Md. Carries the 3 foot 6 inches, 4, and 9 foot veins. Price, \$85 per acre. Back of this lies 1,000 acres, which cannot be worked without above tract. Can be bought for about \$35 per acre. The only coal lands in this location not absorbed by some large corporation.

607—Operating coal mine property on the S. E. A. & W. Ry., in Jefferson Co., Ohio. 109 acres at 6 cents royalty, and 170 acres 8-12 screened coal. Plenty of adjoining land can be bought reasonably. Description of equipment, freight rates, etc., on application. Price, \$20.00.

608—23,000 acres of timber in Haywood Co., N. C., 6 miles from R. R. Estimated to cut 410,000,000 feet. Write for price.

611—16,821 acres, timber lands in fee on

C. & O. R. R., Greenbrier River and Laurel Creek, in W. Va. Estimated to cut 100,000,000 feet, 30,000 cords hemlock bark and 7,000 cords oak bark. Write for price.

614—20,000 acres of virgin forest in Bland County, Va., 4 miles from narrow gauge R. R. and 7 miles from Norfolk & Western R. R. Never been culled. Write for price.

618—32,000 acres, timber, near Asheville, N. C., near Southern R. R. Can be floated to R. R. by several non-failing streams. Claimed to be the finest timber tract in N. C. Estimated to cut 775,000,000 feet. Write for price.

620—12,000 acres, timber in N. C., (8,000 in fee) on navigable water and R. R. Estimated to cut 70,000,000 feet; 40 feet above sea level, and land valuable for farming. Write for price.

621—12,000 acres, timber, near Asheville, N. C. Guaranteed to cut 14,000 feet per acre. Logs floated to R. R. by 2 deep rivers and creeks. Good titles. Write for prices.

624—About 4,000 acres, coal lands, in Logan Co., W. Va. Branch of C. & O. R. R. being constructed to property. Openings shows 5 veins from 5 to 8 feet thick, well timbered with white oak, maple, beech, etc. Price, \$32 per acre.

625—10,000 acres, very fine hard wood timber land in South Carolina. Poplar, oak, chestnut, hickory hemlock and yellow pine will average fully 4,000 feet per acre. First class timber. Price, \$3.50 per acre for the timber.

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630—2,380 acres, producing coal property on C. & O. R. R., in W. Va., New River district. Working Fire Creek and Sewell seams. Present capacity 1,000 tons per day. \$170,000 improvements in last 2 years. Will lease for amount of improvements and royalty, or sell in fee for \$350,000. An unusual opportunity.

631—3,500 acres of coal, oil and gas land in Lincoln Co., W. Va. Four seams of coal from 4 to 10 feet thick; 3 miles from the R. R. Price, \$12.50 per acre.

634—7,500 acres (4,500 in fee), well timbered, balance, mineral rights, near Madison, W. Va. There are 3 seams of gas and steam coal 3½ to 6 feet thick; also, 6 feet of cannon coal. Write for price.

635—60,000 acres, timber in Jackson Co., N. C., on branch of Southern Ry., and on the Tuckasiegee River. Bears finest poplar, oak, ash, cherry, walnut, chestnut, basswood, spruce and hemlock. Large quantities oak bark and chestnut acid wood, selling for \$3.25 per cord. 10,000 feet to acre is low estimate of timber. Perfect title. Price, \$385,000.

636—30,000 acres of fine coal and timber land in Kentucky, on a trunk line R. R. Rare bargain; guaranteed title; 6 miles of R. R. with steel rails; miners' houses, engine, etc. Price, \$8 per acre.

637—1,300 acres of coal and timber land in Raleigh Co., W. Va., 5 miles from branch of C. & O. R. R.; 500 acres adjoining, which can be had on same conditions. Title perfect. In heart of fine coal field. Price, \$50 per acre in fee, or \$10 per acre for timber alone.

640—3,000 acres, Pocahontas coking coal land in McDowell Co., W. Va. Coal 90 feet below surface, showing 5 feet 3 inches without parting. Price on application.

641—800 acres of timber land in Mingo Co., W. Va., 2 miles from R. R. Poplar, oak, beech, chestnut ash, etc. Write for price.

642—25,000 acres of coal and timber land in a practically solid block in Braxton, Gilmer and Calhoun Counties, W. Va., on tributaries of the Little Kanawha River. Timber untouched on 8,000 acres and only poplar timber removed from rest. White and other oaks run high per acre. Railroads being built from several directions to this property; 4 to 6 foot vein of coal underlaying, mostly above water level. Pittsburg and Freeport veins. Price, timber only, \$22 per acre; 1-3 cash, balance, easy payments. Timber and surface, \$30 per acre, same terms. Land in fee, \$40 per acre; oil and gas reserved.

643—9,000 to 10,000 acres of timber land near Franklin, N. C. Down grade and good roads; 2 to 8 miles to Southern R. R. Mountain oak, yellow poplar, chestnut, basswood and cherry estimated to cut 4,000 feet per acre. Estimated one cord oak tan bark and 10 cords tannic acid wood per acre. Poles and cross ties in large quantity. Price, \$6 per acre; half cash, balance, fair payments. A bargain at the price.

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648—500 acres, timber and coal land, in Fayette Co., W. Va., on Gauley River. Price, \$27.50 per acre. Write for details. Parties interested in coal and timber land on Big Hewett Creek, Coal Creek, Laurel Creek and Jacks Fork, Boone Co., W. Va. Write for particulars. Richest coal belt in State. Can be bought 1-3 cash, balance in 1 and 2 years; 2,670 acres in all.

652—55,000 acres, spruce, hemlock, and hard woods near Newport, Tenn. Estimated to cut 850,000,000 feet of lumber. R. R. enters tract and will soon touch entire body. Also poplar, oak and cherry. Price \$10.50 per acre.

658—3,000 acres coal tract (or any part thereof) in Braxton Co., W. Va. Good quality Upper Freeport coal. Fronts Elk river and coal and coke R. R. Price \$25 per acre.

659—Fine fire clay property of 1,200 acres on river between Clarksburg and Grafton, W. Va., on B. O. R. R. and Wabash R. R. survey. Crops out at good height and has 2 coal veins, one above and one below the clay. Price \$20 per acre.

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665—8,000 acres of timber land in S. W. Arkansas, including saw mill, capacity 25,000 feet daily, 3 miles standard R. R. and equipment. 40,000,000 feet standing white and red oak, hickory, gum, cypress, ash, etc. \$8.50 per acre. Easy terms. Freight rates on application.

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683—25,000 acres coal and timber land in fee in Braxton, Gilmer and Calhoun Cos., W. Va. Branch R. Rs. being built close to tract. Has Pittsburg vein 6 ft.; Freeport, 7 ft.; Kittanning, 4 to 5 ft. Fine virgin timber. \$23 for timber per acre. \$30 for timber and surface. \$40 for land and all in fee.

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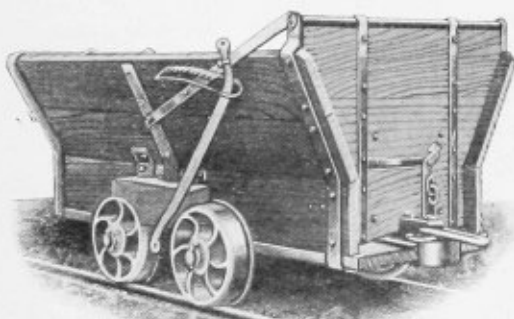
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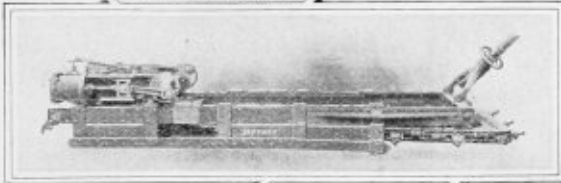
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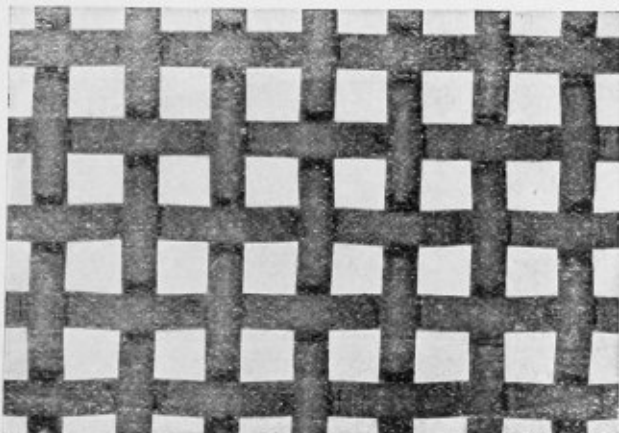
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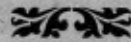
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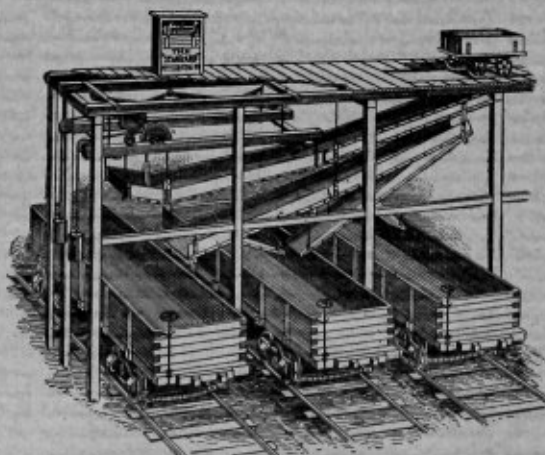
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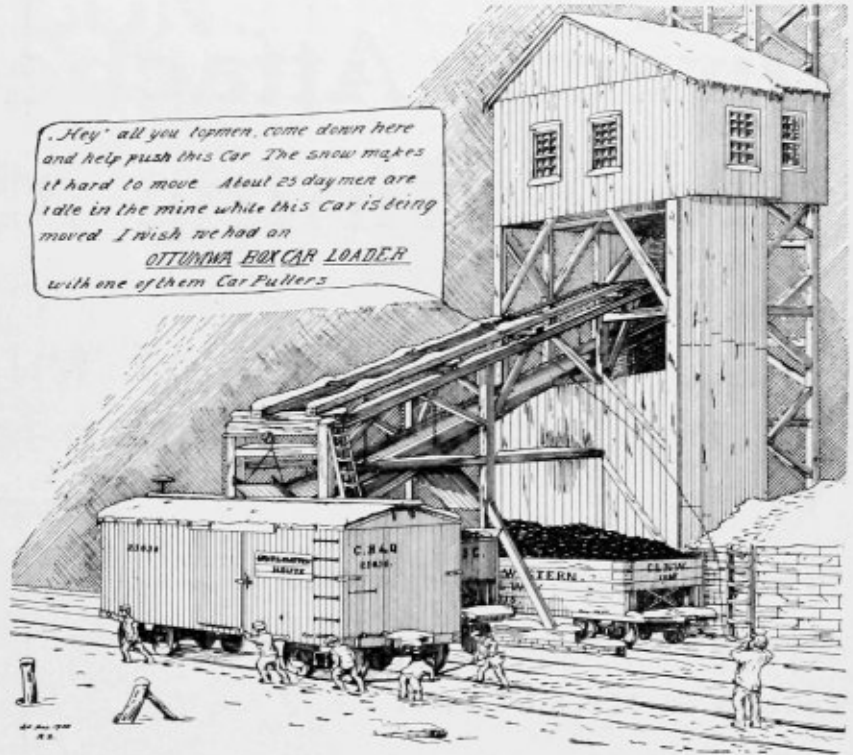
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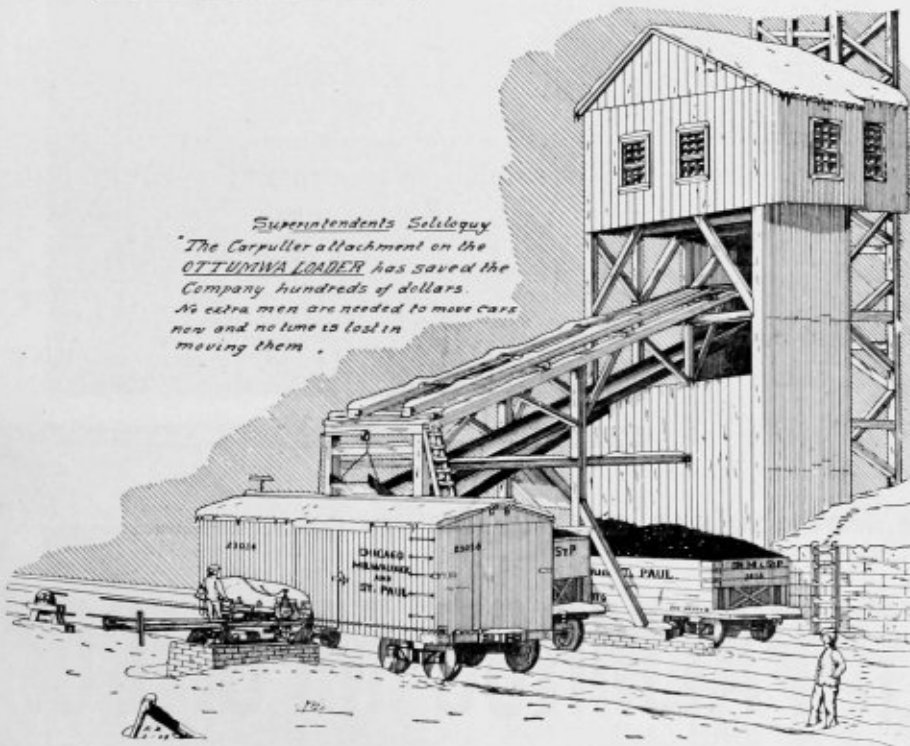
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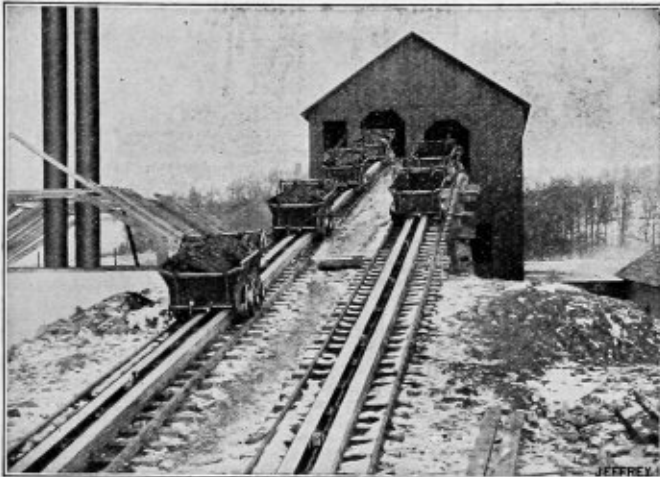


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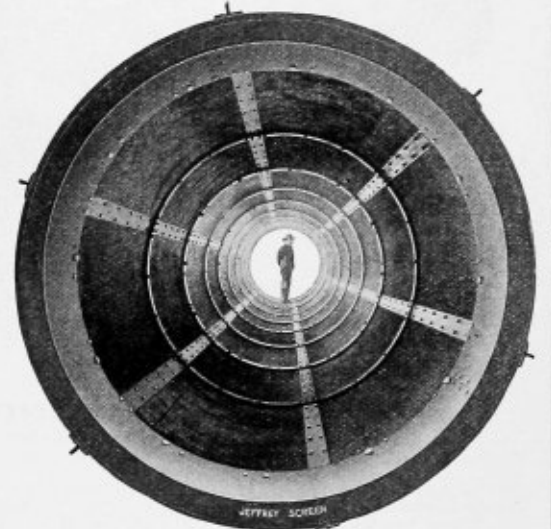
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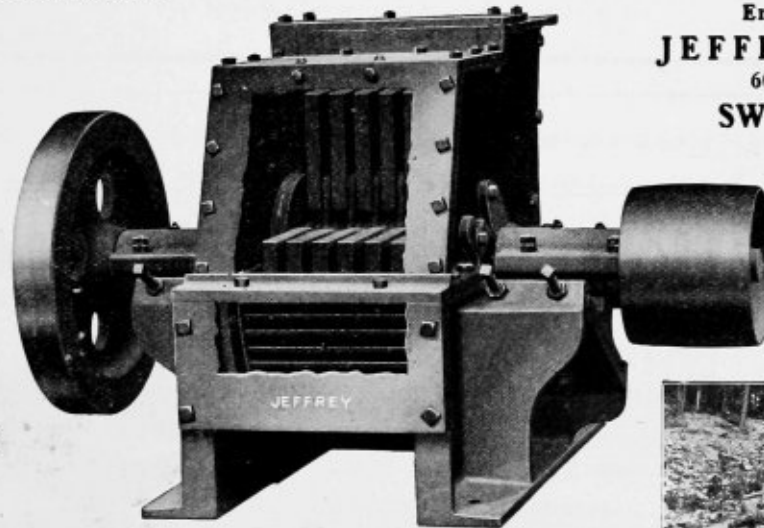
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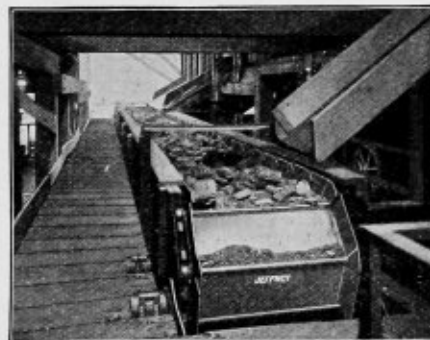
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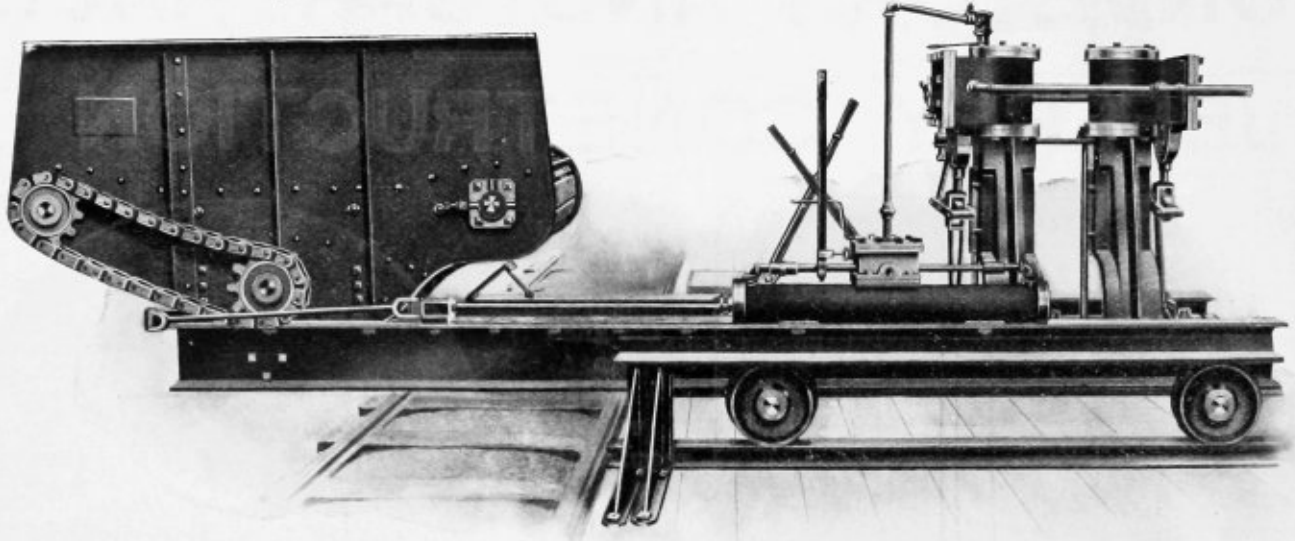
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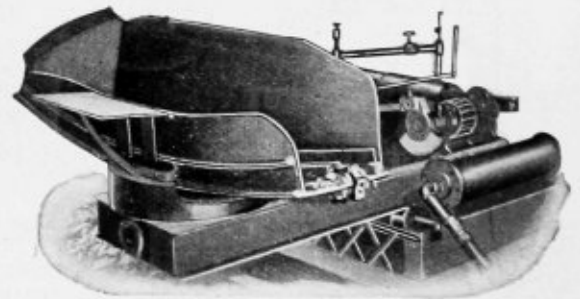
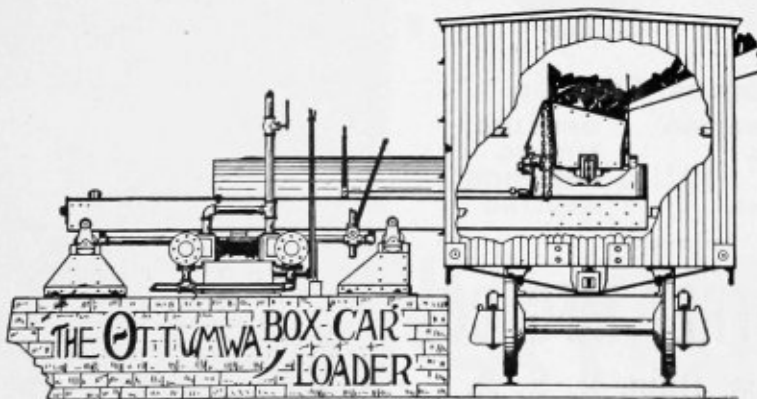
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In the fierce race for supremacy which obtains in the operations of mines, increase of output at the least possible expense is the desideratum most devoutly to be wished and striven for. Today more in the mining industry perhaps than in any other, competition is so severe that to survive with the fittest, operators must equip their mines with every modern appliance and method known. No half-way measures, or inferior apparatus for mining and bringing

which has been dug. Modern uses for coal have given rise to a constantly increasing demand on the mining interests for greater output.

It is not the purpose of this article to discuss the merits in any partisan way of the three methods of haulage which obtain today but merely to describe without prejudice these various systems and point out the advantages which the adherents to each claim for their particular favorites. Modern systems of haulage bespeak the modern coal mine. Four methods are employed today and some mines use more than one as a safe-guard against accident.

Years ago, generations in fact, man-power

by means of compressed air are in vogue. The giant strides of modern times has made this substitution an absolute necessity. The slow-going mule has no more place in the great modern coal mine than has the old fashioned horse-car on an up-to-date trolley line. The leisurely methods of comparatively recent years are being relegated to the background, though they are surprisingly prevalent even today, to the great detriment of operators.

Modern demands for increased output of fuel coal have caused an underground extension of operations undreamed of a few short years ago and this has necessitated an entirely new system for the quick and con-

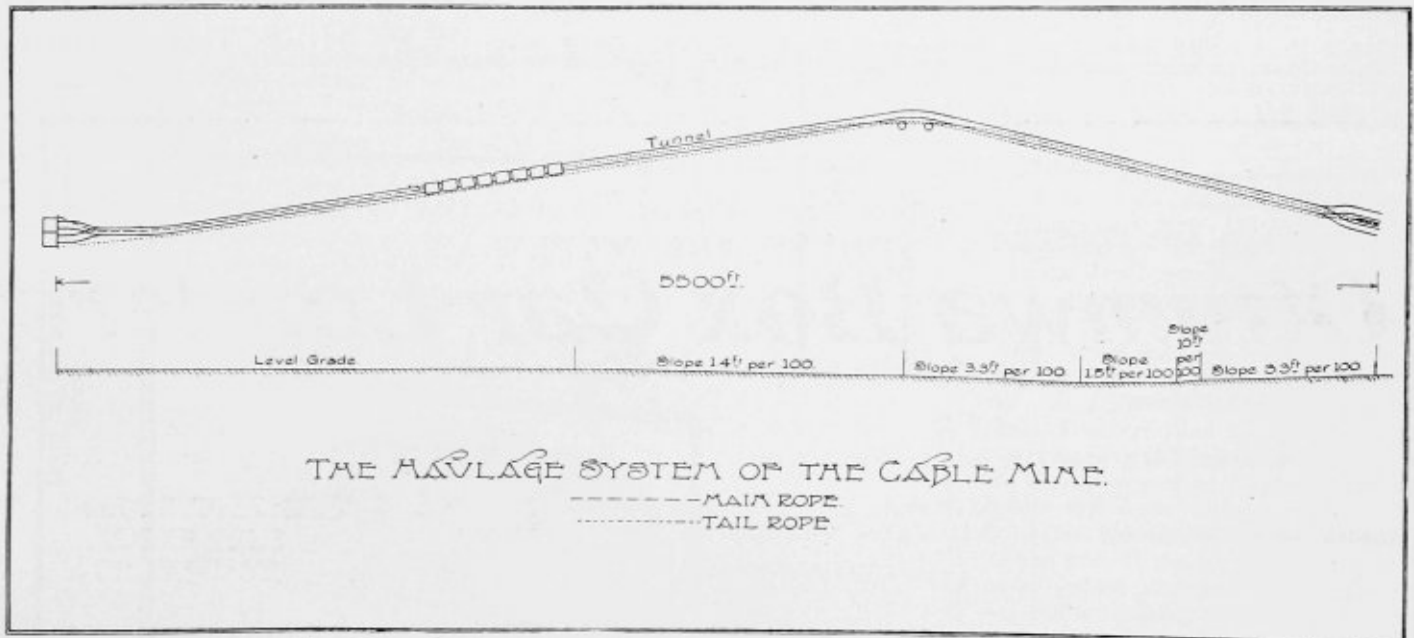


Plate No. 1—By Courtesy of Broderick & Bascom Rope Co., St. Louis, Mo.

coal to the surface, can be tolerated if the tremendous pace set by up-to-date energy is to be maintained. Coal operators must have every labor and time-saving device in vogue if they expect to hold their own in the markets of the country.

In the March issue of *Coal and Timber*, mining machines were exhaustively described. Mine owners and operators have found them both perfectly practicable and altogether indispensable. With the wonderfully increased output from the breast of the workings made possible through mining with modern machinery the best facilities known must be made available to remove from the interior of mine the coal

was relegated and mules furnished the tractive power by means of which small tram cars laden with coal were drawn from the interior workings to the surface. For many years this method in mines in which the grades were not prohibitive prevailed almost exclusively. Of course cables and hoisting apparatus was necessary in shafts and steep slopes but to the foot of the shaft or slope, mules or horses drew the wagons laden with coal from the far distant workings.

But mule-power has largely seen its day and now three modern methods are used in the great mines of the country. Rope or cable haulage, electric haulage and power

venient haulage of coal from the workings to the point of shipment. The first requisite in meeting the wonderful demand for an increased output of coal is, necessarily, the great extension of the underground work. Subsequent operations—screening and shipping—must of course, be performed at central points. The consequent need is for methods of collection from the workings and rapid delivery to this central position. Different systems of haulage are in demand, by means of which the conditions peculiar to different classes of mines may be satisfactorily met.

Haulage by wire rope, or cable, is a system which numbers hundreds of the most

energetic operators among its partisans. It is claimed of rope haulage that it is perfectly simple, inexpensive, and easily handled, both in installation and maintenance, and absolutely reliable in action under any and all conditions. It is claimed for this system that it is the only one which can be depended upon no matter what the mine or the difficulties attending its workings. The general method of applying wire cable to

from mines with slopes or shaft exits by winding and unwinding the cable on a drum. This system is incapable of general application.

The Endless Rope System consists of a wire rope spliced endless, working over a drum located at any point in the area of haulage. The rope is kept tight, and by means of special grips the load may be attached or detached at any place which

mine, but which generally work on the same shaft. The "main" rope runs along the ground and is attached to the front of the loaded train. The "tail" rope is supported along the walls, or roof, of the tunnel, extending to the end of the haul, where it passes over a return wheel, and is returned along the ground, being attached to the rear of the train. The main rope is then wound on its drum, hauling the loaded

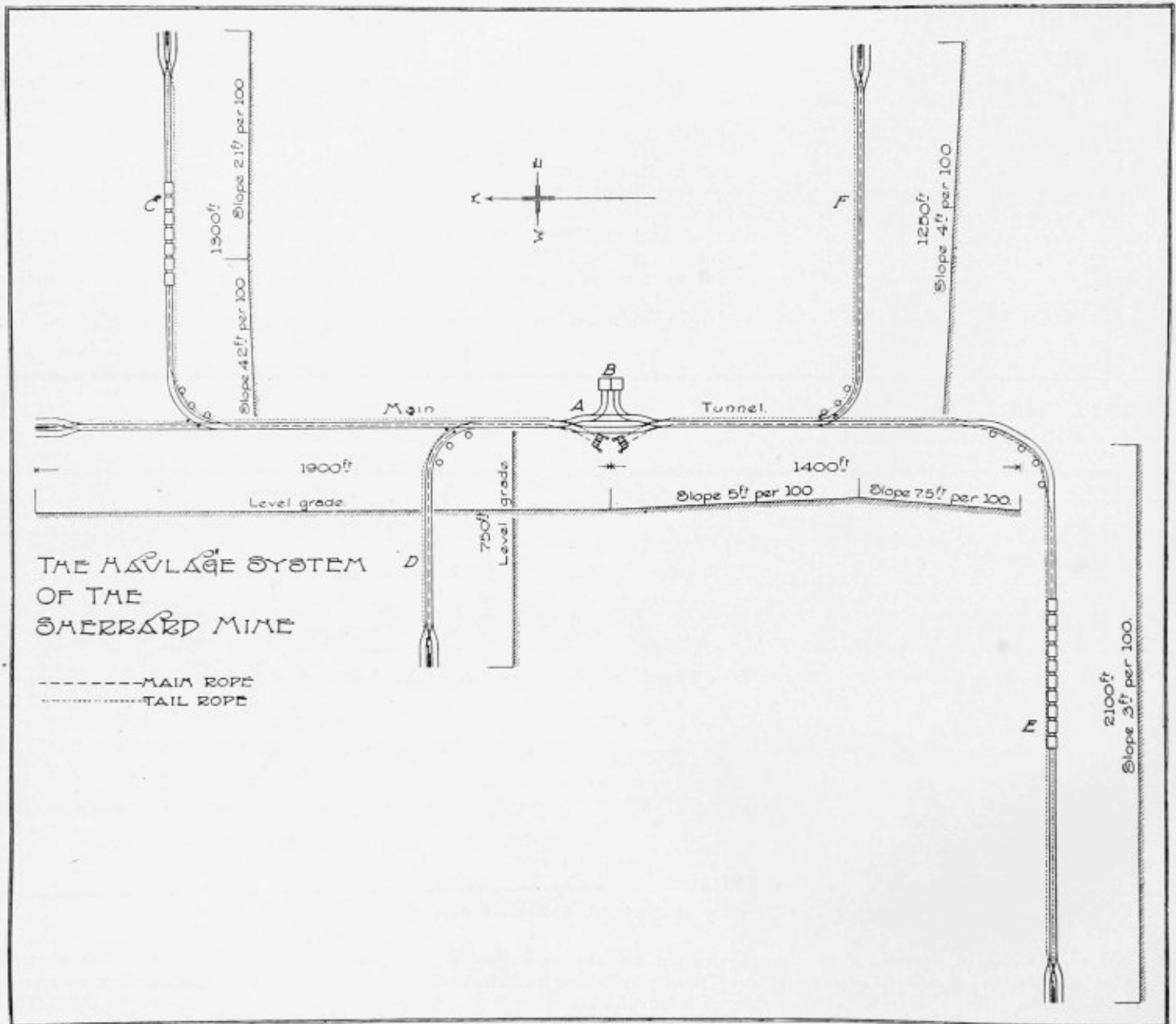


Plate No. 2—By Courtesy of Broderick & Bascom Rope Co., St. Louis, Mo.

this important branch of mining work will be briefly described and satisfactorily illustrated.

Wire rope haulage has been arranged in three general classes: The Incline Plane; the Endless Rope System and the Tail Rope System.

The Inclined Plane method is so simple that it may be passed over with the remark that it consists of raising or lowering loads

is desirable. When applied to single track operations, the motion of the rope is reversed from the return of the empty train, but by means of a double roadway, the load may be received on one track and returned on the other, the rope moving continuously in one way.

The Tail Rope System consists of two ropes winding on separate drums which may be located at different points in the

train followed by the tail rope. For the return of the empty trip to the interior of the mine, the motion is reversed, the tail rope being wound on its drum and the empty cars are thus drawn to the end of the haul, dragging the main rope, or load rope, after them.

Of the different systems of rope traction, the tail rope system is by far the most elastic. This system is capable of more

general application. A drawback to the endless rope method is that the cable must be constantly kept tight. This necessity makes imperative the use of heavier cable and, as a consequence of its tenseness, greater friction is to be overcome and consequently heavier engines are required to move the loads and the cable. It is very generally claimed that there are few conditions under which the tail rope system, properly handled, does not exhibit its manifest advantages. The different figures illustrating rope haulage which accompany this article show at a glance the workings of the tail rope system in its practical working. The system is easily applicable, it is asserted, to a straight or curved run of any length and of any variation of grade. It is also claimed for it that side entries may be worked as easily as the main tunnel.

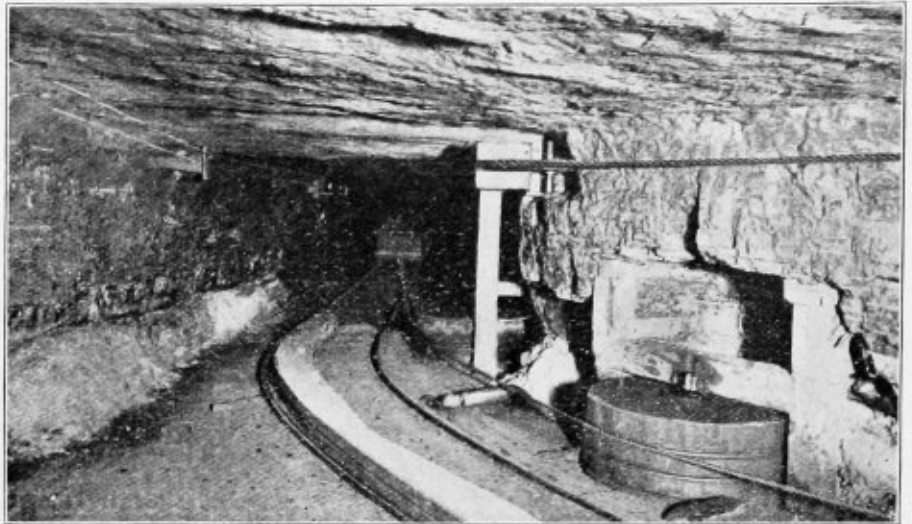
Rope haulage is the oldest of the modern power methods employed and its adherents claim for it that it has been worked out to an absolutely practicable system for any and all mines. They assert that it is cheaper and fully as serviceable as any other plan.

One of the commonest arguments used against the wire rope as a medium of underground haulage is its tendency toward rapid deterioration. Those who use this method to the exclusion of the others declare that this argument has no foundation if certain common sense principles are applied in properly caring for the rope and reducing friction to a minimum. In the workings in one well known mine in Illinois where the tail rope system has been in use for 20 years and where the tests of its endurance are very rigid, there is rope in use today which has been worked constantly for more than 8 years. In this very

All drums and return wheels are made sufficiently large to keep the bending within the limit of flexibility of the rope.

In this mine, which for the purpose of this article is a good representative of mines which employ the wire rope system of haulage, the output is 1,000 tons of coal per diem. With the system in use it is stated that the output could be doubled

weight of the cars averaging 850 pounds. They are delivered at the bottom of the shaft and then hoisted to the surface, and dumped. The hauling machinery is located at the surface, the ropes running over sheaves down the shaft and into the tunnel. A pair of 12 by 16 inch engines aggregating 75 horse power is used, working the same shaft. A diagram



Arrangement for Curve—Courtesy Broderick & Bascom Rope Co., St. Louis.

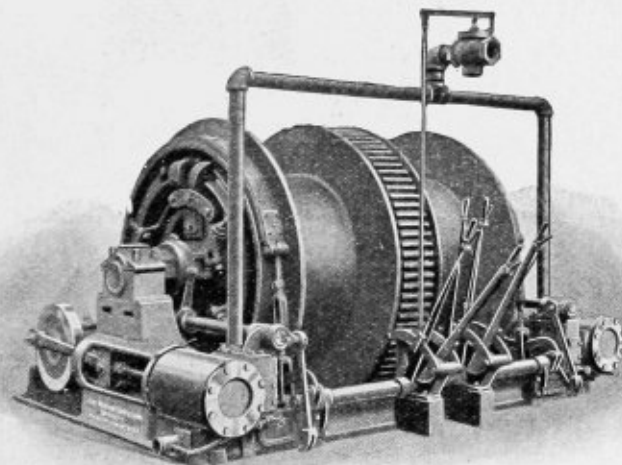
without further expenditure either for equipment or maintenance. The mine had been abandoned some years as it did not pay for operation with the use of mule tractive power. A tail rope system extending into the workings for a mile and a half was the means of doubling the output at one-half the cost of the old style of operations. Today the mine is being drawn and

and profile of the haulage system is shown in Plate 1. A diagram and profile of the system of haulage used in this up-to-date mine is shown in Plate 2. The ropes of the north tunnel are shown taking out a train from the East entry, the north end of the main tunnel and the West entry lying idle.

In the South tunnel a train is being taken out of the West entry, the East entry lying idle.

The loaded cars are hauled to the main station, and there dumped. A feature is the automatic coal hoist. The main rope runs on rollers fixed between the rails at intervals varying from 10 to 16 feet. The tail rope is supported along the side of the tunnel on iron sheaves supported by brackets. Binding sheaves are used at intervals to prevent the rope leaving its support under sudden strains or on any account of any lifting tendency at the foot of the slope. On curves where it is desirable to carry either rope across the track, a series of horizontal cast-iron sheaves, six inches in diameter, is used. The return wheels at the end stations are cast-iron sheaves 48 inches in diameter, set vertically, secondary 30-inch wheels being used to lift the return rope to the roof of the tunnel.

On curves, a special arrangement is introduced to carry the main rope. The side-pull is resisted by a series of wooden drums, 30 inches in diameter, set on vertical axes with their nearest points about 18 inches from the inside rail to allow room for passage of the cars. These drums are of barrel form, built up of alternate staves of maple and pine. The rope may run on the ground rollers placed beneath the drum while the train is some distance from the curve, but



Hoisting Engine—Made by the Wellman-Seaver-Morgan Co., Cleveland, O.

cable, it is asserted that the amount of deterioration is almost inappreciable. In this mine, the rope is never allowed to touch the ground while running and wooden supporting rollers are so placed as to protect the cables from wear and strain to the fullest possible amount. The entire rope, including the hemp center, is kept constantly lubricated and never works "shiny."

the haulage system extends about 5,500 feet along the main tunnel. From a practically level run of 1,500 feet, there is an undulating fall of 45 feet in 2,000, followed by an equal rise in 1,000 feet. The grade varies greatly, reaching a pitch of 10 per cent. in places. The main rope is one inch in diameter, the tail rope three-quarter inch. The regular haul is 20 cars carrying one ton each, the

as the load approaches, the rope is drawn against the drums.

In working up a side entry, the ends of both main and tail ropes of the side line lie conveniently near the outer end of the entry. The ropes of the main line are brought to the proper position and uncoupled. The ends of the side ropes are substituted and the entry ropes run as continuous with the main line.

ELECTRICITY.

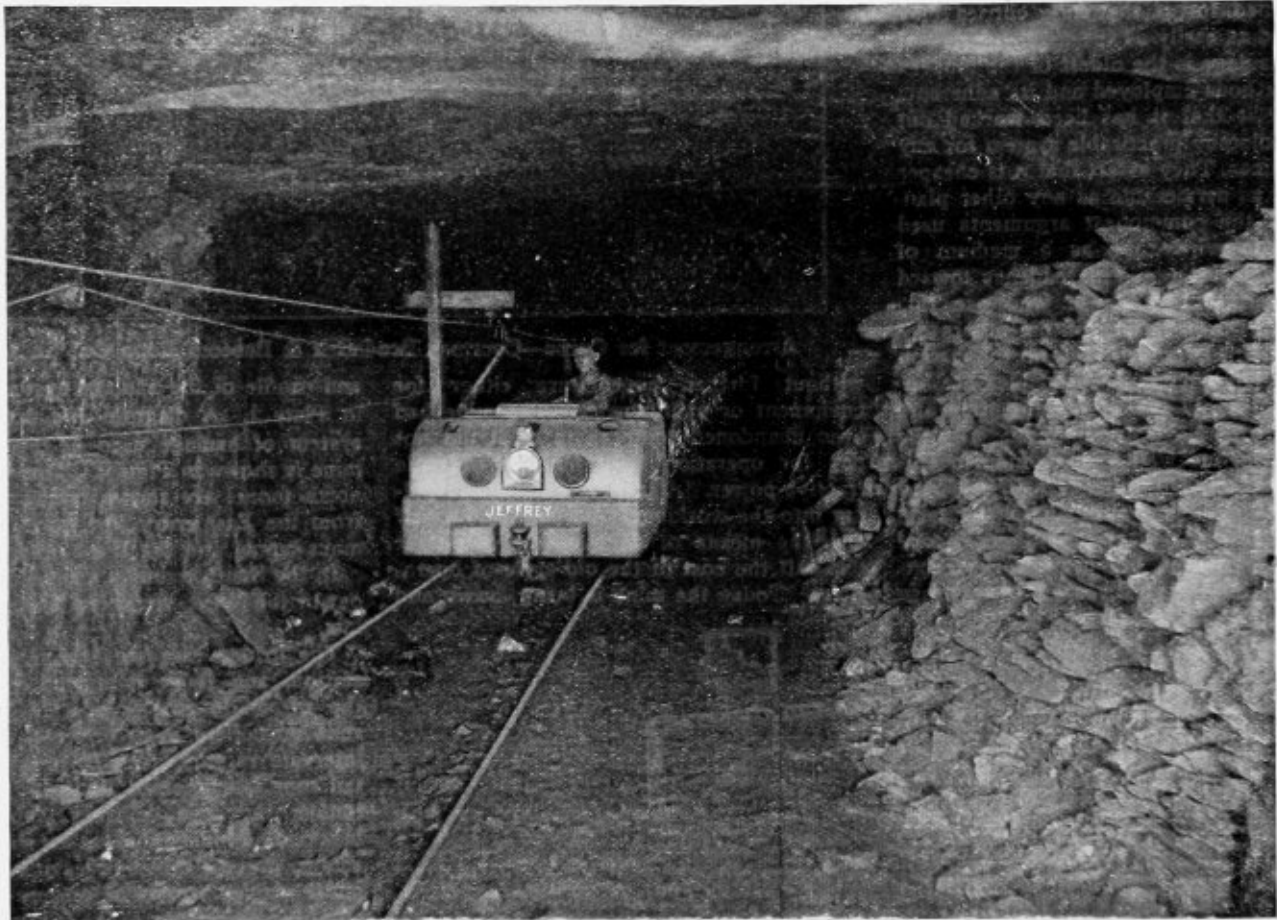
More and more has it become necessary on the part of the operators of great coal mines to give thought to the imperative

output by means of the extensive employment of machinery. Of late years nothing has proved of greater benefit to the coal mining industry from an economical standpoint, than the introduction of approved mechanical haulage methods.

The use of electricity in the coal mines of the country is growing. It is claimed confidently by those who made of the method a study, that that there is no feature of electrical mining applications more successful than Electric Haulage. It is a fact that there are many mining operators who can reduce the expense of hauling their coal underground and from colliery to tippie, or of their ores in the mines and to

this system has, it is asserted, not only resulted in the reduction of the cost of production, but has also, made practicable the development of more extended operations, this increasing the output from a single individual opening.

The amount of work that a large electric locomotive will readily accomplish many well give mine operators reason to pause when in contemplation of the different systems of power haulage. On main entry haulage in actual service, it is found that a ten-ton electric locomotive will displace, on the average, 15 mules. In large mines, main entry haulage is a distinct operation, and in such cases where grades are not



Electric Locomotive—Made by Jeffrey Manufacturing Co., Columbus, O.

demand for adequate systems of haulage. This state of affairs is largely due to the opening up and development of numerous thin strata of coal, which thin veins must compete in the market with the thicker veins, necessitating, in order to cut down the expenses of operating and cost of transportation, mine pit cars of greater capacity, which preclude the old fashioned use of mules and therefore practically compel the use of some mechanical means of transporting these pit cars.

Since competition has become so fierce and the demand for fuel so great, improved methods have resulted whereby the operator can extract from his mine double the former

the mill. To all of whom this may be true, the study of the three different modern systems of power haulage should be deemed a matter of vital necessity. Those who prefer the use of electricity do not hesitate to affirm that for all purposes the use of electric engines, or motors, this power has the advantage over all others. It is claimed that the general all-around flexibility of this system, both for inside and outside work, commends it to serious consideration wherever new mines are to be developed or old ones improved, and it is the rare exception where the adoption of electric haulage locomotives will not justify the cost of installation. The introduction of

heavier than four per cent, against the loads, a ten-ton locomotive will readily handle from 800 to 1,000 ton-miles of loading in a nine-hour shift. The actual tonnage of product which can be handled per diem varies, of course, with the local conditions and the size of the locomotive. In many mines, especially where several drifts are worked in series over one tippie, the same locomotive is employed for collecting, main haulage and switching, and the work done is subject to some variation, on account of the time which may be lost in the making up of trains.

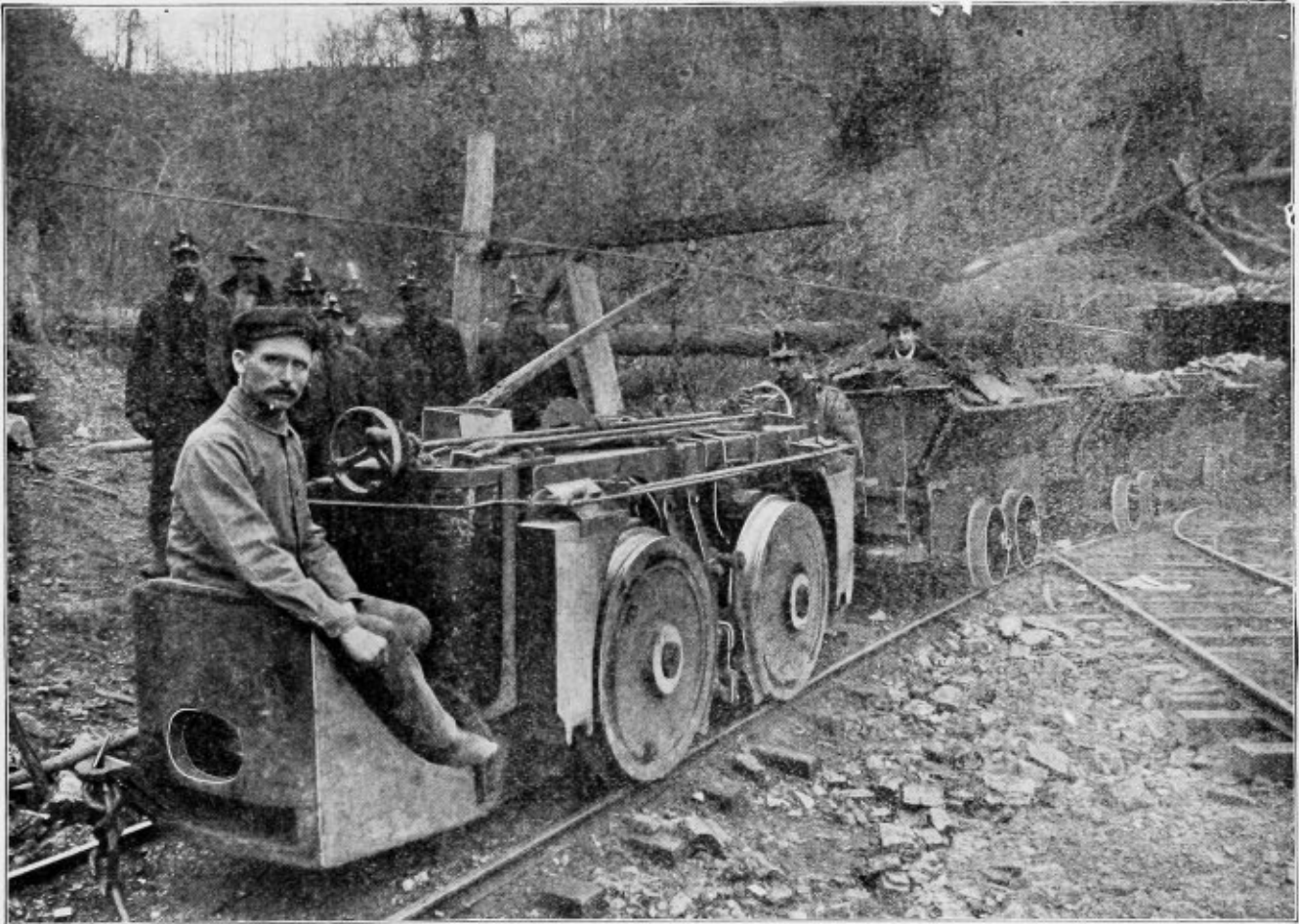
On account of this great capacity for work, the cost of hauling coal both under-

ground and to the tipples has been reduced considerably by the employment of the electric locomotive and the saving in some instances has amounted to as high as ten cents per ton. The amount of saving from power haulage of any kind, however, depends greatly upon merely local conditions. Since the introduction of electric locomotives, about 15 years ago, they have become very extensively employed in large coal mining industries. Many of the largest mines now in operation in this country are equipped with them, as the electric mine locomotive has without dispute demonstrated its high usefulness and its rare adaptability to various conditions.

As to the third-rail system, it is claimed that for strength, simplicity, few wearing parts and general effectiveness, it has no equal and is the best form by means of which electric power can be made available in coal mines. The advantages claimed for this system are; positive working, practicable to use with light rails, especially on excessive grades. It can be extended easily and cheaply by the track layers, as the regular track is extended. It is asserted that there is less liability to danger from explosion by electricity in use in this form as the conductor is close to the floor. Another advantage pointed out is that power may be taken from the line at

to the purposes of haulage, either in the mine or from pit mouth to tippie.

With 15 years actual, practical operation, electrical locomotives as applied to coal mine haulage may be regarded as having arrived at an almost perfect development. That there are not likely to be radical changes or improvements, the experiences of the past few years has demonstrated. This, for the purpose of installation, is a most important thing for any operator who is about to put machine haulage into his properties to know. It would be the part of folly to spend thousands of dollars in the equipment of a large mine with any system which is in an experi-



Electric Locomotive—Made by Morgan-Gardner Electric Co., Chicago, Ill.

The general equipment of an electric mine installation does not differ greatly from that of an ordinary street railway, except of course, it is not nearly so powerful nor does it require anything like the expense. The power plant will depend upon the amount of electric power desired and the engines and generators are practically the same as those used in the street railway equipment. The trolley wire equipment depends upon the mine. Many of the best plants in the country are operated by means of the third-rail system, which is ably advocated by those who prefer it and have made practical tests of it by daily usage.

any point to light the mine and run machinery. No sand, trolley poles or trolley wires are used and this is said to result in perfect safety to men and animals as it is impossible for them to come into contact with the electricity as carried in the third rail. It is also asserted that it is free from the objection of the overhead wires as regards falling roof. Even very heavy falls, it is said, will not injure the third rail.

It is not the purpose of this article to discuss the merits of the different methods of electric mining installations. Many are in use. All have their strong points and are adaptable to varying conditions. They all represent the application of electricity

mental stage for, in a short time, doubtless, he would either have to throw the whole equipment out or at any rate he would be compelled to adopt the various improvements as fast as they left the inventor's hands. With electricity as a motive power for the moving of pit cars underground, no such hesitancy need be observed. The system is well-tried and worked out. Past experiences have led to immediate improvements and the faulty features have long since been remedied or abandoned altogether.

Electricity in the interior of coal mines can be depended upon as a system which is here to stay for many years. The parti-

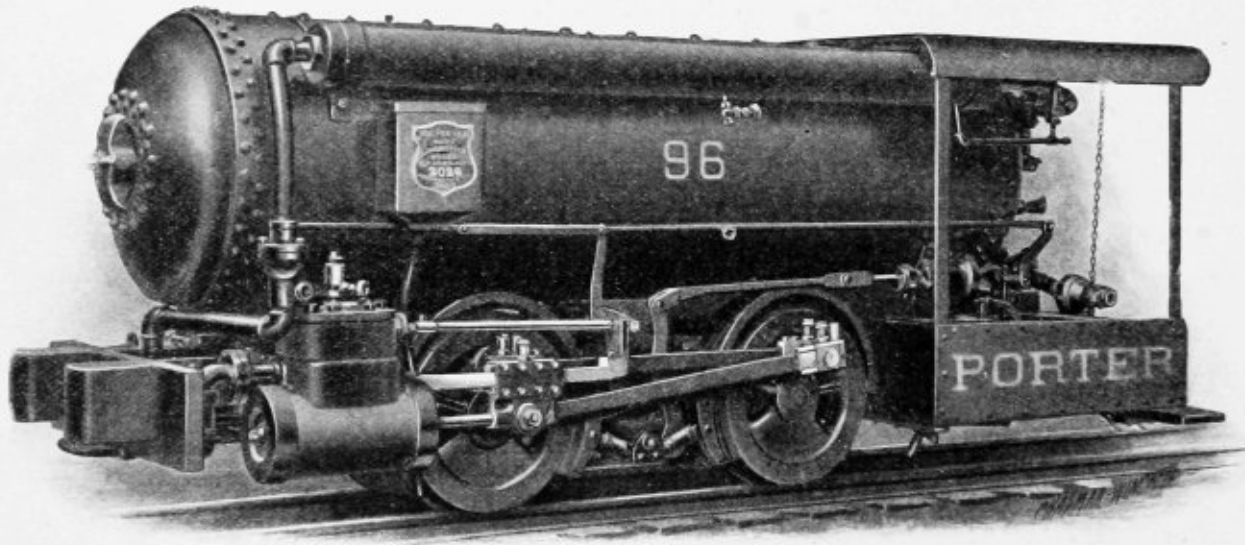
sans for rope haulage and compressed air have much to say for their respective methods, but the operators who use electric locomotives seemingly have no quarrel with their judgment in their selection. The electric locomotives as used in coal mines have been employed mainly in hauling coal on the main headings, but in some mines, they have also been employed for gathering the cars from the mouths of the rooms, the cars in such instances having been pushed out of the room to the headings by the miners or their assistants. This practice, is, of course, limited to mines where the cars are small and the tracks of the rooms are practically level, or have a slight natural slope toward the headings. The gathering of cars from the "face workings" in rooms, or headings, is yet done largely by mule power, and this generally constitutes the largest per centage of the cost of transporting coal from the "face workings" to the tippie or the bottom of the hoisting

this system is dangerous to any great degree. They point to the comparative safety with which mines equipped with this installation are operated. But few deaths ever occur from contact with the trolley wire, for this is placed at the side of the mine roof and away from likelihood of being touched by the miners as they walk to and fro in the headings.

The partisans for the electric system of power haulage point to the generality of its use as a strong argument that it is everything which they claim for it, else why its great popularity? There is no doubt that electric mine haulage as in operation today in the mines of this and other countries is very satisfactory in operation and very economical. The champions for it invite the closest inspection and have never feared to accept challenges from the partisans of either rope haulage or compressed air to determine the relative merits of the systems.

tion of power equipment for a coal mine. It is claimed by those interested in this form of mine equipment that the older a mine the greater are the possibilities for the sudden and unexpected formation of gas and that the compressed air system is a perfect safe-guard against explosion from haulage machinery.

As a question of economy the partisans for this form of applied power claim that it takes first place. Compared with rope haulage, it is argued that the wear and tear of wire cables will throw the balance of expense well in favor of the compressed air power. As to electric haulage, the question, they state frankly, is more open to debate. It is freely admitted that there is more room for honest difference of opinion in regard to the comparative expense of these two systems. It is admitted that a special test made of electric installation, under the best conditions, will, if properly designed and constructed, undoubtedly show considerably



Compressed Air Locomotive—Made by the H. K. Porter Company, Pittsburg, Pa.

shaft. The success of the electric mine locomotive in hauling coal on main headings has created a demand for a better, cheaper and more satisfactory method of gathering coal, or in other words, an efficient substitute for the mule for this class of work. To meet this demand some manufacturers have designed and built small locomotives especially adapted for switching in mines and hauling the pit cars from the "face workings" to the entry to the main headings. There the cars are picked up by the larger locomotives and hauled in long trains to the tippie or the foot of the main shaft.

The illustrations with this article show modern electric mine locomotives and how they are operated. They work exactly like the modern trolley car, whether they are given power by an overhead trolley wire or by means of a third-rail running in a slot between the rails. The advocates of the trolley wire decry the attempts to show that

COMPRESSED AIR.

The latest system for underground and surface haulage is that for which the power is furnished by compressed air. Those who favor this sort of equipment for the conveying or transporting of mine cars from one part of the workings to another, claim that among the practical advantages of compressed air, the most obvious and that which should appeal with greatest force to operators as peculiarly advantageous for underground work in coal mines where there is the faintest possibility of danger from mine gas, is that compressed air locomotives are absolutely and positively safe against any danger of setting fire to mine gas, and producing such disastrous accidents as have unhappily taken place in almost every coal field of the world, both in the bituminous and anthracite regions. This, then, is a consideration which they urge as one of paramount importance in the sec-

greater efficiency than any single test can show made along the same lines of haulage. It is further frankly admitted that if an electric haulage plant could be operated always and continuously at the highest rate of efficiency as shown by special test, it would be impossible to maintain any claim for air haulage of equal or greater economy and efficiency. It is then asserted that it is impossible to, in practical daily work, maintain the high efficiency in an electric plant which may be shown in a special test.

Here, the sponsors for compressed air claim that their system is par excellence—that it shows to best advantage when reviewed by the results of the daily practical workings of the new system. It is asserted that in electrical haulage the power has to be used as fast as made when, on the other hand, the power for compressed air is never lost. It is claimed for this system that the compressor is working continuously at practically the same speed all day long, and that

this holds good whether one locomotive is in use or 20, and that all of the locomotives supplied by the compressor can be worked at their full power simultaneously, or all can be idle, without affecting the uniform economical operation of the compressor. This, they assert, means the economical use of steam and the saving of fuel used to produce it. This fact, it is asserted, is never made use of by theorists when writing articles on electric hauling.

One objection is frequently made against the use of compressed air on the ground that much power is lost through the great friction developed by the compressed air passing through a long pipe, especially where small pipe is used. This objection, is declared to be wholly theoretical, and not borne out in fact.

A compressed air haulage installation consists essentially of the following equipment: First, suitable compressor, generally operated by steam, but which may be operated by water power or any other form of power that may be more convenient or cheaper.

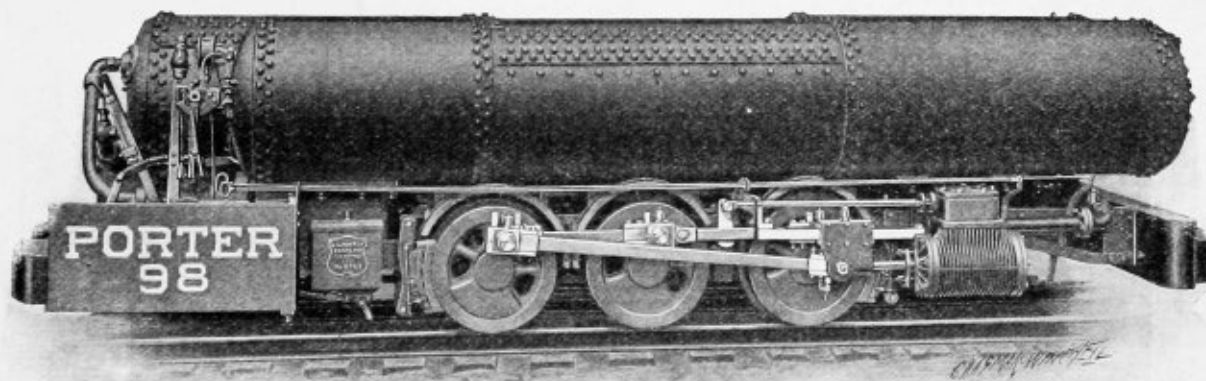
The method of operation of air haulage is as follows: The compressor which has a capacity of intake of cubic feet of air commensurate to the amount of output, length of haul, and grades encountered, is adjusted as to speed and maximum pressure of air, and is operated at a very nearly uniform rate during working hours. If business is slack, the compressor may be adjusted to a lower air pressure, or to deliver a lesser amount of air in a given time, and also in its daily operation, is automatic, slowing down in speed, or increasing in speed, as may be demanded at the moment. This secures the utmost economy in the production of the compressed air which is the operating power of the locomotives. The compressor pumps the storage system of tanks, or pipe line, up to the required pressure, and, as this pressure is reached, slows down.

The compressed air locomotive is connected with the charging pipe at the station and then the air is turned on, connecting the locomotive to the line pipe.

cut loose, and start off again on another trip inside of one minute and a half.

The compressed air locomotive is essentially similar to the steam locomotive; the tank holding the compressed air taking the place of the boiler on an ordinary locomotive. Some persons have had the idea that the amount of air pressure carried by a compressed air locomotive is dangerously high. The opposite is the fact, as the compressed air locomotive is much safer, so far as liability of accident is concerned, than a steam locomotive.

The locomotive tank is made of heavy high tensile steel, quadruple or sextuple riveted joints, with inside and outside welt strips, with heavy steel head, hydraulically flanged. The rivet holes are drilled, the tank fitted exactly together, and the riveting done with a pressure of 150 tons. The pressure which the tank is to carry is settled before hand, and by no possibility can this pressure be exceeded. Under this system, no explosive power can possibly be developed.



Compressed Air Locomotive—Made by the H. K. Porter Company, Pittsburg, Pa.

Second, a storage system, which in some cases may consist of a number of storage tanks, but which for mine work is generally secured in the most convenient and satisfactory manner by a pipe line. Third, charging stations, situated at whatever points may be most convenient, and fourth one or more compressed air locomotives. These are chosen of such weight and power and of such tank capacity and air pressure as the special service requires.

All of these items which go to make up a fully equipped compressed air installation, are simple, and they are claimed to be easy to keep in good order, and are held to involve a very low cost of permanent maintenance. The locomotives and the compressor are the only parts of the equipment which are specially liable to wear and they are manufactured with this in view, having especially large wearing surfaces, are readily accessible, involve no unusual or objectionable speed, and if properly proportioned to the work to be done, will last, with ordinary care, from 10 to 30 years.

This equalizes the pressure, making the pressure in the pipe line and the locomotive the same. The locomotive is then detached from the pipe at the charging station. The usual charging pressure for air locomotives is seldom less than 700 pounds, and not over 900 per square inch. The pipe line is generally charged with a pressure about 200 pounds greater than the pressure required for operating the locomotive, so that when the pipe line and locomotive are connected, and the pressure equalizes, the locomotive is charged to the required pressure, say 800 pounds. The locomotive, when charged, starts off on its trip, and when the pressure has been reduced to, say about 100 pounds, it comes back for re-charging. Meantime the compressor has been steadily working raising the pressure in the pipe line from 800 to 1,000 pounds, and everything is in readiness to charge the locomotive again to the pressure of 800 pounds. A locomotive coming back for a charge of air, can be stopped, attached to the charging pipe, charged to the required pressure,

So far as controlling the pressure used, compressed air locomotives are vastly safer than steam. A very essential feature of the construction of a successful compressed air locomotive is the reducing valve. The valve is so constructed that while the pressure in the storage tank of the locomotive may be 1,000 pounds, which, as the locomotive does its work, drops down to such pressure as may remain after the locomotive has come back from its trip, the compressed air is delivered to the cylinders uniformly and at whatever pressure is found to give the best results. This pressure is generally 140 pounds.

The air is not delivered through the reducing and regulating valves directly into the locomotive's cylinders from the main tank, but first passes into an auxiliary reservoir, the main object of which is to afford a reserve of 140 pounds of air pressure which then passes in turn through a specially constructed throttle valve to the locomotive cylinders, where it acts practically just the same as steam would act. There is

no difficulty from refrigeration of the compressed air as used in these locomotives for the moisture is all squeezed out of the air by the great pressure to which it is subjected and hence when it escapes from the cylinders of the locomotive it is quite dry, and there is nothing in the air to freeze.

There is no definite standard of weight, length, height and width of air locomotives; they are built to suit all gauges of track, from the narrowest up to standard. In each case the locomotive is built to meet the requirements of the work. Mine owners need have no worry for fear that locomotives cannot be built to work in their particular mines. Air locomotives are built of all shapes, sizes and widths, merely the essential features being retained. Where the mine entry is quite low, one, two, or even three tanks of small diameter are used, making the locomotive very low in height. For mines where the entry is exceptionally narrow, a single tank is used; or even one tank on top of another. Where the space is exces-

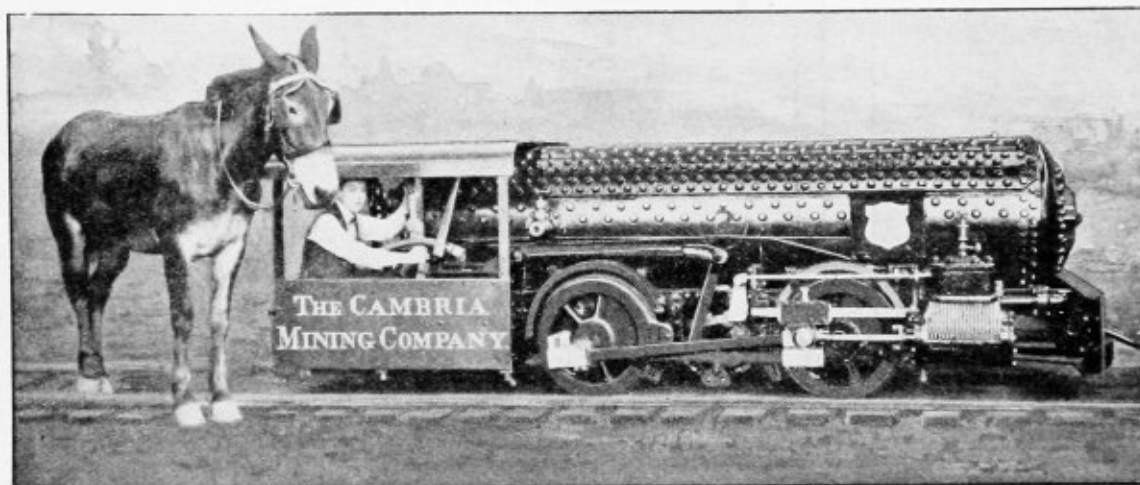
most thoroughly reliable and dependable. It is a system practically free from interruptions due to accidents or breakdowns to machinery. It does not require experts to run it and any steady man with average sense can soon be trained for the purposes of the different parts of the system, or plant. The initial cost for the installation of compressed air, as compared with electricity for haulage for the same output and under the same conditions, it is asserted, may be taken at practically the same figure. It is not only true that compressed air, compared with other systems of haulage, is safe from fire, but it is also of the very greatest value when, from any cause whatever, a fire or explosion may take place in a mine. Although compressed air, in its present perfected state, is a new thing, it is being adopted by many operators in this country, British Columbia and Nova Scotia, and it has been introduced into Japan. Wherever air haulage has been given a trial it has many sturdy champions.

several others and according to the well-defined policy of our lawmakers will be continued. Good will come out of it; the great discouragement is that timber-growing is always for succeeding generations, something that does not appeal with very great force to the average business American.

SMITH GRAVITY BOX CAR LOADER.

By W. W. Duncan.

The subject of mechanical loading of coal has long been one of interest. The old way of loading—and for that matter it is largely the present way as well—has been a constant vexation to the active operator, desirous of increasing his capacity and lessening his cost. It has long been recognized that mechanical loading was pregnant with possibilities of speed and salvage. But it has also been recognized that a mechanical loader which achieved less than



Compressed Air Locomotive—Made by the H. K. Porter Company, Pittsburg, Pa.

sively small, the locomotive tanks are made of seamless steel tubes, or bottles, one might call them, with a pressure of 2,000 or 3,000 pounds and this is just as safely handled as at the lower ordinary pressures.

The charging station is made very heavy, and of material suited to the pressure used, with metallic coupling, which is flexible, and allows some variation in the position of the locomotive when it comes to be charged. The pipe line is made of a specially selected grade of material, extra heavy, and with special screwed joints, which are so constructed that the pressure inside of the pipe tightens the joint and prevents leakage. At intervals, flanged joints are used, both for convenience in laying the pipe, and in removing short lengths of pipe if at any time this be desired. The loss of air due to leakages is so small that it hardly needs being taken into account.

Possibly the greatest advantages of compressed air haulage are along the lines of its exceeding simplicity and freedom from breakdowns. Compressed air has proved

WORTH WEIGHT IN GOLD.

The New York Daily News says: "It may be some comfort to those who fear that we are destroying all our forests to learn that the world's forest area at present is estimated at 2,500,000 acres."

That is all very true, but 2,500,000 acres of timber does not in fact mean nearly so much as it sounds to the ears of the uninitiated. The greater part of the world's timber land is lying farther and farther away from ready access to transportation and the day will come, unless most vigorous measures are taken forthwith, when, for every foot of timber cut, a foot of railway will have to be built. That will make timber worth its weight in gold. Fortunately state legislatures are awakening and an era of common-sense seems to be setting in.

The preservation of the forests is almost a hackneyed term and more people are wont to sneer at it rather than to carefully consider the question for what it is worth. A start has been made in this state and in

perfection in two certain respects would fail to serve the operator's requirements. These two respects are:

First, to load speedily and at economical labor cost.

Second, not to injure the coal.

Today much coal is loaded just as it was centuries ago, by pure sheer human muscle, but an entirely new note in mechanical loading has been struck with the advent of the Smith Loader, which loads by gravity, as fast as the coal can be brought to it. Loads any part of the car at will, and does not break the coal.

The Smith Loader, made by the Duncan Foundry and Machine Works, Alton, Illinois, receives the box car upon its cradle, at which moment loading may commence. It is usual to start loading in centre of the car, and by simple, easy handling the car is tilted to a proper angle to permit the coal, by gravity, to reach the end of the car; when this is accomplished (mark that the loading process has not ceased) car is tilted to its other end and

that end filled as well. Loads anywhere and in any kind of a car. In some cases, as with the Northwestern Railway Company, there exist cars where the doors on the opposite sides are not in line with each other. It will be easily recognized that with any other Loader of a type different from the Smith, it is difficult to facilitate the use of these cars. In other types of Loaders it is necessary that the doors are placed opposite. The coal coming from the chutes must enter directly opposite from the Loader to make it possible to place the coal at the proper point on the machine.

Frequently the trade demand that cars be loaded on each end only, leaving a vacant space in centre for easy entrance. The Smith Loader easily accomplishes this result, quite as easily as to load fully; before the chute is lowered the car is merely tilted to an angle sufficient to run the coal, the latter thus running exactly where desired.

The vital desideratum in loading is to secure a minimum of handling. Each handling of the product, every operation, means additional friction, breakage and loss. The vital feature of the Smith, loading as it does by gravity, is that the coal is delivered directly from the screen or chute into the car—delivered, not forced or thrown.

The pit is preferably installed with concrete; although masonry of stone or brick may be used. Concrete has advantages in that it is more cheaply installed and its efficiency in preventing seepage, etc., is beyond question. The installation of the pit requires on estimate, say, 171 yards broken stone, 103 yards sand and 160 barrels cement.

After completion of the pit, the bearings are placed therein. These bearings consist of four heavy castings, two at each side of the Loader. Into these bearings are placed the four heavy cast steel rollers, designed in such shape that the centre forms a raised ridge three-quarters of an inch high by two inches wide, around the entire roller, forming a positive guide to receive the cradle of the Loader.

The cradle is made up of a heavy net work of timbering, bolted securely together with bolts of large dimensions, and keyed together in such manner that joints cannot rack or loosen from the weight and strain. The two outside faces of the cradle are built up in a circular form, and upon these two faces twelve inch by one-half inch steel bands are securely bolted around its entire surface. Upon these plates are placed four rails, in pairs, rolled accurately to a known circle; the rails are rolled perpendicular with the base and ball; and when they are mounted in pairs with the bases together, there is by-way of the difference between the width of the base and ball, a space left which forms a way or groove around the entire surface of the cradle. The proportion of this groove is such that it conforms to the raised portion on the steel rollers previously mentioned, and the cradle in its moving or tilting operation, has a lateral

motion, the entire weight of the Loader, car and coal being taken on the faces of the four rails, which in like manner transfer the weight to the steel rollers and bearings below. The entire structure of bearings, etc., is low and compact, obviating any inclination to lateral tipping. At the top and in the centre of the cradle is placed the track to receive the cars; and at each end, in the centre of the track are located two stops of heavy pattern, which take the weight of the car when it and the car are in the tilted position. The stops are handled with hydraulic cylinders, and upon the face of the cradle, between the tracks are placed two heavy iron racks, with spaced notches to accommodate a moving backward or forward of the stops, thus permitting the use of different lengths in box cars. When the car is in loading position the stops take the thrust of the weight from the bumper of the car, thus avoiding possible strain upon a weak portion of it.

The tilting or rolling of the cradle is accomplished by means of two cylinders 15 inches in diameter, 24 feet long, moved by hydraulic furnished by a pump working under pressure of 250 pounds to the square inch. The 15-inch cylinders move, and the piston rod is stationary. To each cylinder head is attached a wire rope which in turn is attached to the cradle of the Loader, through which the movement is accomplished. A novel method of supplying the cylinders with water is through the piston. It is constructed of four and one-half inch extra heavy pipe, and by the agency of a part next the piston head it furnishes not alone the water supply, but also a source of escape when the cylinder is reversed for motion.

The pump used for operating the Loader is of heavy duplex pattern and of such capacity that a few strokes of the piston serve to turn the cradle of the Loader from one extreme point to the other in a short interval. It is plainly evident that the pump controls the capacity of the Loader and that by the mere turning on or off of the steam supply the capacity of the Loader is positively governed. The only parts of the pump exposed to wear are its working parts, and so much greater is the capacity of the pump than its required actual duty that the cost of maintenance is almost nil. The case with which the hydraulic power acts to perform the motion of the Loader, relieves all straining and racking of parts such as are experienced in the operation of other machines. The pump receives its supply of water from a small tank placed at any convenient point; and the exhaust of the Loader cylinders is led back to this supply or tank; thus the loss of water is reduced to a minimum when the Loader is in use. It is not necessary to stop the pump when reversing the motion of the cradle. For this purpose a four-way cock of heavy pattern is supplied, which governs absolutely the motion of the water.

The labor cost in the operation of the Smith Loader, is one of its economical fea-

tures. But one man (or boy) is required by the Loader, and one man to handle the cars.

The Cradle of the Loader is built with a two per cent. grade, so that at the moment the brake is released, the loaded car is in motion to be followed by an empty; and so quickly is this change effected that the box cars can be loaded practically as fast as flats. The speed is lessened only by a lack of celerity in handling the cars.

After installation the cost of maintenance is exceedingly small. For a number of years there should be practically no expenditure for repairs. The only parts that can possibly show wear are the valves in the pump, and as these are of large capacity they should last indefinitely.

Two Smith Loaders have recently been installed for the Carney Coal Company, of Sheridan, Wyoming, and one for the Consolidated Coal Co., of St. Louis, Mo., and are now in use.

BOX CAR LOADERS.

On the first inside front page will be found an advertisement of the Ottumwa Box Car Loader with illustrations.

No doubt almost every reader is familiar with the Ottumwa loader, but on account of its importance in the production of coal and the very few Box Car Loaders in use as compared with the number of operating mines in the United States, we feel justified in calling the attention of our readers to this advertisement.

Before the advent of the Ottumwa Box Car Loader, coal operators generally regarded the loading of their products in box cars as an expensive proposition and one to stay away from as much as possible. The Ottumwa Loader has gradually changed this feeling and the time seems to be rapidly approaching when it will be considered as essential to have a Box Car Loader as almost any other machinery about the mine.

A recent improvement and a very important one is the Ottumwa Car Puller attachment. There are very few mines that do not occasionally have to close down on account of cars being off the track or on account of the necessity of moving cars to continue loading and the inability to get a switch engine in time. With this car mover these expensive shut-downs can be avoided.

A new style of the Ottumwa Loader has lately been put on the market to meet special conditions. This is a portable or dock loader with boiler and traction power complete and the semi-portable loader with traction power but without boiler, the latter intended for moving a short distance in front of bins or pockets. One of these semi-portable loaders has just been sold to the Dominion Coal Co. for installing at Montreal, Canada, and one to the George Hall Coal Co. at Ogdensburg, New York.

Subscribe for "Coal and Timber."



Coal and Timber

PUBLISHED MONTHLY BY

COAL AND TIMBER PUBLISHING CO.

ARROTT BUILDING, PITTSBURG, PA.

Communications relative to news of coal and timber lands, mines, shipments, equipment, etc., as well as items of interest concerning owners, operators, shippers, and officials, are invited and should be addressed to the Editor of Coal and Timber.

Checks, drafts and remittances and all matters pertaining to the business department should be addressed to COAL AND TIMBER PUBLISHING COMPANY.

Telephone—Bell, Court 2388; P. & A., Main 1790.

Subscription \$1.00 per year. Single copies 10 cents.
Advertising Rates on Application.

PITTSBURG, APRIL, 1905

OHIO RIVER IMPROVEMENT.

Theodore E. Burton, member of the lower house of Congress and chairman of the Rivers and Harbors Committee, met the advocates of Ohio River Improvement at the banquet held by the Pittsburg Board of Trade in Pittsburg on Tuesday evening, March 7. Both hosts and guest expressed themselves frankly and candidly regarding the proposed deepening of the Ohio river and the slack watering of the stream so as to give Pittsburg and the Ohio valley a nine foot stage of water the entire year. An open and friendly interchange of views resulted from the feast of reason. Better mutual understanding was also a notable result. The chairman of the Rivers and Harbors Committee frankly assured the promoters and champion of a deeper river that the time was not yet ripe. At the same time he assured them that he fully sympathized with their desire and that the day would come when they would be realized. He said, during the course of his speech:

"The importance of these rivers cannot be overlooked, but do not expect impossibilities of us on \$20,000,000 or \$25,000,000. I hope the day will come when the coal boat and other craft bearing the products of this great industrial district, will float down the Ohio river, and on down the Mississippi to New Orleans every day in the year. This, I trust, is no dream, but as I said, do not expect too much of us. Help us by educating public sentiment in favor of a larger river and harbor appropriation bill. The messenger of progress knocks at our door. The timid will hesitate; the sluggard will linger, but there are those who will be ready to grasp the opportunity. I trust that Pittsburg will ever be in the forefront of that

material progress which is coming to this country as surely as time rolls around."

The congressman was right when he asked his hosts not to expect the impossible. The Rivers and Harbors Committee gets every cent of appropriation which it can from the general funds at the disposal of the government. It has the interests of the entire land to look after with this limited amount and cannot begin to satisfy the imperative demands of any one section. On the whole the Ohio valley was served very well by Chairman Burton and the balance of his committee. More is to be hoped for in the future. Ohio river improvement is coming as surely as the sun rises in the east and sets in the west. On Friday, March 17, United States Engineer, W. L. Sibert, located at Pittsburg, advertised for bids for the completion of the construction of the remaining dams in the Ohio which will give a nine-foot stage of water the year around between Pittsburg and Beaver. These dams will be finished in two or three years and this will greatly extend the period of annual navigation of the great interstate highway.

The powerful coal and iron interests of the rich valleys which feed the Ohio all demand the continuance of the improvement of the Ohio and nothing can put a stop to it. Delays there may, and probably will be, but a complete cessation of that which has been so well begun is something not to be tolerated even in our dreams.

MEANS MUCH TO WEST VIRGINIA.

Norfolk, Va., is to get the new Tidewater railway. That this city has been chosen as the sea-board terminus of the great coal-carrying railroad there seems little doubt.

While Norfolk is deservedly a subject for congratulation, Virginia and West Virginia are to benefit in an even greater measure, for the grand mineral resources of two great states will thus have more ready access to the sea. As the coal lands of Western Pennsylvania and Eastern Ohio are becoming and more fully developed, operators must scan the horizon for newer fields where opportunity is greater and where possibilities are unmeasured.

All that the greater part of the mountainous portions of West Virginia and Eastern Kentucky lack is transportation. As the roads of steel penetrate these former fastnesses, an era of commercial and mineral development the like of which this nation has never known is bound to come. Immense fortunes are laying hardly concealed upon the rugged bosoms of the great hill ranges of these states. To the financial pioneer will belong the greater part of the spoils.

With the development of the Tidewater railway, facilities will be accorded regions rich beyond the wildest imagination in the interior portions of the Virginias and Kentucky. It will mean virtually, the placing of West Virginia, Tennessee and Kentucky at the seaboard. The advantages of this, any blind man can see. But a very few

years and this project which, until recently, has almost been regarded as a dream, will be a living, tangible reality. To this whole portion of country it means a realization of the labors and investments of years. It will rival the Biblical story of the opening of Caanan.

JUDGE RODGERS' RETIREMENT.

Judge Elliott Rodgers left the bench of Allegheny county Pennsylvania on Saturday, March 4, to engage in the work of the Pittsburg Coal Company as general counsel. The eminent jurist was also elected a member of the board of directors of the coal company. Though one of the youngest men who have ever served in Allegheny county as a judge, he made himself a reputation which was cordially acknowledged by the entire membership of the bar. His career, as judge, though short, has been brilliant. His opinions, and he handed down many during his term on the bench, have been marked by a clear, incisive legal calibre. Many difficult and intricate legal questions fell to him to decide but he always went straight to the core of the matters and explained the law and the justice in disputes with really remarkable clearness and with uncommon acumen. What the bench of this county loses in the resignation of this talented jurist, the Pittsburg Coal Company gains in the securing of a lawyer whose service will be as satisfactory and as comprehensive as could possibly be hoped for. The day Judge Rodgers quit the local bench he handed down ten opinions, several involving difficult points of law. The court room had been tastefully decorated with choice bouquets of flowers by members of the bar and when the judge finally stepped from the bench he was surrounded by many lawyers who tendered him their sincerest wishes for success in his new field of legal activity. It was a demonstration which Judge Rodgers keenly appreciated and well might he do so for it was a deserved tribute of merit.

A WEALTH BEARING FLOOD.

Over six and a half millions of bushels of coal were shipped to the South from the Pittsburgh district early this month. This was the first considerable river shipment which had been made for several months and was fully appreciated by both coal operator and miner. It meant, to the operator, the return of cash which months before had been invested in the digging of the coal and the expense of maintaining it in safety during the months of drought. To the miner it meant more work, for the suspension of navigation for so long a term almost always means the shutting down of what is termed the river mines. The floods of waters bore down to the Southern market millions of bushels of coal which were sadly needed for the South had long ago exhausted the greater part of its sup-

ply of cheap fuel, mills and factories long the prohibitive point. With a renewed supply of cheap fuel mills and factories long idle were enabled to resume and thousands of workmen were given employment and manufacturers profitable operations. The breaking up of the winter was something in which every station of man in this part of the country will in some way benefit. The great results can merely be approximated. Such quickening of the pulse of industry starts in a diverging circle and affects hundreds of thousands of people whether toiler or capitalist. It is for the common weal. All the long course of the Ohio and Mississippi rivers will gladly and quickly respond to the abundance which this supply of fuel will mean. The parts of West Virginia and Kentucky which are in proximity with the great water courses will benefit equally and the resultant good will, in turn, be felt by the nation.

IMPORTANT LEGISLATION.

Bill No. 319, introduced in the Legislature of West Virginia and enacted into a law, will be watched in its operation by coal and coke operators and employers of labor generally with the keenest interest. It is styled: "A Bill prohibiting the use of deception, misrepresentation, false advertising and false pretenses, and unlawful force in the procuring of employes to work in any department of labor in this state and fixing penalties criminal and civil for violation thereof." The bill further explains itself as follows:

"That it be unlawful for any person, persons, company, corporation, society, association or organization of any kind, doing business in this state, by himself, themselves, his, its or their agents or attorneys, to induce, influence, persuade or engage workmen to change from one place to another in this state, or to bring workmen of any class or calling into this state to work in any of the departments of labor in this state, through or by means of false or deceptive representation, false advertising, or false pretenses, concerning the kind and character of the work to be done, or amount and character of compensation to be paid for such work, or the sanitary or other conditions of the employment, or as to the existence or non-existence of a strike or other trouble, pending between employer and employees, at the time of or prior to such engagement, failure to state in any advertisement, proposal or contract for the employment of workmen, that there is a strike, lock-out or other labor troubles at the place of the said employment, when in fact such strike, lock-out or other labor troubles then actually exists at that place, shall be deemed as false advertisement and misrepresentation for purpose of this act."

The penal section of this sweeping legislation provides for a fine of \$2,000, or imprisonment in a county jail for one year, or both.

As above stated, the operation of this legislation will be watched with the keenest

interest not only in West Virginia but throughout the nation generally. It seems that it is an act aimed directly at what is commonly called "strike-breaking." In all legislation which has for its purpose the effecting of reform of whatever sort it is of vital importance to so far as possible to forecast the operation of the law. Any legislation which is devised to do away with a practice thought to be pernicious should be examined as to whether or not worse practices may not result. The importation of labor from one field to another has oftentimes been followed by evil results but it is a question whether this is always the case or whether it is in the majority of instances. There are two sides to all such disputes and the employer is as much entitled to an audience as is the employed. Sometimes drastic legislation, as this appears to be on first blush, is really beneficial as heroic cures are in medicine, but too frequently radical laws prove retroactive and do fully as much harm as good. The operation of this law may do much for both employer and employee in West Virginia. It may compel them to adjust their differences among themselves much as family quarrels should be adjusted. It is to be hoped that this will prove to be the case if the law is finally decided by the courts to be constitutional, for doubtless they will be called upon to pass upon it should it be enforced.

SERIES OF CARTOONS.

Beginning with this number, Coal and Timber will issue each month a cartoon which will be of special significance to some department of the industries which it represents. In addition to being printed in the magazine, the cartoons will be printed on heavy plate paper, suitable for framing. They will be of such nature as to make very desirable office ornaments. The entire set of twelve cartoons which will be published, will be sent to every subscriber now on the lists or to those who send in their names during this month.

RIVER AND CANAL BOTH.

Chimical, possibly even yet, does the great project of digging and completing the canal across the isthmus of Panama seem. That wonderful improvement is coming so surely as will the sun rise and set. The tremendous undertaking has been taken on by the United States and this nation's credit and international standing is at stake.

What the completion of the colossal scheme will mean to the nation even the wildest dreamer cannot conceive. What it will mean to this section of the country is beyond the ken of living man. This part of the country, richest in minerals, will reap a boundless harvest, for the opening of the

isthmian canal will secure for it a vaster market than is possible to reach now by ordinary means of transportation.

With the opening of the canal, Western Pennsylvania, Western and Southern Ohio, Northern West Virginia, Northern Kentucky, Southern Indiana and Illinois will insist upon the permanent and adequate improvement of the Ohio river. To give all of this resourceful and vast region the fullest benefit of the Panama canal, Congress must authorize the deepening of the Ohio river and proper slack water navigation at all times of this great tributary of the Mississippi.

That this project will be carried on hand in hand with the digging of the great ditch across the isthmus, there can be little doubt. This part of the country is vitally interested in the completion of that wonderful enterprise but it is more nearly concerned in the making possible the navigation of our own streams as a means to availing ourselves of the greater improvement.

In the passage of the last river and harbor bill which carried about \$3,000,000 for improvements for the Ohio and its tributary streams. Congress shows to the country that it intends to carry on the work of bettering the inland waterways of this section of the country. Though the most ardent advocates of river improvement were doubtless disappointed that they did not realize more from their work, yet they must feel that much has been accomplished and that this is a foothold within the door and that the work will proceed.

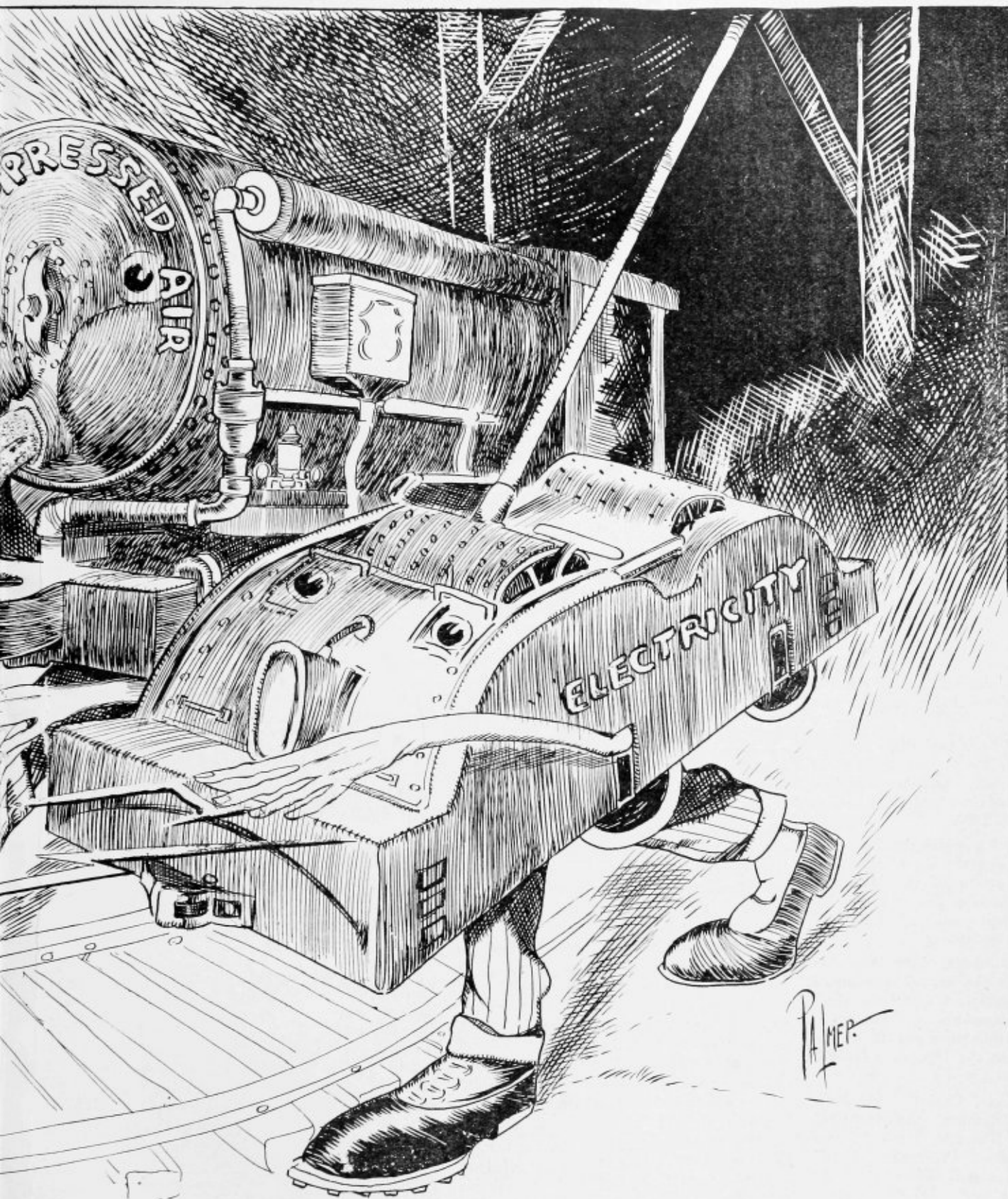
BETTER DAYS AT HAND.

The severity of the past winter had its effect upon the coal trade, which was at once dispiriting and enervating. The impossibilities of securing adequate transportation for much of the fuel mined, especially that which finds its way to the markets of the country by means of the rivers, caused a falling off in production. This affected both the operator and the miner. It was undoubtedly a hard winter but will soon be forgotten because it has passed and better days are at hand. The railroads were affected seriously too for several months by the unusually severe weather which prevailed without any interruption. It was a physical impossibility to transport the cars so fast as they were needed by both mine operator and the markets. At present the outlook is brighter than it has been for months almost years. There are absolutely no signs of halting in the industrial and manufacturing world and the cry from all parts of the country is for fuel; a steady and abundant supply of coal. It's an '11 wind that blows no good and the months of scarcity of fuel in the markets will be followed by an abundance for which a good price will be paid and for which there will be an unceasing demand. The orders are in for every mill and factory to turn out all of its product that they possibly can and vast quantities of coal are needed.



Coal and Timber Cartoon.
Number One.

THE THREE FATES OF THE M



INES, OR, THE MULE'S FINISH.

Drawn Especially for
Coal and Timber.

NEWS NOTES.

—Near Ellsworth, O., a five-foot vein of coal was struck at a depth of 110 feet while drilling was being made for water.

—Conrad Rucher, a farmer of near Lockbridge, Ia., has discovered a vein of fine coal six feet in thickness on his farm.

—The Salisbury Mine Co., of Bergholz, has gone into the hands of a receiver and the appraisal shows assets of over \$15,000.

—The Riverside Milling & Fuel Co., of Riverside, Cal., has been incorporated at a capital stock of \$50,000, of which \$40,000 has been subscribed.

—The Bon Air Coal & Iron Co., of Bon Air, Tenn., contemplates putting in operation 50 new coke ovens at their Eastland plant, in a short time.

—The Shawmut Coal Co., of Pennsylvania, is engaged in making a thorough test of the coal in the North Buffalo township field in Armstrong county.

—Coal discovered at the bottom of a well 75 feet deep, at St. Joseph, Mo., is thought to prove the existence of valuable deposits of the fuel in that territory.

—The Middle States Coal Co., of Columbus, O., is to erect from 250 to 300 coke ovens at its coal properties near Welsh, W. Va., at a cost of about \$75,000.

—The Pittsburg Coal Co. has begun the erection of an immense power house near Canonsburg, Pa., which will supply electricity to all the mines of that concern in that immediate district.

—A company of Iowa capitalists have organized a company for the development of mines near Oskaloosa. The concern will be incorporated as the Crawford Coal Co., at a capital stock of \$12,000.

—Because of trouble which developed between miners and operators, workmen have removed the equipment of the McKinley mine, North of Lisbon, O., and the 125 men who had been employed there will have to seek work elsewhere.

—President James Ross, of the Dominion Coal Co., stated at the annual meeting of the stockholders held last month in Montreal, that by an arrangement with the banks the company will, this year, pay off its liability of \$2,380,000 to the Dominion Iron & Steel Co.

—The New England Coal Co., has been incorporated in Columbus with a capital stock of \$1,400,000. The company had formerly been incorporated under the laws of Virginia. Of the 14,000 shares of stock, 10,000 are common and 4,000 6 per cent. preferred.

—A new one-day record for coal mining was established on March 13 at Vesta Mine No. 4, located at Coal Center, Pa., when 158,448 bushels of coal were brought to the

surface. The number of mine cars loaded during the day was 2,007, which was equal to 6,000 tons.

—According to the official figures given out by State Mine Inspector J. M. Gray, the coke production of Alabama during 1904 amounted to 2,284,095, with 8,969 ovens, though not one-fourth of the ovens were in operation. The production in 1903 amounted to 2,653,158 tons.

—Hon. N. W. Hale, congressman from the second congressional district of Tennessee, has entered the coal business in Virginia. He closed a deal, along with two partners, for 20,000 acres of valuable coal land lying in the very heart of the Southwestern Virginia coal fields in Buchanan county.

—The Saxman Coal & Coke Co., the Superior Coal & Coke Co., the Latrobe-Connellyville Coal & Coke Co., the Ligonier Coal & Coke Co., and the Derry Coal & Coke Co., all located at Latrobe, Pa., have consolidated. The new concern will control about 3,000 acres of coal, with 570 coke ovens.

—The Cleveland Cliffs Iron Co. has taken over the entire possessions of the Hall & Munson Co., in the upper peninsula of Michigan. The price, it is said, was \$370,000. The holdings include 72,000 acres of timber land, 23,000 acres of farm land, the town site of Ray Mills, stores, houses, mills and machinery.

—The Lorain Coal & Dock Co., with headquarters at Cleveland, O., has purchased the Conesville mine near Coshocton, O. It is a modernly equipped property, electricity furnishing the power. The Lorain company now operates five mines, the Wheeling Creek, Lansign, two Crescent mines, and the Conesville.

—The management of the Sante Fe railroad has decided to install a complete briquetting plant near Gallup, in New Mexico. It is expected to add millions of dollars to the value of the coal fields of the Gallup district. It is the intention to make the lignite product of the district into a marketable coal of average commercial value.

—William Dieringer and Elzie Green, of Edgington, near Wheeling, W. Va., are developing the coal on the farm of Mr. Green. The coal, which has been tested, is said to be equal to the Pittsburg vein. The mine is valued at \$100,000 and it is estimated that the output will be great enough to supply a large portion of the local trade of Wheeling.

—The Pittsburg Railways Co. has bought from R. B. McIntosh, 250 acres of land underlaid by six feet of the best coal, for \$155,000. The company's new land lies two miles West of Bridgeville, Allegheny county, Pa. The railways company will install an electric equipment and it is expected that a daily output of 1,000 tons will be reached.

—The Manufacturers Fuel Co., of Chicago, in which John W. Gates is interested, has sold to the Davis Coal & Coke Co., of Philadelphia, five coal mines at Belington, W. Va. The Belington & Weaver Creek railway, about 28 miles in length, was sold with the mining plant, together with a large number of coke ovens. The purchase price is said to exceed \$3,000,000.

—A coal deal involving over \$2,000,000 and the famous Indiana county, Pa., McCaughey coal field of 60,000 acres, has been closed by the transfer of the McCaughey leases to the Pittsburg, Indiana & Eastern Railroad Co. A new railroad route to tap the field has been surveyed and construction work on the road is to be rushed to completion. Clarksburg will be the center of operations.

—A charter has been granted to the Kittinging Run Railway Co., to build a line from Altoona, Pa., to Amsbry, Cambria county, which will be used as a coal road and will undoubtedly prove a valuable feeder to the Pennsylvania railroad. The capital stock is \$100,000. The new line, thought but 10 miles long, will penetrate a country rich in coal and timber and is expected to develop a large freight traffic.

—The Southern Land & Improvement Co., of Baton Rouge, La., financed by the Moreley Brothers, of New York and Detroit, which owns 25,000 acres of timber land in the swamps of West Baton Rouge and Point Coupee parishes, has decided to erect its new plant in the town of Sunrise, opposite Baton Rouge. It is the purpose of the company to construct one of the largest lumber plants in the country.

—Mayor David S. Rose, of Milwaukee, Wis., will have to answer to the charges of slander preferred in the complaint of the Gross Coal Co. under a decision by the Superior Court. The demurrer to the complaint was over-ruled. The Gross Co. sues for \$25,000 damages, basing its charges upon portions of political speeches made by the mayor during the last campaign and upon newspaper interviews regarding charges made by the company during the coal famine.

—The Danville Foundry & Machine Co., Danville, Ill., will ship a pair of their 20x36 hoisting engines to the Continental Coal Co., Columbus, O. Are also building for the Springfield Colliery Co., Springfield, Ill., a pair of their 24x36 hoisting engines and have just closed a contract with the Commercial Coal & Mining Co., of Philadelphia, Pa., for a pair of 24x36 engines for their mine at Coffeen, Ill. They also have under construction a large amount of work for British Columbia and for mining companies in the State of Washington.

—The West Riverside Coal & Mining Co., of Iowa, will open one of the largest mines in that state and in the immediate vicinity of Des Moines. Work will be started early this month and it is expected that the mine

will be ready for operation this fall. The prospecting and tests show that the product will be of the finest quality. The new mine will employ about 150 men additional to the 40 or 50 employed at its present Riverside workings. The company has acquired the lease of more than 200 acres of coal land in that vicinity.

—It is reliably stated that the Chesapeake & Ohio 70-mile extension up the valley of the Big Sandy river in Kentucky will be completed in a few days now. This work has been under way for about three years and its completion will signalize the opening of the greatest undeveloped coal mines in that region of country. During the past ten years many millions of dollars have been invested in territory which is penetrated by the new extension and plans are well advanced for the active development of the coal in mines and the building of thousands of coke ovens.

—The H. K. Porter Co., Pittsburg, Pa., have compressed air haulage plants under construction for the Jamison Coal & Coke Co., and the Keystone Coal & Coke Co., at Greensburg, Pa. Also small surface haulage plant for the U. S. Government in California; Philadelphia & Reading Coal & Iron Co., Gold Mining Co.; 18 inch gauge in Colorado; some very heavy air locomotives for the Frick Coke Co.; some small machines for the Pacific Coal Co., Ltd.; Alberta and the Durham Coal Co., North Carolina; and are also building a number of mine locomotives for West Virginia.

—The Columbus Coal Co., a new corporation organized recently under the laws of West Virginia, has taken over some valuable coal properties at Vaughn, W. Va., on the Chesapeake & Ohio railroad. The mine purchased produces about 150 tons of coal a day, but new electrical mining machinery is to be installed which will bring the product up to 500 tons daily.

—J. D. Little, of Canonsburg, Pa., has sold the Pittsburg vein of coal under his farm in Washington county to the Pittsburg Coal Co. The tract comprises about 65 acres and is of fine quality. The compensation is to be a royalty.

SHIPPING DEPARTMENT MOVED.

The shipping department of the Fairmont Coal Co. has been removed from Fairmont, Va., where it has been located for years, to Baltimore, Md., where Chester C. Shinn, head of the department, will have his offices. This is but a part of the general plan to unite all the shipping departments of the following coal properties: The Fairmont Coal Co., the Somerset Coal Co. and the Consolidated Coal Co. A wire has been installed in the shipping department at Fairmont which, has been connected with Baltimore, New York, Frostburg, Cumberland and Somerset, Pa. The orders for the shipping of coal are all to be issued from the main offices at Baltimore.

UNIONTOWN LETTER.

By H. G. Lawrence.

Uniontown, Pa., March 28—William L. Newcomer, of Messmore, has sold to James E. Hayden, of Hopwood, about 65 acres of timber in German township for \$5,000. The tract is principally oak timber and is estimated to cut 1,000,000 feet. The timber is on the B. & O. R. R. Mr. Newcomer realized handsomely in the farm of 130 acres, of which the timber tract is a part. Four years ago, he purchased the farm for \$4,500 and now he has sold the timber alone for \$5,000, and reserved all the land as well as the locust timber.

The stockholders of the Short Line Fuel Company met in Uniontown and elected these directors: Jesse V. Hoover and J. M. Howard, Masontown; D. M. Fair, Pittsburg; W. W. South and Martin Van Voorhis, Green county; George L. Hibbs, P. H. Franks and John T. Robinson, Uniontown, and P. G. Oglevee, East Liberty. John T. Robinson was chosen president and P. H. Franks secretary and treasurer. The holdings include a tract of coal between Fairmont and Clarksburg, W. Va.

C. C. Gadd, formerly superintendent for the Frick Coke Company at Oliphant and Continental No. 1 plants in Fayette county, is now superintendent for the Cascade Coal & Coke Company, in Clearfield county, where his company is building two plants, one of 400 ovens and the other of 200. They have just completed a pump that cost \$10,000 to make and equip, its capacity being 4,000 gallons of water per minute.

The ground has been staked out for 25 ovens at Lemont for the Hogsett Coal & Coke Company of Uniontown.

Of the plants now in course of erection in the coke region, two of the most important, are near Smithfield, in Georges township, Fayette county, where the H. C. Frick Coke Company will build 500 ovens at York's Run, and 300 ovens on the Shoaf farm. The work will be pushed, but it is not expected the two plants will be completed before the fall of 1905. The contract for driving the slopes was given to Cornish Bros., of Uniontown, and it includes a double haulage way 18x12 feet. At the York's Run plant the slope goes in 180 feet and the way is being cut through the solid rock with dynamite. At the Shoaf plant it goes in 80 feet. In the bottom of the pits will be concrete chain hauls with an endless chain in the hauls so that the loaded cars will be kept going up all the time and empty cars descending. This is an improvement over anything of the Frick company in the region. The opening up of these two mines will cost the Frick company about \$10,000. Coal is now being mined at both places. The contract for 500 ovens at York's Run was awarded to Owen Murphy. Contractor Thomas Stark, of Greensburg, is building the 300 ovens

at the Shoaf plant, The W. G. Wilkins Company, of Pittsburg, were the architects and engineers on the construction work at both these plants.

The Connellsville Central Coke Company started in March on the construction work for 50 new ovens on the Miller farm near New Salem, in Fayette county. The company has 150 ovens in operation and is building 50 more. The company recently purchased about 51 acres of the Jacob Graham and Oliver Jeffries tracts of coal. They are constructing an electric motor line to develop the tract recently bought. They will use a 10-ton electric motor and expect to haul 20 wagon trips about three-fourths of a mile. The coke company is composed of Herbert Dupuy and J. H. Hillman, of Pittsburg; John P. Brennen, Scottsdale, and J. C. Neff, Masontown. The engineering work was done by the Fayette Engineering & Contracting Company, of Uniontown.

A summary of the statements of the 22 national banks of Fayette county show a much better showing in March than in November. The March statements show total resources of \$14,275,678.89, or a gain of \$1,040,454.85 over November. The loans and discounts are \$7,633,677.18, the gain being \$296,260.94. The surplus fund is \$2,202,594.18, the gain being \$78,256.18. The individual deposits subject to check reach the magnificent total of \$8,733,148.17, the gain over November being \$624,811.30. The banks of Uniontown are far in the lead of all towns of the county, with resources of \$5,215,364.04; loans and discounts, \$2,592,997.55; value of banking houses, furniture and fixtures, \$1,048,235.39; capital stock, \$300,000; surplus fund, \$1,206,000, and individual deposits subject to check of \$3,427,750.11.

THE MARCH BILL.

The March bill introduced into the Pennsylvania legislature providing a tax of three cents per ton on all coal mined in the Keystone state has caused a natural storm of opposition from operators and miners alike. The unpopular measure is alleged to have emanated from the brain of Governor Samuel W. Pennypacker. It is expected that the bill will die in committee, so widespread and vigorous have the protests been against its being enacted into law. If the March bill should, by any miscarriage of justice, be passed and become law, it will probably be so modified that its sponsor will hardly be able to recognize his own legislative offspring. Headed by Francis L. Robbins, president of the Pittsburg Coal Co., and ably seconded by ex-Judge Elliott Rodgers, the coal men of Pennsylvania, without exception, have raised such opposition that the leader of the Republicans, Senator Boise Penrose, has had the bill sent back to the Ways and Means committee. From this cover it is improbable that the proposed piece of legislation will ever emerge.

HARRISBURG LETTER.

By Geo. M. Wanbaugh.

Harrisburg, March 27.—The March bill imposing a tax of three cents on every ton of coal mined in Pennsylvania, which was introduced in the House of Representatives one week ago, reported from the Ways and Means Committee the following day, passed the first reading on Wednesday and then sent back to committee for a hearing tonight, probably will not be heard of again this session. A close canvas of the Senate and the House shows that a majority of the members of both of these bodies are convinced that if the bill should become a law it would seriously cripple the coal industry of the State and under no conditions will they vote for it in any form.

Realizing that the bill cannot pass either body in its original form, those having it in charge have suggested that it be amended by imposing a three-mill tax on bituminous coal and a five-mill tax on anthracite. Colonel John A. Glenn, tax expert of the Auditor General's department, says that if the bill were to become a law in its present form it would raise a revenue of \$5,200,000 annually and as it is proposed to amend it it would produce \$650,000.

There is a difference of opinion among the State authorities as to whether or not the bill would be constitutional if it were amended as suggested by its sponsors. Colonel Glenn insists that it would and Attorney General Carson and Deputy Attorney General Fleitz are just as certain that the proposed change would defeat the purpose of the measure. Governor Pennypacker believes that some such a law should be passed, but there is nothing to indicate that he is doing anything to force the passage of the March bill, the full text of which follows:

"An Act to provide additional revenue for the Commonwealth by imposing a tax of three cents per ton upon all coal mined within the State and providing for the collection thereof.

"Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met and it is hereby enacted by the authority of the same, That, from and after the passage of this act, every person, firm, partnership or corporation engaged in mining coal within this Commonwealth shall pay to the State Treasurer for the use of the Commonwealth a tax of three cents per ton upon each and every ton of merchantable coal so mined.

"Section 2. It shall be the duty of every person, firm, partnership or corporation engaged in mining coal within the Commonwealth on or before the thirtieth day of December of each year to make a report under oath or affirmation to the Auditor General of the number of tons of coal mined by him, they or it, during the year

ending the preceding October thirtieth upon which a settlement shall be made by the Auditor General and State Treasurer against such person, firm, partnership or corporation and in favor of the Commonwealth at the rate of three cents per ton for each and every ton of coal so mined in addition to any other tax imposed by existing law. A copy of the settlement shall be sent to the person, firm, partnership or corporation against whom it is made and payment must be made or an appeal taken by him, they, or it, within sixty days from the date of said settlement, failing which the account shall be certified by the Auditor General to the Attorney General for collection according to law.

"Section 3. If any person, firm, partnership or corporation engaged in mining coal within the Commonwealth shall fail or neglect to make report under oath or affirmation, as provided in the preceding section to the Auditor General, of the number of tons of coal mined by him, they, or it, during the preceding year, the Auditor General and State Treasurer shall proceed to make an estimated settlement against such delinquent person, firm, partnership or corporation from such data as they may be able to procure, and in addition thereto impose a penalty of twenty-five per centum (25 per cent.) of the gross amount which the said person, firm, partnership or corporation shall be then required to pay.

"Section 4. If any person, firm, partnership or corporation shall neglect or refuse to pay the amount of tax found to be due the Commonwealth and settled against him, they, or it, under the provisions of this act within sixty days from the time such settlement is made, he, they, or it shall be liable to a penalty of twenty-five per centum (25 per cent.) upon the amount of said settlement added thereto with legal interest upon the entire amount for the period which it may be in default.

"Section 5. All acts and parts of acts inconsistent herewith be and the same are hereby repealed."

The bill introduced earlier in the session imposing a tax of five cents a ton of coal and the Marsteller bill levying a tax of five cents a barrel on petroleum produced in this State are being held up in the House Ways and Means Committee and no attempt will be made to force them out. The consensus of opinion among the senators and representatives is that the State is raising all the revenue it needs and that it would be a great mistake to make any change in the present State tax laws.

The bill introduced in the House of Representatives by Mr. Thompson, of Fayette county, to further protect the miners in the bituminous regions of Western Pennsylvania has not been received with much favor generally by the members of that body. The bill amends the present act for bituminous coal mine inspection by providing also for the daily inspection of the roofs and sides of mines for the pur-

pose of ascertaining whether or not they are properly supported by timber or other materials, so that they may be in safe condition for the miners to work or travel therein. This is in addition to the precautions against gas and fire damp in the mines.

The United Mine Workers has a strong lobby here in favor of the passage of the bills making Dauphin county a separate mine inspection district; making eight hours a legal day's work in the anthracite regions, and prohibiting the employment of boys under sixteen years inside the mines and boys under fourteen years outside the mines in the anthracite regions. All of these bills have gone through the House and are in the Senate Mines and Mine Committee, which is sometimes termed the "graveyard of the miners' bills."

James E. Roderick, chief of the State Department of Mines, who has had many years' experience as a miner and mine inspector and superintendent, is opposed to much of the proposed legislation, because he believes it is impractical and would work injury rather than good to the cause of the miners. Alfred B. Garner, of Schuylkill county, the special champion of the Mine Workers in the House, does not see much chance for favorable action by the senate committee on these bills and certain other mine bills in which the anthracite miners are interested.

The bituminous miners generally are opposed to the bill making Dauphin county a separate district, because they believe its mines are not of sufficient importance to give them one inspector, although they are making no effort to prevent its passage. Mr. Hohman, of Cambria county, made a vigorous fight against the measure when it came up in the House for final passage and quoted from the latest report of Chief Roderick to show that it was unnecessary, but his efforts were futile.

Mr. Garner in reply to Mr. Hohman said that the bill had been agreed upon at a conference between Senator Penrose and John Mitchell and the senator was as anxious as the anthracite miners for its passage. Governor Pennypacker declined to be influenced by the Mine Workers who asked him to disapprove the bill increasing the clerical force in the State Department of Mines. The governor has been keeping close tabs on the work of the department and when the bill reached him he lost no time in signing it.

The bill authorizes the chief to appoint a deputy at a salary of \$2,500 annually and increases the salary of the chief clerk from \$1,400 to \$1,600. Mr. Roderick has promoted his chief clerk, Frank Hall, of Harrisburg, to deputy and advanced Orson V. Smith, of Mansfield, from an ordinary clerkship to chief clerk. Other changes will be made in the department after the close of the present legislative session.

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CONNELLSVILLE LETTER.

By Raymond Cole.

Connellsville Pa., March 25—All records of coke production and output in the Connellsville regions have been broken during the past month. The estimated tonnage of coke produced in the Connellsville and Lower Connellsville districts in March will reach over 1,500,000 tons. At this rate, production of coke for 1905 would total upwards of 16,000,000 tons in the Connellsville regions alone. The best previous record for production is a little over 13,000,000 tons. Another feature of the coke trade so far this year is the fact that prices are profitable. That this is true is evidenced by the fact that wages were advanced a short time ago ten per cent. Coke for the second half of this year easily commands \$2.40 for standard furnace. Foundry runs from \$3.00 to \$3.25, and better.

Production has not been equal to demand. In the Connellsville region proper, there are 21,310 ovens of the total 22,655, making coke six days a week. The H. C. Frick Coke Company have not an idle oven, except those scattering here and there that are out for a day or two for repairs. Of the 1,345 ovens reported out, more than half are idle because their coal supply is exhausted, and the others are not in repair for operation.

In the Lower Connellsville region, there are 6,362 ovens. Only 135 of these ovens are out of blast. These idle ovens are either in course of construction or are out for repairs. Tonnage of the two regions is averaging close to 350,000 tons a week. Shipments of coke out of the Connellsville region have reached the phenomenal total of nearly 15,000 cars a week. Last week they were 14,831, and this week they may go to 15,000 even or very close to it. Of these shipments the West is taking the lion's share. More than 8,000 cars of the 14,000 odd cars last week went to Western consumers. Pittsburg stacks took the balance, except 1,200 odd cars that went to points East of Connellsville. The East, naturally, has been complaining. Consumers there have entered a protest that they are not getting their pro rata share of coke.

Small operators of the Connellsville region are enjoying prosperous times as a result of prosperous times made by larger operators, chiefly the H. C. Frick Coke Company, who this year set the pace for higher prices of coke as the only means of maintaining firm market conditions.

A feature of mining and coking in the Connellsville region in recent months is the development of the Upper Freeport vein of coal by the Semet-Solvay Company, operating the Semet-Solvay ovens at Dunbar. This vein of coal, which averages about four to five feet, is being successfully mined and coked in by-product ovens of the Semet-Solvay Company, at

Dunbar. The coke is used by the two stacks of the Dunbar Furnace Company and has given excellent results.

The opening of three big plants of the H. C. Frick Coke Company now in course of construction, will add 1,000 ovens to the total of the Connellsville region. Three hundred of these ovens will be built at Shoaf and 500 at York Run, on the Smithfield & Masontown branch of the Baltimore & Ohio railroad. The other plant of 200 ovens will be built at Bitner, on the Ohio & Baltimore short line of the Baltimore & Ohio. All of these plants will be in operation before the first of next September.

Within the past week the Republic Iron & Steel Company let a contract for 400 ovens in the Lower Connellsville region on the Monongahela railroad. This short road running from Brownsville into the Lower Connellsville district, taps a great tonnage district. It is operated jointly by the Pennsylvania and the Pittsburg & Lake Erie railroad companies. The Orient coke plant, of 300 ovens, and Labelle, with 200 ovens, on the same road, will shortly come into the operating works of the region.

In Wharton township, a coal field of Fayette county, wholly unknown to the operators, there has been much activity in optioning within the last few weeks. This is occasioned by positive assurance that a short line is to be built by the Baltimore & Ohio railroad from Confluence, on the Connellsville Division, to Belington, W. Va. This road will open up a rich territory in coal and timber. Thousands of acres of coal and timber are yet in virgin state in this township, not to mention great forests in Northern West Virginia, which will be tapped by this line. The coal in Wharton township is of good depth, it is claimed, from seven to nine feet, but it has always lacked operating facilities. On the West Virginia border timber exists in practically the only tracts, except that of the Stewart estate at Ohiophyle, that has not been drawn on by mills in Fayette county.

The building of two dams by the Pennsylvania Railroad Company in the Indian Creek Valley will prevent development of 50 square miles of coal and 65 square miles of timber. The coal in this valley is of less value than the timber. It is small of vein, not averaging over four feet. And besides it is not as clean as veins of similar height, for instance in the Windber district of Somerset county. However, it is of merchantable quality and would find a ready market should a railroad be built into the territory. Timber on the head waters of Indian Creek is of the highest quality. Millions of feet of oak stand there awaiting the entrance of railroad facilities to be placed upon the market. The nearest railroad connection of any kind to this timber is close to 20 miles. The erection of dams on Indian Creek, from three to five miles above the confluence of that creek with the

Youghiogheny river will shut off all possibility of the construction of a railroad up the Indian Creek Watershed.

At present litigation is pending for the prior right of charters between the Indian Creek Valley Railroad Company and the Mountain Water Company, which is subsidiary to the Pennsylvania Railroad Company.

The Pennsylvania Company, in this plan to store water of Indian creek, has in view a permanent water supply for the Pittsburg Division as far East as Johnstown. Last summer the railroads lost hundreds of thousands of dollars on account of water famines. The Pennsylvania was not the least among the losers. Their locomotives failed with coke trains out of the Connellsville region in such numbers that consigned loads were shunted onto side tracks for miles. Freight congestion resulted, shipments were delayed, furnaces were compelled to bank for want of fuel and, trade conditions generally suffered. A 36-inch main is now to be laid from two storage reservoirs in the Indian creek valley, following the Baltimore & Ohio right of way from Indian creek to Connellsville, seven miles along the Baltimore & Ohio and from Connellsville to Pittsburg along the right of way of the Pennsylvania Company. Three hundred men were put to work this week on the mains and dams.

The Snider tract of 120 acres of Connellsville coking coal, one of the last bodies of this seam still in the hands of the original owners in the district, is reported sold for a consideration of \$100,000. The tract is located a short distance West of Uniontown on the National Pike. Harry and George Whyel, independent operators, are the reported purchasers. They now have two plants in operation in the Lower Connellsville region and the Snider tract would give them coal for a fine 100 oven plant on the line of the Pittsburg, Virginia & Charleston railroad.

Adjoining this tract is one of more than 100 acres owned by Fayette county. It is under the surface of land owned by the county surrounding the Poor House. The coal is the regular Connellsville nine-foot coking vein and is worth at a small estimate, more than \$150,000. Lately there has been some talk of the county authorities developing this coal. The surface is deep enough to prevent damage to the property for farming purposes, the only use to which it is at present put.

In the district between the Youghiogheny and Monongahela rivers, opposite Fayette City and Jacob's Creek, there may be coal purchase before long. The Washington Coal & Coke Company now have the largest plants in the Lower Connellsville region in operation at Star Junction and Perryopolis, in this district, but between their plants and the Monongahela river there are still large bodies of coal held by original owners.

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COAL AND COKE MARKETS.

"We anticipate an unusually active season in the coal trade when lake navigation opens, as the inquiries from northwestern consumers are exceedingly heavy." So remarked Vice President W. R. Woodford, of the Pittsburg Coal Co. yesterday to a representative of this paper. The other officials of the company, including Francis L. Robbins, are as sanguine as Mr. Woodford, and say the indications for a prosperous season are very encouraging. Continuing on the market conditions, Mr. Woodford said: "At present the industry, so far as the bituminous branch is concerned, is inclined to be quiet. This is the period between seasons and is exactly what we expected. But lake navigation will open with 10 days, it is thought, and the movement of our coal to the docks will commence at once. We are confident that the tonnage shipped across the lakes last year will be eclipsed during 1905. A distinguished feature will be the improved transportation facilities offered by the railroads. During 1904, one of the greatest handicaps was the lack of gondolas and hoppers, but the railroads have been endeavoring to overcome this obstacle by ordering additional cars. Traffic to the lake will therefore be carried on with more speed than heretofore, which will make it possible for operators to ship more fuel."

W. C. Magee, president of the Pickands-Magee Coke Co., has nothing but confidence in the future of the coal and coke industry in the Pittsburg field. His company, which owns and operates over 1,000 ovens in the Connellsville field, is preparing to put 50 new ovens into commission as soon as they are received from the hands of the contractor who is completing them. Mr. Magee says:

"The coke industry is, at present, experiencing marked activity. The prospect for a continuation of present conditions and even further improvement is very bright. Rates are fast assuming their normal level and orders are coming in faster than we can fill them with that promptitude which is to be desired. The only drawback is the shortage of railroad cars. In spite of somewhat better conditions in this respect, there is still much to be desired. However, the railroads are augmenting their facilities and the supply of cars will soon be bettered. The whole Connellsville field is humming with activity and this indicates what the entire Pittsburg district is doing, for Connellsville is the indicator of the rest of this region. The trend of the iron and steel industry, on which the coke trade depends, is the very best that could be hoped. The coal trade is a little quiet now, but with the re-opening of lake navigation, it will become stronger than for years."

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NEW CORPORATIONS.

The following new corporations have been granted charters:

Hartje Coal Co., Chicago, capital, \$10,000; general wholesale and retail coal business.

Zenobia Coal Co., Toledo, O., capital, \$15,000.

Mohr-Minton Coal Co., Columbus, O., capital, \$100,000. They will mine and deal in coal.

Charleston Lumber Co., Charleston, W. Va., capital, \$50,000.

Huntington Coal & Lumber Co., Huntington, W. Va., capital, \$10,000.

Charleston Timber, Mining & Manufacturing Co., Charleston, S. C.

Five Fingers Coal Co., St. Paul, Minn., capital, \$500,000.

Meyer-Shepherd Lumber Co., Platteville, Wis., capital, \$25,000.

Dayton Gas & Coke Co., Dayton, O., increase of capital stock from \$1,000,000 to \$1,500,000.

Connecticut Coal Co., Bridgeport, Conn., capital, \$50,000.

West End Coal & Mining Co., Springfield, Ill., capital, \$50,000.

Lakewood Lumber Co., Cleveland, O., capital, \$50,000.

Jacobs-McDonnell Logging & Lumbering Co., Washburn, Wis., capital, \$2,000.

Harper's Ferry Timber Co., Harper's Ferry, W. Va., capital, \$25,000.

King Knob Coal Co., Milwaukee, Wis., capital, \$150,000.

Benedict, Downs & Co., New Haven, Conn., capital, \$50,000.

Rushbrook Coal Co., Elmira, N. Y., capital, \$5,000.

Old Dominion Coal & Timber Co., New York, Capital, \$1,500,000.

Dells Lumber & Shingle Co., Eau Claire, Wis., capital increase of \$300,000.

Northport Lumber & Coal Co., Northport, N. Y., capital, \$2,500.

Cambridge & Muskingum Valley Coal Co., Cleveland, O., capital, \$10,000.

Moffat Coal Co., Sparta, Ill., capital, \$14,000.

Walker & Cherry Coal Co., Little Rock, Ark., capital, \$10,000.

Dorr Run Coal Co., Logan, O., capital, \$100,000.

Cadiz Coal & Mining Co., Cadiz, O., capital, \$250,000.

Cleveland Lumber Co., Cleveland O., increase of capital from \$10,000 to \$25,000.

Peters Millwork & Lumber Co., Cleveland, O., capital, \$25,000.

James Armstrong Lumber Co., Dyersville, Ia., capital, \$25,000.

Moxahala Coal Co., New Straitsville, O., capital, \$500,000.

A VITAL CORRECTION.

In February, a typographical error crept into Coal and Timber, which the paper desires to correct. In speaking of the work done by the Christy Box Car Loader, manufactured by the Christy Box Car Loader

Co., of Des Moines, Ia., an operator who had used the machine for four years was made to say: Our repairs on this machine have amounted, in three years, to \$881.40, on an actual tonnage of 45,000 tons handled by it, but even this figure of less than one-fifth cent per ton would be far less if we had one of the improved types." It should have read that the actual tonnage handled by the Christy loader in question was 450,000 instead of 45,000.

GREAT COAL SHIPMENTS.

The Monongahela River Consolidated Coal and Coke Co., of Pittsburg and other coal companies which mine coal along the pools of the Monongahela river, made two very large shipments of coal during the past month. Two rises in the river afforded the necessary stages of water and the coal companies which had suffered greatly by the long drought and the heavy freezes during the winter were enabled to send much of their coal to the Southern markets. Good prices were secured in each case for the Southern markets had been sorely straightened on account of the suspension in navigation in the Northern rivers. At least 6,500,000 bushels of coal were sent South on the rise which occurred the early part of the month and after the floods, which were unusually high this year, had spent themselves, over 10,000,000 millions more bushels of coal were sent southward the latter part of the month. The Joseph B. Williams, a large towboat, the property of the Monongahela River Consolidated Coal and Coke Co., left with the largest single tow of coal ever taken out of the Pittsburg harbor by one boat. New barges especially built for heavy coal traffic have been constructed and loaded. They contain over 33,000 bushels each. The Williams took 24 of these great barges, or 792,000 bushels, almost 200,000 bushels above the record. The C. Jutte Co. had a fleet of about 40 coal boats awaiting a shipping stage and got them started southward. The United and Budd Coal companies also had large fleets and were able to get most of their boats away on the last rise. This means months of work for the coal miners who work for the Monongahela river companies for the towboats which were down river at the time were enabled to bring up large fleets of empties to the upper river mines.

CUT IN CARGO COAL.

On March 22, M. A. Hanna & Co., of Cleveland, O., announced a reduction in the price of cargo coal for lake vessels of from \$2.60 to \$2.10 per ton. It is expected that the cut will be met by other coal producers. The cut is explained by the fact that the outlook is for a very heavy movement of coal this year.

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GREATER DEMAND FOR COAL.

Within a few days now lake navigation will be reopened. For several months the great inland seas have been frozen wastes and navigation has been impossible. In a short time the lakes will be free from ice and the mighty interchange of traffic from east to northwest will be resumed with the energy born of long captivity and interruption. The iron ores will be brought from the ranges and coal and coke will be shipped to the northwest in exchange. The opening of lake navigation each year always acts as a spur to the coal and coke industry. Coal will be demanded this year in the northwest in greater quantities than ever before for there is every indication that industrial activity this year and for several years to come will be away ahead of previous records. The railroads are showing their appreciation of the fact that the ore and coal traffic which they will be called upon to handle will exceed anything in history, for they have poured in their orders to car manufacturers for new equipment. It is figured out that the railroads east of the Mississippi need 50,000 new cars to handle the immense amount of tonnage which is to be disposed of in the next few months. The Pennsylvania railroad, alone, has placed an order for more than 15,000 cars, and other roads are doing so in proportion. Most of the cars which have been ordered are of the steel gondola type for the transportation of coal, coke and iron ore. These cars when received will be placed in commission in the Pittsburg and Central Pennsylvania districts.

BIG DEALS COMPLETED.

The Chartiers Coal & Coke Co. completed two great deals for valuable coal properties the early part of last month. At least \$250,000 was involved in the deal, and by means of the transfer this corporation comes into possession of most valuable lands in the Chartiers Valley and disposes of a tract on the Tom's Run branch of the Pittsburg, Chartiers & Youghiogheny spur of the Pittsburg & Lake Erie railroad.

Both of these extensive transfers of mining properties were made through Black & Baird, of Pittsburg. The Chartiers Coal and Coke Co. purchased through the brokers 484 acres of the best coal land near Oakdale on the Panhandle railroad. The tract was purchased from R. B. McIntosh, and the price paid was \$195,000. The McIntosh property which has just changed hands, lies on the North side of the Panhandle railroad. The company has already begun the development of its new lands. An opening will be made about 200 yards from the railroad and a switch of this length will be all that is needed to ship the cars direct to loading tipples which will be built during the coming summer.

As the purchasing corporation intends

to develop its territory for all that there is in it, it will mean the opening of a modern mine and the ultimate employment of 400 more miners. The enlarging of this mine will prove, undoubtedly, of the greatest benefit to the thriving town of Oakdale. A small bridge will be built across Thompson's Run. The equipment of the mine will be up-to-date and modern in every particular. The power to be used will be electricity. The complete development of the company's plans will require probably a year.

The other property figuring in the deal of the Chartiers Coal & Coke Co. was completed the same day on which the deal for the Oakdale land was made. By this deal, 40 acres of land on the Tom's Run branch of the Pittsburg & Lake Erie railroad is disposed of. The purchase was made by the Colonial Gas Coal Co., the consideration being \$50,000. The sale includes a small mine in good running order, from which coal has been produced for several years. The Oakdale property has never been developed and the price of \$400 per acre is about the average that has been paid for other mining properties in the same general vicinity during the past two or three years. It is underlaid with the Pittsburg vein, which at this point, is five and one-half feet in thickness. Preliminary work on the opening of the mines has already been begun.

HAYS MINE RESUMES.

The Hays coal mines, property of the Monongahela River Consolidated Coal and Coke Co., which is situated but a few miles above Pittsburg, has resumed operations after being closed down for over one year. It has begun operations again in all of its branches and has given steady employment to over 300 men. The mines are near Riley Station on the Wheeling division of Baltimore & Ohio railroad, the trestle from the mine running to the Monongahela river at Hays Station. Considerable difficulty has always been experienced in getting the coal from the mine to the river, where it has been loaded into boats, on account of the great distance which has to be traversed. Rope power is used in the mine and the pit cars are transported from pit mouth to tipple by means of small cam engines. This distance of transportation is said to have been the cause of the long shutdown.

MILLION DOLLAR COAL DEAL.

Berwynd, White & Co., of New York, have entered the soft coal fields of West Virginia, and purchases of property aggregating nearly \$2,000,000 were made this month. W. P. Rend, of Chicago, and his son, Joseph Rend, of Columbus, O., have sold to the New York Syndicate their mines in the New River field. By some, the con-

sideration has been placed at \$1,250,000; another report of the transaction says that the price paid for the immensely valuable properties was \$900,000 cash for the former owners and a guaranteed royalty of five per cent, on each ton of coal mined.

The properties which have been transferred are equipped with the most up-to-date machinery and mining appliances and consist of about 3,800 acres of coal land, which, with the equipment, represent an investment of from \$800,000 to \$1,000,000. The mines are on the Chesapeake & Ohio railroad at Rend, which is close to Thurman. Mr. Rend and his son invested in West Virginia coal after disposing of their Ohio holdings in Morgan county, four years ago.

Edward J. Berwynd represented the New Yorkers in the transactions. He also bought 1,800 acres of good coal adjoining the Rend tract from Colonel J. L. Beury. The purchases carry with them a fuel contract with the Chesapeake & Ohio road.

PRESIDENT SAVED TIMBER LANDS.

By the stroke of his pen President Theodore Roosevelt has saved to the government two and a half million acres of valuable timber land. This important action was taken during the closing scenes of the Fifty-eighth Congress. The act which was passed and signed prohibits the selection of timber lands in exchange for lands which have been included within forest reservations.

In 1897 the lieu-land law was enacted by Congress. It had no restrictions, simply entitling persons holding lands in forest reserves to make selections elsewhere in exchange for their forest reserve lands. In 1900, these lieu selections were limited to surveyed lands. Since the passage of these acts nearly 2,000,000 acres of forest reserve lands have been exchanged for other lands, and almost always has the exchange been made for timbered lands outside of forest reserves. Nearly half of this land so exchanged is owned by the land-grant railroads. A report to Congress from the Commissioner of the General Land Office places the amount of lands still held by these roads in forest reserves at 2,500,000 acres, and the prohibition in the act in question, that hereafter lieu selections must be made from untimbered lands, is calculated to save just that much timbered land which is outside of forest reserves.

Resolutions emphatically endorsing the action of the President in his energetic measures to save the timber of the country were adopted by the National Wholesale Lumber Dealers Association, in convention in Philadelphia.

We want agents to solicit subscriptions for "Coal and Timber." Liberal commission. Write for terms. Coal and Timber Publishing Company, 801-2-3 Arrott Building, Pittsburg, Pa.

THREE MODERN COKING PLANTS.

The H. C. Frick Coke Co., always the pioneer concern where radical improvements are concerned, is building three mammoth coking plants in Fayette county, Pa., between Fairchance and Uniontown. In addition to this, three modern towns for residences of the men and their families who will be employed are being erected. In the line of the conservation of energy and the most modern economies the new venture is unique.

One thousand ovens, in all, are being erected. The contracts for these were let several weeks ago and work is under way. The ovens are being built at Bitmer, Shoaf and York Run, each coking plant will be operated entirely independent of the others and complete sets of machinery are being installed in each. The new plants will have connection with the Baltimore & Ohio, and the Pennsylvania railroads, and are most admirably located for the shipment of fuel. It is expected that the new plants will be ready to begin operation early in the coming September.

The field which is thus to be completely and thoroughly developed has not been touched by the Frick company up to this time. It is the intention to expend all of \$1,000,000 in the primary work alone. The company has already erected 400 miners' houses at the new towns and two brick company stores are now in process of erection, one at Bitmer and the other at York Run. At Shoaf, a frame store is being built. These stores are to be the largest of the Union Supply Co., the mercantile end of the Frick company. In addition to these there is to be erected at Bitmer a power house with a complete electrical equipment for the operation of the mines and ovens at that point.

These great coking plants, when completed, will be the most perfect model of the thoroughly modern coking plants known. The plans have all been thoroughly worked out and no money to secure absolute perfection in equipment is being spared. The ovens are to be of the latest standard bee hive pattern, but instead of allowing the heat and flames to escape in the air, the energy thus given off is to be carefully con-

served and turned to good use. Each oven is to be completely hooded and the heat will be conveyed to a central power house which will be erected at Shoaf, and this will be available to run the entire new plant in its furnished condition as fuel ready-made. The saving of fuel in the main power plant by thus utilizing the heat which would otherwise be wasted is a new feature for the Frick company, as the nearest it has ever approached before has been to use part of this surplus material in the bi-product system. In this new system, however, there is nothing extracted from the quality of the coke which is to be manufactured and it will be correspondingly bettered.

SPECIAL.

FOR SALE—25,000 to 30,000 acres of timber rights in Randolph county, W. Va. Timber three-quarters hemlock and spruce (about equally divided), and will cut 20,000 feet per acre. Remaining one-quarter, hardwood, which will cut over 5,000 feet per acre, first-class stuff. Spruce and hemlock, \$21 to \$31 per acre; hardwood, \$11 to \$16, according to distance from railroad. Railroad within seven miles of property and building to it. One of the very few remaining spruce and hemlock tracts in the state of West Virginia.

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SITUATIONS WANTED.

WANTED—To correspond with parties in need of a Superintendent or Manager for a coal property—either producing or about to be developed. Must be a place where a good man can make a reputation. Am a practical Engineer of several years experience in developing and working W. Va. operations. Best of references. Have a good position but want a wider field with better opportunity for advancement. Address "A7," care COAL AND TIMBER.

WANTED—Position as Accountant or Assistant to Mine Superintendent, twenty-three years experience in coal office work; eight years as outside superintendent. References given. Address T.W.R., care COAL AND TIMBER, Pittsburg, Pa.

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COAL LANDS FOR SALE.

FOR SALE—Coal lands in Williamson and Franklin counties, Ill.

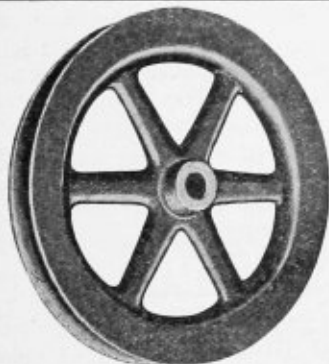
5,800 acres in Franklin county; all in a body and on and near two railroads.

3,200 acres in Williamson county; on and near three railroads.

800 acres on I. C. R. R.; only 49 ft. to coal; \$35 per acre.

Wanting a glass factory; give ground and cash bonus; have three railroads.

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510—1371 acres, coal rights, Monongalia Co., W. Va., at Pennsylvania State line, fronting two miles on Pools 8 and 9 of the Monongahela River and two miles from B. & O. R. R. Six foot vein, 237 feet deep. Ship by rail and river from same tippel. Natural drainage; fine coking coal. \$35 per acre.

513—13,012 acres mineral rights of which, 2,500 acres are in fee, in Dickenson and Russell Cos., Va., on Dumps Creek, containing six veins of coal aggregating 33 feet, being all the well known seams of Southwest Virginia. A right of way to N. & W. R. R., and 1000 acres surface lands. Well timbered. Price on application.

514—11,000 acres in Braxton Co., W. Va., on Elk and Birch Rivers, B. & O. and C. C. & S. R. 4½ to 7 feet of coal. Price on application.

515—39,000 acres, coal and oil property in Knott and Breathitt Cos., Ky. 15,000 acres in fee, 10,000 of which is finely timbered; remainder is mineral rights with necessary privileges. 5 well defined coal veins. 10 to 12 miles from R. R., but soon to be reached by extension connecting with N. & W. R. R. Located on Kentucky River, which is being locked and dammed by U. S. Government. Oil prospects fine. Price on application.

519—10,000 acres coal rights, including timber, of which 5,000 acres is in fee, on Little Coal River and other streams in W. Va. Price, \$17.50 per acre for limited time.

521—1200 acres of Pittsburg seam on the Fayette County side of the Monongahela River, Pa. An extraordinarily fine opportunity. Write for price.

522—610 acres coal at Bainbridge, Williamson Co., Ill. About fifty feet to coal. Price \$45 per acre.

523—694 acres, coal under lease, plant in operation, now shipping 250 tons per day, McDowell Co., W. Va. 25 Miners' houses, commissary store, tippel, etc. 900 acres adjoining this tract can be secured. Coal averages 4 feet.

524—30,000 acres, coal and timber lands, Wyoming and Raleigh Co., W. Va. R. R., within four miles of property, two seams of coal, Pocahontas, No. 3 and No. 6, four and a half and six feet in thickness. Timber original forest growth. Price \$30 per acre.

525—3,000 acres, coal lands in Clay and Braxton Cos., W. Va. R. R. within half mile to boundary. Price \$24 per acre.

526—600 acres, coal lands in Clay and Braxton Cos., W. Va., about two miles from Coal & Coke R. R.

531—10,000 acres, coal in Raleigh Co., W. Va., property contains Pocahontas, New River No. 1 and New River No. 5 and Sewell No. 4 coal. Low freight rates to Tidewater. Analysis of coal shows fixed carbon nearly eighty per cent. Prof. White says: "Pure Anthracite, equal to Pennsylvania." Price \$45.50 per acre.

532—7,500 acres, New River Coal, Webster Co., W. Va., on the B. & O. R. R. Drift formation, self draining, excellent proposition at a very low price. \$14.50 per acre.

533—1,600 acres, Pocahontas coal on Ivy River, McDowell Co., W. Va., on the Norfolk & Western R. R. Property fronts one and one-half miles on the R. R. Price \$36 per acre.

534—3,000 acres, Pittsburg Coal, Marion Co., W. Va., on the line of the B. & O. R. R. Coal nine feet thick. Shaft proposition. 160 and 170 feet below water level. Sewickley vein, one hundred and twenty feet above the Pittsburg seam, five and six feet in thickness.

535—4,000 to 5,000 acres, Pittsburg coal in Lewis Co., near Roanoke, W. Va., on the B. & O. and Wabash R. R. Coal five feet three inches thick. This is one of the cheapest propositions in the state of West Virginia. Write for particulars.

536—100 acres, coal and timber lands, seven miles west of Elkins, W. Va., on the line of the Coal & Coke R. R. Timber, red oak, and will cut four thousand feet per acre. Coal, Roaring Creek seam, six feet thick. Price \$17 per acre.

537—3,413 acres, coal and timber lands in Logan Co., W. Va. Coal very high quality. Highland Creek seam, five feet nine inches to nine feet. Timber is of high quality and can be sold separately from coal rights. An excellent proposition. \$30 per acre.

538—11,000 acres of coal on Horse Creek, Cobbs Creek and Mud River, Boone and Lincoln Counties, W. Va. Two seams have been opened above water level, both six feet thick. The new Pocahontas, Coal River and Kanawha R. R., connecting with C. & O., at St. Albans, is now graded and track laid nearly to the property. \$15.50 per acre.

547—20,000 acres of virgin timber land for sale in N. Alabama. Six miles from R. R. Can all be logged by valley roads. The timber is large, smooth and tall. Almost the entire tract is underlaid with iron ore of extra quality. Big iron mines now running near this tract. The title is in fee simple. Warrantee Deed, and abstract furnished. \$7.50 per acre.

560—15,000 acres, coal rights in W. Va., branch of B. & O. R. R. running through. Adjoining is 9,000 acres, offered in fee. Half of this 24,000 acres is drift mining 200 feet shaft will pass through two 9½ foot veins, Genuine No. 1 Pittsburg seam. 9,000 acres are well timbered, White Oak and Poplar, which will cut 5,000 feet per acre merchantable timber, besides enormous amount of pulpwood and R. R. ties. Price \$36.50 per acre for 9,000 acres in fee, \$27.50 per acre for 15,000 acres coal rights. The 9,000 acres carries oil.

564—7,000 acres, timber land in fee, or timber rights only, in North Carolina. Two miles from Murphy Branch of Southern

R. R. Down grade to R. R. Oak and other hard woods, poplar, chestnut, etc. Price \$7 per acre in fee, \$6 for timber only. Terms, half cash, balance on short credit.

565—32,700 acres, timber land, mineral reserved, in North Carolina, 10 miles from Murphy Branch of Southern R. R. Finest piece of timber in the Southeast. 450 million feet of finest Spruce. 150 million feet of fine Red Oak, Poplar, Ash, Cherry, Walnut and Hemlock. Price, \$12.50 per acre. One-third cash, balance on fair terms. Will build R. R. to property on reasonable basis. Shipping rate on application.

566—Coal lands in Lincoln Co., W. Va., on G. V. Branch of C. & O. R. R., 232 acres being operated on R. R., 143 acres adjoining on R. R. undeveloped; 375 acres adjoining but off R. R. Sell together or separately. Write for terms.

567—About 50,000 acres, Timber lands on Dee Pee and Antee, navigable rivers and few miles of R. R., near Georgetown, S. C. This is a large but grand proposition and will show superb returns on investment. Write for details. Price \$700,000.

569—A magnificent operating coal plant for sale for private reasons. \$50,000 improvements, 1,500 acres mineral rights only. In Fayette Co., W. Va., on branch of C. & O. R. R. and Faint Creek. 6 veins of coking, steam and domestic coal from 3 to 5 feet thick. Drift mining aggregating 27 feet. Property thoroughly developed for operation. Other details and price on application.

570—600 acres, timber rights near Pisgah, Preston Co., W. Va., on Big Creek. 10 miles from R. R. First growth Oak, Hickory, Pine, Ash, etc. Price on application.

574—710 acres, thirty-year old leases, at Bluefields, W. Va. Renewal privilege on same terms. 10c for royalty. 3 foot 8 inch seam being profitably operated; 3 other seams above this one. Tenements, stores and all necessary buildings and machinery for operation. Good reason for selling. Price \$70,000.

575—4,000 acres, coal lands, 17 miles Northwest of Clarksburg, W. Va., on both sides of Short Line railway. Mineral rights. Five workable veins. Pittsburg and Freeport coal, 6 to 9 feet thick. Good steam and Coking coal. Shipping facilities unusual, east and west.

576—24,000 acres of Black Mountain steam and coking coal in Harlan Co., Ky., on Cumberland River. Very extensive coking operation adjacent. The Elkhorn seam, which is the No. 1 in this section, is 87 to 97 inches thick. Ten distinct seams of coal, above water; self draining; aggregating over 50 feet of coal. Three railroads within 15 miles, one 2 miles distant. Easy grade for R. R. connection. If property shows prospective development, R. R. will without doubt build branch. Tract covered with good timber. Price, \$25 per acre. Write for terms.

577—About 3,000 acres of coal lands in Tazewell and Buchanan Counties, Va. One half in fee, remainder mineral rights, on Town Hill Creek and less than a mile from Norfolk & Western R. R. Twelve openings showing coal veins from 40 inches to 6 feet thick. R. R. graded half way through property. Rare bargain at \$30 per acre.

578—1052 acres, of stumpage on Norfolk & Western R. R. in Virginia. Soft and hard wood. Price \$15 per acre or \$4 per tree. Eight years to remove. Terms half cash, balance reasonable terms.

579—8,500 acres of timber on Tombigbee River in Alabama, and on Mobile & Ohio R. R. Good cotton land after timber is cut. Price, \$94,000 on fair terms.

580—10,000 acres, timber in Caldwell Co., North Carolina. Estimated 8,000 to 10,000 feet, White Pine, White Oak and Poplar to acre. All accessible to R. R. Large variety of woods. Shipping and other data on application. Price, \$19 per acre.

581—40,000 acres, timber land in Western North Carolina. Best poplar tract in the country; also Oak, Hemlock, Chestnut and other woods. Virgin forest, no squatters. 14 miles from Southern R. R., which has surveyed to it and constructed almost 10 miles. Terms to suit purchaser; 261,000,000 feet estimated. Price, \$12 per acre for timber alone; one-third cash, balance in one and two years or longer if larger cash payment is made. Title perfect.

582—21,000 acres, timber in Western North Carolina on Tennessee lien, T. & N. C. R. R. runs through property. Equipped for immediate operation with mills and machinery. Large variety of hard woods. Price on application.

592—2,300 acres of hard wood timber, with 2,800 acres same woods adjoining, on Clover Creek, Branch of Greenbrier River, Pocahontas Co., W. Va. Good, easy grade all the way to R. R., 5 miles distant. Fine large timber, never culled. Mostly White and Red Oak; fully 25 million feet of same. 250,000 feet of fine cherry wood. Tract never had an axe in it. Price on application.

593—3,000 acres of Pocahontas coal in McDowell Co., W. Va., 7 miles from last station on R. R. now being built by Norfolk & Western R. R., which will be completed in 5 months. Five feet 3 inch vein finest Pocahontas coal and one of the very few Pocahontas properties left unpurchased. Price on application.

595—25,000 acres of coal rights on Levisa Fork of Big Sandy River in the south-western part of Buchanan Co., Va. Ten miles north of Norfolk & Western R. R., in the great coke and steam coal field of south-west Virginia. The river offers fine location for cheap R. R. connection. The South & Western R. R. surveyed to 8 miles of property. Four to 5 veins workable coal above water level and 3 Pocahontas seams below water level. Rare opportunity for this kind of coal. Price \$17 per acre.

597—28,114 acres, coal and timber lands, in Raleigh and Wyoming Counties, W. Va., to which 30,000 adjoining acres can be added. Timber runs 6,000 feet per acre, virgin growth. Poplar, oak and other hard woods. Several fine coal mines underlay tract. All above water and self draining. No. 3 Pocahontas vein 93 per cent. of entire tract, averages 53 to 60 inches clean coal. Carries also veins of No. 4 and No. 5 of this coal. Land lies on Guyandotte River and several creeks. The C. & O. and Deep-water R. Rs. are now building through this land. Price for 28,114 acres in fee is \$52.50 per acre, and of the 30,000 acres adjoining \$37.50 per acre.

599—60,000 acres of timber lands in Watauga, Wilkes and Caldwell Counties,

N. C., on the Yadkin River. None better in the south. Principal timbers, white pine and poplar; also many others. Eight miles from So. R. R., which promises facilities to these lands. Price, \$22.50 per acre. Title perfect.

600—10,000 acres of fine timber lands near Rasar in East Tenn. Two miles from Little Tenn. River, which is navigable, with R. R. now building to within 1½ miles of tract on down hill side of same. Poplar, oak, hemlock, white and yellow pine, chestnut, ash, cherry, gum, hickory, etc., estimated conservatively at 33 million feet besides ties, poles and tan bark. Tract in fee simple and title is perfect. Price, \$9.50 per acre.

601—Two tracts of 24,000 and 30,000 each of hemlock and spruce timber in eastern Tennessee, on the Tellico River, and a branch of the Southern R. R. Two tracts adjoin and will be operated together. First tract estimated to carry 113 million feet poplar, pine, hemlock, oak and other woods. Other tract averages like first, but heavier in hemlock. Fine shipping facilities. Small timber not estimated above includes 30 thousand cords chestnut, oak and tan bark. Title perfect. Price of 24,000 acres is \$9 per acre in fee; 30,000 acre tract \$7 per acre in fee.

602—Timber tract consisting of 19,000 acres on Clinch Mountain Range in Russell, Smythe, Tazewell and Washington Counties, in the southwestern part of Virginia. Heavily timbered, chiefly in poplar, oak, spruce and hemlock, principally the latter; also cherry and birch timber could be conveniently assembled 3 miles from R. R. at Saltville, Va. See No. 603 below for terms.

603—8,000 acres, timber in Washington and Russell Counties, Virginia, 5 miles from above tract and timber is very similar. Terms of sale and time for removal, etc., on application; 60 day option for inspection. Price \$8 per acre. Same owner as No. 602.

604—100 acres of coal rights reserved for 5 years on the Wabash R. R., between Elkins, W. Va., and Cumberland, Md. Carries the 3 foot 6 inches, 4, and 9 foot veins. Price, \$85 per acre. Back of this lies 1,000 acres, which cannot be worked without above tract. Can be bought for about \$35 per acre. The only coal lands in this location not absorbed by some large corporation.

607—Operating coal mine property on the S. E. A. & W. Ry., in Jefferson Co., Ohio. 109 acres at 6 cents royalty, and 170 acres 8-12 screened coal. Plenty of adjoining land can be bought reasonably. Description of equipment, freight rates, etc., on application. Price, \$20,000.

608—23,000 acres of timber in Haywood Co., N. C. 6 miles from R. R. Estimated to cut 410,000,000 feet. Write for price.

609—70,691 acres, timber and mineral lands in fee on Wolf Creek, in Giles and Bland Counties, Va. One mile from Norfolk & Western R. R. Estimated to cut 940,000,000 feet poplar, white, red, chestnut and black oaks, white pine and other woods. Also finest body-iron ore in southern states underlaying. Write for price.

610—55,000 acres, timber lands in N. C. (10,000 in fee) on Atlantic Coast Line R. R. and Charleston & Savannah R. R. Estimated to cut 400,000,000 feet. Adjoins Oyster Bay. Twenty foot water on shoals. Write for price.

611—16,821 acres, timber lands in fee on C. & O. R. R., Greenbrier River and Laurel Creek, in W. Va. Estimated to cut 100,000,000 feet, 30,000 cords hemlock bark and 7,000 cords oak bark. Write for price.

612—25,000 acres, timber in Bath and Hylan Counties, Va., 2½ miles from C. & O.

R. R., principally white oak. Estimated to cut 250,000,000 feet. Write for price.

613—13,000 acres, timber in Giles Co., Va., 2 miles from R. R., 40 per cent. white oak. Estimated to cut 5,000 feet per acre. Write for price.

614—20,000 acres of virgin forest in Bland County, Va., 4 miles from narrow gauge R. R. and 7 miles from Norfolk & Western R. R. Never been culled. Write for price.

615—70,000 acres, timber land in fee, 50 miles from Norfolk, Va. Almost surrounded by water from 12 to 15 feet deep. Estimated to cut 600,000,000 feet. Land very desirable after timber is removed. Write for price.

616—30,000 acres, coal and timber land in Pike Co., Ky., near 2 R. Rs. Three seams excellent coal, from 4 to 6 feet thick. Timber estimated to cut 5,000 feet per acre. Write for price.

617—10,000 acres of timber in N. C., 4 miles from Southern R. R., 2 navigable rivers through property, floating logs to R. R. Oak, poplar, chestnut and white pine estimated to cut 70,000,000 feet. Write for price.

618—32,000 acres, timber, near Asheville, N. C., near Southern R. R. Can be floated to R. R. by several non-failing streams. Claimed to be the finest timber tract in N. C. Estimated to cut 775,000,000 feet. Write for price.

619—26,000 acres of timber, near Hot Springs, N. C. R. R. passes through corner of tract. Estimated to cut 175,000,000 feet. Write for price.

620—12,000 acres, timber in N. C., (8,000 in fee) on navigable water and R. R. Estimated to cut 70,000,000 feet; 40 feet above sea level, and land valuable for farming. Write for price.

621—12,000 acres, timber, near Asheville, N. C. Guaranteed to cut 14,000 feet per acre. Logs floated to R. R. by 2 deep rivers and creeks. Good titles. Write for prices.

623—37,000 acres, valuable manganese land, in Virginia, covered with timber, principally white oak. Estimated to cut 70,000,000 feet; other woods, 105,000,000 feet. Four miles from Norfolk & Western R. R.; \$6.00 per acre.

624—About 4,000 acres, coal lands, in Logan Co., W. Va. Branch of C. & O. R. R. being constructed to property. Openings shows 5 veins from 5 to 8 feet thick, well timbered with white oak, maple, beech, etc. Price, \$32 per acre.

628—500 acres, fine coal land in Fayette Co., W. Va., near Sewell, on C. & O. R. R. Valuable timber on tract. Price, \$16 per acre.

634—7,500 acres (4,500 in fee), well timbered, balance, mineral rights, near Madison, W. Va. There are 3 seams of gas and steam coal 3½ to 6 feet thick; also, 6 feet of cannel coal. Write for price.

635—600,000 acres, timber in N. C., fronts 7 miles on branch of Southern Ry. Bears finest poplar, oak, ash, cherry, walnut, chestnut, basswood, spruce, hemlock. Large quantities oak bark and chestnut acid wood, selling for \$3.25 per cord. 10,000 feet to acre is low estimate of timber. Perfect title. Price, \$385,000.

636—30,000 acres of fine coal and timber land in Kentucky, on a trunk line R. R. Rare bargain; guaranteed title; 6 miles of R. R. with steel rails; miners' houses, engine, etc. Price, \$8 per acre.

642—25,000 acres of coal and timber land in a practically solid block in Braxton, Gilmer and Calhoun Counties, W.

Va., on tributaries of the Little Kanawha River. Timber untouched on 8,000 acres and only poplar timber removed from rest. White and other oaks run high per acre. Railroads being built from several directions to this property; 4 to 6 foot vein of coal underlying, mostly above water level. Pittsburg and Freeport veins. Price, timber only, \$22 per acre; 1-3 cash, balance, easy payments. Timber and surface, \$30 per acre, same terms. Land in fee, \$40 per acre; oil and gas reserved.

643—9,000 to 10,000 acres of timber land near Franklin, N. C. Down grade and good roads; 2 to 8 miles to Southern R. R. Mountain oak, yellow poplar, chestnut, basswood and cherry estimated to cut 4,000 feet per acre. Estimated one cord oak tan bark and 10 cords tannic acid wood per acre. Poles and cross ties in large quantity. Price, \$6 per acre; half cash, balance, fair payments. A bargain at the price.

646—600 acres, coal rights in Raleigh Co., W. Va., 4 miles from R. R. Price, \$15 per acre; 200 acres nearby, fine coal vein, \$20 per acre in fee; 50 acres adjoining this, for \$800 in fee. Small tracts, but bargains considering coal veins.

648—500 acres, timber and coal land, in Fayette Co., W. Va., on Gauley River. Price, \$27.50 per acre. Write for details. Parties interested in coal and timber land on Big Hewett Creek, Coal Creek, Laurel Creek and Jacks Fork, Boone Co., W. Va. Write for particulars. Richest coal belt in State. Can be bought 1-3 cash, balance in 1 and 2 years; 2,670 acres in all.

658—3,000 acres coal tract (or any part thereof) in Braxton Co., W. Va. Good quality Upper Freeport coal. Fronts Elk river and coal and coke R. R. Price \$25 per acre.

659—Fine fire clay property of 1,200 acres on river between Clarksburg and Grafton, W. Va., on B. O. R. R. and Wabash R. R. survey. Crops out at good height and has 2 coal veins, one above and one below the clay. Price \$20 per acre.

661—20,000 acres of timber, fine white oak, poplar, hickory, lynn, walnut, etc., in Breathitt Co., Ky., accessible to the Lexington & Eastern R. R. (by water) 10, 12 and 20 miles away. Easy floating. Virgin forest. Will cut 5,000 feet per acre. Price \$13 per acre.

665—8,000 acres of timber land in S. W. Arkansas, including saw mill, capacity 25,000 feet daily, 3 miles standard R. R. and equipment. 40,000,000 feet standing white and red oak, hickory, gum, cypress, ash, etc. \$8.50 per acre. Easy terms. Freight rates on application.

666—5,440 acres virgin timber in N. C., 26 miles from R. R. Good roads. Oak, poplar, cherry, hickory, etc. Underlaid with copper ore. Never offered before. Title guaranteed. Write for prices.

669—900 acres of coal land near Hallsville, W. Va. Shows 47 inches coal. This is a 30-year coal lease. Write for price. All rights for operations.

672—3,000 acres timber in fee in Edmonson Co., Ky., less than 3 miles from the navigable Green river which will by June, 1905, have water year around by government works. Price on application.

678—About 3,500 acres coal land in Dodridge and Welzell Cos., W. Va., one-half mile from W. Va. Short Line R. R., 25 miles by R. R. to the Ohio river. Pittsburg vein coal 6 to 9 feet thick. Shaft mining. \$37.50 acres in fee on easy terms.

681—26,000 acres timber land in Poinsett Co., Ark., between two R. Rs., 3 and 5 miles away. Cut 10M per acre. One-quarter oak, balance ash, pine, gum and elm. Level land, does not overflow. \$18 per acre. Worth \$20 for cotton when timber is cut.

682—3,000 acres coal near Clarksburg, W. Va. Three and one-half miles from B. & O. R. R. survey. Pittsburg and Redstone veins, 6 and 7 feet 4 in. thick. \$100 per acre.

683—25,000 acres coal and timber land in fee in Braxton, Gilmer and Calhoun Cos., W. Va. Branch R. Rs. being built close to tract. Has Pittsburg vein 6 ft.; Freeport, 7 ft.; Kittanning, 4 to 5 ft. Fine virgin timber. \$23 for timber per acre. \$30 for timber and surface. \$40 for land and all in fee.

684—1,200 acres coal rights in Marshall Co., W. Va., near B. & O. and Ohio River R. Rs. Three miles to Ohio river by R. R. switch. Price \$75 per acre.

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688—14,000 acres of timber land in Pocahontas Co., W. Va., on Greenbrier Division of the C. & O. R. R. 70 million feet of merchantable timber. 117M. cords of hemlock and oak bark. Land lies well for logging. Hemlock, white and red oak, bass, birch, ash, etc. Contains fine bed of iron ore. Perfect title. Price \$6.50 per acre. In fee.

689—4,221 acres of hemlock and oak timber in Pocahontas Co., W. Va., on Greenbrier Division of the C. & O. R. R. Contains fine variety of woods, estimated 5 million feet, including 12 to 20 million of hemlock and 1 million of white pine, also 14,800 cords of bark for which there is demand from nearby tanneries. Freight rates and all particulars on application. Price \$23 per acre.

690—1,800 acres of spruce and hemlock on the C. & I. R. R. in W. Va. 14 to 15 million feet of saw timber on tract mostly spruce and hemlock, also cherry, ash and basswood. Easy to stock and timber all coming to one place. Price \$44,500.

691—1,428 acres of timber land in Logan Co., W. Va., 60 miles from Huntington. Carries basswood, hickory and 4,500,000 feet of white and chestnut oak. Owned by National Bank and title warranted. Price in fee \$9.50 per acre, mineral rights reserved.

692—20,000 acres of timber in Randolph Co., W. Va., on Elkwater Creek, tributary of Tygarts Valley River and 7 miles from the Wabash R. R. Boundary including a 10 mile creek valley with tributary, virgin forest of W. Va., hardwoods including poplar, white and red oak, ash, cherry, maple, lynn and hickory and some fine black walnut. Ideal location for operation with cheap tram road. Price \$16 per acre inn fee, \$14 for timber only. Nothing finer in timber in this state.

693—17,000 acres of timber lands in Pocahontas Co., W. Va., near Seebert on the Greenbrier Division of the C. & O. R. R. Can all be operated at one point. Lies on Laurel Creek and Old Hams Run. Sufficient surface for operating. A mouth of Laurel Creek goes with tract. Estimated 37 M. cords of bark with perpetual market to nearby tanneries. Timber estimated 100 million feet; 60 million hemlock; 20 million white, red and chestnut oak, 20 million basswood, chestnut and other woods. Price \$12.50 per acre.

694—7,000 acres of timber lands in Eastern W. Va., on C. & O. R. R. Estimated to cut per acre 6 M. feet hemlock, 2 M. feet spruce, 2 M. red and white oak. Fine bark output, also pulpwood. Price \$22 per acre.

695—2,056 acres of timber land on the East branch of Greenbrier River, between the C. & O. and Dry Fork Railroads. Will cut 20 million feet of spruce and hemlock, besides other timbers. Tract easily lumbered. Price, in fee, \$21 per acre. Timber rights \$18.

696—2,000 acres of timber land in W. Va., on the C. & I. R. R. Will cut 16 M. feet to the acre. 50% hemlock, 40% spruce, 10% poplar, cherry and ash. Fronts on the R. R. 3 miles. None of timber further than 1½ miles from road, tract slopes to the road and can be operated at one site. Easily stocked. Price \$75,000. 1-3 cash, balance in one, two and three years, with interest. Ten years to remove timber.

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698—2,000 acres of hickory timber, 7 miles from R. R. in W. Va. 3 M. feet to the acre. Both shell and tight bark. Easily operated. Plenty of water. Down grade road to R. R. No high hills. Price \$9 per acre.

699—500 acres of hickory timber land on head waters of Good Creek, 5 miles from R. R. in W. Va. Lies between two mountains. Carries principally hickory, some white oak and pine. 4 M. feet per acre. 50% hickory. Good roads, easy grade, plenty of water. Price \$12 per acre.

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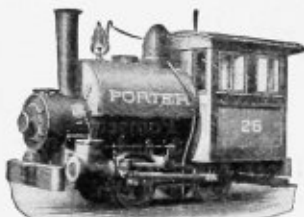
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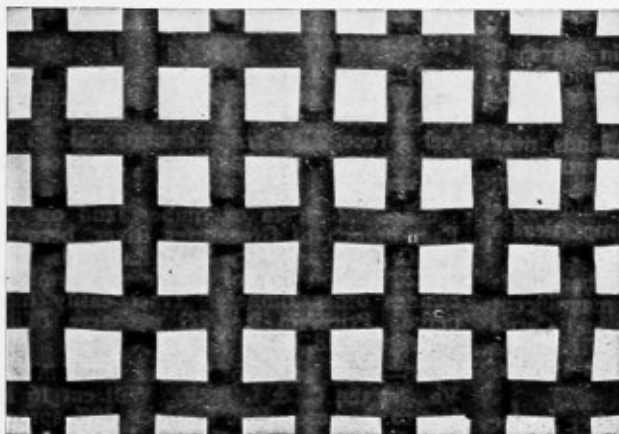


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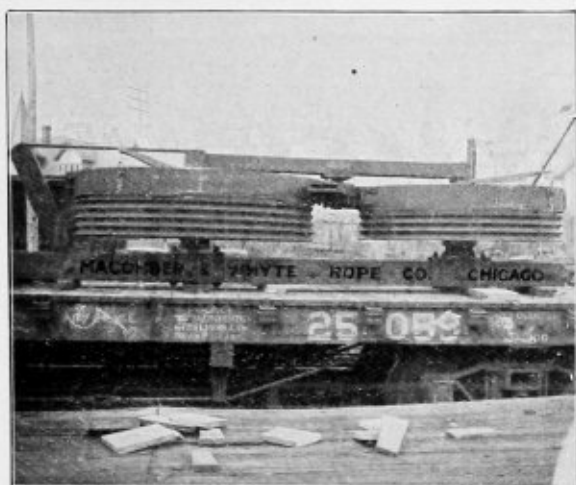
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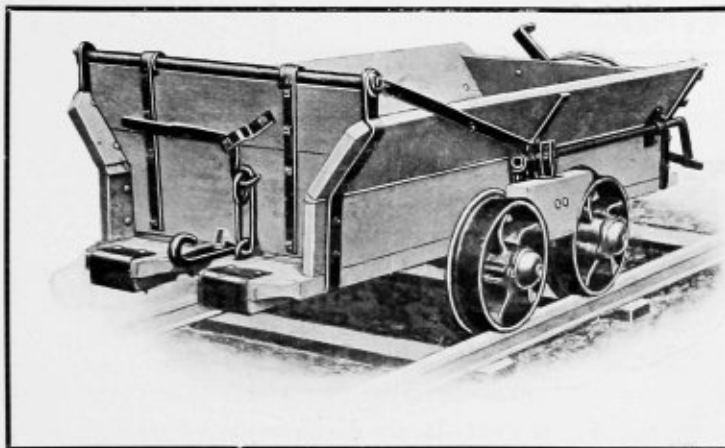
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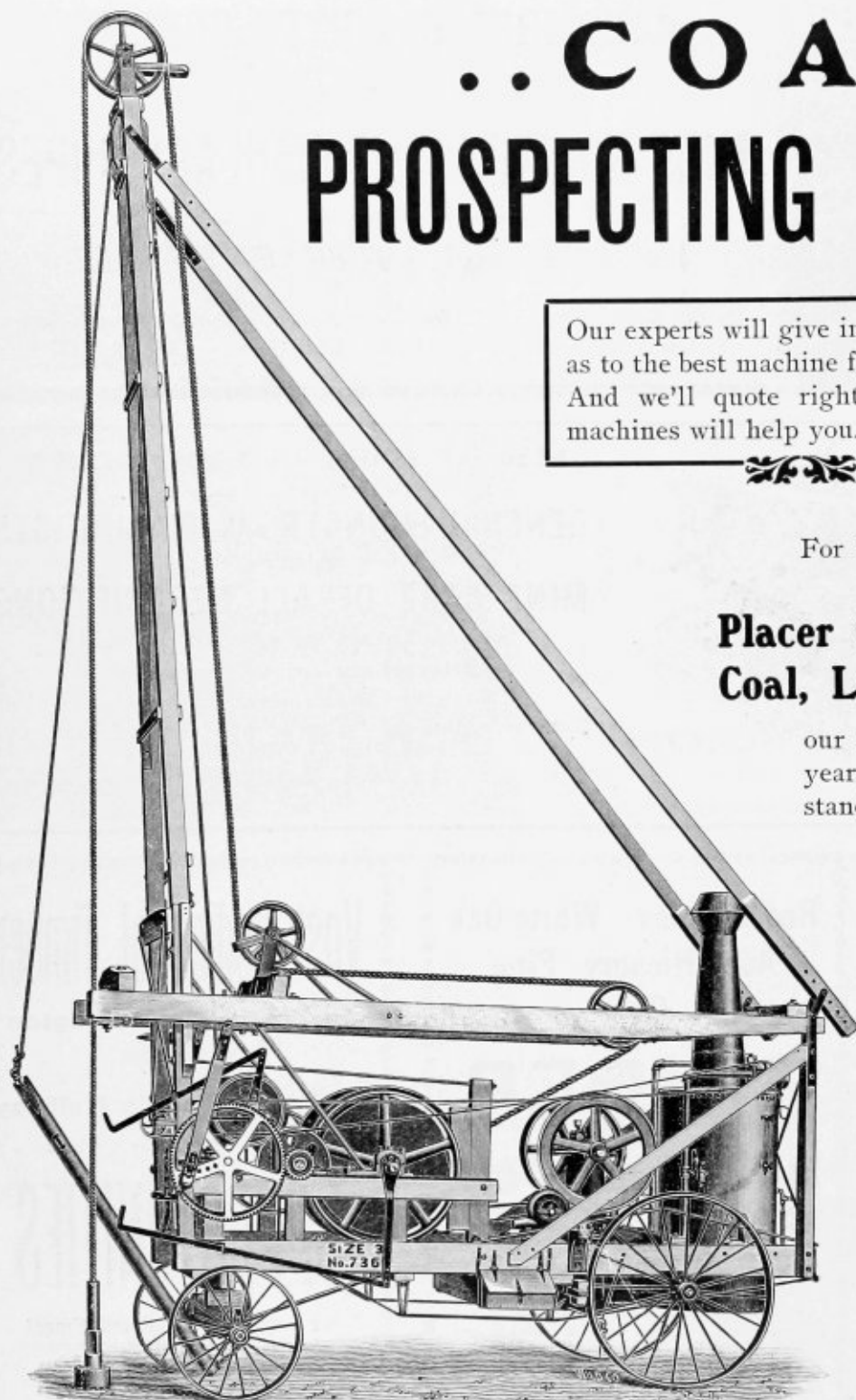
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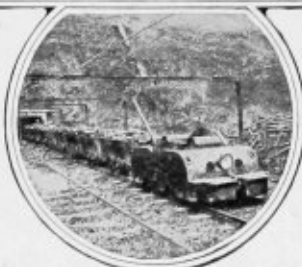
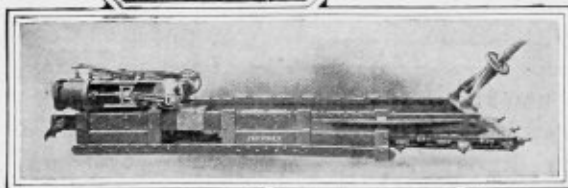
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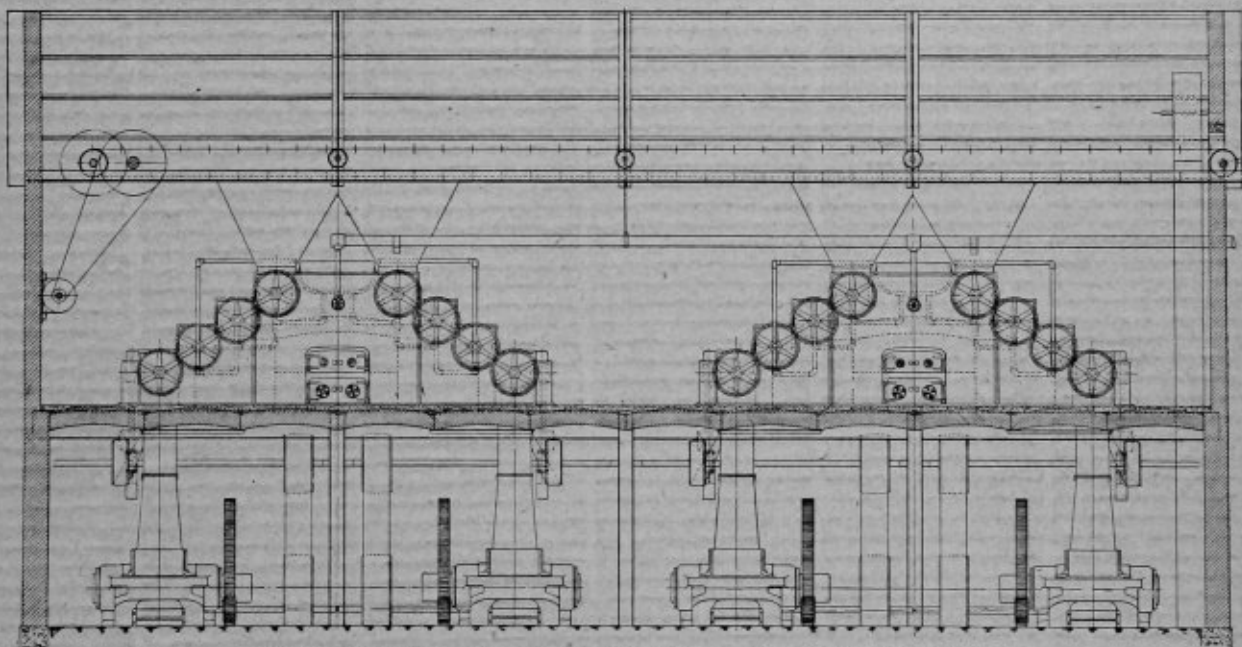
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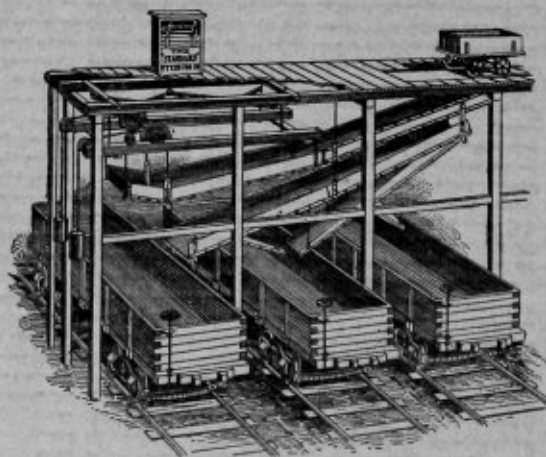
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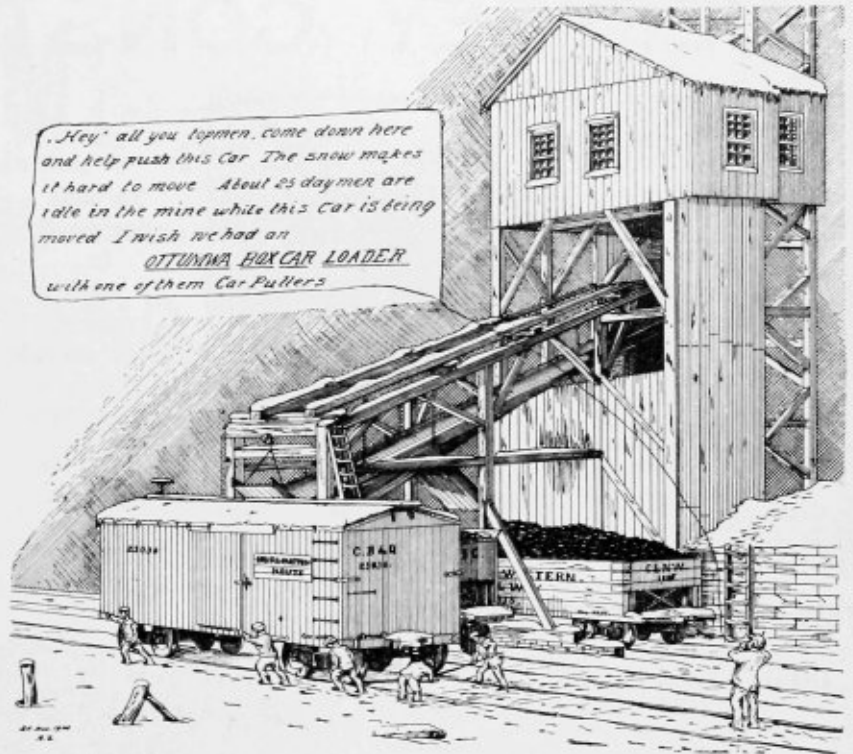
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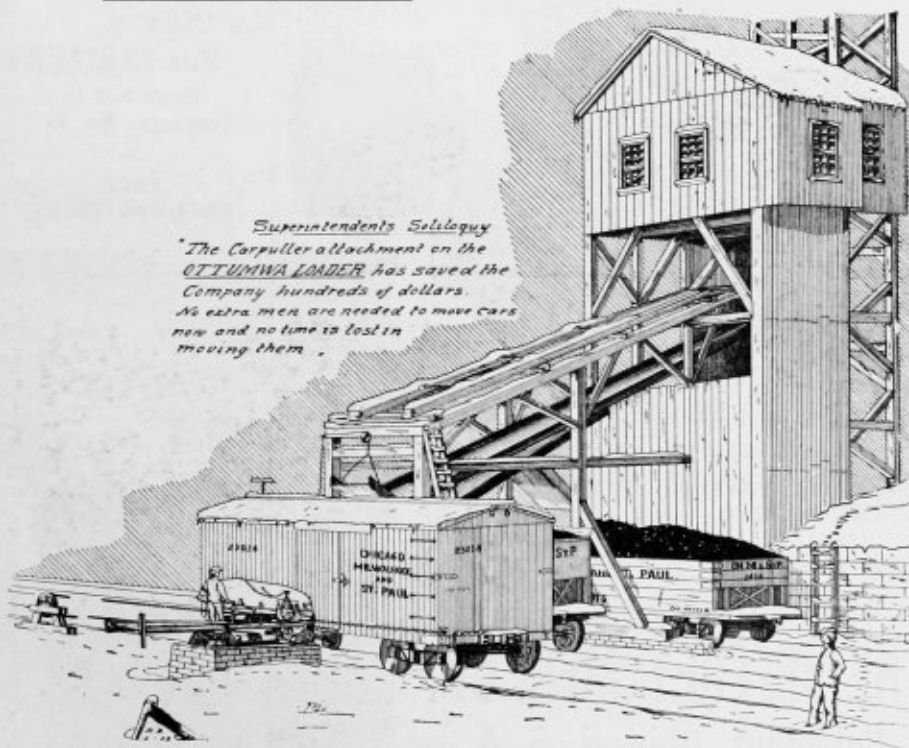
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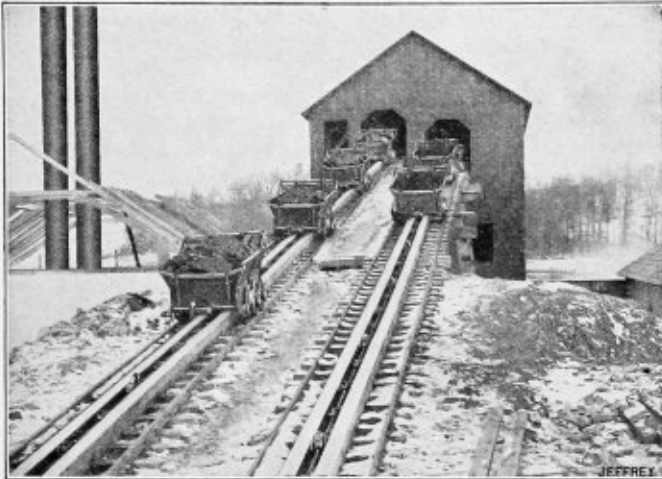
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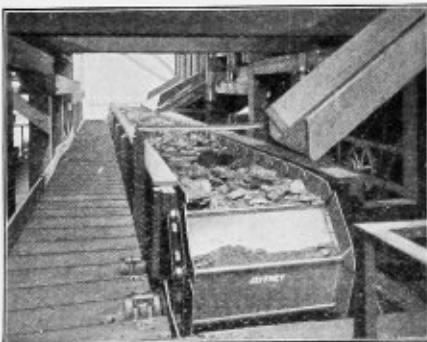
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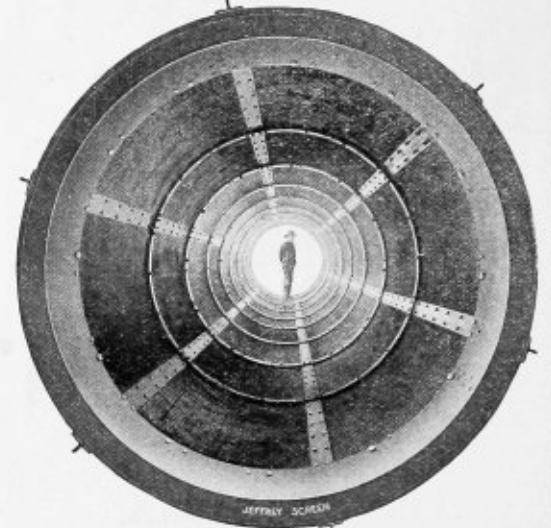
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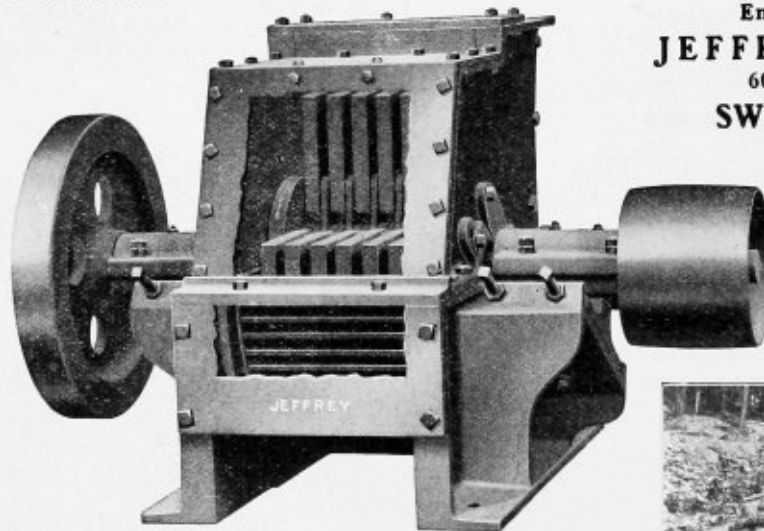
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We promised to do those very things, and to make each issue better than the preceding. We will bet a new straw hat that we've made good! Subscribers write us the paper is fine and they wouldn't be without it, for its news and special articles. Read on another page what a prominent coal man says of COAL AND TIMBER—he thinks it worth all the others.

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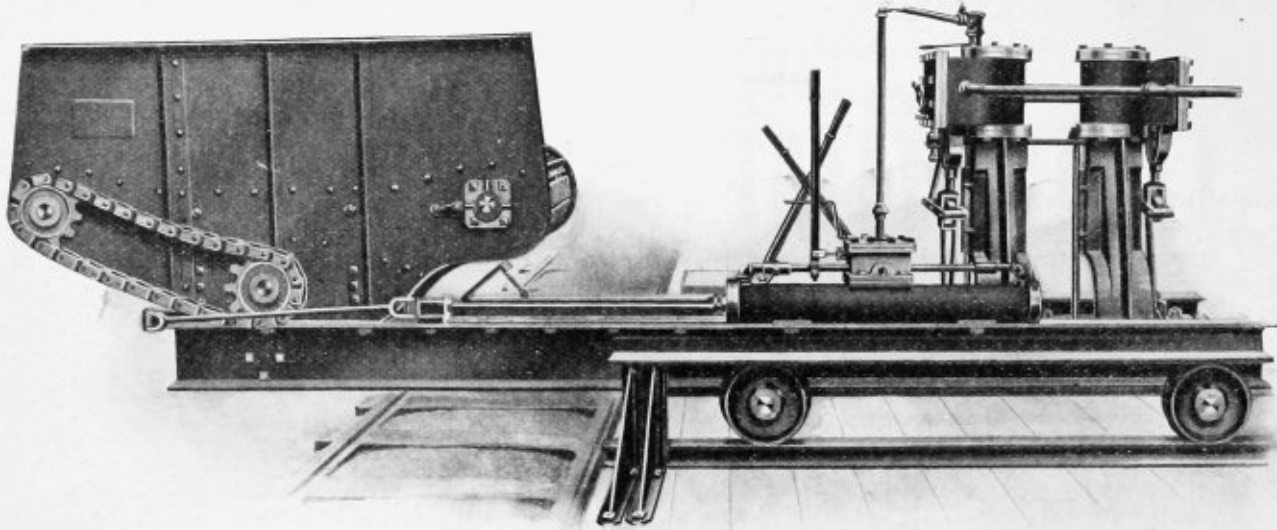
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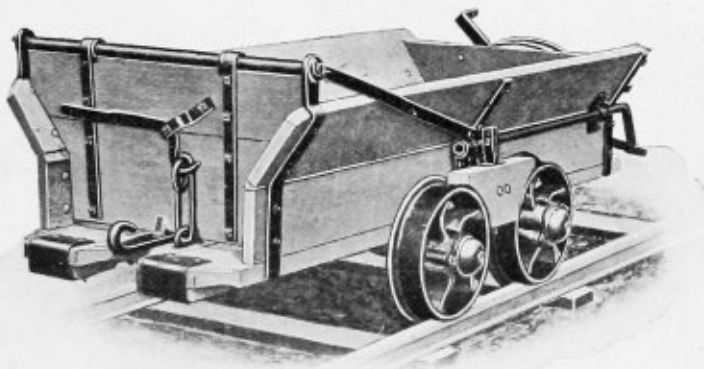
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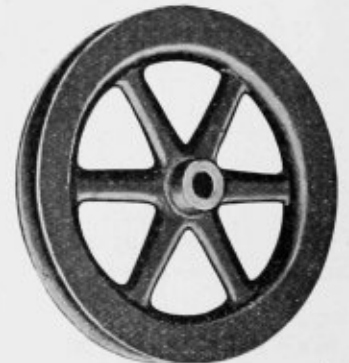
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COAL AND TIMBER

Vol. 1, No. 5

PITTSBURG, MAY, 1905

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COKING TESTS.

EXPERIMENTS AT LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO.

Probably the best and most satisfactory tests of the coking qualities of coal ever made in this country were those which were demonstrated practically and under experienced management at the recent Louisiana Purchase Exposition at St. Louis, Mo. The work was done by the coal testing plant of the United States Geological Survey. Three bee-hive ovens of standard size and shape were employed. They were 12 feet in diameter and seven feet in height. John Fulton, the well-known expert on coke making, of Johnstown, Pa., furnished the plans for the coke testing plant and superintended its execution and installation. B. B. Boyd, of Uniontown, Pa., assisted in making the tests, while Frederick W. Stammler had entire charge of the undertaking. The analyses of the coals used in making the tests were made under the supervision of Prof. W. N. Lord, of Columbus, O., and were made at the chemical laboratory of the testing plant. Tables prepared by Prof. Lord comprehensively showing the chemical natures of the different coals tested and the results are appended to this article. They will be found to be of most essential value.

The real tests began on September 10th, of last year. At that time the ovens were fired and charged and they were kept in constant blast until December 16th. Sixty-one tests were made and carefully noted during this time. Forty-four different coals were used, all coming from 11 states. Thirty-two tests were made on 29 different samples of raw coal and 27 tests were made on 24 samples of washed coal. In the way of briquetting tests, two were made of non-coking coal, having an additional amount of volatile matter used merely as a binding material. All the coal used in the charging of the testing ovens was first passed through rolls reducing it to one and one-half inches or smaller.

These tests were all carefully made and to avoid any impression that selected coal had been used, all of the fuel shipped to the testing plant was collected under the supervision of a survey official. The result of the coking tests which were made follow, having been arranged alphabetically for the convenience of the manufacturer. They are

Alabama No. 1.—Lump and nut coal from mine No. 8, Ivy Coal & Iron Co., Horse Creek, Ala. Two charges were made of this coal, the first unwashed and the second

washed. The first charge, that of unwashed coal, consisted of 8,000 pounds. The test was continued for 88 hours and the result was coke of a very light weight and spongy in nature as well as high in ash. Washing reduced the percentage of impurities but slightly, though it is believed that with more thorough washing a good serviceable coke could have been had. The charge of washed coal weighed 9,800 pounds and was burned for 65 hours. This produced 5,731 pounds of coke, a percentage yield of 58.5 and the result was a coke, soft and high in ash.

Alabama No. 2.—Lump, nut and pea coal from mine No. 5, Galloway Coal Co., Carbon Hill, Ala. The first charge, weighing 8,000 pounds, was of unwashed coal. It coked imperfectly in small pieces, which were very soft and mixed with charred coal and ash. This coal if properly washed may yield a very fair grade of coke.

Arkansas No. 1.—Lump and nut coal from mine No. 3, Central Coal & Coke Co., Huntington, Ark. Eight thousand and seventy five pounds of unwashed coal were used in the first tests. This showed no tendency to coke and it all burned to ash. If properly washed, this coal would make coke if burned in a retort oven.

Arkansas No. 12.—Lump coal from mine No. 12, Central Coal & Coke Co., Bonanza Ark. The results were the same as those obtained from the tests resulting in Arkansas No. 1.

Arkansas No. 3.—Lump and slack coal from mine No. 18, Western Coal & Mining Co., Jenny Lind, Ark. This was made in the shape of small briquettes made from the unwashed coal and placed in an oven with coking coal. The briquettes produced a dense coke high in ash.

Arkansas No. 6.—Slack coal from mine No. 18, Western Coal & Mining Co., Jenny Lind, Ark. The coal used in this test was unwashed but the results were practically the same as those obtained in test No. 1 with the exception that the quantity of ash was materially reduced. The second test was exceptionally interesting. The charge consisted of equal parts of unwashed coal—crushed and mixed with 8 per cent. of hard pitch, and the same material made into briquettes on the English machine. The coke which resulted was very dark and had large cells. The test is of unusual interest, since it shows that a naturally non-coking coal may be made to coke by an addition of pitch. This charge weighed 8,000 pounds was burned 42 hours and yielded 4,056 pounds of coke and 539 pounds of ash and breeze.

Illinois No. 1.—Lump and nut coal from mine No. 1, Western Anthracite Coal &

Coke Co., O'Fallon, Ills. With a charge of 9,000 pounds of coal, unwashed, this test was conducted. The time of burning was 43 hours. The product of the test was some small pieces of coke, mixed with charred coal and ash. The coal is too high in ash (15.95) and sulphur (4.14 per cent.) to produce a coke fit for blast furnace use.

Illinois No. 2.—Slack coal from the same mine as No. 1. This coal was washed before it was used to charge the ovens and thereby the ash was reduced 9.19 per cent. The weight of this charge was 9,000 pounds, which, after burning for 64 hours, yielded 3,389 pounds of mixed hard and soft coke and 352 pounds of ash and breeze. The coke produced containing 20.18 per cent. of ash and 2.75 per cent. of sulphur.

Illinois No. 3.—Run-of-mine from mine No. 3, Southern Illinois Coal Mining & Washing Co., near Marion, Ills. Two charges, one washed and the other unwashed, were made of this lot of coal. The unwashed charge which weighed 9,000 pounds, was burned for 43 hours. The coal lay dead in the oven burning on top, but it did not show the least tendency to coke. The unwashed coal contained 10.59 per cent. of ash. The washed charge carried 5.86 per cent. of ash, being a reduction of nearly 50 per cent. due to the washing. This charge of washed coal, consisting of 13,000 pounds, was burned for 9 hours. It yielded coke which weighed 6,378 pounds and which was so brittle that it crumbled in the handling. The ash and breeze from this oven weighed 834 pounds.

Illinois No. 5.—Grade No. 5, washed slack from mine No. 1, Donk Bros. Coal & Coke Co., Collinsville, Ills. Three tests were made of this coal as it was reported that it had been coked successfully in pits. Before being charged all of this lot of coal was thoroughly washed and each charge was burned for 42 hours. In the first test, the coal was charged as it was received, but no coke was produced. In the second test, the coal was rewashed but it was charged wet and thereby the oven was chilled and the coal would not burn. In the last of the three tests made, with this particular lot of Illinois coal, the charge was made in a red hot oven, but even then, with this extra precaution, the coal would not burn and no coke resulted. In each instance, the coal merely burned on top but the great mass of it lay dead on the floor of the ovens and would not coke under the conditions of the test. All of the Illinois coals are too high in sulphur to make good blast-furnace coke.

Indiana No. 1.—Run-of-mine from Mildred mine, J. Wooley Coal Co., Mildred, Ind. The coal used in this test was both crush-

ed and washed. It consisted of 8,000 pounds and the burning lasted for 40 hours. The product was 3,473 pounds of fair coke of medium weight, bright grey, but brittle and rather high in sulphur. The breeze and ash amounted to 368 pounds.

Indian Territory No. 1.—Lump and slack coal from mine No. 1, Whitehead Coal & Mining Co., Henryetta, Ind. Ty. In the test made of this coal the charge was made of unwashed fuel. It weighed 8,095 pounds and the test lasted for 40 hours. When completed, nothing but ash was found on the floor of the oven. The coal showed not the least tendency to coke.

Indian Territory No. 2.—Run-of-mine coal from mine No. 8 of the Rock Island Coal Co., Hartshorne, Ind. Ty. Both washed and unwashed tests were made of this coal. Both charges weighed 9,000 pounds. The unwashed charge was burned for 66 hours, and yielded 5,725 pounds of coke and 580 pounds of breeze and ash. The coke was very soft, shattered and brittle, and somewhat high in sulphur. The washed charge contained one-third less ash than the unwashed. It was burned in 65 hours, producing a coke which was hard and had a fairly good ring. It showed considerable improvement in appearance over the coke made from unwashed coal, but the amount of sulphur in the coke which resulted was not materially reduced.

Indian Territory No. 3.—Run-of-mine No. 1, D. Edwards & Sons, Edwards, Ind. Ty. Two tests were made of this coal, the first being from 12,000 pounds of unwashed coal, burned 65 hours, and the second on 14,000 pounds of washed coal, burned for 66 hours. The remarkable feature which was shown as the result of this test was that the washed coal, instead of showing a reduced percentage of sulphur, showed a gain, neither charge produced any coke and the oven when drawn, contained small pieces of charred ash and coal.

Indian Territory No. 5.—Slack and pea coal from mine No. 7, Western Coal & Mining Co., Lehigh, Ind. Ty. A test of 65 hours was made of 10,000 pounds of this particular coal. It produced some small pieces of coke, fritted together, light and soft. After the different tests which were made at the testing plants, the general opinion was that the coals of the Indian Territory would produce coke after the coal has been thoroughly washed, but that the product would not be of a character suitable for iron smelting, as the sulphur is too intimately combined, or mixed, with the coal to be removed by the process of washing.

Iowa No. 1.—Lump and fine coal from mine No. 2, Anchor Coal Co., Ladysdale, Iowa. All of the tests of Iowa coal were made with the fuel after it has been thoroughly washed. In the first experimental coking test, the charge weighed 9,500 pounds, and after having been burned for 46 hours it yielded 4,828 pounds of coke and 572 pounds of breeze and ash. The coke was quite brittle with cracks both

lengthwise and crosswise through it. It was high in the amount of sulphur which it contained.

Iowa No. 2.—Run-of-mine from mine No. 5, Mammoth Vein Coal Co., Hamilton, Iowa. The charge which was placed in the ovens to complete this test consisted of 10,000 pounds of washed coal, which was burned for 64 hours. The coke (3,866, with 1,153 pounds of ash and breeze) was all in small pieces sintered together and with no bond.

Iowa No. 3.—Lump coal from mine No. 4, Gibson Coal Mining Co., Altoona, Iowa. Eight thousand pounds of washed coal was used for the purposes of making this test and the time consumed in burning the charge was 43 hours. The test resulted in 3336 pounds of fine-fingered, brittle coke which was very high in the amount of sulphur and ash which it contained. There was a residuum of 585 pounds of breeze and ash.

Iowa No. 4.—Lump coal from mine No. 3, Centerville Block Coal Co., Centerville, Iowa. The coke, which was the result of this test, was of the same general character as that obtained from Iowa No. 3, except that it was not quite so high in either sulphur or ash. The charge consisted of 8,000 pounds of washed coal and the burning test lasted for 40 hours. After the test was made and there was a remainder of 426 pounds of ash and breeze.

Iowa No. 5.—Run-of-mine coal from mine No. 1, Inland Fuel Co., Chariton, Iowa. The result of this test which was made on 9,000 pounds of coal which had been washed and burned for 66 hours, was a mixture of unburned coal, charred coke and ash. All of the Iowa coals which were tested in the experimental plant at the Purchase Exposition were too high in sulphur to produce available blast-furnace coke, and as the sulphur occurs largely as gypsum it could not be removed by washing. The ash is also high in relation to the amount of fixed carbon which it contains.

Kansas No. 1.—Run-of-mine coal from mine No. 10, Western Coal & Mining Co., Fleming, Kan. In the making of this test a charge of 11,300 pounds of coal was used, and this was burned for 120 hours. At the end of this period the charge was found to be sintered on the top, while under this sintering was a thin layer of light coke, with the remainder of the coal in the oven uncoked and even unburned.

Kansas No. 2.—Lump and slack coal taken from mine No. 11, Western Coal & Mining Co., Yale, Kan. This coal did no better under the test which was made of it in the testing ovens than did that of Kansas No. 1. It showed no tendency to coke, although the charge of 9,125 pounds was burned for the great time of 159 hours.

Kansas No. 3.—Run-of-mine coal from mine No. 9, Southern Coal & Mercantile Co., Scammon, Kan. This charge consisted of 7,100 pounds of unwashed coal which was burned for 96 hours. It coked for about 12 inches from the top, while the remainder was simply charred coal and ash

and of no commercial value at all.

Kansas No. 4.—Lump coal from mines of the Atchison Coal Mining Co., Atchison, Kan. So far as its coking qualities were concerned this coal showed better results upon being tested than did any of those of the Kansas coals tried. Its tendency to coke was far ahead of those of any other coal tested. The charge consisted of 10,000 pounds of coal and was subjected to the heat of the ovens for 67 hours. It yielded 5,213 pounds of hard, but brittle coke and 432 pounds of breeze and ash. The coke, however, is too high in sulphur (6.15 per cent.) for use in iron furnaces, but it may be used in lead and zinc smelters, for which purpose a high per centage of sulphur is not in the least detrimental.

Kentucky No. 1.—Run-of-mine from Straight Creek mine No. 2 of the National Coal & Iron Co., Straight Creek, Kentucky. Ten thousand pounds of unwashed coal were burned for 66 hours in making this test. It produced 5,441 pounds of hard coke, which was fine-fingered and easily broken into small pieces. The breeze and ash weighed 355 pounds.

Kentucky No. 3.—Run-of-mine coal from Barnsley mine of Barnsley Mining Co., Earlington, Ky. In this test, the charge consisted of 10,000 pounds of washed coal and it was burned for 66 hours. It produced a coke of fair quality, of good color and ring, but somewhat high in sulphur. It produced 5,433 pounds of coke and 426 pounds of ash and breeze.

Kentucky No. 4.—Run-of-mine coal from the Wheatcroft Coal & Mining Co. Wheatcroft, Ky. This test was made on 10,000 pounds of washed coal and the burning lasted for 66 hours. The yield was 5,558 pounds of coke and 313 pounds of breeze and ash. The coke is of good color and ring, but like Kentucky No. 4, was too high in sulphur and ash for iron smelting.

Missouri No. 2.—Run-of-mine from mine No. 8, of the Northwestern Coal & Mining Co., Bevier, Mo. It was washed and given a careful burning of 42 hours. This coal showed no tendency at all to produce coke.

Missouri No. 4.—Run-of-mine coal from Morgan County Coal Co., Barnett, Mo. This coal produced a coke of very good grade, of a gray color and of a good metallic ring. The charge was 11,000 pounds of unwashed coal. It yielded 4,905 pounds of coke and 128 pounds of ash and breeze. The coke, however, is too high in sulphur for blast-furnace use, but the testers thought that the quality of this coke could be greatly improved by washing the coal before it was charged into the ovens.

West Virginia No. 1.—Run-of-mine, Virginia and Pittsburg Coal Co., Kingmount, W. Va. This initial test was made with 9,000 pounds of unwashed coal. The charge was burned for 64 hours and yielded 5,572 pounds of coke and 268 pounds of breeze and ash. The coke produced from this test was of very good quality but somewhat brittle.

West Virginia No. 2.—Run-of-mine from the Pitcairn mine of the Pitcairn Coal Co., Clarksburg, W. Va. Two tests were made of this company's coal. The first coal charged into the testing ovens was 9,000 pounds of unwashed coal. This, upon being burned, produced 5,235 pounds of coke, gray, somewhat brittle and high in sulphur and ash. The washed coal, of which 13,000 pounds were used in the charge, showed a decided improvement in the coke produced, although the sulphur was still too high for blast-furnace use. The yield from the second charge was 7,808 pounds, or 60 per cent., as compared with 58.2 per cent. from the unwashed coal charge.

West Virginia No. 3.—Run-of-mine coal from West Virginia Coal Co., Richard, W. Va. Two tests, one of unwashed and one of washed coal, were made on this sample. The charge of unwashed coal weighed 9,000 pounds and was coked in 41 hours. It yielded 5,929 pounds of coke of gray color, brittle and somewhat high in sulphur, and 364 pounds of breeze and ash. The washed charge weighed 14,000 pounds, was coked for 66 hours, and yielded 9,070 pounds of coke of the same character as noted above and 535 pounds of breeze and ash. The quality of the coke was not improved by washing, except by a small reduction in the amount of ash. The first test of 41 hours duration gave a yield of 65.9 per cent., the second test of 66 hours gave a yield of 64.8 per cent.

West Virginia No. 4.—Run-of-mine coal from West Virginia Coal Co., Bretz, W. Va. This coal was subjected to two very thorough tests, both washed and unwashed. The unwashed charge contained 12,000 pounds. It was burned for 65 hours and yielded 8,907 pounds, or 74.2 per cent. of coke and 428 pounds of breeze and ash. The charge of washed coal weighed 9,000 pounds. It was coked for 42 hours and yielded 6,367 pounds, or 70.7 per cent., of coke, and 374 pounds of breeze and ash. The coke obtained was of good color, but was somewhat impaired by cross-fractures. No improvement was noticeable as the result of washing.

West Virginia No. 5.—Lump and nut coal from Davis Colliery Co., Coalton, W. Va. Three coking tests were made on this shipment, one of unwashed and one of washed run-of-mine, crushed before coking to 1 1/2 inches in diameter, and one of pulverized coal which was washed in the New Century jig. The first charge of unwashed coal, weighing 13,000 pounds was burned for 64 hours. It yielded 8,298 pounds, or 63.8 per cent., of coke, and 497 pounds of breeze and ash. The washed charge weighed 13,000 pounds and was burned for 66 hours. It yielded 7,163 pounds of coke, or 55.1 per cent., and 461 pounds of ash and breeze. The pulverized coal, weighing 10,000 pounds, was burned for 69 hours and produced 4,256 pounds of coke, or 42.56 per cent., and 229 pounds of breeze and ash. The result showed that this coal would make very good

coke if the ash which it contains could be materially reduced, washing in this case lowered the per centage of ash from 19.14 per cent. in the first test to 14.81 in the second and 15.98 in the third. The results show that the thorough washing of these coals for coking purposes is extremely advisable.

West Virginia No. 6.—Run-of-mine from the New River Smokeless Coal Co., Rush Run, W. Va. Three tests were made on this coal which was unwashed. The first charge, consisting of 13,000 pounds, was burned for 90 hours, and yielded 8,303 pounds, or 63.9 per cent. of light gray, soft coke. The second charge, which consisted of 9,000 pounds of coal, was burned for 66 hours, and produced 6,399 pounds or 71.1 per cent., of coke, of somewhat better quality than the first, although still gray and light. The charge consisted of 8,000 pounds of pulverized coal. It was burned for 44 hours, and produced 5,849 pounds, or 73.1 per cent., of coke, which was dense and tough but light in weight and color and of poor ring.

West Virginia No. 7.—Run-of-mine from the New River Smokeless Coal Co., Sun, W. Va. This test was made of unwashed coal, the charge weighing 8,000 pounds. It produced 5,119 pounds, or 64 per cent., of coke of good size and quality, but rather dark in color.

West Virginia No. 8.—Run-of-mine from coal furnished by the Gauley Mountain Coal Co., Ansted, W. Va. The test made of this coal was on 11,000 pounds of unwashed fuel. It was burned for 66 hours and yielded 7,124 pounds, or 64.7 per cent., of coke, and 589 pounds of ash and breeze. The coke was very hard, of good color, though of somewhat irregular cell structure.

West Virginia No. 9.—Run-of-mine from the Vulcan mine of the Mount Carbon Coal Co., Ltd., Powellton, W. Va. Two tests were made of the coal furnished to the testing plant by this company. The first test was of unwashed coal, the second of coal which had been thoroughly washed. The unwashed charge weighed 10,000 pounds, and was burned for 40 hours. It yielded 6,084 pounds of coke, 60.8 per cent., and 314 pounds of ash and breeze. The coke was heavy and grayish in color. It was of very good quality and only slightly brittle. The coke from the washed coal showed very great improvement over that from the unwashed coal, and could really be considered a coke of high grade. The charge of washed coal weighed 11,000 pounds. It was burned for 66 hours, and yielded 6,803 pounds, or 61.8 per cent. of coke, and only 78 pounds of ash and breeze.

West Virginia No. 10.—Lump and run-of-mine from Stuart M. Buck, Mora, W. Va. This test was made on 11,000 pounds of unwashed coal. It was placed in the ovens and burned for 68 hours. The charge yielded 7,858 pounds of coke, or 71.4 per cent. The coke which was the result of this test was good, heavy, hard coke, slightly off

color, and 429 pounds of ash and breeze.

West Virginia No. 11.—Run-of-mine from mines Nos. 1 and 2 of W. H. Coffman, Zenith, W. Va. This was the only coal from West Virginia which failed to coke satisfactorily in the testing ovens of the United States Geological Survey at the Exposition. The charge consisted of 11,000 pounds of coal. It was burned for 67 hours.

West Virginia No. 12.—Run-of-mine from coal furnished the official testers by the Big Sandy Coal & Coke Co., Big Sandy, W. Va. Two tests of this coal were made. The first was unwashed and the charge weighed 11,000 pounds. It was burned for 68 hours and produced 7,082 pounds, or 64.4 per cent., of coke, and 549 pounds of ash and breeze. The coke was of very good quality and had a fair metallic ring. It was of good color but showed cross-fractures. The washed charge of the same coal weighed 8,000 pounds, and was burned for 44 hours, producing 5,050 pounds, or 63.1 per cent., of coke, and 583 pounds of ash and breeze. The coke was of large size and grayish color, but not particularly strong.

In connection with the coking tests of the coals, the cokes made in the beehive ovens were not only analyzed and tested by various laboratory methods, but those which gave promise of value in foundry products were also tested in the cupolas of the model foundry connected with the Louisiana Purchase Exposition.

The testing of these cokes for foundry purposes was done under the supervision of a committee appointed for this purpose by the American Foundrymen's Association, the committee consisting of Dr. Richard Moldenke, secretary of the association; Herbert E. Field, of McIntosh, Hemphill & Co., Pittsburg, Pa.; and W. J. Fogarty, of the Magnetite Foundry Co., St. Louis, Mo. Two thousand pounds of each separate lot of coke; one dozen samples in all, were reserved for these tests, and the cupola tests were made under the immediate direction of Dr. Moldenke, during the month of November, using for this purpose two 36-inch small foundry cupolas, one of which was furnished by the Whiting Foundry Equipment Co., of Chicago, and the other by the J. S. McCormick Co., of Pittsburg. The results of the cupola analyses of these cokes and the iron used in the tests have not yet been completed.

These tests of the coking qualities of coal aroused the greatest interest among coal and coke producers as well as iron and steel makers the country over. They were witnessed with the greatest interest during the time they were being made at the recent World's Fair in St. Louis. Hundreds of men, high in their respective activities, watched the testing personally and it was universally conceded that the result would be of the most wide-spread importance. The tables which follow show comprehensively the result attending the different tests which were made at that time.

CKOKING TESTS MADE UNDER THE DIRECTION OF PROF. N. W. LORD, COLUMBUS, O., AT LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO.

Name of Sample.	Condition.	Coal.							Coke							Specific gravity.	Per cent. Produced.	
		Chemical Composition.					Amount charged in oven.	Coking time	Amount produced.	Breeze and ash.	Chemical Composition							
		Moisture.	Volatile matter.	Fixed carbon.	Ash.	Sulphur.					Moisture.	Volatile matter.	Fixed carbon.	Ash.	Sulphur.			Phosphorus.
Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Pounds.	Hours.	Lbs.	Lbs.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.				
Alabama No. 1.	Raw	2.65	30.79	52.68	13.88	0.76	8,000	88										
Do.	Washed	4.64	31.28	53.02	11.06	0.89	9,800	65	5,731	352	0.33	0.72	82.63	16.32	0.69	0.047	1.94	58.5
Alabama No. 2.	Raw	3.77	32.60	50.59	13.04	1.43	8,000	64										
Arkansas No. 1.	do	2.31	18.10	66.58	13.01	1.13	8,075	114										
Arkansas No. 2.	do	2.31	17.41	69.73	10.55	1.58	8,150	118										
Arkansas No. 6.	Washed	18.29	12.95	62.54	6.22	1.22	9,000	95										
Arkansas No. 3.	Briquetted							65			1.05	2.80	72.73	23.42	1.52			
Arkansas No. 6.	do	4.59	17.25	64.12	14.04	1.68	8,000	42	4,056	539	4.06	2.77	76.63	16.54	1.43	.050	1.88	50.7
Illinois No. 1.	Raw	10.46	36.11	37.48	15.95	4.14	9,000	43										
Illinois No. 2.	Washed	17.20	35.77	37.84	9.19	3.03	9,000	64	3,389	352	1.57	2.83	70.42	20.18	2.75	.030	1.87	37.6
Illinois No. 3.	Raw	8.25	30.22	50.94	10.59	1.45	9,000	43										
Do.	Washed	9.52	32.05	52.57	5.86	1.41	13,000	90	6,378	834	6.11	.42	82.55	10.92	1.13	.019	1.84	49.1
Illinois No. 5.	do	17.86	31.65	32.93	17.56	3.25	8,000	42										
Illinois No. 5.	do	25.15	28.68	36.99	9.18	2.71	5,000	42										
Illinois No. 5.	Washed	14.60	30.76	36.48	18.16	3.44	9,000	42										
Indiana No 1.	do	16.53	36.38	40.05	7.04	2.03	8,000	40	3,473	368	5.71	1.18	80.52	12.59	1.69	.016	1.86	43.4
Indian Territory No. 1.	Raw	10.29	31.46	44.39	13.86	1.34	8,095	40										
Indian Territory No. 2.	do	3.82	37.45	48.74	9.99	1.47	9,000	66	5,725	580	8.15	1.74	75.68	14.43	1.50	.050	1.88	63.6
Do.	Washed	4.45	38.18	51.04	6.33	1.43	9,000	65	4,680	255	.96	2.59	85.33	11.12	1.75	.043	1.84	52.0
Indian Territory No. 3.	Raw	4.16	36.66	49.43	9.75	3.16	12,000	65										
Do.	Washed	5.93	38.05	48.53	7.49	3.20	14,000	66										
Indian Territory No. 5.	do	16.95	33.30	41.61	8.14	2.90	10,000	65										
Iowa No. 1.	do	12.84	35.91	41.00	10.25	4.61	9,500	46	4,828	572	10.53	1.65	70.39	17.45	3.89	.051	1.87	50.7
Iowa No. 2.	do	12.85	35.44	35.43	10.28	3.93	10,000	64	3,866	1,153								
Iowa No. 3.	do	16.83	39.27	35.87	8.03	4.55	8,000	43	3,336	585	5.73	1.87	75.49	16.91	4.57	.0183	1.88	41.7
Iowa No. 4.	do	17.80	37.59	37.39	7.14	3.59	8,000	40	3,722	426	13.05	2.32	73.10	11.53	2.97	.0123	1.82	46.5
Iowa No. 5.	do	19.25	31.07	41.75	7.93	2.28	9,000	66										
Kansas No. 1.	Raw	8.10	31.26	45.82	14.84	4.48	11,300	129										
Kansas No. 2.	do	3.96	30.46	45.54	20.04	5.59	9,125	159										
Kansas No. 3.	do	1.75	32.95	48.39	16.91	5.60	7,100	96										
Kansas No. 4.	do	6.63	36.99	43.45	12.93	7.19	10,000	67	5,213	432	.52	1.68	79.82	17.98	6.15	.0148	1.92	52.1
Kentucky No. 1.	do	2.71	37.22	56.17	3.90	1.23	10,000	66	5,441	355	1.48	.83	92.34	5.35	.84	.034	1.83	54.4
Kentucky No. 3.	Washed	10.51	37.33	44.76	7.40	2.51	10,000	66	5,433	426	.14	.56	86.31	12.99	2.16	.009	1.81	54.3
Kentucky No. 4.	do	6.18	39.07	48.70	6.05	2.74	10,000	66	5,528	313	.52	.63	86.50	12.35	2.37	.015	1.84	55.3
Missouri No. 2.	do	14.14	35.53	42.57	7.76	3.24	12,000	87	5,040	580	3.45	1.80	80.27	14.48	2.79	.02	1.86	42.0
Missouri No. 3.	do	24.15	33.10	35.51	7.24	2.74	9,000	42										
Missouri No. 4.	Raw	12.04	41.35	41.34	5.27	5.14	11,000	65	4,905	128	2.51	1.11	85.57	10.81	4.60	.018	1.83	44.6
West Virginia No. 1.	Raw	1.93	36.50	54.97	6.60	.88	9,000	64	5,572	268	.40	1.95	87.47	10.18	.71	.029	1.84	61.9
West Virginia No. 2.	do	1.73	39.20	50.85	8.22	3.38	9,000	50	5,235	286	.42	.68	83.95	14.95	3.40	.023	1.94	58.2
Do.	Washed	3.98	39.76	49.21	7.05	2.84	13,000	64	7,808	302	.59	1.31	86.70	11.40	2.24	.017	1.89	60.1
West Virginia No. 3.	Raw	2.25	30.60	57.40	9.75	.99	9,000	41	5,929	364	.22	.83	80.77	18.18	.93	.065	1.95	65.9
Do.	Washed	4.11	29.54	57.34	9.01	1.18	14,000	66	9,070	535	.38	.87	84.48	14.27	1.19	.079	1.94	64.8
West Virginia No. 4.	Raw	2.72	27.62	59.16	10.50	.86	12,000	65	8,907	428	.62	1.43	86.10	11.85	.82	.031	1.84	74.2
Do.	Washed	3.47	27.95	61.05	7.53	.74	9,000	42	6,367	374	.20	1.15	85.42	13.23	.69	.019	1.94	70.7
West Virginia No. 5.	Raw	2.43	28.30	58.55	10.73	.90	13,000	64	8,298	497	2.60	1.12	77.14	19.14	.77	.067	1.90	63.8
Do.	Washed	4.84	28.12	56.76	10.28	.91	13,000	66	7,163	461	.42	.43	84.34	14.81	.83	.086	1.89	55.1
Do.	Washed, fine	19.50	23.76	48.55	8.19	.79	10,000	69	4,256	229	.27	.78	82.97	15.98	.82	.087	1.89	42.5
West Virginia No. 6A.	Raw	1.76	21.48	71.92	4.84	.55	13,000	90	8,303	381	2.83	2.17	89.84	5.16	.69	.008	1.77	63.9
West Virginia No. 6B.	do	2.27	22.03	70.30	5.40	.88	9,000	66	6,399	382	.36	1.34	93.04	5.24	.76	.007	1.87	71.1
West Virginia No. 6C.	Raw, fine	1.73	21.12	71.57	5.58	.64	8,000	44	5,849	273	1.89	1.83	88.80	7.48	.69	.006	1.79	73.1
West Virginia No. 7.	Raw	3.85	20.55	70.58	5.02	1.36	8,000	44	5,119	287	.67	1.23	90.40	7.70	1.03	.0061	1.80	64.7
West Virginia No. 8.	do	3.82	31.77	57.21	7.20	.89	11,000	66	7,124	589	2.79	.53	82.37	14.31	.77	.0116	1.92	64.7
West Virginia No. 9.	do	3.81	31.08	57.04	8.07	.83	10,000	40	6,084	314	.29	2.41	88.15	9.15	.82	.0094	1.84	60.8
Do.	Washed	5.74	32.14	57.61	4.51	.90	11,000	66	6,803	78	.27	.62	91.73	7.38	.77	.012	1.87	61.8
West Virginia No. 10.	Raw	1.61	18.39	74.65	5.37	.61	11,000	68	7,858	429	3.68	.53	87.54	8.25	.56	.007	1.89	71.4
West Virginia No. 11.	do	3.35	15.94	68.76	9.95	.47	11,000	67										
West Virginia No. 12.	do	1.53	18.23	74.08	6.16	.97	11,000	68	7,082	549	.35	.85	89.37	9.43	.83	.0077	1.95	64.4
Do.	Washed	8.36	18.20	68.54	4.90	1.11	8,000	44	5,050	583	5.15	.72	86.57	7.55	1.01	.01	1.88	63.1

LAKE RATES FIXED.

Prices for coal shipped by way of the Lakes to the Northwestern market from Pittsburg district have been officially announced. The rates determined upon are practically the same as those prevailing last year. This calls for \$2.10 a ton for cargo and \$2.50 a ton for fuel coal f. o. b. vessels at all lake ports. The only reduction in force is at Ashtabula docks where the Hanna interests are loading fuel coal at the same rate as cargo coal, \$2.10 a ton. None of the other large lake shippers followed the lead of the Hannas and still quote the \$2.50 rate for fuel coal. Shipments from Pittsburg district mines to the lakes became very heavy toward the end of last month and that they will be steadily increased for several weeks yet there can be no doubt. The mines are generally in operation and unless the railroads should fail to furnish all the cars needed their period of activity will only be bounded by the du-

ration of the navigable season. The Pittsburg Coal Co. has secured several very important northwestern contracts and according to estimates will ship more coal to the northwest than on any former year. The company was unable to fill all its contracts las season owing to the strike of vesselmen on the lakes which retarded shipments for 50 days after lake navigation opened. The railroads were short of the normal number of cars and this, too, interfered with shipments. No such difficulties are looked for this season as the railroads have made special efforts to secure an ample number of cars for all ordinary demands. Independent coal concerns, which include the Ellsworth and Osborn interests, have booked some large orders for lake coal, and the shipments to the northwest this season will be unusually heavy. Many of the small independent companies and some of the large ones have contracted to furnish the Pittsburg Coal Co. a part of their output,

all of which will go to the lake trade. The shipment of coal to the lake ports is expected to have an effect on prices for the Pittsburg trade, and better prices may rule.

COAL SHIPPED BY RIVER.

Over 5,000,000 bushels of coal were shipped South by the different coal companies of the Pittsburg district last month. An the April rises The Monongahela Consolidated Coal & Coke Co. sent South about 3,500,000 bushels and a large consignment of other freight. The boats got back from Southern ports just in time to take advantage of the high water and all got away with as large tows of coal as they could handle with safety. The balance of the shipment sent out was made up by the independent concerns. As the water fell rapidly, much coal was still left in the pools of the Monongahela river awaiting another favorable stage of water.

STEAM TESTS OF COAL AT ST. LOUIS EXPOSITION.

By L. P. Breckinridge.

The following is a preliminary report of the steam tests of the coals burned under the boilers of the United States Geological Survey coal-testing plant at the Louisiana Purchase Exposition, at St. Louis.

This report consists of a short description of the methods used in testing and a table giving the important dimensions of the boilers used; a list of the various coals tested, and some of the important results.

The method of testing fuels under boilers has been a subject of discussion for many years by the members of the American Society of Mechanical Engineers, and as the result of this discussion a standard method of conducting tests and of reporting the results has received the approval of this Society. The steam tests of coal at the Geological Survey testing plant have been conducted and the results reported in accordance with these methods and forms.

The number of tests made was 78. The duration of each was planned for ten hours, and was as near this time as the conditions at the close of a test would permit. An experienced and careful fireman hand-fired all of the coals tested.

There were two 210-horsepower Heine safety boilers provided for these tests. They were exactly similar in construction and setting. Each was provided with its own stack, 115 feet high and 37 inches in diameter. Each boiler was fed by its own independent injector, and no other means of supplying water to the boilers was provided. The ends of the blow-off pipes were visible during all tests.

The boilers were cleaned externally after each test. The interior condition of each boiler was practically clean during all tests.

Proportions of Boilers.

Rated capacity of boiler 210 horsepower.
Water-heating surface, 2,031 square feet.
Superheating surface, none.
Grate area, 40.6 square feet.
Kind of draft, natural.
Height of steel stack, 115 feet.
Area of steel stack, 7.67 square feet.
Number of tubes, 116.
Outside diameter of tubes 3.5 inches.
Steam pressure, 85 pounds.
Observations taken every 20 minutes.
Approximate duration of each trial, 10 hours.
The steam generated by the boilers was largely used by an Allis-Corliss engine of 250-horsepower capacity, and the power of the engine was absorbed by a 200-kilowatt direct current, 240-volt Bullock generator, to which the engine was belted.
The engine was the simple noncondensing type. The cylinder was 22 inches in diameter and the stroke was 42 inches. The engine ran about 80 revolutions per minute.

Numerous tests made to determine the steam consumption of the engine, as well as the mechanical efficiency of the engine and generator together, gave the following average results:

Average Results of Engine and Generator Tests.

Number of pounds of steam used per hour per indicated horsepower developed by the engine, 23.60.
Mechanical efficiency of the engine and generator combined (per cent.), 81.
From these figures has been calculated the electrical horsepower delivered to the switchboard for such tests of the boilers as were not accompanied by a test of the engine and generator.
The coals tested are arranged alphabetically according to the States from which they were obtained. Some of these coals were washed and some were briquetted. In all tests of coals other than slack, the

coal was first passed through rolls having an opening of 1½ inches, which crushed it to uniform size. On next page is a table which gives some of the results of the tests and in which the character of the coal used in each boiler trial is clearly indicated.

List of Coal Tested.

Alabama No. 1. First test: Lump and nut coal from mine No. 8 of the Ivy Coal & Iron Company, Horse Creek, Ala. Second test: Large briquettes containing 7 per cent of pitch binder.
Alabama No. 2. Lump, nut and pea coal from mine No. 5 of the Galloway Coal Company Carbon Hill, Ala.
Arkansas No. 1. First test: Lump and nut coal from mine No. 3 of the Central Coal & Coke Company, Huntingdon, Ark. Second test: Large briquettes containing 9½ per cent of pitch binder.
Arkansas No. 2. First test: Lump coal from mine No. 12 of the Central Coal & Coke Company, Bonanza, Ark. Second test: Large briquettes containing 11 per cent. of pitch binder.
Arkansas No. 3. First test: Lump and slack coal from mine No. 18 of the Western Coal & Mining Company, Jenny Lind, Ark. Second test: Large briquettes containing 8.7 per cent. of pitch binder.
Arkansas No. 4. First test: Large briquettes made from slack coal from several Arkansas mines, furnished by the Western Coal & Mining Company, St. Louis, Mo. Briquettes contained 6 per cent. of pitch binder. Second test: Small briquettes made with patent binder.
Arkansas No. 5. Lump and slack coal from mine No. 4 of the Western Coal & Mining Company, Coal Hill, Ark.
Colorado No. 1. Run-of-mine black lignite, from Simpson mine, of the Northern Coal & Coke Company, Lafayette, Colo.
Illinois No. 1. Lump and nut coal from mine No. 1 of the Western Anthracite Coal & Coke Company, near O'Fallon, Ill.
Illinois No. 2. Washed slack coal from same as Illinois No. 1.
Illinois No. 3. Run-of-mine coal from mine No. 3 of the Southern Illinois Coal Mining & Washing Company, near Marion, Ill.
Illinois No. 4. First test: Lump coal from mine No. 3 of the Donk Brothers Coal & Coke Company, Troy, Ill. Second test: Same as first.
Illinois No. 6. Run-of-mine coal from shaft No. 1 of Clover Leaf Coal Company, Coffeen, Ill.
Indiana No. 1. Washed run-of-mine coal from Mildred mine of the J. Woolley Coal Company, Mildred, Ind. Second test: Large briquettes made from washed coal, containing 7 per cent. of pitch binder.
Indiana No. 2. Run-of-mine coal from Electric mine of the T. D. Seales Coal Company, Boonville, Ind.
Indian Territory No. 1. Lump and slack coal from mine No. 1 of the Whitehead Coal & Mining Company, Henryetta, Ind. T.
Indian Territory No. 2. Run-of-mine coal from mine No. 8 of the Rock Island Coal Company, Harts-horne, Ind. T.
Indian Territory No. 3. Run-of-mine coal from mine No. 1 of D. Edwards & Son, Edwards, Ind. T.
Indian Territory No. 4. Lump coal from mine No. 5 of the Western Coal & Mining Company, Lehigh, Ind. T.
Iowa No. 1. Lump and fine coal from mine No. 2 of the Anchor Coal Company Laddsdale, Iowa.
Iowa No. 2. Run-of-mine coal mined from No. 6 of the Mammoth Vein Coal Company, near Hamilton, Iowa.
Iowa No. 3. Lump coal from mine No. 4 of the Gibson Coal Mining Company, Altoona, Iowa.
Iowa No. 3. First test: Lump coal from mine No. 3 of the Centerville Block Coal Company, Centerville, Iowa. Second test: Large briquettes containing 8 per cent. of pitch.
Iowa No. 5. Run-of-mine coal from Inland mine No. 1 of the Inland Fuel Company, Chariton, Iowa.
Kansas No. 1. Run-of-mine coal from mine No. 10 of the Western Coal & Mining Company, Fleming, Kans.
Kansas No. 2. First test: Lump and nut coal from mine No. 11 of the Western Coal & Mining Company, Yale, Kans. Second test: Same as above except washed.
Kansas No. 3. First test: Run-of-mine coal from mine No. 9 of the Southern Coal & Mercantile Company, Scammon, Kans. Second test: Same as first.
Kansas No. 4. Lump coal from mine of the Atchison Coal Mining Company, near Atchison, Kans.
Kansas No. 5. Lump and nut coal from mine No. 11 of the Southwestern Development Company, West Mineral, Kans.
Kentucky No. 1. Run-of-mine coal from Straight Creek mine No. 2 of the National Coal & Iron Company, Straight Creek, Ky.
Kentucky No. 2. First test: Lump, nut, pea, and slack coal from mine No. 11 of the St. Bernard Mining Company, Earlington, Ky. Second test: Large briquettes containing 8 per cent. of pitch.
Kentucky No. 3. Run-of-mine coal from Barnsley mine of the St. Bernard Mining Company, near Earlington, Ky.
Kentucky No. 4. Run-of-mine coal from mine of the Wheatcroft Coal & Mining Company, Wheatcroft, Ky.
Missouri No. 1. First test: Run-of-mine coal from New Home mine No. 1 of the New Home Coal Company, located at Sprague, Mo. Second test: Large briquettes containing 11½ per cent. of pitch. Third test: Same as first.
Missouri No. 2. First test: Run-of-mine coal from mine No. 8 of the Northeastern Coal & Mining Company, Brevier, Mo. Second test: Same as first.
Missouri No. 3. First test: Slack coal from mine of the Mendota Coal & Mining Company, Mendota, Mo. Second test: Same as first, except washed.
Missouri No. 4. Run-of-mine coal from mine of Morgan County Coal Company, near Barnett, Mo.
New Mexico No. 1. Lump and slack coal from Weaver mine of the American Fuel Company, 3 miles north of Gallup, N. Mex.
New Mexico No. 2. First test: Slack coal from Otero mine of the Caledonian Coal Company, 2 miles east of Gallup, N. Mex. Second test: Small briquettes containing patent binder.
North Dakota No. 1. Run-of-mine brown lignite from Lehigh, N. Dak.
Pennsylvania No. 1. Coal from Eureka mine No. 31 of Berwind-White Coal Mining Company, Windber, Pa.
Pennsylvania No. 2. Coal from Eureka mine No. 31 of Berwind-White Coal Mining Company, Windber, Pa.
Pennsylvania No. 3. Small briquettes made with patent binder from anthracite culm furnished by Pennsylvania Coal Company, Scranton, Pa.
West Virginia No. 1. Run-of-mine coal from mine of the Virginia & Pittsburg Coal Company, Kingmont, W. Va.
West Virginia No. 2. Run-of-mine coal from Pitcairn mine of the Pitcairn Coal Company, Clarksburg W. Va.
West Virginia No. 3. Run-of-mine coal from mine of West Virginia Coal Company, Richard, W. Va.
West Virginia No. 4. Run-of-mine coal from mine of the West Virginia Coal Company, Bretz, W. Va.
West Virginia No. 5. Lump and nut coal from mine of the Davis Colliery Company, Coalton, W. Va.
West Virginia No. 6. First test: Run-of-mine coal from mine of the New River Smokeless Coal Company, Rushran, W. Va. Second test: Same as first.
West Virginia No. 7. Run-of-mine coal from mine of the New River Smokeless Coal Company, Sun, W. Va.
West Virginia No. 8. Run-of-mine coal from mine of the Gauley Mountain Coal Company, Ansted, W. Va.
West Virginia No. 9. Run-of-mine coal from Vulcan mine of the Mount Carbon Coal Company, Limited, Powellton, W. Va.
West Virginia No. 10. Lump and run-of-mine coal from Stuart M. Buck, Mora, W. Va.
West Virginia No. 11. Run-of-mine coal from mines Nos. 1 and 2 from W. H. Coffman, Zenith, Va. Nos. 1 and 2 from W. H. Coffman, Zenith, Va.
West Virginia No. 12. First test: Run-of-mine coal from mine of the Big Sandy Coal & Coke Company, Big Sandy, W. Va. Second test: Small briquettes made with patent binder.
Wyoming No. 1. Black lignite from mine of the Wyoming Coal & Mining Company, Monarch, Wyo.
Wyoming No. 2. Run-of-mine coal from Antelope Nos. 1 and 2 and Jumbo mines of the Cambria Fuel Company, Cambria, Wyo.

Coal Tests Under the Boilers.

The accompanying table shows some of the most important practical results of the tests of coals burned under the boilers. In each test an effort was made to operate the boiler at a point very near its rated capacity. In some cases the coals tested presented difficulties which made it impossible to accomplish this result. The various coals were tested in the order of the "test numbers" given in column I, and tests of coals from widely separated localities were frequently made on successive days.

Attention is called to "rate of combustion" at which the coals were burned. To those familiar with tests of this character it will be evident that the coals were for the most part burned at a rate calculated to give approximately most favorable results.

All of the chemical results reported in this table were furnished by the chemical laboratory in charge of Prof. N. W. Lord, which is sufficient guarantee of the accuracy. recorded in column II, refers to the standard boiler horsepower and is the evaporation of 34.5 pounds of water per hour from a feed-water temperature of 212° F. and at atmospheric pressure.

In column 13 will be found recorded the number of pounds of water evaporated by one pound of dry coal at and from a temperature of 212° F. This column gives the

best comparative results of the relative values of the coals tested, as far as these results relate to their commercial values. The final report on these tests will give

the values of all the items of the standard code report of the American Society of Mechanical Engineers and complete logs of all tests, as well as a graphic chart of each trial.

RESULTS OF COAL TESTS UNDER BOILERS.

Test No.	Name of sample.	Coal, size, and condition.	Chemical composition.					Duration of trial.	Total coal consumed.	Horsepower developed by boiler.	Dry coal burned per square foot of grate surface per hour.	Equivalent evaporation from and at 212° F. per pound of dry coal.	Dry coal per indicated horsepower hour.	Dry coal per electrical horsepower hour.
			Fixed carbon.	Volatile matter.	Moisture.	Ash.	Sulphur (separately determined).							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Hours	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
17	Alabama No. 1	Nut, bright	52.52	31.00	2.56	13.92	0.78	10.03	8,656	205.8	20.72	8.44	3.35	4.14
21	do	Large briquettes	50.96	33.00	2.63	13.41	.94	8.25	6,521	196.6	18.97	8.81	3.21	3.96
16	Alabama No. 2	Mine run, bright	48.65	32.98	4.83	13.54	1.17	10.02	9,198	216.4	21.54	8.55	3.31	4.08
9	Arkansas No. 1	Lump, bright	66.36	18.61	1.99	13.04	1.21	10.07	7,071	180.5	16.90	9.05	3.12	3.86
14	do	Large briquettes	67.65	21.21	.94	10.20	1.73	10.03	7,700	206.4	18.74	9.37	3.02	3.73
8	Arkansas No. 2	Lump, bright	73.65	16.86	1.07	8.42	1.95	10.07	6,517	180.6	15.70	9.73	2.91	3.59
11	do	Large briquettes	60.30	22.49	4.88	12.33	1.32	9.98	7,370	190.3	17.31	9.31	3.00	3.71
29	Arkansas No. 3	Mine run, bright	72.74	16.04	1.97	9.25	1.29	10.02	8,158	219.7	19.68	9.50	2.98	3.68
35	do	Large briquettes	62.04	17.35	2.60	18.01	1.41	10.08	8,600	200.8	20.49	8.34	3.39	4.19
40	Arkansas No. 4	do	71.98	14.06	3.85	10.11	1.64	9.95	8,142	214.5	19.41	9.40	3.01	3.72
42	do	Small briquettes	66.03	18.60	3.18	12.19	1.70	7.03	5,238	166.8	17.78	7.98	3.54	4.38
41	Arkansas No. 5	Nut, bright	73.68	12.54	2.22	11.56	2.39	10.13	9,000	202.4	21.42	8.04	3.52	4.34
75	Colorado No. 1, lignite	do	39.00	35.85	19.78	5.37	.42	9.97	8,972	151.0	17.80	7.21	3.92	4.85
18	Illinois No. 1	Nut, dull	38.21	36.91	9.69	15.19	4.40	9.93	11,124	211.4	24.90	7.21	3.92	4.85
19	Illinois No. 2	Slack, dull, washed	41.72	37.77	10.45	10.06	3.36	9.97	10,096	210.2	22.36	8.00	3.54	4.38
38	Illinois No. 3	Nut, dull	48.75	31.19	8.51	11.55	1.50	10.13	9,537	200.6	21.23	8.04	3.52	4.34
48	Illinois No. 4	Lump, dull	41.59	33.48	13.47	11.46	1.28	10.07	9,367	172.0	19.84	7.37	3.83	4.73
50	do	Nut, dull	43.63	32.44	12.58	11.35	1.36	10.02	10,750	197.8	23.13	7.27	3.89	4.8
73	Illinois No. 6	do	39.62	32.31	13.19	14.88	3.48	9.92	10,343	194.3	22.34	7.40	3.82	4.72
71	Indiana No. 1	Large briquettes	43.23	38.79	11.74	6.24	2.03	6.60	6,579	222.6	21.70	8.73	3.24	4.00
65	do	Nut, dull, washed	40.41	35.17	16.59	7.83	2.18	9.93	10,819	222.7	22.39	8.45	3.34	4.13
68	Indiana No. 2	Nut, dull	40.40	38.04	9.11	12.49	4.12	10.13	9,274	193.4	20.51	8.02	3.53	4.35
10	Indian Territory No. 1	Mine run, bright	46.30	33.96	7.65	12.09	1.80	9.75	8,210	194.7	19.17	8.64	3.27	4.04
20	Indian Territory No. 2	Nut bright	50.31	36.21	3.71	9.77	1.39	10.17	9,213	212.9	21.50	8.42	3.36	4.15
32	Indian Territory No. 3	do	47.58	37.30	4.79	10.33	3.93	10.02	9,145	205.9	21.43	8.17	3.46	4.27
52	Indian Territory No. 4	do	45.33	35.44	6.24	12.99	3.86	10.22	9,296	186.1	21.04	7.53	3.76	4.64
45	Iowa No. 1	Nut, dull	39.89	33.08	8.69	18.34	6.39	10.02	10,331	197.7	23.23	7.24	3.91	4.82
49	Iowa No. 2	Nut, very dirty	33.73	35.35	14.88	16.04	4.73	9.92	10,986	192.7	23.28	7.05	4.01	4.95
67	Iowa No. 3	Nut, dull	35.77	36.14	12.44	15.65	6.07	10.03	10,668	189.3	22.96	7.02	4.03	4.97
47	Iowa No. 4	Mine run, dull	37.28	34.09	13.48	15.15	5.04	10.00	9,385	167.3	20.02	7.11	3.98	4.91
66	do	Large briquettes	37.85	36.50	13.24	12.41	3.90	10.03	9,900	184.5	21.11	7.43	3.80	4.70
55	Iowa No. 5	Nut, medium bright	38.83	31.76	16.01	13.40	3.09	9.98	11,200	204.7	23.23	7.50	3.77	4.66
6	Kansas No. 1	Lump, dull	49.46	33.78	5.90	10.86	3.82	10.10	7,222	158.2	16.60	8.11	3.49	4.31
7	do	Mine run, dull	48.57	32.68	4.80	13.95	4.94	9.70	7,492	184.0	18.13	8.63	3.28	4.05
5	Kansas No. 2	do	46.68	31.23	4.18	17.91	6.27	7.00	5,600	181.5	18.90	8.17	3.46	4.28
13	do	Nut, dull, washed	51.22	34.32	5.82	8.64	3.77	9.38	8,111	209.8	20.08	8.89	3.18	3.93
3	Kansas No. 3	Mine run, dull	50.99	33.52	2.03	13.46	5.39	9.91	7,700	169.6	18.77	7.69	3.68	4.55
4	do	do	51.05	34.30	2.25	12.40	4.80	10.40	7,101	148.8	16.45	7.69	3.68	4.55
58	Kansas No. 4	Nut, bright	43.59	36.32	5.51	14.58	8.46	10.05	7,835	165.5	18.18	7.75	3.65	4.51
72	Kansas No. 5	do	51.36	32.42	4.31	11.91	4.40	9.90	8,651	215.2	20.62	8.88	3.18	3.93
60	Kentucky No. 1	Nut, very clean	55.59	35.61	2.89	5.91	1.19	10.03	8,355	212.3	19.95	9.06	3.12	3.86
57	Kentucky No. 2	Nut bright	45.75	37.91	7.76	8.58	3.37	10.00	9,557	208.5	21.75	8.16	3.47	4.28
76	do	Large briquettes	44.32	37.07	7.11	11.50	3.71	9.82	9,371	207.1	21.87	8.06	3.51	4.33
64	Kentucky No. 3	Nut, bright	44.84	37.32	7.92	9.92	3.91	10.07	9,645	211.5	21.75	8.27	3.42	4.22
62	Kentucky No. 4	do	45.74	35.65	5.89	12.72	3.72	9.93	9,386	211.7	21.90	8.21	3.44	4.25
12	Missouri No. 1	Mine run, dull	40.64	34.88	7.28	17.20	4.37	10.00	9,737	207.4	22.30	7.92	3.57	4.41
23	do	Large briquettes	41.85	37.60	6.38	14.17	4.56	5.10	4,500	191.2	20.37	7.99	3.54	4.37
15	do	Nut, dull, washed	44.21	36.81	7.93	11.05	3.58	9.91	9,041	207.0	20.71	8.50	3.33	4.11
37	Missouri No. 2	Nut, dull	37.33	32.88	13.09	16.70	4.92	9.98	11,650	208.2	25.00	7.08	3.99	4.93
44	do	do	39.76	31.77	11.57	16.90	4.60	9.98	9,248	172.5	20.20	7.26	3.90	1.81
78	Missouri No. 3	Nut, dull	29.98	26.18	18.63	25.21	3.85	9.95	10,828	149.5	21.85	5.82	4.86	6.00
77	do	Nut, dull, washed	39.61	31.18	20.78	8.43	2.88	9.93	11,044	189.7	21.72	7.43	3.81	4.70
70	Missouri No. 4	Nut, dull	42.11	40.10	12.24	5.55	4.98	9.98	9,515	214.1	20.64	8.83	3.20	3.96
27	New Mexico No. 1	Mine run, clean	41.57	37.85	11.90	8.68	.56	10.05	10,963	206.3	23.70	7.41	3.96	4.90
26	New Mexico No. 2	Pea dull	36.11	37.30	9.92	16.67	1.13	10.00	11,870	198.5	26.37	6.41	4.41	5.45
30	do	Small briquettes	39.07	37.56	6.75	16.62	1.61	8.12	7,765	185.8	22.00	7.19	3.93	4.86
33	North Dakota No. 1, lignite	Nut, brown	25.40	28.13	35.84	10.63	1.68	9.85	10,680	108.9	17.15	5.40	5.24	6.47
1	Pennsylvania No. 1	Mine run, bright	75.69	15.80	1.10	7.41	1.49	9.88	6,365	166.9	15.70	9.04	3.11	3.84
2	Pennsylvania No. 2	do	76.76	16.61	.59	6.04	.91	10.08	6,835	191.2	16.60	9.79	2.89	3.57
36	Pennsylvania No. 3	Small briquettes	55.00	27.62	3.00	14.38	1.13	10.08	8,012	184.5	19.01	8.26	3.42	4.23
24	West Virginia No. 1	Nut, bright	56.25	34.64	1.90	7.21	.98	9.98	7,818	199.2	18.94	8.95	3.16	3.90
25	West Virginia No. 2	Mine run, bright	48.80	39.23	2.01	9.96	2.71	10.22	8,354	212.4	19.75	9.14	3.09	3.82
28	West Virginia No. 3	Nut, bright	56.11	30.31	2.54	11.04	1.38	9.97	8,225	211.6	19.82	9.08	3.11	3.84
31	West Virginia No. 4	do	59.84	27.64	2.53	9.99	.96	10.00	7,895	215.1	18.98	9.65	2.93	3.62
34	West Virginia No. 5	do	58.66	28.95	2.11	10.28	1.01	10.08	7,700	207.8	18.44	9.59	2.95	3.81
39	West Virginia No. 6	do	70.03	22.38	2.14	5.45	.70	9.95	7,406	213.2	17.95	10.09	2.80	3.46
43	do	do	71.42	21.44	2.11	5.03	.64	10.18	7,264	208.5	17.21	10.30	2.74	3.39
51	West Virginia No. 7	do	68.27	20.23	2.68	8.82	1.52	10.18	7,700	210.1	18.15	9.85	2.87	3.55
53	West Virginia No. 8	do	56.68	31.19	5.26	6.87	.74	9.98	7,997	211.6	18.72	9.62	2.94	3.63
69	West Virginia No. 9	do	59.47	31.11	3.42	6.00	.82	10.00	7,464	210.8	17.78	10.09	2.80	3.46
54	West Virginia No. 10	do	73.84	18.23	1.74	6.19	.59	9.93	7,441	105.9	18.15	9.65	2.93	3.62
56	West Virginia No. 11	do	68.36	16.31	4.85	10.48	.47	9.97	7,700					



Congressman John Dalzell is an enthusiastic supporter of the great project of Ohio river improvement. He has not only given the matter his unqualified approval but he is doing hard and intelligent work to further advance it among the members of congress. He said: "Congress has committed itself to the movement for a nine-foot waterway by its passage of the last river and harbor bill. The visit of the rivers and harbors committee this month, and the trip down the river, will be an educational one and cannot fail to result in immense benefit to the undertaking. Its members cannot help but appreciate the advantage of the plan."

Secretary James W. Wardrup, of the Pittsburg Merchants' and Manufacturers' Association, advocated the project of a great ship canal between Pittsburg and Erie at the fourth annual banquet of the chamber of commerce of Erie, on April 26. Five hundred representative men of this city heard him speak of the greatness of that city, and he urged them to join his association in pushing the project. Congressman Arthur L. Bates said he believed the project would be of the greatest importance.

Theodore Burton, of Ohio, chairman of the Rivers and Harbors committee of the House of Representatives of the national congress, and the other members of this important committee will meet in Pittsburg on the 8th inst. and conduct a tour of inspection of the Ohio river. The trip will be made under the auspices of the Ohio Valley Improvement Society. Col. John L. Vance, president of the society, is making every preparation for the reception and entertainment of the distinguished guests. It is said that all of the members are looking forward with the keenest interest to the trip, for the energy of the society has been such that their attention has been riveted on the great waterway whether they wished it to be or not.

It is expected that the entire body of guests from out of town who will accompany the committee will number 50. They will arrive in Pittsburg at a late hour on May 8, and the next day will be taken in a special chartered steamer up the Monongahela river and shown the great tonnage-producing factors in the district. On the morning of the next day the big trip down the Ohio will be started. The Queen City of the Pittsburg & Cincinnati packet line will be entirely renovated and placed in the best of condition for the trip.

It is expected that this tour of the great

inland waterway will result in its recognition on the part of the committee in a way that has never been done before. The members of the committee are all statesmen of experience and all that is necessary is to let them see for themselves the enormous amount of commerce carried by the stream and what it could do were it given a permanent nine-foot channel. The Ohio Valley Improvement Society will spare no means or efforts to make the trip one of pleasure as well as of profit to the congressmen. Most of the committee will be accompanied by their wives.

The annual rush of coal to the northwest and iron ore from that district began last month with the re-opening of lake navigation. At once the pulse of business quickened and coal mines are being operated now to their capacity. The railroads have had some trouble in furnishing sufficient cars to accommodate the shippers, but this has to a great extent been overcome, and the long trains of cars which are daily sent lakeward from the Pennsylvania and West Virginia bituminous coal fields show that the unprecedented demand in the northwest for fuel will be met. The outlook for a marvelous amount of coal and ore trade with the northwest is as reassuring as it could well be. A demand for fuel and iron and steel, the like of which this country has never known, exists, and operators and railroad officials are straining every nerve to supply it. Railroads have increased their equipment to an extent undreamed of a few short years ago and the amount of business which is readily supplied them is justifying them in their energy and foresight.

THIS LOOKS GOOD TO US!

Latrobe, Pa., April 6, 1905.
Coal & Timber Publishing Co.,
Pittsburg, Pa.

Gentlemen: I have just received April number of "Coal and Timber." Enclosed please find \$1.00 in payment of one year's subscription. I have received every issue since your first number and am very well pleased with it. In fact, I consider it worth \$25.00 per year to me as I get more real information from it than all the balance of the coal papers put together. Very truly yours,

JOHN A. HARTMAN,
President Hartman Coal Co., O.

—Mr. Charles A. Jones, special agent United States Geological Survey in the Division of Mining and Mineral Resources, called at the office of Coal and Timber late last month. Mr. Jones is collecting delinquent statistics for the Survey's report of Pennsylvania mineral production for 1904, which is about ready to issue.

Prominent Figures in the Coal and Timber World. No. 1.*



Francis Le Baron Robbins.

Francis Le Baron Robbins, president of the Pittsburg Coal Co., one of the most prominent figures in the bituminous coal industry in the world, has come to his present high position through his own efforts and merits. He knows the coal industry like a book, or, better than a book, for when a boy of fifteen years he became employed on the tippie of the Walnut Hill mine at Midway, Washington county, Pa. He worked through every department of practical mining and coal mine operations. His rare business instincts caused his rapid promotion until at last he has come to the zenith of the industry—the head of the greatest coal corporation in this or any other country in the world. Mr. Robbins received the best training for his responsible field in life. He was instructed by his father, T. Burr Robbins, one of the pioneer coal producers. Mr. Robbins has always worked for the good of the miner and has been rarely successful in achieving a better understanding between miner and operator.

*Coal and Timber will print each month the portrait and brief biography of men whose personality and life-work are of interest to the public they serve.

LARGE LUMBER DEAL.

H. E. and J. O. Clark, of Glen Campbell, Pa., timber and lumber dealers, have interested several other capitalists in a great deal whereby they secured the lands and buildings of the Tennessee Lumber Co. It is said that the transfer price was close to \$500,000. The company owns lands on which 15,000,000 feet of white pine and oak can be cut. A mill equipped throughout with the most perfect modern machinery, one of the largest ever built for the purpose and a railroad 25 miles in length are included in the property which was purchased. The transfer took place the first of the present month.

NEW CORPORATIONS.

The following new corporations have been granted charters:

The Fremont Lumber Co., Fremont, O., capital \$60,000; incorporators, C. E. Waggoner, L. A. Dickinson, Ella Waggoner, Mary K. Dickinson, and A. E. Culbert.

The Lytle Lumber Co., Deshler, O., capital \$15,000; incorporators, David Lytle, C. R. Lytle, S. P. Lytle, A. F. Buhler, and J. B. Gribbell.

Big Hill Fuel Co. Chariton, Ia., capital \$25,000; incorporators, H. L. Rogers, David Reed, and George B. Albert.

The Interstate Development Co., Clarksburg, W. Va., capital \$25,000; incorporators, Frank S. White, Arthur E. Morgan, Clarence R. Corner, Erlen B. Hardesty, and Harvey V. Varner, all of Clarksburg.

Tennessee Coal Title Co., Jamestown, Tenn., capital \$100,000.

Premium Coal Co., Birmingham, Ala., capital \$20,000; incorporators, F. M. Jackson G. L. Bowers, and others.

The Stone-Brown Co., Cincinnati, O., capital \$50,000; incorporators, William A. Stone, William E. Brown, Roy H. Steigelman, and John C. Rogers.

H. L. Jenkins Lumber Co., Portland, Me., capital \$1,000,000; officers, president and treasurer, Charles Eastman, of Portland.

Shoal Creek Coal Co., Portland, Me., capital \$1,000,000; officers, president, George C. Ricker, of Portland; treasurer, James J. Hernan, of Portland.

Red Star Coal & Iron Co., of Dover, Del., to acquire coal mines and develop the same.

The Mexahala Coal Co., New Straitsville, O., capital \$50,000; incorporators, E. S. Martin, H. H. Gilsey, R. M. Gilsy, John D. Martin, and R. H. Wolfe.

Big Creek Lumber Co., Huntington, W. Va., capital \$25,000; incorporators, R. L. Hutchinson, D. E. Wewitt, C. R. Wyatt, M. B. Hutchinson, and S. P. Wyatt, of Huntington, W. Va.

The Charlton Coal Mining Co. Bridgeport, O., capital \$150,000; incorporators, A. G. Leonard, J. C. Heinlein, A. S. Armstrong, J. B. Driggs, and A. H. Doudna.

The Lemmon Coal Co., Salem, O., capital \$10,000; incorporators, A. H. Lemmon, Mary E. Lemmon, D. R. Lemmon, J. H. Farquhar, Hallie C. Roessler, and Theresa McNab.

Enterprise Fuel Co., Baltimore, Md., capital \$50,000; incorporators, Gustav H. Nachman, J. Harry West, J. Walbach Edelen, Lewis H. Nachman, and Sylvan Hayes Lauchheimer.

Star Coal Co. Beloit, Wis., capital \$10,000; incorporators, A. L. Smiley, E. H. Skinner, Charles F. Lathers, and George L. Cadman.

Dells Lumber & Shingle Co., Eau Claire, Wis., capital \$300,000.

American Smelters Exploration Co., Trenton, N. J., capital \$54,000,000; incorporators, William W. Porter, Frank W. Hills, and John J. T. Treacy.

Paupac Lumber Co., Scranton, Pa., capital \$5,000; incorporators, Gwilym Jones, P. J. Cummings, M. P. Judge, and John Henry Jones.

Driftwood Lumber Co., Scranton, Pa., capital \$5,000; incorporators, Alexander T. Connell, Gwilym Jones, P. Mulherin, and D. L. Potter.

Revere Coal Mine Co., Boston, Mass., capital \$40,000; incorporators, Bert E. Kemp, Arthur G. Wellman, and E. M. McDonough.

The Buckley & Telqua Valley Coal Co., Vancouver, B. C., capital \$1,000,000; incorporators, Charles M. Hayes, F. W. Morse, F. G. Vernon, F. S. Bernard, and E. V. Bodwells, of Victoria, and E. E. Russell, of Montreal, and E. E. Hays, Vancouver.

Standard Coal Co., Newark, N. J., capital \$50,000; incorporators, Katherine McEnroe, Irving D. Uline, and George A. McCall.

Flatbush Coal Co., Brooklyn, N. Y., capital \$10,000; incorporators, E. R. Strong, A. H. Strong, and J. J. Hockett.

Bird Run Coal & Mining Co., Cleveland, O., capital \$50,000.

The Mt. Sterling Lumber Co., Mt. Sterling, O., capital \$15,000; incorporators, J. S. Hinkle, J. S. Core, C. D. Finley, K. H. Dennison, and Joseph H. McClimons.

The Ohio Pyle Co., of Connellsville, Pa., incorporators, Jacob L. Kendall, John A. Guiler, and James McKelvey.

Rock Ridge Lumber Co., Huntingdon, Pa., capital \$5,000; incorporators, Robert A. Carl, E. M. Freeburn, and M. G. Freeburn.

Standard Coal, Coke & Mining Co., Detroit, Mich., capital \$200,000; incorporators, S. M. Smith, T. E. Tarnsey, A. M. Seymour, A. P. Gooding, and Thomas E. Borden.

People's Consolidated Coal Co., of Oklahoma City, Okla., capital \$250,000; incorporators, John Hicks, G. W. Van Meter, and O. F. Randall.

The Alexander Gilchrist & Sons' Coal Co., Wellsburg, W. Va., capital \$25,000; incorporators, Alexander Gilchrist, Elmer Gilchrist, William Gilchrist, Clifton Gilchrist, and Blaine Gilchrist.

The Consolidated Fuel Co., of Bluefield, W. Va., capital \$25,000; incorporators, H. Archer Mitchell, S. Sydney Cofer, O. Mortimer Deyerle, R. Cliff Turner, and L. J. Holland.

The Holley & Stephenson Coal & Coke Co., capital \$150,000; Charleston, Tenn.

Pantzer Lumber Co., Sheboygan, Wis., capital \$50,000; incorporators, E. E. Pantzer, W. J. Nuss, and C. M. Pantzer.

The Arkansas Anthracite Coal Co., Little Rock, Ark., capital \$350,000; incorporators, H. L. Rimmel, J. W. Coffman, George C. Patterson, George B. Rose, Joseph P. Hoye, William Brooks, and J. E. Nichols.

Diamond Coal Co., Mitchellville, Ia., capital \$10,000; incorporators, J. A. Edmundson, and others.

Chesapeake & Ohio Coal and Coke Co., Chicago, capital \$450,000; capital in Illinois, \$2,500.

Dunham Coal Co., Buffalo, N. Y., capital \$20,000; incorporators, Henry M. Pole, Walter J. Dunham, and Whitney C. Case.

Nicholas Coal Co., Bluffton, W. Va., capital \$25,000,000; incorporators, Charles E. Kindred, J. Rilley, James B. Anderson, Thomas Bruce, and Joseph F. Hickery, all of Philadelphia, Pa.

F. N. Sill Coal Co. Albany, N.Y., increase of capital from \$10,000, consisting of 100 shares of the par value of \$100 each, to \$20,000, to consist of 200 shares at a par value of \$100 each.

The Purital Coal Co., Cambridge, O., capital \$30,000; incorporators, W. A. Lucas, L. B. Birney, O. V. Wells, J. M. Valentine, and Robert D. Jirles.

The Reed Lumber Co., Cleveland, O., capital \$10,000; incorporators, H. Reed, L. Q. Rawson, W. G. Weinhold, Frank F. Gentsch, and Cornelius Maloney.

The Madison Fuel Co., Columbus, O., capital \$10,000; incorporators, W. J. Dwyer, A. L. Brower, Paul Jones, John G. W. Hoffman and Kate Moore.

Louis Sands Lumber Co., Manistee, Mich., capital \$50,000.

Consolidated Fuel & Lumber Co., Ishpeming, Mich., increase of capital from \$60,000 to \$120,000.

The Eastman Lumber Co., Waterloo, Ia., has filed articles for the change of name to the Wisowa Lumber Co.; E. W. Eastman, president, and W. W. Holman, secretary.

Plum Creek Coal Co., Punxsutawney, Pa.; incorporators, Adrian Iselin, Jr., Lucius W. Robinson, Benjamin M. Clark, F. H. Beck, and A. B. Stewart.

The Halley Coal Co., Etna, O., capital \$20,000; incorporators, David Halley, Morgan Evans, T. W. Allward, G. S. Morgan, and D. D. Davis.

The Brennen & Woodburn Coal & Coke Co., Pittsburg, capital \$200,000; incorporators, S. D. Livengood, C. B. Burston, Hugo Lorentz, H. F. Woodburn, P. J. Brennen, James Murtha, Frederick Rowe, and George Keitzer. The company will operate about 5,000 acres in Preston county, W. Va.

The Central Cahaba Coal Co., Birmingham, Ala., capital \$18,000; incorporators, J. J. Calahan, W. T. Dillon, and D. H. Brown.

Highland Coal & Coke Co., Johnstown, Pa.; to operate in Stoney Creek township, Cambria county, Pa.

Consolidated Coal & Iron Co., Chicago, capital \$1,000,000; incorporators, David A. Stevens, Herbert G. West, J. Ellsworth Stevens, and Harry W. Davis.

Houston Lumber Co., Colorado Springs, Col., capital \$1,000,000; incorporators, George M. Houston, Harry A. Lewis, and A. A. Hilton.

Colorado-Wyoming Land & Coal Co., Walden, Col., capital \$750,000; incorporators, O. M. Hopkins, John Affolter, and William Capp.

Silver Run Coal Co., Middleport, O., capital \$60,000.

The Buckhorn Coal Co., of Ironton, O., has increased its capital stock from \$5,000 to \$25,000.

The Beelman Manufacturing & Lumber Co., of Chicago Junction, has increased its capital stock from \$10,000 to \$25,000.

The Cambridge & Muskingum Valley Coal Co. has increased its capital stock from \$10,000 to \$1,000,000.

The Wisarka Land & Lumber Co., Appleton, Wis., capital \$50,000; incorporators, G. W. Jones, H. C. Humphrey, and R. H. Jones.

The American Lumber Co., Oconto, Wis., an amendment reducing its capital from \$100,000 to \$50,000.

Illinois Light & Fuel Co., Chicago, capital \$50,000; incorporators, Gustaf Johnson, August Johnson Staak, Conrad Bause.

Maumee Valley Coal Co., Fort Wayne, Ind., capital \$10,000; incorporators, Carl Wurzel, Robert Staak, Conrad Bause.

Keystone Fuel & Mining Co., Chicago, capital \$10,000; incorporators, Ira H. Culp, Albert F. Holmes, Albert J. Appell.

Atlas Washed Coal Co., Chicago; capital \$10,000; incorporators, James J. Kelly, William W. Thompson, Thomas J. Condon.

Gaslight Coal & Wood Co., Otman, Ala., capital \$60,000; incorporators, John M. Kirkwood, David Kirkwood, Samuel Levy, Simon Levy.

Commercial Coal & Coke Co., Kansas City, Mo., capital \$25,000; incorporators, James P. Sprague, Raymond F. Killion, Fred W. Casner.

Elliott & Skellet Fuel Co., Minneapolis, capital \$50,000; incorporators, J. M. Sullivan, E. F. Elliott, F. J. Skellet, W. A. Keon, A. R. Taylor.

MINER'S LAW TESTED.

The constitutionality of the mine law of July 15, 1897, is being tested in the Pennsylvania Supreme Court. On Monday, April 24th, the appeal of the Commonwealth against John Schaleen, appellant, from the Quarter Sessions court of Lackawanna county, Pa., was argued. The case was argued by James H. Torey, for the appellant, and John R. Jones, former district attorney of Lackawanna county, for the miner's association. Schaleen was employed as a coal miner. He did not have a certificate from the miner's examining board as required by the Act of July 15, 1897. He had been employed as a coal miner in Illinois. The jury found him guilty of violation of the act and he was sentenced to pay a fine of \$100. His counsel held that the act was unconstitutional and was a violation of the federal constitution as well. He argued that having been a proficient miner in Illinois, it was unnecessary for Schaleen to take the examination in Pennsylvania. The outcome of the appeal will be awaited with the greatest interest for it affects miners and operators alike.

Subscribe for "Coal and Timber."

ANNOUNCEMENTS.

A. F. White & Co., of Marion, Ills., has just consummated the sale of 12,800 acres of coal land in Williamson and Franklin counties, Ills., to the Chicago, Burlington & Quincy railroad. This company is now building a new line to this block of coal land.

A. F. White & Co., of Marion, Ills., sold 3,000 acres of coal land in Williamson and Franklin counties, Ills., to the Chicago & Cartersville Coal Co. for \$100 per acre cash. Only a few years ago this land could have been bought for \$10 an acre.

The Macomber & Whyte Rope Co., of Chicago, has opened offices in Pittsburg, No. 402 Times building, Fourth avenue. Burt Gallatly is the local manager of this great firm in Pittsburg, and he will keep

mine or quarry foreman can remove this button, thus rendering the machine harmless. A company is being organized and the firing machine will be manufactured and placed on the market. Mr. Howard is an electrical expert of experience and knows his business thoroughly.

The Wellman-Seaver-Morgan Co., with main office and works at Cleveland, O., announces that George B. Damon, who has been manager of its New York office, has been transferred to an important position in connection with the engineering and sales department at Cleveland, O., and that W. A. Stadelman, for 10 years manager of the eastern office of The Brown Hoisting Machinery Co., has become the manager of the general eastern office of the Wellman-Seaver-Morgan Co., with office at No. 42 Broadway, New York City.

GRAN' POP'S J'OAK.



Drawn for "Coal and Timber."

"Gran' pop, where is a man's lumbar region?"

"I think, Cornelius, that his lumber region is his 'pine. It is poplarly supposed to be, but I am knot sure!"

(Death notice next month.)

a complete stock of wire rope for every purpose.

James W. Howard, of Connellsville, Pa., has invented a contrivance for firing blasts in coal mines or stone quarries. Most firing machines are magnetic, while that devised by Mr. Howard is purely electric. He claims that his machine is absolutely safe and that no spark could be produced even should the device be overturned. His works in a manner that protects the spark from communication with surrounding gases. A safety button which can be removed and by means of which the plunger is worked renders discharge by any inexperienced person an impossibility as the

ALABAMA'S COAL RESOURCES.

Attention has been attracted to the mineral resources of Alabama by the announcement of the completion of the plans for a consolidation of the coal and iron properties of the south into a new corporation with \$125,000,000 capital, made by Col. T. G. Bush, president of the Alabama Consolidated Coal & Iron Co. In the new company will be the Alabama Consolidated Coal & Iron Co., the Tennessee Coal & Iron Co., the Sloss-Sheffield Steel & Iron Co., and the Republic Iron & Steel Co.

The United States geological survey has already issued a number of works relating to the mineral resources of this field and is now engaged in completing a topographical and geologic resurvey of the entire district, both of coal and iron in the Warrior, Cahaba and Coosa fields. This work has been under way for a year and will require about two years longer, as the Birmingham district comprises about 6,000 square miles.

The coal found in the Birmingham district is the ideal coal for iron furnaces because of its conversion into excellent coke. It is better for coking than steaming purposes, than for domestic uses.

In coal, the total production of Alabama in 1903 was 11,654,324 short tons of a spot value aggregating \$14,246,798. This was a gain of 12.6 per cent. in quantity and 14.7 per cent. in value over the previous year. Pennsylvania, of course, ranks ahead of all the states in coal production, her output last year in bituminous coal being 103,117,178 tons, valued at \$121,752,759. Alabama remains the fifth state in point of production and is outranked only by Pennsylvania, Illinois, West Virginia and Ohio.

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We want agents to solicit subscriptions for "Coal and Timber." Liberal commission. Write for terms. Coal and Timber Publishing Company, 801-2-3 Arrott Building, Pittsburg, Pa.



Coal and Timber

PUBLISHED MONTHLY BY

COAL AND TIMBER PUBLISHING CO.

ARROTT BUILDING, PITTSBURG, PA.

RUSH T. JONES, Editor.

B. E. SCHNAITERBECK,

M. G. LEIBIN,

Advertising Manager.

Cashier

Communications relative to news of coal and timber lands, mines, shipments, equipment, etc., as well as items of interest concerning owners, operators, shippers, and officials, are invited and should be addressed to

EDITOR OF COAL AND TIMBER.

Checks, drafts, remittances and all matters pertaining to the business department should be addressed to COAL AND TIMBER PUBLISHING COMPANY.

Telephone—Bell, Court 2388; P. & A., Main 1790.

Subscription \$1.00 per year. Single copies 10 cents.
Advertising Rates on Application.

PITTSBURG, MAY, 1905

"COAL CHILLS."

The winter's past;
And now, at last,
The coal man's bill will ease up.
Ice-men will call
Until next Fall
When their fine jobs will freeze up.
His coal in heaps,
The miner sleeps,
Nor fears a railroad tie-up.
He only prays,
Thro' summer days
The river will not up
 dry

—McRome Howell.

THE COAL LAND SITUATION.

As forecasted in these columns a few weeks ago, a great activity has shown itself in the purchase of coal tracts as soon as the snow left the ground and inspection became practicable. All during the winter there were indications that many large interests would be in the market this spring, buying for investment and for immediate extension of their active operations. Mine superintendents, engineers and experts, representing a number of large companies, were known to be cruising through West Virginia, and developments of the last few weeks have shown that they have made selections of tracts which are now being rapidly acquired and closed up.

The Berwind-White Co. have made several large acquisitions of New River and Pocahontas coals, and several very large tracts have been purchased by parties stated

to be acting for the U. S. steel corporation. We have information also that a number of very large purchases of coal rights in some of the back counties, off the coal railroads, which were quietly taken up by agents through the current month, are the properties of a new syndicate organized in New York City in March, with a capital of \$20,000,000, for investment in West Virginia coal acreage, which, by reason of their location, are cheaper in price and will be held for the more or less distant future.

As suggested in a former article in Coal and Timber, on the coal land situation, prices of acreage, both for fee and rights, are already hardening, and the prophecy that 1905 would be the last year for cheap coal in this field, is assuming more certainty every day. The entire West Virginia district—and this includes the bordering districts to adjoining states—is alive to the fact that investors are looking over their territory and while there is not yet an abnormal advance in prices, we can notice every day a stiffening in price terms and conditions everywhere. Our opinion is that this year, West Virginia, Virginia, Kentucky and Tennessee coal lands will rapidly reach the present Pennsylvania standards of value and it is advisable for those anticipating the purchase of coal bodies for investment or operation, that they should look well to the present opportunity.

The Big Sandy extension in Eastern Kentucky is attracting more and more attention especially since the Pocahontas veins have been pretty well taken on the West Virginia side. The coal lands on the C. & O. extension and the river lying also close to the N. & W., across the stream are actually held at \$200 and upwards per acre and sales are registered around these prices every month. This is a very-much-Pennsylvania color and a few years ago would have been considered supremely ridiculous in that section. Practical use is demonstrating the superior quality of Pittsburg coal in West Virginia, especially in that small geographical oasis or pool of these veins which lies in and around Putnam county, W. Va., the coal there being a beautiful, glossy splint and magnificent for domestic purposes.

Real estate being the basis of all values, it is not at all improbable that a great deal of eastern capital, especially the unearned increment from industrial stocks and bonds, is looking to coal fields. The public is certainly not in the stock market to any extent, and there is not so much capital finding its way to far West and Mexico, as formerly, while on the other hand, the Eastern War, the working out of the English and Welsh coal districts and the progress of the Panama Canal, have all given occasion to newspaper comment on the values of our coal deposits and attracted attention to the solid asset that lies in a bed of "black diamonds." In our estimations there is no investment so wise as one in a good coal tract, regardless of its location, to be held for the future, with the assurance that if

the coal is there, the railroad to handle it will be forthcoming, and in the meantime, fixed charges to carry the investment will be small.

The same situation as regards investment in coal lands is showing increased activity in timber tract purchases. Large co-operative concerns in the Northwest and East have within the last few weeks taken over some fine and extensive oak bodies in West Virginia and some adjoining districts, and in the quiet and substantial manner in which these investments have been made, resemble very much the movement in the coal department. West Virginia is teeming with railroad projects for branch extensions, narrow gauge coal roads and tram ways, which can, with a few miles construction, open up and put upon the market a large number of separate tracts. It will not be many years before all the coal and timber in this mountainous section will be marketable, as to shipping facilities. There only remains to make the situation perfect from an investment standpoint, the liberal and prompt aid of the government in improving the small water ways and Ohio river, to show an industrial condition never before approached in the United States.

Pittsburg must feel the results of this great movement as much or more than any other trans-montane city, both in her mercantile and financial lines.

A glance at the map will show the unique and marvelous geographical location of West Virginia, a statement of which may prove interesting. There is only one state between West Virginia and the Atlantic ocean; one state between it and the Great Lakes; one state between it and the Mississippi river; one state and narrow corner between it and the Gulf of Mexico; and two states between it and Texas. Here we have a Commonwealth teeming with minerals, clothed with timber, scarcely discovered, much less depleted, ready to be pioneered, and affording development for hundreds of years which is not in the Rocky mountains nor Canada, nor Mexico, but lying within a few hours ride of our greatest financial and commercial centers.

IDLE TALK CHECKED.

Many rumors were afloat last month during the time when many hard drives were made at Pittsburg Coal Co. stock. The declaring of the usual dividend on the preferred stock of the corporation put an effectual quietus to all talk.

COAL TAX BILL BURIED.

The Pennsylvania coal and oil tax bill was given an anesthetic by the state legislature before its adjournment at Harrisburg last month. It is almost certain that the dose administered was so generous in quantity that the unjust and oppressive measure will never be resurrected, and it is right that it should be so.

FOREST DENUDATION.

The subject of forest denudation is one which will not down. It has been so frequently and voluminously discussed that it has become an almost thread-bare subject, yet it is one which concerns the industrial, agricultural and sociological future of this and other countries where the on-march of civilization has threatened the extinction of timber. The reports, both governmental and private, are not reassuring. Inveigh as men will upon the evils of forest denudation, it continues, and will continue until stopped by the heavy hand of the law. How this may be applied, it is not the purpose to discuss at this time. The fact remains that the wanton despoilation of the thousands of acres of timber lands which yet remain in this country is short sighted almost approaching the line of criminality, certainly to the extent of being fool hardy.

It is fortunate that the repeated warnings are beginning to have some effect, though far short of what is necessary, to the enforcement of discretion and common sense in the cutting down of timber. Several states of this Union, Pennsylvania included, have enacted wise forestry laws so far as they go. That they must go still farther in the future there can be no doubt. It is a condition, and a stern one at that, which confronts this young country and one that must be met in the next decade or the worst evil will have been accomplished. If accomplished too late, the application of the remedy will be about as efficacious as the locking of the stable door after the horse has been stolen.

Alabama, the fifth state in the Union in the production of yellow pine lumber, has no comprehensive or effective legislation looking to its preservation. But, of late, the public awakening in that state upon this question has become so manifest that the public-spirited committee of the Montgomery Commercial and Industrial Association has taken the question up and now there is a lively and reasonable hope that its efforts to regulate the cutting of timber in the future will be rewarded with success. The Association has gathered the laws of the states enacted to prevent forest denudation and will inaugurate an active campaign to the end that the state legislature be influenced to enact similar legislation in Alabama.

Alabama, fortunately, is not alone in this awakened feeling of concern as to the future of timber lands. Several others are taking up the question with some promise of the enactment at early dates of wiser and stronger laws. This cannot come too soon. The farsighted railroad men of the country are beginning to look askance when confronting the question as to the future of the supply of timber for railroad ties. The Pennsylvania railroad is so apprehensive on the subject that it has begun the planting of yellow locust trees on property owned by the company although there is no hope that it will be available for its purposes for 40 years.

Joseph T. Richards, chief engineer of the maintenance of way of the Pennsylvania railroad, has estimated that the railroads of the United States have in use at the present time 620,000,000 railroad ties. The number used annually for repairs and extension is estimated to be from 90,000,000 to 110,000,000, requiring the product of 200,000 acres of woodland.

Such enormous figures as these show startlingly how great is the danger of the utter extinction of timber lands if heroic measures are not soon taken. In the spring and fall months young trees should be planted and every effort should be made upon wise and reasonable lines by the proper authorities that the work of replacing the timber of the country proceed intelligently and without interruption. This country, so far in advance of many sister lands of the earth in many ways, can learn much from them in the matter of the preservation of the forest lands. Germany has taken advanced position on this question. The whole forest reservation of Prussia amounts, in round numbers, to about 20,000,000 of acres, of which over 5,000,000 acres belong to the state and about 150,000 to the crown. The balance is owned by municipalities, corporations and individuals. All forests owned by municipalities and corporations are administered under government regulations and the private owners govern their lands

has caused serious disturbances in the volumes of our rivers. The denudation of the land of trees is the first cause of the great and ever-growing disastrous floods, which in the early spring and late fall are a constant threat to the vast cities built along the river courses as well as to the great manufacturing interests and the agricultural which are always close to the streams as possible.

When the sources of rivers are heavily wooded, the water supply is regulated and kept at a more even amount. The trees and vegetation withhold the moisture and it is allowed to find its way to the water courses more gradually and thus in the early days of this country the tremendous inundations which are now so common were almost unknown. Then, too, the water levels in the streams were more uniform and navigation could be maintained almost all of the year round. All of these considerations are to be taken into account in considering the evils which are resulting from the denudation of our sources of timber supply. The campaign of education must be steadily, persistently, patiently and intelligently maintained to the end that wise and beneficent laws are enacted, and, once spread upon our statute books, rigidly and properly enforced.

A MILLION TONS A DAY.

One million tons of coal a day are being mined in the United States. This is a figure before which human understanding is confounded. Each 24 hours a small mountain of coal is extracted from the bowels of the earth, brought to the surface and at once distributed all over the country to keep the wheels of industry revolving. The country is using fuel at a rate far beyond that of any other nation on the face of the earth. The output of coal in this country last year is estimated to have been 345,437,000 tons of coal. The mountain of fuel was worth at the pitmouth \$530,000,000, while the value of pig iron produced was about \$320,000,000, and of the gold smelted, \$80,000,000. That coal is the richest mineral as a wealth producer nothing could be more conclusive than the cold conservative figures which prove that fact. Natural gas and water do, indeed, furnish much power but their might and total results which they accomplish is but a pigmy when compared with the mighty systems which depend upon coal for their very being. The development of the grand West Virginia and Southern coal fields in recent years has added enormously to the production of these United States. It is wonderfully reassuring to know that these vast coal-producing territories have been merely scratched as it were, and that their resources are, as yet, incalculable. The long and systematic working of the older sections of the country will leave these new fields to be depended upon most largely for the country's coal supply for the future.

OUR CARTOONS.

Beginning with the April issue Coal and Timber began a series of two-page original cartoons, especially drawn for it, and which will be of interest to the coal and timber trade. Upon request of any regular yearly subscriber, copies of these cartoons, printed on plate paper suitable for framing, will be sent gratis, post-paid. The series will be desirable for the office walls of any firm engaged in the lines whose interests we are pushing.

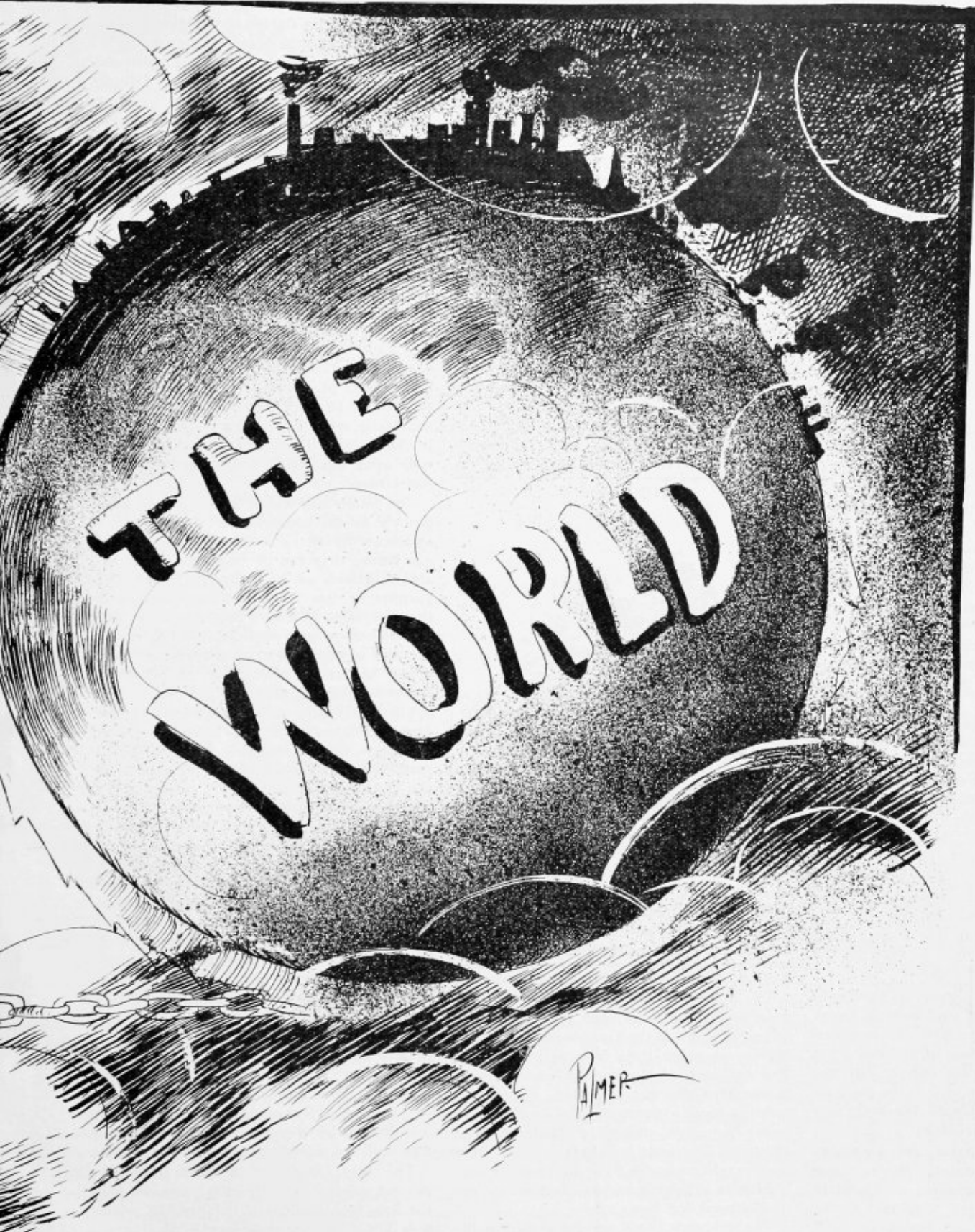
by the same general methods, exact figures of the amount of revenue derived from these lands are not obtainable owing to the large individual holdings, but the government of Prussia in the year 1903 realized 40,935,504 marks from its preservations alone. The general rules governing the operations in forest lands in Prussia are, first, to sow or plant and let grow all trees that promise to pay sufficient interest; second, to cut and market timber whenever it pays better to do so, and third, to care that future generations are no worse off than the present in regard to the supply of available timber. These rules might well be observed in America.

But aside from the commercial uses and values of timber, there are industrial and economic conditions which are of the most vital importance. The cutting of timber



Coal and Timber Cartoon
Number Two.

IT'S COAL THAT MAKES



THE WORLD GO 'ROUND.

Drawn Especially for
Coal and Timber.



—President Lewis A. Riley, of the Lehigh Coal & Navigation Co., says that one of the company's mines at Tamaqua has been on fire for 47 years.

—James R. Barnes has sold to J. Q. Van Swearingen and John F. Hogsett, 458 acres of coal in Morris and Amwell townships, Washington county, Pa., for a consideration of over \$32,000.

—The Drake Coal Co., of Cleveland, has absorbed the Federal Coal Co. P. G. Joyce exchanges his holdings in the latter concern for stock in the new company. He will take charge of the sales department.

—The Gayoso Coal Co., organized a few months ago in Walker county, Tenn., by L. B. Musgrove, and associates, owning 6,320 acres of coal lands, has begun mining coal. The concern expects to reach an output of 1,000 tons of coal a day in September.

—The Alabama Consolidated Coal & Iron Co.'s weekly output of coal is now asserted to be about 14,000 tons. This is at the rate of over 700,000 tons of coal per annum. This company's Gadsden furnace has been repaired and now is turning out over 200 tons of high grade foundry iron every day.

—The Monongahela Consolidated Coal & Coke Co. is having a great coal elevator built at Pittsburg, which will be used to coal the company's boats and barges at New Orleans. The new machine will have a capacity of 200 tons per hour. The Wellman-Seaver-Morgan Co., of Cleveland, are the designers.

—The Hurd Coal Co., a Pennsylvania corporation, which owns a large tract of coal in Bearfield and Pleasant townships, Perry county, O., is buying considerable tracts of coal lands which adjoin its property. The information is given out that a spur track from McLuney will at once be built by the C. & M. V. to the Hurd coal.

—The Rock Island railway has purchased about 4,000 acres of coal land west of Knoxville, in Marion county, Neb. It is stated that the building of a line of railroad from Knoxville to Indianola to connect with the Winterset branch there is for the purpose of affording connection with the main line for an outlet for this coal land.

—J. C. Stineman, senator, and a number of Johnstown and Cambria county men, have purchased 3,000 acres of coal land in McDowell county, West Virginia. Active development of the tract transferred will commence at an early date. Three and one-half miles of the property front on the Norfolk and Western R. R. The Berwind-White Coal Co. and the Pocahontas Coal Co. have land in the same region while the United States Steel Corporation operates several thousands of coke ovens there.

HARRISBURG LETTER. By George M. Wanbaugh.

Harrisburg, Pa., April 27.—The fifteen inspection districts in the bituminous regions of Pennsylvania are being rearranged by Chief James E. Roderick, of the State department of mines, to take care of the additional inspector about to be appointed by Governor Pennypacker. A conference of the bituminous inspectors was held at Pittsburg for the purpose of agreeing on a new apportionment that will enable the inspectors to make a close inspection of the mines in their respective districts.

The law provides that there shall be 80 mines in each inspection district in the bituminous regions but under the present apportionment there are as many as 125 mines in some of the districts. Mr. Roderick is anxious to relieve the inspectors in the tenth district, the headquarters of which is at Altoona; the thirteenth district, the headquarters of which is at Patton; and the eighth

HE DID!



Drawn for "Coal and Timber."

McFadden—"Rafferty's dead."

Doolin—"He is, is 'e? What killed um?"

McFadden—"He caught coal!"

district, with headquarters at Philipsburg.

The inspectors of these three districts now have more work than they can really attend to and it is the purpose of Mr. Roderick to rearrange them into four districts. The majority of the smaller mines are in these three districts and they require almost as much attention as the larger mines in the immediate vicinity of Pittsburg. The additional inspector will be appointed from those applicants who took the recent examination at Pittsburg as soon as the new apportionment has been made.

The governor has not yet disposed of the Garner bill passed by the last legislature providing for a new inspection district for Dauphin county, with one additional inspector. This bill was passed at the suggestion of John Mitchell, President of the United Mine Workers, and applies only to the anthracite regions. No change was made

by the recent legislature in the laws governing the mines in the bituminous regions.

The Garner bill also gives an additional inspector to Luzerne, Lackawanna, Columbia and Northumberland counties, five more inspectors in all. It also gives to the chief of the department of mines the right, where the inspectors in their own counties have not enough work to perform, to assign them to adjoining counties. This arrangement would give to Schuylkill, Luzerne and Lackawanna counties the additional services, at times, of the inspectors in Dauphin, Columbia and Northumberland counties.

The bill also extends the time of inspection from two to three months so as to overcome the possible objection to the present law which the Mine Workers claim is impossible of fulfillment. This bill and the Garner bill, prohibiting the employment of boys under 14 years around the outside of an anthracite mine and under 16 years of age in the inside workings of such mine, is the only mine legislation passed by the recent legislature.

The latter bill, which is also in the governor's hands, compels the securing of a certificate by all persons under 21 years of age before they can be employed either inside or outside of the anthracite mines. The purpose of this feature of the measure is that the Mine Workers may know the age of all such persons and that no boy under 21 years of age shall work around the mines unless he has the educational qualifications prescribed by the proposed act.

These educational qualifications, in the case of those who can furnish a birth certificate, require that they shall be able to read, write and spell simple sentences in the English language. In the case of those who cannot furnish these birth certificates the bill requires that they shall also have a certificate from their last teacher showing that they have studied as far as fractions in arithmetic. In either case the employment certificates are granted by the school superintendent of the district in which the minor resides or, in the absence of such an officer, then by the principal teacher.

Blank certificates are furnished by the department of mines and can be granted as soon as the governor signs the bill, which he will probably do the next few days. The penalty against the operators does not become effective until October 15, 1905, so that all persons may have ample time to secure such certificates. A bill of like import was passed by the legislature of 1905 and was declared unconstitutional by the courts.

The only legislation in which the bituminous miners were directly interested was the Schofield employers' liability bill, which was killed by the judiciary general committee of the House of Representatives. The miners have for years been trying to secure the passage of such a law, but all their efforts have been futile and probably will continue to be until they can agree with the operators on a measure that both can support.

MISCELLANEOUS NEWS

—The Pennsylvania Coal & Coke Co., has started new mining operations near Ebensburg, Pa. A new town will be built at the place and the company will build a railroad from Irvona to the new plants.

—April was a great month in the anthracite coal region. In both production and sales the record was reached if not broken. The reduction of 50 cents per ton on prepared and 25 cents on steam sizes stimulated the demand. The different companies were deluged with orders and every mine was worked to its capacity to turn out all the fuel possible.

—To tap a land rich in timber and minerals the Bremen & Southwestern Railway Co., has been organized, at Edwardsville, Ala., to build a railroad 25 miles long from Bremen, Ga., to Wedowee, Ala., tapping the Central of Georgia and the Southern at Bremen. The incorporators are H. N. Gardner, L. B. Parker and A. A. Hurst. The capital is \$50,000.

—Extensive improvements are being made at the Pike mine near Brownsville, Pa., by the Peoples' Coal Co. A new railroad tiple, crusher, railway siding, etc., have been installed and these will insure operations throughout the entire year. Four hundred men have been employed but this force will be greatly enlarged as it is the purpose of the company to double the output of the mine.

—It is estimated that \$1,000,000 worth of fine anthracite coal has been dredged from the Susquehanna river between Harrisburg and Wilkes-Barre since 1902. Tons of fine coal have been got from the river opposite Harrisburg and a number of firms of that city have been supplied from this source alone. It is a fact that at least \$15,000 are invested in engines, boats and flats by the river dredgers.

—The Cross Creek & Pittsburg Coal Co., has commenced work on its new tract of coal property on the main line of the Washash railroad in Washington county, Pa. The site of the new plant is about 32 miles from Pittsburg. A large amount of money is to be spent in erecting a thoroughly modern plant and the new mines will be fitted out with the very latest electric mining machinery.

—Mining properties and shipping facilities of the W. L. Scott Coal Co. of Erie, Pa., have been taken over by a new soft coal company called the Pittsburg & Erie Coal Co., capital stock \$500,000, which has been organized in this city and the new concern has entered into formal possession. The business of the Scott company is to be wound up. Pittsburg and Erie capitalists are back of the new concern.

—The Foley Coal Co., of Peoria, Ill., newly incorporated with a capital stock of \$40,000, has purchased from W. E. Foley his coal mine west of Canton at a valuation of \$50,000. Mr. Foley is president of the new corporation and the mine will continue to be operated under his own personal management. With him in the enterprise are associated several other Peoria capitalists and railroad officials whose names have not been made public.

—John R. Walsh, of Terre Haute, Ind., will operate the coal mines he has purchased and those he will acquire under the name of the Southern Indiana Coal Co., which was incorporated three years ago, for the purpose of preventing the name being used by others interested in the coal business. J. W. Thompson, general manager of the Southern Indiana railroad, will, it is said, be practically in charge of the Walsh mines, though the general sales offices will be in Chicago.

—The new sawmill of the Menominee Bay Shore Lumber Co., at Soperton, Wis., in which the Soper Lumber Co., of Chicago, is chiefly interested, is practically complete and will probably start on its season's run the first of this month. The new mill is erected at the new town of Soperton, Forest county, Wis., on the Chicago & Northwestern railway, and is only a short distance from Waubeno. It is located on the tract of 30,000 acres of timber lands purchased last year by the Soper interests. During the winter the company accumulated a stock of 15,000,000 feet of logs with which to start its new mill. The mill will turn out 140,000 feet a day of pine, white cedar, birch, elm, hemlock, basswood and maple. A shingle mill of large capacity, a planing mill of suitable equipment, large dry kilns and a complete electric plant for the mill and town go to complete the equipment of a manufacturing operation complete and modern in every particular.

—According to estimates made by the Delaware & Hudson Coal Co.'s, engineers, the total amount of unmined anthracite coal owned by the company at the close of the year 1904, was 218,644,286 tons. During the year there were mined 5,323,668 tons. Assuming that the output of the company continues to equal that of 1904, the year 1945 will witness the end of anthracite mining operations by the Delaware & Hudson Mining Co. In other words, the Delaware & Hudson Co. has a supply of unmined coal sufficient to last for 41 years at the rate of production maintained during the past year. It is not likely that this rate can be maintained. As the amount of coal continues to decrease, mining operations at various collieries will have to be abandoned. In some localities the supply will be exhausted long before it is in others. Even now, it is reported that two of the oldest collieries in the anthracite coal region will cease operations in a very few years.

Subscribe for "Coal and Timber."



—John J. Dempsey, a rich lumberman of Manistee, Mich., and his sons, have purchased more than 100,000 acres of Washington timber lands. On 60 acres bought at Tacoma, they will erect large sawmills.

—David Sanborn has sold to the Spaulding & Frost Co., both of Fremont, N. H., a 100-acre tract very highly timbered with old pine growth. The consideration is announced as being \$40,000.

—It is announced that the last big tract of hemlock timber in Clinton county, Pa., has been sold to a syndicate which will cut down the trees, peel them for the bark, send merchantable logs to the sawmills, and clear the ground. There are 500,000,000 feet of timber on this tract and 130,000 cords of bark will be realized on the logs.

—John H. McCord, of Wellsville, O., and J. M. Shivley, of East Liverpool, have concluded the purchase of 9,320 acres of timber lands in West Virginia. The purchase price is said to have exceeded \$320,000. The land is in the Greenbrier valley. There are 70,000,000 feet of timber in the tract and 40,000,000 feet will be sawed daily. The land is underlaid with coal which will be mined after the timber is cut. One hundred men will be put to work at once.

—A new corporation has been formed under the title of the Bay Mills Land & Lumber Co., at Nagaunee, Mich., to develop a portion of the lands and business of the company in the upper peninsula of Michigan, recently sold at receiver's sale to the Cleveland Cliffs Iron Co. The corporation is capitalized at \$250,000, and its main offices are at Nagaunee, the headquarters of the Cleveland Cliffs Co.'s land department. Nearly 100,000 acres of land were included.

—The Goodyear syndicate, a big concern headed by Goodyear, of Buffalo, N. Y., and Charles I. James, of Baltimore, is endeavoring to secure a monopoly of the richest and most valuable pine timber lands in the state of Mississippi. In this connection it has developed that secret offers are being made for the purchase of the largest timber concerns in South Mississippi. Among those approached are the Pearl River Lumber Co., and the Enochs Lumber & Manufacturing Co. The latter is controlled and operated by Pittsburg, Pa. capitalists. The Goodyear combine is backed by \$25,000,000.

—A deal for 6,000 acres of yellow pine land has been completed whereby the Watworth & Neville Manufacturing Co., of Chicago, has purchased some of the fine virgin forest of Southern Mississippi. The location is at Pine Burr, on the Columbia branch of the Gulf & Ship Island railroad, and includes the Pine Burr saw mill, which will enable the company to begin active operations at once.

UNIONTOWN Letter

By H. G. Lawrence.

Uniontown, Pa., April 27.—The top notch price that has been paid for coal in this section for some time is \$75,000 for the 50 acres of coal and about 150 acres of surface forming the Hughes-Deffenbaugh tract in German township. The surface is not valuable and the purchasers figure out that they paid almost \$1,500 an acre for the coal. The purchasers were John Gilmore, A. P. and W. R. Austin, Theodore D. Bliss, and Harry N. Boyd, all of Uniontown, who have formed the Plumer Coke Co. They expect to build 60 ovens and a block of houses at once. A switch will be built the one-fourth mile to the Monongahela railroad. The tract adjoins the plant of the Puritan Coke Co., composed of Uniontown men, and the new plant will probably be run by electricity, as is that of the Puritan Co.

Work has been begun in German township for the development of the 300 acres of coal owned by ex-Sheriff James H. Hoover. The surveying began two weeks ago and Mr. Hoover will build a plant of about 200 ovens on the Coffman and Ache farms. The tract is on the Masontown & New Salem railroad and the plant will have good shipping facilities.

James R. Barnes, one of the leading coal men of Fayette county, who was associated with J. V. Thompson and others of Uniontown in the recent \$3,000,000 sale of coal lands in Washington county, has a force of 35 men making extensive improvements for his summer home in his native town of Hopwood, where he will have a free amusement park and other features. The house will contain 16 rooms and the place for beauty and grandeur will compare with any place in Fayette county.

The Century Coal & Coke Co., composed of Uniontown men, with Fred C. Keighley as president, began shipping foundry coke last week from its plant near Brownsville. There are now 30 ovens, but the plant will be enlarged as soon as the mine workings are far enough ahead to supply the coal. The company has 350 acres of valuable coal. The company was first organized by the late Attorney W. A. Hogg, of Uniontown.

Contracts have been let and work will begin at once at the plant of the Taylor Coal & Coke Co., which owns over 800 acres of coal near Searights, in Menallen township, and where a plant of at least 600 ovens will be built. The contract for 150 ovens has been let to W. H. Wilkey, of Uniontown, and the contract for the shaft to Hyel, Patterson & Co., of Pittsburg. The ovens will be ready for firing by August 1st. The entire plant cannot be constructed this year. The Taylor Coal &

Coke Co. is composed of furnace and iron men of Cleveland and Pittsburg, besides four Uniontown men, who are extensive stockholders. They are John and Isaac Taylor, M. H. Bowman, and J. C. Work. They owned the coal before it was sold to the furnace men and became prominent members of the company which will develop it. The company has a capital stock of \$600,000. Some of the most up-to-date and complete improvements ever introduced in the coke region will be installed at this plant, and it is the intention to have machinery accomplish in great part the work now done by manual labor in many other places.

A large number of coke operators and others were present on April 19th at Continental No. 1 works of the H. C. Frick Coke Co. near Uniontown, to witness the drawing of coke by a machine which has been in operation there since last October. At this demonstration coke was drawn from the ovens and loaded on the cars in from 10 to 13 minutes. The extractor and conveyor is capable of drawing from 30 to 40 ovens each day and the representatives of the machine claim it can be done at a saving of about 60 per cent. on present cost of drawing coke. The demonstration was made under the supervision of John S. Ham, president of the Covington Machine Co., of Covington, Va., which manufactures the machine, and Joseph Simpson, general sales agent.

George L. Hibbs, of Uniontown, has sold the coal and surface of his farm of 242 acres near New Salem, to the Strothers Iron Co., of Cleveland, O., for \$1,200 an acre, the total consideration being nearly \$300,000. This farm had been in the Hibbs family for nearly 100 years. Mr. Hibbs still has about 900 acres of coal within a radius of a few miles of his home farm, besides extensive holdings in Greene county and elsewhere. It is expected that the Strothers company will at once begin development of the field purchased.

Mr. and Mrs. Harry Oldland, of Uniontown, started April 9th on their long trip of 3,000 miles to Fernie, British Columbia, where Mr. Oldland has contracts to build coke ovens for the Crow's Nest Pass Coal Co., and where he will remain two years.

Among the new coke ovens to be built this year in Fayette county is a block of 30 to be added to the 319 ovens of the A. L. Keister Co., at Waltersburg. The present plant has been running full for some time. R. L. De Priest is superintendent at the plant.

Lyman W. Reynolds, of Uniontown, is drilling wells for the La Fayette Coal & Coke Co. at Waltersburg, to supply the ovens with water and is also putting down 14, 18 and 20 inch holes into the mine at the Continental No. 2 works of the H. C. Frick Coke Co. to pump the water out of the mines.

E. E. Strickler, of Uniontown, has purchased from D. M. Higinbotham, of Union-

town, 100 acres of coal in the Clay and Batelle districts, Monongalia county, W. Va., for \$8,000.

J. V. Thompson and I. W. Semans, of Uniontown, have purchased the farm of Mrs. Ralph Vankirk about three miles south of Eighty Four, Washington county, for \$150 an acre. Messrs. Thompson and Semans have also purchased the coal underlying the Gamble heirs' tract, adjoining the Vankirk farm, at \$100 an acre.

About 20 business associates and friends of D. P. Gibson, of Uniontown, joined with him April 20th in celebrating his seventy-eighth birthday. Mr. Gibson has for nearly 20 years been a director in the First National Bank of Uniontown, and has helped form the policies by which the bank's surplus was increased from a very small sum to \$816,000, with a capital stock of \$100,000, until now the bank stands fifth on the roll of honor among the national banks of the United States.

W. E. Mathews, for the last two years with the Fayette Engineering Co., of Uniontown, has accepted the position of chief engineer for the J. W. Ellsworth Coal Co., at Ellsworth, Washington county, and begins there May 1st.

George L. Hibbs and Joseph E. and James R. Barnes, of Uniontown, have purchased a half-interest in a tract of 143 acres of coal in Monongahela township, Greene county, known as the Hartley tract, the consideration being \$17,973.75, or \$250 per acre. They purchased from W. H. Baily, of Waynesburg, who bought the coal a few years ago at \$50 an acre and now makes a profit of \$200 an acre, or a total of \$14,200.

A MAMMOTH CORPORATION.

The Nicholas Coal Co., with headquarters at Bluefield, W. Va., and holdings in Raleigh, McDowell and Wyoming counties, has been chartered. Its capital stock is \$25,000,000, something enormous even in these days of heavy capitalization. The new corporation is composed of Philadelphia capitalists and practical coal operators. It is evident from early indications that the company intends to go into business on a very large scale. The rule is nowadays for corporations to keep their capital stock down to the minimum owing to the new state laws taxing corporations proportionate to their capitalization. Hence every active company, tries at least, to keep its capital stock down to the lowest possible figure in order to save as much from this corporation tax. The Nicholas Coal Co. held its first stockholders' meeting on the 29th of last month and effected an organization and elected its officers. The Nicholas Coal Co., of Bluefield, was granted a charter to operate coal mines in Raleigh, McDowell and Wyoming counties. Incorporators are Charles F. Kindred, Andrew J. Reilly, James B. Anderson, Thomas Bruce, Joseph F. Hickey, Jr., all of whom are well known capitalists.

Wheeling LETTER

By W. H. Woodruff.

Wheeling, April 27.—Will the season in West Virginia mining be a busy one, seems to be the inquiry the average operator is asking himself. If his introspection is worth anything he cannot help reaching the conclusion that the situation has so vastly improved within the past week, that the summer will be one of the most profitable to the trade in the entire history of the larger regions. Notices which are issued by the Fairmont Coal Co., a few days ago to its superintendents, are indicative of the new conditions. These notices directed each superintendent to instruct his men that the days of employment will be more numerous, and state that prospects for the season could not be brighter.

The lake business, which opened four weeks ago, the notices state, promises to be the largest known in many years; probably will establish a new record. In the down state fields, the New River, Kanawha, and Flat Top, conditions are said to justify the greatest expectations of the hour. The only cloud that mars the horizon is a scarcity of cars among the independents, and a possible tendency to keep down prices, which tendency may prevent any substantial increases for a few weeks, although it is bound to happen that rates will improve. The Panhandle independent operators are making a loud clamor against what they claim is unjust discrimination in the matter of freight rates, not only to the lakes, but for mere domestic shipments. They claim that immediately across the river, miners are getting less money and mine a long ton; on the West Virginia side, the men are paid from 10 to 15 per cent. more, yet put out a short ton. Add to this a 10 per cent. excess of freight rates for the Panhandle, and a situation is produced that is not very pleasing, to say the least. The railroads are being negotiated with, committees are at work, and some sort of an adjustment is possible. But for these unpleasanties, the West Virginia coal operator might be the happiest man on earth, in view of the prospects.

Prices are about as they have been the past two weeks. Lump has an average price of \$1.10 to \$1.15; three-quarter, \$1 to \$1.05; run of mine, 90 cents to 98. In the lower state field activity is marked and if the car supply is half respectable the coming month will be an unusually brisk one in the way of production.

The belief prevails that within the next month contracts will be awarded by Senator Stephen B. Elkins and his associates in the Morgantown & Kingwood railway extension for the remainder of the construction work between Kingwood and Rowlesburg, the latter town being an important

point on the Baltimore & Ohio at the foot of the mountains, and a strong location strategically, from the coal point of view. This new extension, which has been partially completed, goes into the very heart of a district but little known in coal development, but which will play an important part in the Elkins development program from now on. Trains are running into Reedsville, and the road bed for further extension is being ballasted from Reedsville to Bretz. The territory is brought directly into close commercial union with Pittsburg, via Morgantown. It is understood that before the railroad plans were begun, the Elkins interests bought up nearly every foot of coal and timber worth the name, and that when all is ready a second Fairmont will rise from the mountain fastnesses of the district. There are thousands of acres of coal land within easy reach.

Messrs. Edward Donley and John L. Hatfield, of Morgantown, have completed another coal deal, by which they sell to L. L. West, of Connellsville, half their interest in the J. S. Patterson tract which they recently purchased. Their half netted about \$3,000, which is considered pretty good considering the fact that it is but a 48-acre tract. The price of coal land in the vicinity of Morgantown has constantly increased for the past year and very little is to be had.

Until a few days ago most of the mines of the Fairmont company were unable to make good time, owing to the lack of cars. The men in all the mines grew discouraged and it was to prevent their moving out of the territory that the company this week took advantage of improved circumstances, and issued the notice referred to at the outset of this letter.

One thousand dollars an acre for coal, which ten years ago could have been bought for \$5, was the rather remarkable incident connected with a court sale on Roaring creek, near Elkins, a few days ago. Senator C. H. Scott, of Elkins, paid \$1,025 for just one acre of coal, which is said to be worth more to the Davis Colliery Co. to whom it was transferred afterwards. The story of that acre of coal is rather interesting. A large territory was formerly owned by Senator Scott's father. After his death, and in the division of the property among the heirs, and a subsequent sale of part of it, an acre got lost, so to speak, in the survey, and was not accounted for until recently. It became necessary for the Senator to bid against some other interests, and he did so, getting the coal at high-water figure. The property is not unusually well located, and the price it brought is considered a fair average for that particular district in the Roaring Creek field.

The Kenneth Coal Co. is the name of a new corporation of Wheeling, which is getting into the West Virginia trade to some extent. E. B. Carney, of Wheeling, is president, and George J. Mathison, same city, secretary.

The National Tube Co. is buying heavily

of lumber and general building materials for improvements on its Riverside works, at Benwood.

The sympathy of the trade will be extended to J. C. McKinley, a prominent Wheeling operator, whose mother died a few days ago in Orlando, Fla., whither she had gone for her health. Mrs. McKinley was an estimable woman, and quite prominent throughout West Virginia socially. She was the sister of ex-Senator J. N. Camden, and her numerous friends were totally unprepared for the sad news of her demise. One of the more pathetic features of her death was the fact that a daughter died some months ago, in Florida, when on a similar mission—recuperation of health.

The removal of the office of Rinehart & Dennis, Wabash contractors, from Fairmont, to Scranton, Pa., leads many to suspect that the Wabash West Virginia extension towards tide-water will not be prosecuted to a finish this season. The abandonment of work has led to numberless conjectures, and what the company may do is an absolute uncertainty. Coal and lumber interests are trusting the extension will be finished as soon as possible.

Gen. Morris Horkheimer, of Wheeling, a member of the Brier Hill Coal Co., has returned from an extended tour in Europe. He is much improved in health.

The Buffalo collieries, near Williamson, will shortly improve facilities by the addition of much new, modern machinery.

No official report of the recent disaster in the Redash district has been filed.

Government inspectors, under instructions from the Commerce and Labor bureau, are conducting a West Virginia coal inspection.

TO DEVELOP NEW TERRITORY.

The Norfolk & Western railroad has purchased the 13 miles of railroad owned by the Merriman-Youken Co., and connecting Interior, Va., with the main line of the Norfolk & Western near Rinnlemead on New river. This road was originally built as a lumber road and has been used to get out the product of the big lumber mills at Interior for several years. That industry appears, however, to be languishing at that point, the most of the timber having been cut out; and a few days ago Senator P. F. St. Clair substantially closed a deal for a large tract of timber land in North Carolina and says his mill will probably be removed hither from Interior. But it is given out that the Norfolk & Western people now intend to extend the railroad by building up Big Stony Creek through Giles county, across the divide, and down the valley of Potts creek, in Monroe county, thus developing the famous Potts valley iron ores. It is even said that the extension will be continued to a terminus at Covington, Va.

Subscribe for "Coal and Timber."

COAL AND COKE MARKETS.

John H. Jones, president of the Pittsburg-Buffalo Coal Co., says that the present year in coal production will make a record. He says: "This will probably be the greatest year ever known in the coal trade. Everything points to the largest production ever made. Last year there was a falling off, not large, it is true, yet still there was a shrinkage in production. This year, I expect a very different story. I would not be at all surprised if the production would reach 120,000,000 tons in Pennsylvania alone; I certainly expect that 110,000,000 tons will be mined. Several conditions militated against the production last year and these conditions are not at all likely to be repeated, in fact they hardly can be this year. The lake trade is slow, very slow this year, due to the late opening of navigation. Not in years have the lake vessels been delayed as they have been this spring. By the tenth of May things should be different. By that time all of the lake boats should be in commission and making their regular trips. The ice which blockaded the Soo retarded the boats as they have not been for many years. By May 10th all ice will be gone and the vessels will have cleared the Soo and the straits will be fully open. This dragging delay was very bad for the coal trade during last month. Everything was awaiting for the opening of the lakes and until they opened shipments were the minimum. From now on everything will get more and more active. There is a good, strong healthy demand for coal and it is bound to continue for months. I feel perfectly safe in saying that the outlook in the coal trade is better than it has been in years. Other things are operating to the advantage of the coal operator. Natural gas is playing out in several places and many manufacturers are turning again to coal as a staple and reliable fuel. The great Indiana gas field has seen its best days and the manufacturers who have depended upon it for their supply are again making preparations, or have made arrangements, for their supply of coal as fuel. Washington, Pa., and East Liverpool, O., manufacturers are also turning to coal because the gas fields which they have been depending upon are failing them. Generally all conditions are such as to make the future big with promise for the coal operators."

"The Pittsburg Coal Co.," said an official of this great concern to a representative of Coal and Timber, "never confronted such a bright future. Everything seems good to us. While the coal trade has been quiet this spring, and April was particularly so, the future is bright with promise. The lake trade has been quite slow opening up, but from now on it will develop remarkable strength. By the middle of this month, I look for operations as large as we have ever had. Pittsburg Coal Co. has secured several large contracts in the Northwest and we expect to be kept very busy filling them and at

the same time supplying the United States Steel Corporation. The railroads had trouble early this spring in securing a sufficiency of cars, but that trouble has been obviated and now the cars will be furnished as fast as they are needed. The future of the coal trade in the Pittsburg district could not be better than as we are enabled to view it. The hesitancy of the early spring is fast passing away and with all of the blast furnaces running or preparing to be operated, the demand for fuel is gaining steadily. With uninterrupted traffic facilities we should have no difficulty in producing enough coal to make this the banner year for The Pittsburg Coal Co. This I feel sure that we will do in the coming five months. Prospects for industrial activity in the way of manufacture such as the country has never known are most reassuring at present and they are all pointing to still better things to come. The call for both coal and coke is steadily gaining and the volume which will be consumed in the next six months bids fair to be far ahead of anything which this country has ever known. The ice at the Soo retarded shipments last month not a little, but now this has melted and the boats are running on schedule time. In a week or so every coal and ore carrying boat on the lakes will be in commission and will be handling its cargoes as fast as can be done. The spring trade, though slow in starting, will gain in volume until it is heavier than ever known before."

W. C. Magee, president of the Pickands-Magee Coke Co., is confident of the future of the coal and coke trade in the Pittsburg district and in the country generally. He said: "This season so far, has been what you might truthfully call flat. But this stagnation is merely temporary. The coke market has hesitated for over a month simply because the railroads were able to offer all the cars every one needed. That at once caused the consumers to hesitate and delay sending in their orders, they feeling that they could get coal and coke when and how they pleased. Of course when cars are plenty, the output of the ovens regulates the prevailing prices. When cars are limited in supply, the prices are fixed accordingly. Owing to a great abundance of cars, manufacturers and consumers took their own time to order, with the result that the market became very flat throughout April. Things are different now. May will see a great change, and in June the market will be even stronger than in May. Operators have, quite naturally, hesitated in beginning new undertakings and have not tried to supply more than the demand. With the re-opening of lake navigation, which this year has been very late, everything will fast resume the normal and general conditions the country over warrant the assertion that the spring and summer of 1905 will be better for the coal and coke operators than they have ever known before. We hope for good things this year and feel quite confident that our expectations will

be realized. The late season will result in a heavier summer and fall trade. There is more work to be done this year than ever before in the United States and the coal and coke men will be called upon to furnish fuel. They will be ready and everything will go with a rush from now on. There is not the least doubt about that. I have no hesitancy in saying that I feel sure that I am right when I predict months of unexampled prosperity in the coal and coke trade."

HECLA COMPANY ABSORBED.

The Hecla Coke Co., one of the largest independent coke interests, has passed from the control of the Thaw heirs to the H. C. Frick Coke Co. The sale marks the removal of another independent from the path of the United States Steel Corporation. The price said to have been paid for the Hecla company's properties of all kinds is \$2,500,000, or thereabouts. This is at the rate of \$2,000 an acre, which the improvements added. The company has three plants in Mt. Pleasant township, of Westmoreland county. Hecla No. 1 plant consists of 246 acres of coal and has 56½ acres of surface. No. 2 plant consists of 420 1-3 acres of coal and 131 acres of surface. No. 3 has 359 acres of coal and 340 acres of surface. There are 1,072 ovens in operation at the three plants. Nos. 1 and 2 were built about 20 years ago, while No. 2 has been in operation less than two years. Out of the 30,000 coke ovens in the coke region, the H. C. Frick Coke Co. now has in round numbers 18,000. Of this number 15,748 are in the Connellsville region proper and 2,243 in the lower Connellsville region. The Frick company's output is probably three-fourths of the entire output of the two regions.

READY TO OPERATE.

The plant of the Glen Easton Coal Co. of Moundsville, W. Va., has been practically completed and the mining of coal is to begin at once. The boiler and engine house are of brick and are complete and the machinery has been installed. An immense fan has been set up, the fan house having been finished about the 10th of last month. The frame work for the tipples was assembled and the stone foundations for the loading tipples and the screens is almost complete. It will not be long before the two stages will be ready to hoist coal. Foundation work for the superstructure is finished. A tramway has been built across the ravine and the fill upon which the railroad switch is laid is being widened to permit double tracking. The water supply will be obtained from a large reservoir which has been erected near the plant. When the buildings are all completed and the machinery installed it will be one of the best equipped coal mining plants in that part of West Virginia.

WAGE SCALE SIGNED.

Operators and miners of the Central Pennsylvania bituminous district reached an agreement as to the scale for next year on April 4th, at Altoona, Pa. The scale, which is the same as that adopted for 1903 and 1904, will run until March 31, 1906. The names of those who signed this important agreement follow:

Operators' committee: James Kerr, chairman, James Coryell, Lucius W. Robinson, R. A. Shillingford, J. R. Irish, W. A. Lathrop, Robert H. Kay, Fred. G. Betts, C. B. Maxwell, and George E. Scott, secretary. Miners' committee: William Currie, secretary, John Sullivan, George Bassett, W. S. Davidson, George Sinclair, George McMillin, W. E. Patterson, William Snee, Patrick Gilday, president Dist. No. 2, Edward McKay, national organizer, Charles Keenan, and J. D. Bateman.

The terms of the scale, the same as that of 1903 and 1904, follow:

That the pick mining price shall be sixty (60) cents per gross ton. That machine loading shall be five-ninths (5-9) of the pick mining rate, plus one-half ($\frac{1}{2}$) cent per ton. That machine cutting and scraping, whether by the day, ton, or board, shall be reduced six and six one-hundredths (6.06) per cent. All other labor, inside and outside the mines, shall be reduced five and fifty-five (5.55) per cent. below present wage scale, with the exception of blacksmiths and carpenters receiving less than two dollars and twenty-five cents per day, and other outside day labor receiving less than one dollar and eighty-five cents per day, who shall be reduced; and provide further, that blacksmiths and carpenters receiving more than two dollars and twenty-five cents per day shall not be reduced below two dollars and twenty-five cents per day in the application of this reduction. All dead work to be reduced six and six one-hundredths (6.06) per cent. on present rates paid. All monthly men and all those engaged in the manufacture of coke to be reduced five and fifty-five hundredths (5.55) per cent. on existing rates.

Altoona, Pa., March 20, 1903.

First—The Pick mining rate shall be increased ten per cent.

Second—That the price of machine mining, both loading and cutting, be advanced twelve per cent.

Third—That eight hours of actual work at place of work shall constitute a day's work for all labor inside of the mines (except pumpmen and monthly men, who are to continue on present conditions at the same wages now paid, with ten per cent. advance), at present wages now paid. Drivers to go to and from barn to place of work on their own time with mule, but shall not be required to harness or unharness mule.

Fourth—Rope riders, motormen, cagers or drivers hauling outside from side tracks to work the necessary extra hours to clean upon coal on side tracks, and to be paid the

same rate per hour for the extra time worked. Drivers, \$2.40, and all inside labor of similar character now receiving the same wages as drivers to be paid the same rate.

Fifth—All other classes of inside labor to continue at present rate of wages for eight hours' actual work at working place. Trappers to receive a minimum wage of one dollar per day.

Sixth—The system of check-off to continue, that is, each operator hereto agree to collect by percentage of earnings, when legally authorized by such employe, the dues and assessments, and furnish the organization a list of those paying.

Seventh—That all outside labor engaged in the dumping and handling of coal, including mine carpenters and blacksmiths, be advanced ten per cent. on present hour basis and to work the hours required and to be paid for the number worked.

Eighth—All other classes of outside labor at mines to be advanced ten per cent. on present basis, except it is agreed that all firemen, engineers, compressor men, pumpers, ash wheelers and monthly men shall work the same hours as at present, but receive ten per cent over present wages.

Ninth—All labor engaged in construction work in mines, or outside, and the opening of new mines, are exempt from this agreement, this agreement not to apply until regular shipment of coal commences and not to apply on any labor usual in the operation of a mine in the production of coal.

Tenth—Conditions not specifically changed by this agreement, including dead work and yardage, shall remain the same at each and every mine and shall receive the same as under last year's agreement, with a ten per cent. increase.

Eleventh—The organization agrees that the men will work regularly when there is work, only absenting themselves on the legal and church holidays, the 1st day of April, and those desiring to attend funerals, and no observance of a Saturday half-holiday.

MINERS' STRIKES AVOIDED.

The settlement of the central Pennsylvania bituminous coal mining dispute between operators and miners is worthy of note. For a time both parties were, seemingly, far apart and there appeared to be grave menace of complications which would render an agreement impossible without resort to the ever-deplorable method of trial of strength. Happily the issue was averted and the scale was finally agreed upon and signed by both parties. Vast property interests were at stake and the wages of 50,000 men were for a time threatened with suspension. Wise counsels eventually predominated and the operators and their employes were enabled to arrive at terms, which, if not mutually satisfactory, were at least tolerable and infinitely better than a great and prolonged strike—something always to be deplored and ever attended by greater losses than

any gain will compensate. The scale signed by the operators is the same that prevailed last year.

The operators and miners of the Mercer-Butler counties (Pa.) district reached a wage agreement and a strike was averted in this region also. The price of pick work and day labor remains at the same figure as that paid last year. An amicable adjustment was also reached as regards machine mining.

Twenty coal operators of the Allegheny Valley district in Pennsylvania came to an agreement with representatives of 3,500 miners. The wage scale which was worked under last year was finally agreed upon although the operators had asked for a slight decrease.

LUMBER PLANT BURNED.

Fire burned the large mill of the Perley Lumber Co., situated at Allendale, near Johnstown, Pa. The loss entailed amounted to \$40,000, while the insurance amounted to about \$25,000. Volunteer firemen tried to save the mill but when this was found to be useless, they prevented the flames from spreading to the yards of the company, where 5,000,000 feet of lumber were stored. The Perley mill was built about 10 years ago and with the annual improvements made, and the accession of new machinery at many times, it is claimed to have been one of the most complete plants in that part of Pennsylvania. The plant is to be rebuilt at once.

BOX CAR LOADERS.

In preparing a paper on the subject of box car loaders to be read before the Central Mining Institute of Western Pennsylvania, and which was lately printed in a number of coal trade journals, the author, William L. Affelder, who is also Superintendent of the Mosgrove Mine of the Pittsburgh Plate Glass Co., made quite an exhaustive and impartial investigation of the various loaders now on the market. To give this important subject proper attention, Mr. Affelder inspected various loaders in operation and also wrote personal letters to a large number of users of box car loaders.

It is a noticeable fact that after making such a thorough investigation as above described, Mr. Affelder recommended the Christy Box Car Loader to the Pittsburgh Plate Glass Co., with the result that they installed one of these machines at their large mine, located at Charleroi, Pa., which mine has a daily capacity of 2,000 tons. This is certainly a very flattering endorsement of the Christy machine.

The plant of the Condon Lane Boom & Lumber Co., at Horton, W. Va., one of the largest in the state, was destroyed by fire on April 10th, and with it went the entire town, consisting of about 150 company houses and millions of feet of lumber.

PROSPECTING FOR COAL.

Prospecting for coal is an art of great nicety and one which requires the very best of appliances as well as experienced operators. The work of determining the location, depth and quality of coal veins which underly the surface in level or rolling countries and districts may be arrived at in no other way than by drilling through the various over-laying strata of rock until the coal has been reached.

Here the work of the coal prospector really begins, for anyone can simply drill a hole into the surface of the earth, but the examination of the different strata through which the drill may pass is an entirely different matter. The Keystone Driller Co., of Beaver Falls, Pa., has gathered together a fund of information beyond all doubt of the greatest value to coal prospectors. This company, which manufactures the famous "Keystone Drill," especially designed and adapted to this very sort of work, has, during its existence, made prospecting a practical study. The thoroughness of the prospecting drill was not attained by reasoning and abstract inventive genius, but was fashioned as the result of years of study and experience learned from practical work.

In prospecting for coal the operator will desire and must have absolutely accurate information on three points. First, the nature of the roof of rock between which surmounts, or overlies, the coal vein. An exact record is, therefore, kept of the thickness and character of all formations through which the drill passes on its way downward to the coal. This information will be found invaluable if a shaft is afterwards sunk. Second, the thickness of the coal vein must be exactly ascertained or gross and costly miscalculation might follow. When approaching the coal measure the driller operates the machinery very slowly, keeping his hand constantly on the cable. Coal is very easily cut and an experienced operator will know the exact stroke which passes from the hard slate into the soft coal and, at once, withdraw his tools. The sand pump will then verify his conclusions. Careful measurements must be made of the depth of the hole to the top of the coal. A center bit, three inches in diameter and eight feet long, is then put on and, when the bottom of the vein is reached, the hole is again cleaned out and measured. The difference between the former and latter measurements is the thickness of the vein. This method has been tested repeatedly and found to be absolutely accurate.

A third desideratum is the determination of the quality of the coal. The "shearing bit" is then adjusted and the operator proceeds to "shear" down the sides of the three-inch hole, drilling about six inches at a time and using the vacuum sand pump to get out the drilling. In this way the coal will be easily got out of the hole in comparatively large chunks, or cubes, from one inch to one and a half inches in diam-

eter. These specimens will be ample for the making of exhaustive and thorough tests of the character of the coal vein which has been pierced. These samples will show the texture and laminations of the coal. That the test may be exact in every particular, it is best to save all of the drillings taken out from the time the coal was



Keystone Drilling Machine.

first encountered until the bottom of the vein has been reached. If this is done, the result will be an almost perfect test.

These practical rules for the perfect testing for coal and measuring it and analyzing the product have been verified by the Keystone Driller Co., with its own tools and with the most competent drillers.

PITTSBURG.

True Strength of the World's Great Workshop.

Tonnage figures of Pittsburg are startling in comparison with those of cities many times more extensive. It is estimated that during 1903 the railroads carried into and out of the Pittsburg district 79,750,000 tons of freight, necessitating the use of more than 2,500,000 cars. In the same time, there were hauled out over the Monongahela, Allegheny and Ohio rivers 10,000,000 tons more, principally coal, making the total tonnage of the district for the year practically 90,000,000 tons. During 1904 these figures will not have been equalled because of the business depression, although they are not considered exceptional, inasmuch as Pittsburg's tonnage in 1892 was 86,636,680 tons.

Pittsburgh has for many years justly enjoyed the honor of being "The Workshop of the World," but few outside of the boundaries of Allegheny county have any conception that this meant anything beyond the mere fact that she made enormous quantities of iron and steel, mined appalling quantities of coal, and produced a great deal of smoke and soot, and boasted much in doing it. The industrial revolution, which had its beginning in the early hours of the new century in mergers and combinations spreading throughout almost every branch of manufacturing, brought about an awakening among the people of the world. Pittsburg stood forth as a power of no mean moment, industrially and financially. The existence of cheap fuel in the shape of exhaustless beds of

finest coal and of labor of the highest skill have brought about manufacturing economies and possibilities which have enabled the building in Pittsburgh of industrial establishments, other than those directly of iron and steel, which lead the world.

Census figures as to the population do not tell the true story of Pittsburgh's splendid growth. The city's apparent population is 359,250 people. A municipality of 675,000 souls more truly pictures its size. Growth of business demanding expansion of mill facilities has forced many plants out beyond the confines of the city proper, where sufficiently large sites are available. The result is that year by year manufacturing centers of no mean size have clustered about the old boundaries until one compact city is virtually the result.

ANTHRACITE TO BURN.

Over Four Million Tons of Unmined Anthracite.

The mineral products of the United States are far more valuable than those of any other country in the world, coal heading the list with iron ore second. The increase in production and consumption of coal within recent years constitutes a remarkable feature in economic history. Coal fields are continually being discovered, and the supply of this mineral is regarded as practically inexhaustible.

In the United States, although its production of coal is one-fourth that of the world, nothing reliable in the way of a standard price can be given. Owing to frequent labor troubles among miners the price of coal has fluctuated greatly from year to year.

Mining has reached such a point that it is said that a carload of coal in the principal mining districts of the United States can now be mined, hoisted, screened, cleaned and loaded in one-half the time it required 10 years ago, and new mechanical devices and improved methods are each year increasing the economy of time and labor.

People living in the hard coal fields are deeply interested in the supply of anthracite and the amount of unmined coal in the possession of the different companies. Just how much coal there is yet unmined in the little section of Pennsylvania in which it is to be found has always been an open question.

W. W. Ruley, the well known statistician of the anthracite companies, has estimated the acreage and unmined coal of the various anthracite companies as follows:

	Acres.	Tons Unmined.
Phila. & Reading	102,000	2,450,000,000
Delaware & Hudson	21,300	260,000,000
D., L. & W.	15,200	400,000,000
Penna. Coal Co.	12,600	180,600,000
Hillside C. & L. Co.	7,200	70,000,000
Lehigh Valley	22,720	400,000,000
Lehigh and W. B.	13,600	335,000,000
Lehigh and Luzerne	800	5,000,000
Lehigh Coal and N.	9,400	370,000,000
Alliance Coal M. Co.	4,000	130,000,000
Penna. Railroad	4,280	74,000,000
Total	213,000	4,684,000,000

SMITH & IRELAND

—INCORPORATED—

COAL AND TIMBER LANDS ONLY

OFFICES, SUITE 801-2-3 ARROTT BLDG.,

PITTSBURG, PA.

510—1371 acres, coal rights, Monongalia Co., W. Va., at Pennsylvania State line, fronting two miles on Pools 8 and 9 of the Monongahela River and two miles from B. & O. R. R. Six foot vein, 237 feet deep. Ship by rail and river from same tippie. Natural drainage; fine coking coal. \$35 per acre.

514—11,000 acres in Braxton Co., W. Va., on Elk and Birch Rivers, B. & O. and C. C. & S. Rs. 4½ to 7 feet of coal. Price on application.

515—39,000 acres, coal and oil property in Knott and Breathitt Cos., Ky. 15,000 acres in fee, 10,000 of which is finely timbered; remainder is mineral rights with necessary privileges. 5 well defined coal veins. 10 to 12 miles from R. R., but soon to be reached by extension connecting with N. & W. R. R. Located on Kentucky River, which is being locked and dammed by U. S. Government. Oil prospects fine. Price on application.

519—10,000 acres coal rights, including timber, of which 5,000 acres is in fee, on Little Coal River and other streams in W. Va. Price, \$17.50 per acre for limited time.

521—1200 acres of Pittsburg seam on the Fayette County side of the Monongahela River, Pa. An extraordinarily fine opportunity. Write for price.

522—610 acres coal at Bainbridge, Williamson Co., Ill. About fifty feet to coal. Price \$45 per acre.

523—694 acres, coal under lease, plant in operation, now shipping 250 tons per day, McDowell Co., W. Va. 25 Miners' houses, commissary store, tippie, etc. 900 acres adjoining this tract can be secured. Coal averages 4 feet.

524—30,000 acres, coal and timber lands, Wyoming and Raleigh Co., W. Va. R. R., within four miles of property, two seams of coal, Pocahontas, No. 3 and No. 6, four and a half and six feet in thickness. Timber original forest growth. Price \$30 per acre.

525—3,000 acres, coal lands in Clay and Braxton Cos., W. Va. R. R. within half mile to boundary. Price \$24 per acre.

526—600 acres, coal lands in Clay and Braxton Cos., W. Va., about two miles from Coal & Coke R. R.

531—10,000 acres, coal in Raleigh Co., W. Va., property contains Pocahontas, New River No. 1 and New River No. 5 and Sewell No. 4 coal. Low freight rates to Tidewater. Analysis of coal shows fixed carbon nearly eighty per cent. Prof. White says: "Pure Anthracite, equal to Pennsylvania." Price \$45.50 per acre.

532—7,500 acres, New River Coal, Webster Co., W. Va., on the B. & O. R. R. Drift formation, self draining, excellent proposition at a very low price. \$14.50 per acre.

533—1,600 acres. Pocahontas coal on Ivy River, McDowell Co., W. Va., on the Norfolk & Western R. R. Property fronts one and one-half miles on the R. R. Price \$36 per acre.

534—3,000 acres, Pittsburg Coal, Marion Co., W. Va., on the line of the B. & O. R. R. Coal nine feet thick. Shaft proposition. 160 and 170 feet below water level. Sewickley vein, one hundred and twenty feet above the Pittsburg seam, five and six feet in thickness.

535—4,000 to 5,000 acres, Pittsburg coal in Lewis Co., near Roanoke, W. Va., on the B. & O. and Wabash R. Rs. Coal five feet three inches thick. This is one of the cheapest propositions in the state of West Virginia. Write for particulars.

536—100 acres, coal and timber lands, seven miles west of Elkins, W. Va., on the line of the Coal & Coke R. R. Timber, red oak, and will cut four thousand feet per acre. Coal, Roaring Creek seam, six feet thick. Price \$17 per acre.

537—3,413 acres, coal and timber lands in Logan Co., W. Va. Coal very high quality. Highland Creek seam, five feet nine inches to nine feet. Timber is of high quality and can be sold separately from coal rights. An excellent proposition. \$30 per acre.

538—11,000 acres of coal on Horse Creek, Cobbs Creek and Mud River, Boone and Lincoln Counties, W. Va. Two seams have been opened above water level, both six feet thick. The new Pocahontas, Coal River and Kanawha R. R., connecting with C. & O., at St. Albans, is now graded and track laid nearly to the property. \$15.50 per acre.

547—20,000 acres of virgin timber land for sale in N. Alabama. Six miles from R. R. Can all be logged by valley roads. The timber is large, smooth and tall. Almost the entire tract is underlaid with iron ore of extra quality. Big iron mines now running near this tract. The title is in fee simple. Warrantee Deed, and abstract furnished. \$7.50 per acre.

560—15,000 acres, coal rights in W. Va., branch of B. & O. R. R. running through. Adjoining is 9,000 acres, offered in fee. Half of this 24,000 acres is drift mining 200 feet shaft will pass through two 9½ foot veins, Genuine No. 1 Pittsburg seam. 9,000 acres are well timbered. White Oak and Poplar, which will cut 5,000 feet per acre merchantable timber, besides enormous amount of pulpwood and R. R. ties. Price \$36.50 per acre for 9,000 acres in fee, \$27.50 per acre for 15,000 acres coal rights. The 9,000 acres carries oil.

564—7,000 acres, timber land in fee, or timber rights only, in North Carolina. Two miles from Murphy Branch of Southern R. R. Down grade to R. R. Oak and other hard woods, poplar, chestnut, etc. Price \$7 per acre in fee, \$6 for timber only. Terms, half cash, balance on short credit.

565—32,700 acres, timber land, mineral reserved, in North Carolina, 10 miles from Murphy Branch of Southern R. R. Finest piece of timber in the Southeast. 450 million feet of finest Spruce. 150 million feet of fine Red Oak, Poplar, Ash, Cherry, Walnut and Hemlock. Price, \$12.50 per acre. One-third cash, balance on fair terms. Will build R. R. to property on reasonable basis. Shipping rate on application.

566—Coal lands in Lincoln Co., W. Va., on G. V. Branch of C. & O. R. R., 232 acres being operated on R. R., 143 acres adjoining on R. R. undeveloped; 375 acres adjoining but off R. R. Sell together or separately. Write for terms.

567—About 50,000 acres, Timber lands on Dee Pee and Antee, navigable rivers and few miles of R. R., near Georgetown, S. C. This is a large but grand proposition and will show superb returns on investment. Write for details.

569—A magnificent operating coal plant for sale for private reasons. \$50,000 improvements, 1,500 acres mineral rights only. In Fayette Co., W. Va., on branch of C. & O. R. R. and Paint Creek. 6 veins of coking, steam and domestic coal from 3 to 5 feet thick. Drift mining aggregating 27 feet. Property thoroughly developed for operation. Other details and price on application.

570—600 acres, timber rights near Pisgah, Preston Co., W. Va., on Big Creek. 10 miles from R. R. First growth Oak, Hickory, Pine, Ash, etc. Price on application.

574—710 acres, thirty-year old leases, at Bluefields, W. Va. Renewal privilege on same terms. 10c for royalty. 3 foot 8 inch seam being profitably operated; 3 other seams above this one. Tenements, stores and all necessary buildings and machinery for operation. Good reason for selling. Price, \$70,000.

575—4,000 acres, coal lands, 17 miles Northwest of Clarksburg, W. Va., on both sides of Short Line railway. Mineral rights. Five workable veins. Pittsburg and Freeport coal, 6 to 9 feet thick. Good steam and Coking coal. Shipping facilities unusual, east and west.

576—24,000 acres of Black Mountain steam and coking coal in Harlan Co., Ky., on Cumberland River. Very extensive coking operation adjacent. The Elkhorn seam, which is the No. 1 in this section, is 87 to 97 inches thick. Ten distinct seams of coal, above water; self draining; aggregating over 50 feet of coal. Three railroads within 15 miles, one 2 miles distant. Easy grade for R. R. connection. If property shows prospective development, R. R. will without doubt build branch. Tract covered with good timber. Price, \$25 per acre. Write for terms.

577—About 3,000 acres of coal lands in Tazewell and Buchanan Counties, Va. One half in fee, remainder mineral rights, on Town Hill Creek and less than a mile from Norfolk & Western R. R. Twelve openings showing coal veins from 40 inches to 6 feet thick. R. R. graded half way through property. Rare bargain at \$30 per acre.

578—1052 acres, of stumpage on Norfolk & Western R. R. in Virginia. Soft and hard wood. Price \$15 per acre or \$4 per tree. Eight years to remove. Terms half cash, balance reasonable terms.

579—8,500 acres of timber on Tombigbee River in Alabama, and on Mobile & Ohio R. R. Good cotton land after timber is cut. Price, \$94,000 on fair terms.

580—10,000 acres, timber in Caldwell Co. North Carolina. Estimated 8,000 to 10,000 feet, White Pine, White Oak and Poplar to acre. All accessible to R. R. Large variety of woods. Shipping and other data on application. Price, \$19 per acre.

581—40,000 acres, timber land in Western North Carolina. Best poplar tract in the country; also Oak, Hemlock, Chestnut and other woods. Virgin forest, no squatters. 14 miles from Southern R. R., which has surveyed to it and constructed almost 10 miles. Terms to suit purchaser; 261,000,000 feet estimated. Price, \$12 per acre for timber alone; one-third cash, balance in one and two years or longer if larger cash payment is made. Title perfect.

582—21,000 acres, timber in Western North Carolina on Tennessee lien, T. & N. C. R. R. runs through property. Equipped for immediate operation with mills and machinery. Large variety of hard woods. Price on application.

592—2,300 acres of hard wood timber, with 2,800 acres same woods adjoining, on Clover Creek, Branch of Greenbrier River, Pocahontas Co., W. Va. Good, easy grade all the way to R. R., 5 miles distant. Fine large timber, never culled. Mostly White and Red Oak; fully 25 million feet of same. 250,000 feet of fine cherry wood. Tract never had an axe in it. Price on application.

593—3,000 acres of Pocahontas coal in McDowell Co., W. Va., 7 miles from last station on R. R. now being built by Norfolk & Western R. R., which will be completed in 5 months. Five feet 3 inch vein finest Pocahontas coal and one of the very few Pocahontas properties left unpurchased. Price on application.

595—25,000 acres of coal rights on Levisa Fork of Big Sandy River in the south-western part of Buchanan Co., Va. Ten miles north of Norfolk & Western R. R., in the great coke and steam coal field of south-west Virginia. The river offers fine location for cheap R. R. connection. The South & Western R. R. surveyed to 8 miles of property. Four to 5 veins workable coal above water level and 3 Pocahontas seams below water level. Rare opportunity for this kind of coal. Price \$17 per acre.

597—28,114 acres, coal and timber lands, in Raleigh and Wyoming Counties, W. Va., to which 30,000 adjoining acres can be added. Timber runs 6,000 feet per acre, virgin growth. Poplar, oak and other hard woods. Several fine coal mines underlay tract. All above water and self draining. No. 3 Pocahontas vein 93 per cent. of entire tract, averages 53 to 60 inches clean coal. Carries also veins of No. 4 and No. 5 of this coal. Land lies on Guyandotte River and several creeks. The C. & O. and Deep-water R. Rs. are now building through this land. Price for 28,114 acres in fee is \$52.50 per acre, and of the 30,000 acres adjoining \$37.50 per acre.

599—60,000 acres of timber lands in Watauga, Wilkes and Caldwell Counties, N. C., on the Yadkin River. None better in the south. Principal timbers, white pine and poplar; also many others. Eight miles from So. R. R., which promises facilities to these lands. Price, \$22.50 per acre. Title perfect.

600—10,000 acres of fine timber lands near Rasar in East Tenn. Two miles from Little Tenn. River, which is navigable, with R. R. now building to within 1½ miles of tract on down hill side of same. Poplar, oak, hemlock, white and yellow pine, chestnut, ash, cherry, gum, hickory, etc., estimated conservatively at 33 million feet besides ties, poles and tan bark. Tract in fee simple and title is perfect. Price, \$9.50 per acre.

601—Two tracts of 24,000 and 30,000 each of hemlock and spruce timber in eastern Tennessee, on the Tellico River, and a branch of the Southern R. R. Two tracts adjoin and will be operated together. First tract estimated to carry 113 million feet poplar, pine, hemlock, oak and other woods. Other tract averages like first, but heavier in hemlock. Fine shipping facilities. Small timber not estimated above includes 30 thousand cords chestnut, oak and tan bark. Title perfect. Price of 24,000 acres is \$9 per acre in fee; 30,000 acre tract \$7 per acre in fee.

602—Timber tract consisting of 19,000 acres on Clinch Mountain Range in Russell, Smyth, Tazewell and Washington Counties, in the southwestern part of Virginia. Heavily timbered, chiefly in poplar, oak, spruce and hemlock, principally the latter; also cherry and birch timber could be conveniently assembled 3 miles from R. R. at Saltville, Va. See No. 603 below for terms.

603—8,000 acres, timber in Washington and Russell Counties, Virginia, 5 miles from above tract and timber is very similar. Terms of sale and time for removal, etc., on application; 60 day option for inspection. Price \$8 per acre. Same owner as No. 602.

604—100 acres of coal rights reserved for 5 years on the Wabash R. R., between Elkins, W. Va., and Cumberland, Md. Carries the 3 foot 6 inches, 4, and 9 foot veins. Price, \$85 per acre. Back of this lies 1,000 acres, which cannot be worked without above tract. Can be bought for about \$35 per acre. The only coal lands in this location not absorbed by some large corporation.

607—Operating coal mine property on the L. E. A. & W. Ry., in Jefferson Co., Ohio. 109 acres at 6 cents royalty, and 170 acres 8-12 screened coal. Plenty of adjoining land can be bought reasonably. Description of equipment, freight rates, etc., on application. Price, \$20,000.

608—23,000 acres of timber in Haywood Co., N. C., 6 miles from R. R. Estimated to cut 410,000,000 feet. Write for price.

609—70,691 acres, timber and mineral lands in fee on Wolf Creek, in Giles and Bland Counties, Va. One mile from Norfolk & Western R. R. Estimated to cut 940,000,000 feet poplar, white, red, chestnut and black oaks, white pine and other woods. Also finest body-iron ore in southern states underlying. Write for price.

610—55,000 acres, timber lands in N. C. (10,000 in fee) on Atlantic Coast Line R. R. and Charleston & Savannah R. R. Estimated to cut 400,000,000 feet. Adjoins Oyster Bay. Twenty foot water on shoals. Write for price.

611—16,821 acres, timber lands in fee on C. & O. R. R., Greenbrier River and Laurel Creek, in W. Va. Estimated to cut 100,000,

000 feet, 30,000 cords hemlock bark and 7,000 cords oak bark. Write for price.

612—25,000 acres, timber in Bath and Highland Counties, Va., 2½ miles from C. & O. R. R., principally white oak. Estimated to cut 250,000,000 feet. Write for price.

613—13,000 acres, timber in Giles Co., Va., 2 miles from R. R., 40 per cent. white oak. Estimated to cut 5,000 feet per acre. Write for price.

614—20,000 acres of virgin forest in Bland County, Va., 4 miles from narrow gauge R. R. and 7 miles from Norfolk & Western R. R. Never been culled. Write for price.

616—30,000 acres, coal and timber land in Pike Co., Ky., near 2 R. Rs. Three seams excellent coal, from 4 to 6 feet thick. Timber estimated to cut 5,000 feet per acre. Write for price.

617—10,000 acres of timber in N. C., 4 miles from Southern R. R., 2 navigable rivers through property, floating logs to R. R. Oak, poplar, chestnut and white pine estimated to cut 70,000,000 feet. Write for price.

618—32,000 acres, timber, near Asheville, N. C., near Southern R. R. Can be floated to R. R. by several non-failing streams. Claimed to be the finest timber tract in N. C. Estimated to cut 775,000,000 feet. Write for price.

619—26,000 acres of timber, near Hot Springs, N. C. R. R. passes through corner of tract. Estimated to cut 175,000,000 feet. Write for price.

620—12,000 acres, timber in N. C., (8,000 in fee) on navigable water and R. R. Estimated to cut 70,000,000 feet; 40 feet above sea level, and land valuable for farming. Write for price.

621—12,000 acres, timber, near Asheville, N. C. Guaranteed to cut 14,000 feet per acre. Logs floated to R. R. by 2 deep rivers and creeks. Good titles. Write for prices.

623—37,000 acres, valuable manganese land, in Virginia, covered with timber, principally white oak. Estimated to cut 70,000,000 feet; other woods, 105,000,000 feet. Four miles from Norfolk & Western R. R.; \$6.00 per acre.

624—About 4,000 acres, coal lands, in Logan Co., W. Va. Branch of C. & O. R. R. being constructed to property. Openings shows 5 veins from 5 to 8 feet thick, well timbered with white oak, maple, beech, etc. Price, \$32 per acre.

628—500 acres, fine coal land in Fayette Co., W. Va., near Sewell, on C. & O. R. R. Valuable timber on tract. Price, \$16 per acre.

634—7,500 acres (4,500 in fee), well timbered, balance, mineral rights, near Madison, W. Va. There are 3 seams of gas and steam coal 3½ to 6 feet thick; also, 6 feet of canal coal. Write for price.

635—60,000 acres timber in N. C., fronts 7 miles on branch of Southern Ry. Bears finest poplar, oak, ash, cherry, walnut, chestnut, basswood, spruce, hemlock. Large quantities oak bark and chestnut acid wood, selling for \$3.25 per cord. 10,000 feet to acre is low estimate of timber. Perfect title. Price, \$385,000.

636—30,000 acres of fine coal and timber land in Kentucky, on a trunk line R. R. Rare bargain; guaranteed title; 6 miles of R. R. with steel rails; miners' houses, engine, etc. Price, \$8 per acre.

642—25,000 acres of coal and timber land in a practically solid block in Braxton, Gilmer and Calhoun Counties, W.

Va., on tributaries of the Little Kanawha River. Timber untouched on 8,000 acres and only poplar timber removed from rest. White and other oaks run high per acre. Railroads being built from several directions to this property; 4 to 6 foot vein of coal underlying, mostly above water level. Pittsburg and Freeport veins. Price, timber only, \$22 per acre; 1-3 cash, balance, easy payments. Timber and surface, \$30 per acre, same terms. Land in fee, \$40 per acre; oil and gas reserved.

643—9,000 to 10,000 acres of timber land near Franklin, N. C. Down grade and good roads; 2 to 8 miles to Southern R. R. Mountain oak, yellow poplar, chestnut, basswood and cherry estimated to cut 4,000 feet per acre. Estimated one cord oak tan bark and 10 cords tannic acid wood per acre. Poles and cross ties in large quantity. Price, \$6 per acre; half cash, balance, fair payments. A bargain at the price.

646—600 acres, coal rights in Raleigh Co., W. Va., 4 miles from R. R. Price, \$15 per acre; 200 acres nearby, fine coal vein, \$20 per acre in fee; 50 acres adjoining this, for \$800 in fee. Small tracts, but bargains considering coal veins.

648—500 acres, timber and coal land, in Fayette Co., W. Va., on Gauley River. Price, \$27.50 per acre. Write for details. Parties interested in coal and timber land on Big Hewett Creek, Coal Creek, Laurel Creek and Jacks Fork, Boone Co., W. Va. Write for particulars. Richest coal belt in State. Can be bought 1-3 cash, balance in 1 and 2 years; 2,670 acres in all.

658—3,000 acres coal tract (or any part thereof) in Braxton Co., W. Va. Good quality Upper Freeport coal. Fronts Elk river and coal and coke R. R. Price \$25 per acre.

659—Fine fire clay property of 1,200 acres on river between Clarksburg and Grafton, W. Va., on B. O. R. R. and Wabash R. R. survey. Crops out at good height and has 2 coal veins, one above and one below the clay. Price \$20 per acre.

661—20,000 acres of timber, fine white oak, poplar, hickory, lynn, walnut, etc., in Breathitt Co., Ky., accessible to the Lexington & Eastern R. R. (by water) 10, 12 and 20 miles away. Easy floating. Virgin forest. Will cut 5,000 feet per acre. Price \$13 per acre.

665—8,000 acres of timber land in S. W. Arkansas, including saw mill, capacity 25,000 feet daily, 3 miles standard R. R. and equipment. 40,000,000 feet standing white and red oak, hickory, gum, cypress, ash, etc. \$8.50 per acre. Easy terms. Freight rates on application.

666—5,440 acres virgin timber in N. C., 26 miles from R. R. Good roads. Oak, poplar, cherry, hickory, etc. Underlaid with copper ore. Never offered before. Title guaranteed. Write for prices.

669—900 acres of coal land near Hallsville, W. Va. Shows 47 inches coal. This is a 30-year coal lease. Write for price. All rights for operations.

672—3,000 acres timber in fee in Edmonson Co., Ky., less than 3 miles from the navigable Green river which will by June, 1905, have water year around by government works. Price on application.

678—About 3,500 acres coal land in Dodridge and Welzell Cos., W. Va., one-half mile from W. Va. Short Line R. R., 25 miles by R. R. to the Ohio river. Pittsburg vein coal 6 to 9 feet thick. Shaft mining. \$37.50 acres in fee on easy terms.

681—26,000 acres timber land in Poinsett Co., Ark., between two R. Rs., 3 and 5 miles away. Cut 10M per acre. One-quarter oak, balance ash, pine, gum and elm. Level land, does not overflow. \$18 per acre. Worth \$20 for cotton when timber is cut.

682—3,000 acres coal near Clarksburg, W. Va. Three and one-half miles from B. & O. R. R. survey. Pittsburg and Redstone veins, 6 and 7 feet 4 in. thick. \$100 per acre.

683—25,000 acres coal and timber land in fee in Braxton, Gilmer and Calhoun Cos., W. Va. Branch R. Rs. being built close to tract. Has Pittsburg vein 6 ft.; Freeport, 7 ft.; Kittanning, 4 to 5 ft. Fine virgin timber. \$23 for timber per acre. \$30 for timber and surface. \$40 for land and all in fee.

684—1,200 acres coal rights in Marshall Co., W. Va., near B. & O. and Ohio River R. Rs. Three miles to Ohio river by R. R. switch. Price \$75 per acre.

685—800 acres manganese ore lands, near Batesville, Ark. One-half mile from R. R. 50% average metallic manganese. Full data and price on application. Said to be one of the finest manganese properties in the U. S.

686—12,000 acres coal and timber lands in Perry Co., Ky., covered with magnificent big trees. On Kentucky river and Carr's creek, furnishing good rafting. First class titles. Very full data and price on application.

687—6,000 acres slate and timber in fee or sold timber only in Blount Co., Tenn., on projected line of Southern Ry., and on Little Tennessee river. The finest and most available slate deposit in the U. S. Timber also most valuable. Price \$75,000 on easy terms.

688—14,000 acres of timber land in Pocahontas Co., W. Va., on Greenbrier Division of the C. & O. R. R. 70 million feet of merchantable timber. 117M. cords of hemlock and oak bark. Land lies well for logging. Hemlock, white and red oak, bass, birch, ash, etc. Contains fine bed of iron ore. Perfect title. Price \$6.50 per acre. in fee.

689—4,221 acres of hemlock and oak timber in Pocahontas Co., W. Va., on Greenbrier Division of the C. & O. R. R. Contains fine variety of woods, estimated 5 million feet, including 12 to 20 million of hemlock and 1 million of white pine, also 14,800 cords of bark for which there is demand from nearby tanneries. Freight rates and all particulars on application. Price \$23 per acre.

690—1,800 acres of spruce and hemlock on the C. & I. R. R. in W. Va. 14 to 15 million feet of saw timber on tract mostly spruce and hemlock, also cherry, ash and basswood. Easy to stock and timber all coming to one place. Price \$44,500.

691—1,428 acres of timber land in Logan Co., W. Va., 60 miles from Huntington. Carries basswood, hickory and 4,500,000 feet of white and chestnut oak. Owned by National Bank and title warranted. Price in fee \$9.50 per acre, mineral rights reserved.

692—20,000 acres of timber in Randolph Co., W. Va., on Elkwater Creek, tributary of Tygart's Valley River and 7 miles from the Wabash R. R. Boundary including a 10 mile creek valley with tributary, virgin forest of W. Va., hardwoods including poplar, white and red oak, ash, cherry, maple, lynn and hickory and some fine black walnut. Ideal location for operation with cheap tram road. Price \$16 per acre inn fee, \$14 for timber only. Nothing finer in timber in this state.

693—17,000 acres of timber lands in Pocahontas Co., W. Va., near Seebert on the Greenbrier Division of the C. & O. R. R. Can all be operated at one point. Lies on Laurel Creek and Old Hams Run. Sufficient surface for operating. A mouth of Laurel Creek goes with tract. Estimated 37 M. cords of bark with perpetual market to nearby tanneries. Timber estimated 100 million feet; 60 million hemlock; 20 million white, red and chestnut oak, 20 million basswood, chestnut and other woods. Price \$12.50 per acre.

694—7,000 acres of timber lands in Eastern W. Va., on C. & O. R. R. Estimated to cut per acre 6 M. feet hemlock, 2 M. feet spruce, 2 M. red and white oak. Fine bark output, also pulpwood. Price \$22 per acre.

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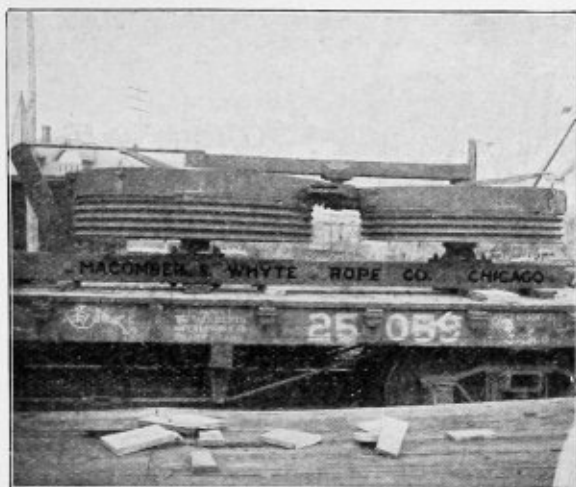
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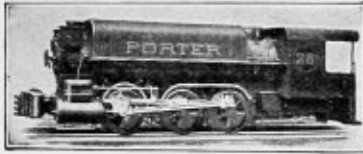
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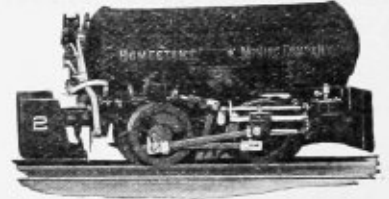
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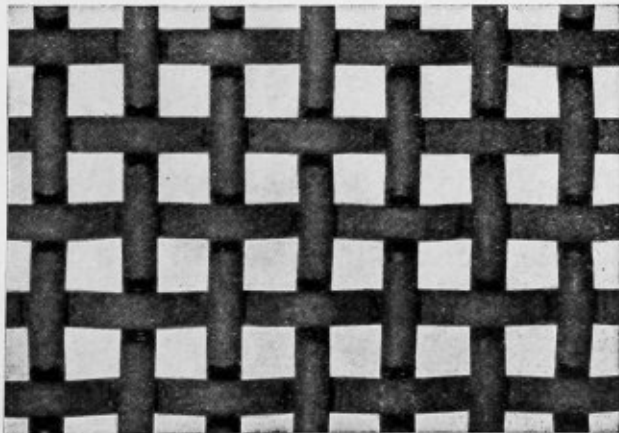
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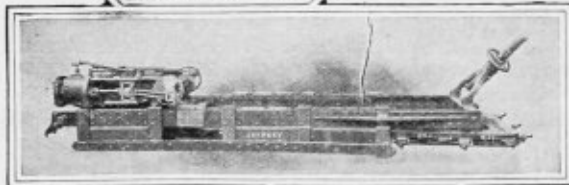
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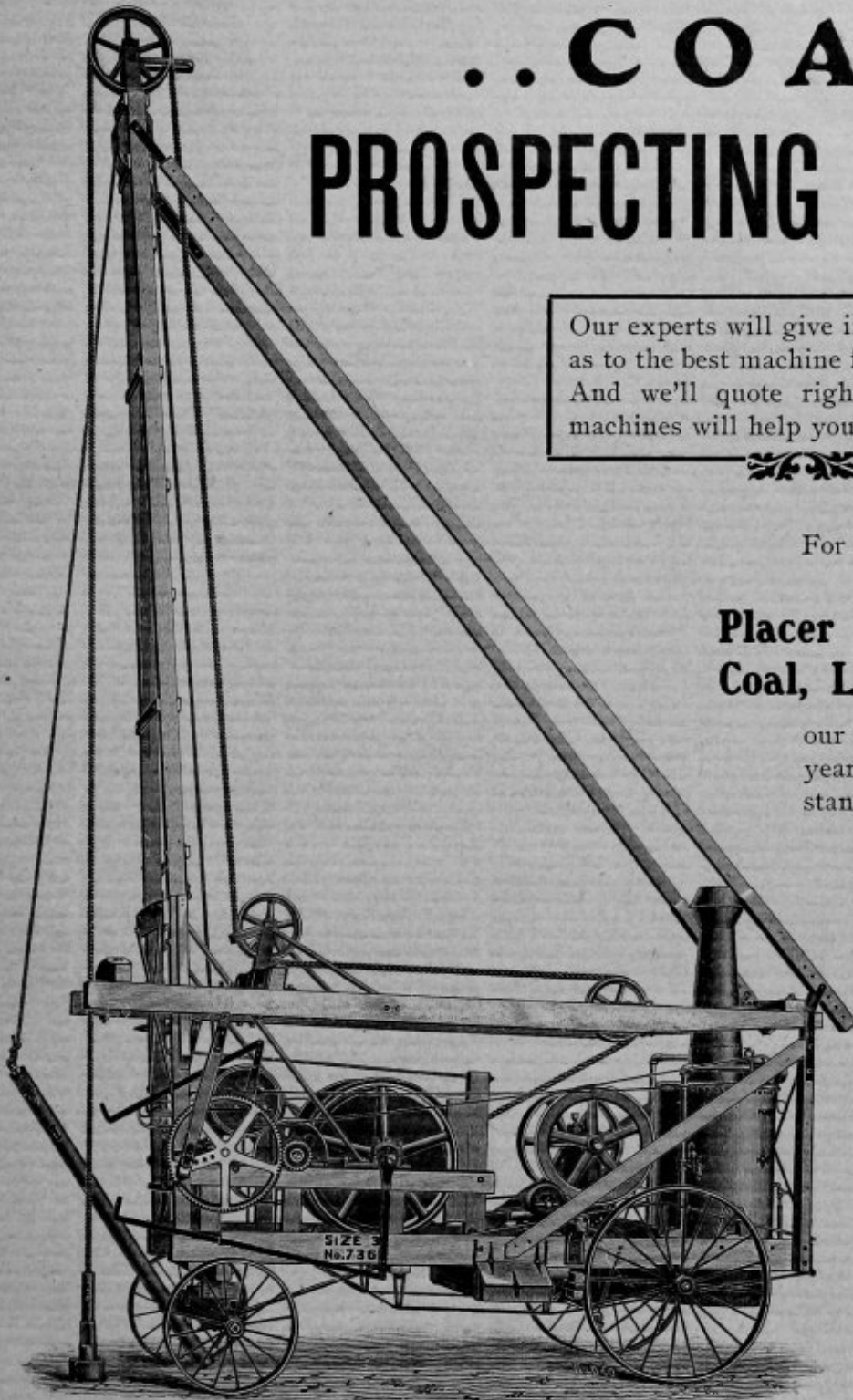
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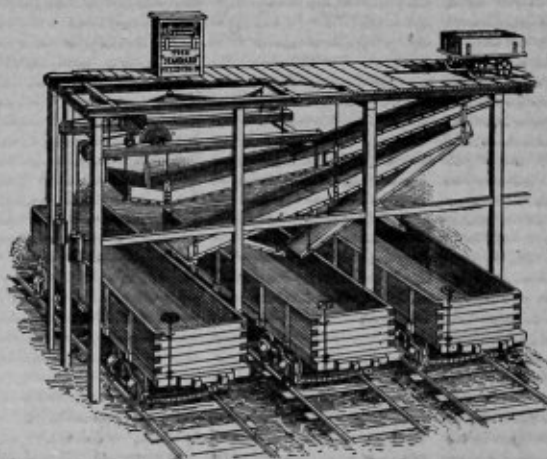
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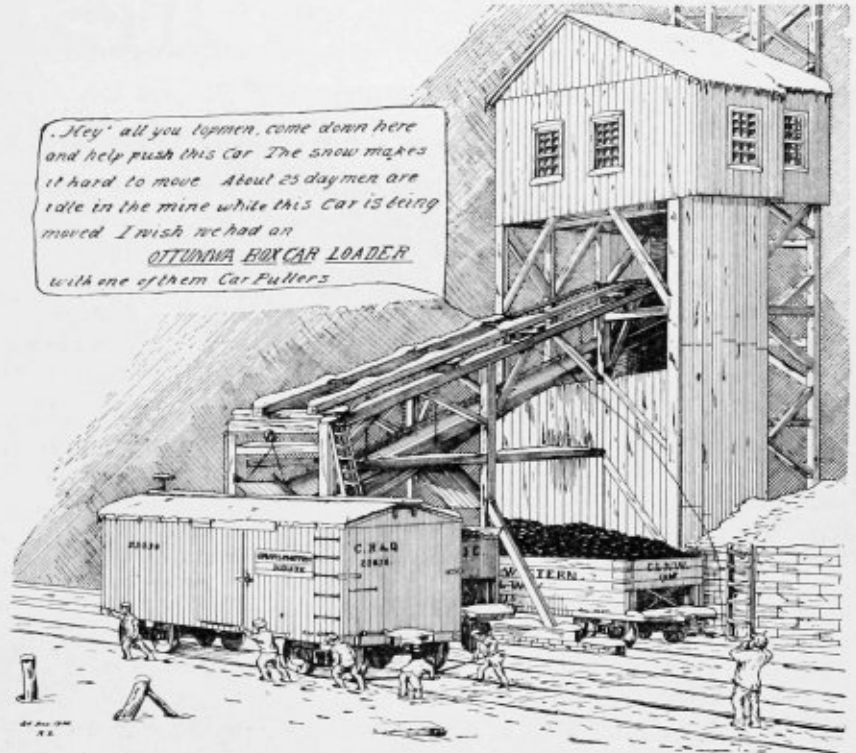
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TO SUIT ALL
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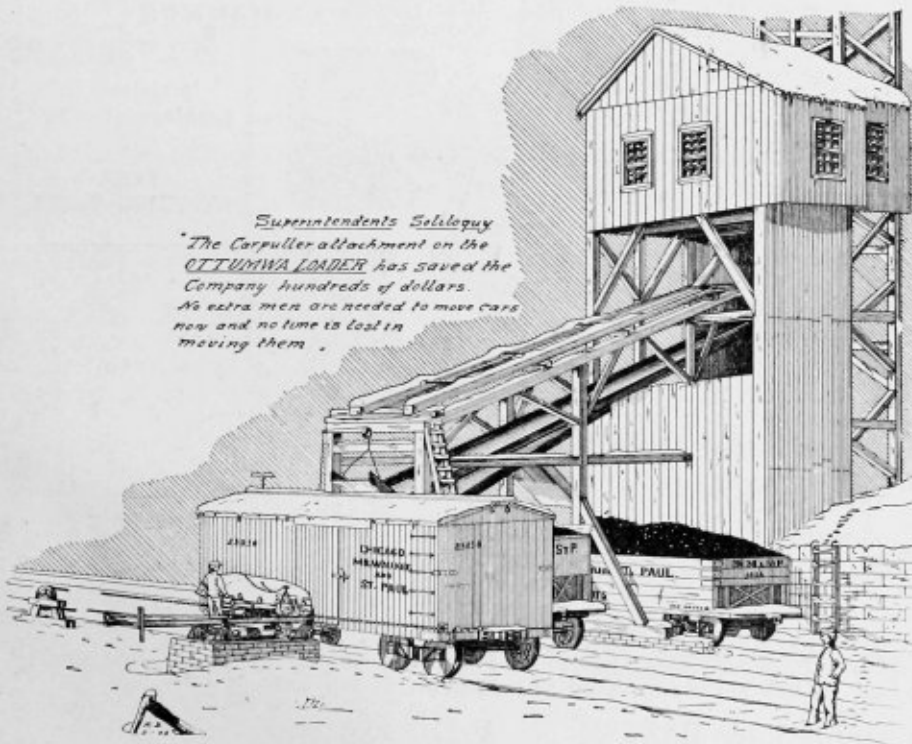


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Don't let your competitors
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No extra men are needed to move cars
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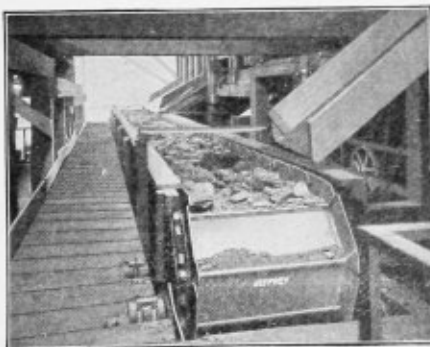


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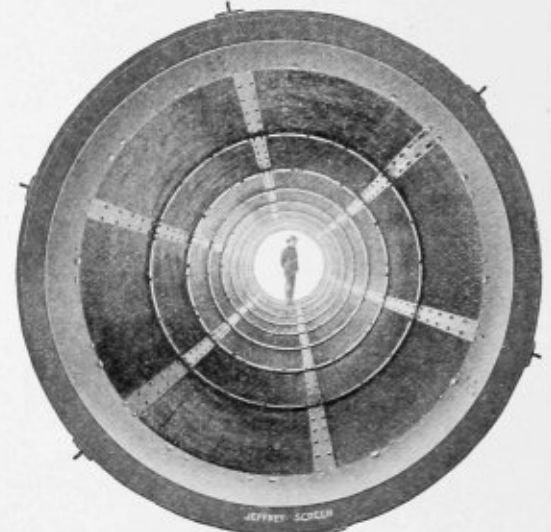
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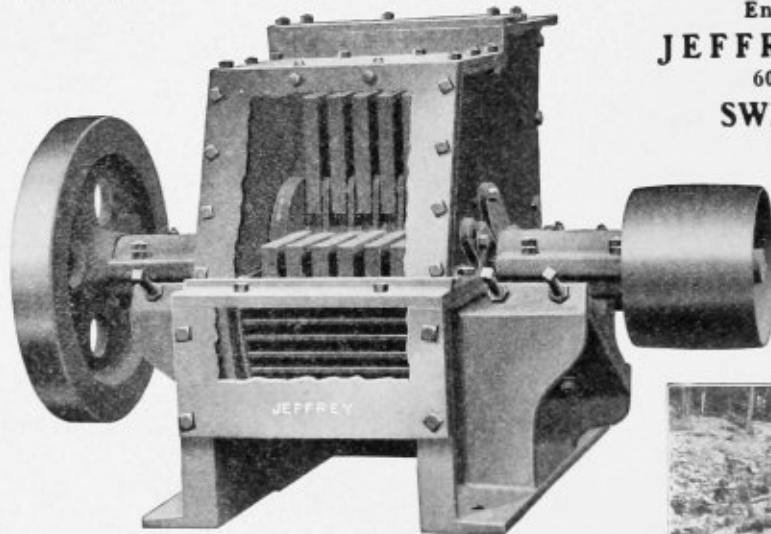


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Remember Two Things



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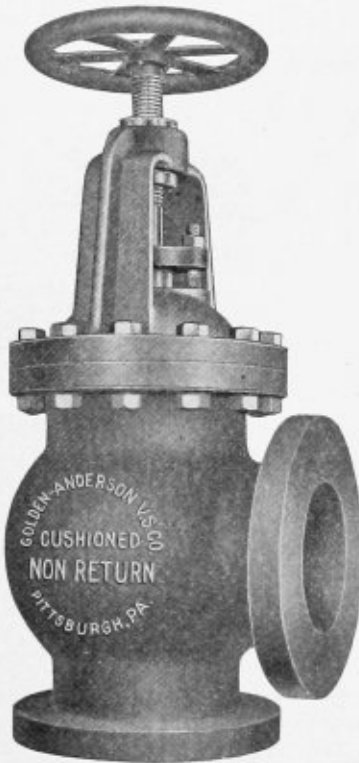
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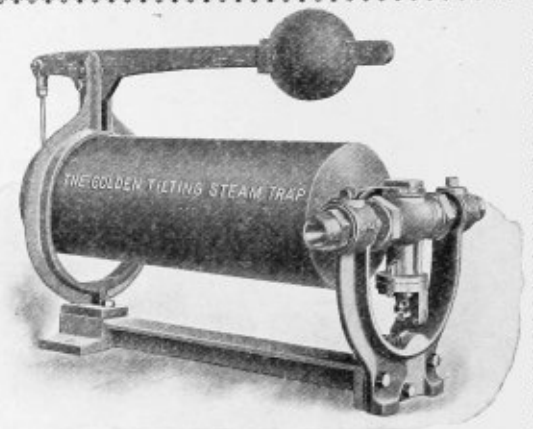
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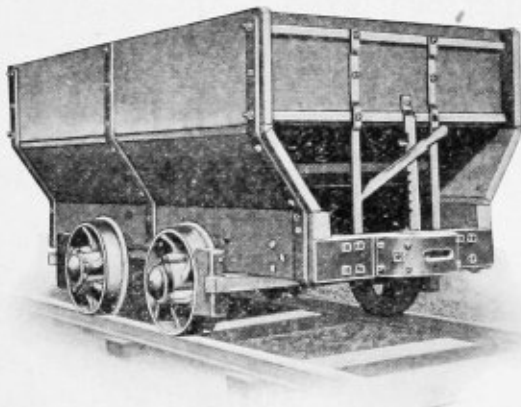
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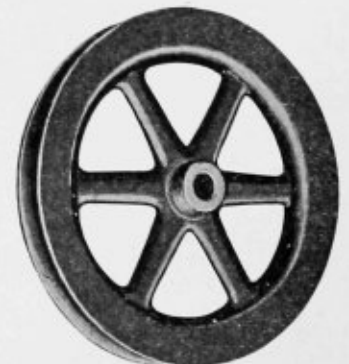
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In direct consonance with the tremendous development of the iron and steel manufacturing industry in this and other countries of the world has the coking industry expanded.

No other activity of man has made more remarkable progress than has the manufacture of coke from the raw product coal which formerly was made to take the place of the refined and perfected fuel.

Just when the first coke was made—when the process was discovered and by whom—the best authorities seem to differ. The first manufacture and use of coke as a fuel and especially in connection with the manufacture of pig iron is shrouded in doubt and uncertainty. The discovery was first made, undoubtedly, in England. Probably the fuel was known in England as early as the latter part of the eighteenth century but it was not until 1735 that coke was successfully manufactured and used there. Its rise to favor and prominence was remarkably slow especially when its essential usefulness and wonderful service to the iron and steel manufacturer is considered. Coke did not come into anything like general use in England until 1750 when it was fully and reliably demonstrated that for use in blast furnaces as the proper fuel for the smelting of iron ore it was the only perfect and satisfactory medium.

It is known that coke was made in this country as far back as 75 years ago, but it has not been until within the last quarter of a century that its supreme worth as a blast furnace fuel has been completely recognized. With the demonstration of the superiority and great worth of the coal of the Connellsville field as the exact fuel demanded for the smelting of iron ores, the coking industry really began its development in this country. It has never halted. Today it stands hand in hand in point of importance with the mining of coal and the manufacture of iron and steel for upon it alone depends the success achieved in the production of the latter commodities.

With the demonstration of the absolute worth of coke for the manufacture of iron came the tremendous development of the allied industries. The development of the processes of coke manufacture to their present perfection secured for Western Pennsylvania—the Pittsburg district—its present commanding position in the world of in-

dustry. This is so for with the establishment of the manufacture of this fuel the great iron furnaces were rapidly erected where they would be within easy touch of their main supply of fuel. The building of the great steel mills followed in turn and after them came the wonderful group of diversified industries all depending upon the use of coke for their operation in a successful manner.

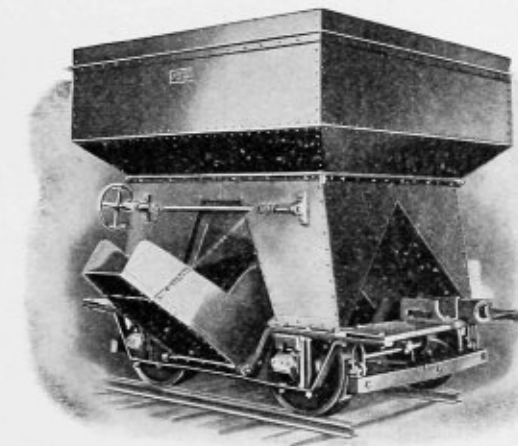
At this day, but a scant quarter century after the coking industry first commanded national and even world-wide attention, the manufacture of coke is carried on in more than 20 states and territories in this country and in point of capital invested, men employed and industries affected it uncovers to no other activity in this or any other country upon which the sun shines. While coke is so widely manufactured, the article

ville field which gave to the coking industry its great impetus and which caused the rapid growth of the wonderful iron district around Pittsburg and in this entire section of the country. Other great iron and steel plants, have, it is true, been founded far from this splendid source of fuel supply, but they have had other compensating advantages which rendered this course feasible. As the first great coking coal that of the Connellsville field stood without a rival. In the census reports of 1880, the Connellsville region produced 72.16 per cent. of all the coke manufactured in this country.

The early history of the coking industry in this country, is, as has been stated, enveloped in doubt. It is claimed that coke was used in this country in the manufacture of pig iron a few years before the Revolutionary war. This is quite possible but it is not at all probable that such is the case. Records are wanting on this subject and it is likely that exact figures will never be obtained.

In 1816 and 1817, Isaac Mason built the first rolling mill erected west of the Allegheny mountains, to manufacture iron at Plumsock, Fayette county, Pa. This mill went into operation September, 1817, and coke was used as a fuel. This is the first positive reliable statement of the use of coke in the manufacture of iron in the United States. The coke used in this early mill was burned in Fayette county. The next positive assertion of the use of coke in the manufacture of iron was at a blast furnace on Bear creek, Armstrong county, Pa., in 1819. In 1835 good gray forge iron was successfully made in Huntington county, Pa., with Pennsylvania coke. In 1837, F. H. Oliphant made iron at his furnace at Fairchance, near Uniontown, by means of coke as a smelting fuel.

In 1849 there was not a coke furnace in blast in Pennsylvania. But in 1856 there were 21 in Pennsylvania and three in Maryland, all of which depended upon coke for the manufacture of the iron which they produced. None of these, however, used Connellsville coke, and it was not until the development of the Connellsville region that the use of coke as a blast furnace fuel came into favor, or the manufacture of coke assumed any importance. All of the early coke was made on the bare ground. The first coke made in ovens was in 1841, or thereabout.



Closed Frame Larry—Made by Scottdale Foundry and Machine Co., Scottdale, Pa.

printed in last month's issue of Coal and Timber shows that much of the different coals of the country are unfitted for the making of good steaming or smelting coke owing to the various impurities and chemicals which they contain. The great coal vein which underlies the Connellsville region, has, from its rare adaptability to this process and from its almost absolute freedom from unfavorable elements and impurities, been taken as the standard of coking excellence.

West Virginia coals, particularly those of the Pocahontas field, are to be reckoned with in the future as rivals of the Connellsville coking coal, but the demand for coke has grown so widely that the more good coking coals discovered the better for the future of the iron and steel industry.

It was the development of the Connells-

In 1841, Provance McCormick and James Campbell, two carpenters, and John Taylor, a stonemason, and the owner of a farm on the Youghiogheny river, including a coal mine which he operated in a small way, commenced making coke with two ovens, and in the spring of 1842, had enough coke stocked to fill two boats, or about 800 bushels. These boats they took down the Ohio river on high water to Cincinnati, O. On reaching that city they were greatly disappointed in the little demand for the new fuel. It was almost totally unknown there as foundrymen regarded it with suspicion, calling it "cinders." Campbell, who went with the boats, remained at the landing for about three weeks trading his coke in small quantities, charging eight cents per bushel for his fuel. He disposed of the balance to Miles Greenwood, a foundryman, at Cincinnati, for a patent grist mill. This mill was shipped to Connellsville, where it proved to be a failure. It was finally sold for \$30. This was the end of the first coke manufacturing firm of the Connellsville district. A part of the cargo which was traded for the grist mill was boated to Dayton, O., and was bought by Judge Gebhart, a former Pennsylvanian, who then had a foundry in operation. He used the coke in his foundry with great success and afterward came to Connellsville and asked Campbell and McCormick to make more of the fuel for him, but their first venture had ended so disastrously that they refused.

In 1843, the ovens built by Taylor were rented to Mordecai, James and Sample Cochran, who used them in making twenty-four hour coke. When they had coked about 1,300 bushels, it was boated to Cincinnati, and sold to Miles Greenwood, who in the meantime had become better acquainted with the value of coke as a fuel.

Three or four coke ovens were built in 1850 by Stewart Strickler, the product being also boated to Cincinnati and sold. For several years thereafter but little coke was made, though some ovens were built and a better knowledge of the new fuel attained. The coke trade increased somewhat in 1851, and in 1855 there were but 26 coke ovens above Pittsburg. About that time, Connellsville coke became to be successfully used in the Clinton furnace at Pittsburg, and its value as a fuel was fully demonstrated. The Clinton furnace was blown in about 1859 to make pig iron from coke. The coke was first made from Pittsburg coal near the furnace on the south side of the Monongahela river. This Pittsburg coke proved unsatisfactory, the furnace was blown out and agreements made to secure a supply of coke from the Connellsville region.

The Clinton furnace was again put in blast in the spring of 1860, and coke from the Fayette Coke Works was used. This coke plant numbered about 30 ovens in capacity. In 1864, 40 ovens were built on Hickman run. The product of these ovens was transported on tramway to the then

Pittsburg & Connellsville railroad (now the Baltimore & Ohio) until 1871, when the Hickman Run Branch railroad was built. In 1860, the Connellsville Gas Coal & Coke Co. was originated and built 40 ovens near Connellsville. In 1869, 40 ovens were built near Dunbar, Pa. These works, as named before, were all the coke ovens in the Connellsville district until 1871.

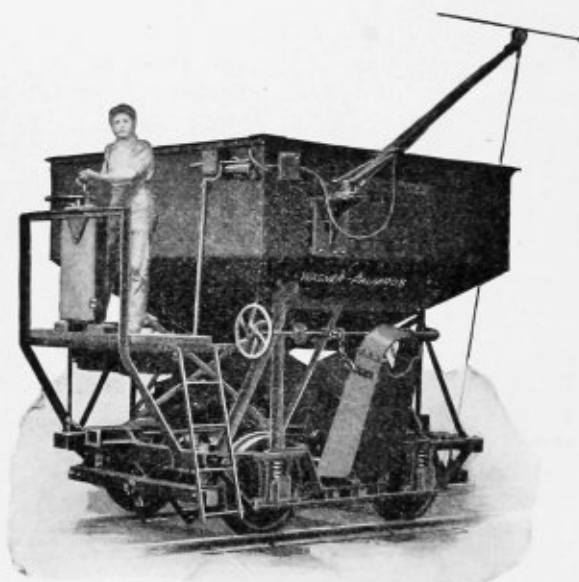
The United States census reports show that there were but four establishments making coke as a regular business until 1850. In 1860, there were 21; in 1870, there were 25. The census reports of 1850 are probably not correct, while, though the coking industry was in its infancy then, there were probably more coking manufactories than reported by the census agents. The census returns show that between 1850 and 1860, all the coke manufactured in the United States was made in Pennsylvania. In the census of 1870, Pennsylvania is credited with making 92 per cent. of the coke of

ranged for several years from 90 cents to \$1.15 per net tons at the ovens, advanced to \$5 per ton. This boom naturally gave a wonderful impetus to the coke trade and on May 31, 1880, there were 6,237 ovens built and in operation and 1,242 in process of construction in the Connellsville region alone. In 1882, the number of ovens constructed amounted to 8,400. In 1884, the number of active coke ovens had reached, in round numbers, 10,000, against a total of 3,672 but five years previous. In 1886, the number of ovens was 10,854, and in 1887, the number of coke ovens was 12,561, with a production of 4,296,343 tons of coke; in 1888, the number of ovens was 13,133, with a production annually of 4,971,287 tons of coke. In 1890, the number of coke ovens reached 15,172, and the production 6,464,000 tons. In 1892, there were 17,250 coke ovens in the Connellsville district alone, and the numbers in different parts of the country had also greatly increased.

The Connellsville field last year alone produced 12,427,468 tons of coke, showing the startling increase in the number of ovens and the almost incredible gain in output during the last 13 years. During this interval of time the industry has grown with leaps and bounds rather than gradually, as was true formerly. This is due to the unprecedented demand for coke as fuel, both for steaming and especially for fuel for the smelting of iron ores for the manufacture of iron and steel. In 1904, in the Connellsville field there were 29,119 ovens. These produced 12,427,468 tons of coke. At the average price of \$1.75, the gross revenue to the manufacturer was \$21,748,069.

The process of coking is very simple. Ovens are either of the bee-hive or the retort description. The former wasteful processes whereby the by-products were almost entirely lost have been remedied and now the by-products form a very profitable feature of the industry.

When the coal is got from the shaft, drift, or slope, it is dumped into the larries, approved styles and makes of which are illustrated in this article. These larries were formerly drawn upon the bank or block ovens by horses or mules. Now power has displaced the mule just as it did in the haulage from the pit. Compressed air and electric locomotives and the trolley furnish the medium used to convey the loaded larries from mine to coke oven. The coal is dumped from the larry into the oven through an opening in the crown which is called the "trunnel head." These larries are made to carry one charge at a time, and as



Electric Larry—Made by the Wagner-Palmros Manufacturing Co., Fairmont, W. Va.

the entire country. In 1880, the Keystone state is credited with 84.18 per cent. of the product of the country. Of all of the coke made in Pennsylvania from 1870 until 1880, Westmoreland and Fayette counties, or the Connellsville coke region, produced 73.16 per cent. of the total output.

In 1871, the Mt. Pleasant & Broad Ford railroad, of which H. C. Frick was one of the projectors, was built. This road opened the northern part of the Connellsville field and at once inaugurated the construction of several coking plants. Oven building continued with great energy until the total number in 1873 was 3,673. In this year the great financial panic occurred and the iron business commenced to decline; the price of coke naturally went down with it until 1879. Then came a sudden and unprecedented demand, and prices, which had

the quantity of coal charged or put into the ovens varies according to size of the ovens, the size of the larries vary accordingly. In the larger ovens, 4½ tons of coal is the usual charge for 48-hour coke, and six tons for 72-hour coke. This yields 67 per cent. of coke after being burned and drawn.

It is during the burning process that the judgment of the coke maker comes into requisition, and good judgment is an absolute necessity in the manufacture of the best coke. Beside the opening in the top of the oven, referred to as the "trunnel head," there is a large opening in the front, about 26x30 inches, called the door, through which the coke is drawn out; but which is kept closed during the process of burning.

After having charged the oven the next step in the process is to level the charge. This is done through the door by means of a long iron rod with a scraper affixed to the end. The door is then walled up with fire brick and plastered over with a luting made of fine sharp sand or good loam. In about 30 minutes a pale blue smoke arises out of the trunnel head, from which the damper has been previously removed. The smoke gradually grows darker in color and stronger in volume, until about 30 minutes later it goes off with a puff similar to the explosion of a small charge of powder. This signifies that the charge of coal has ignited and that the burning has begun.

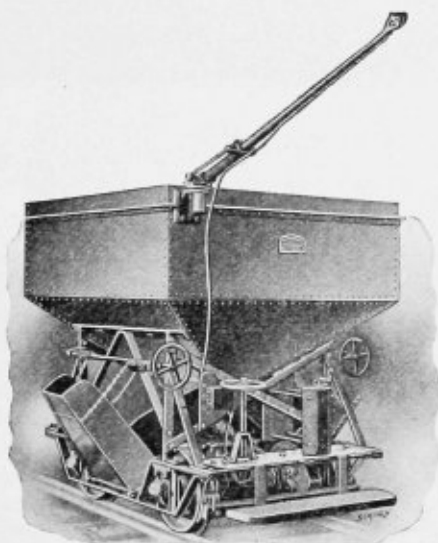
The charge of coal burns from the top downward, and the process of burning, or "airing" as the workmen call it, is regulated through the door by means of little holes made around the arch. Through these openings the air is admitted while the smoke and impurities are expelled from the oven and the coking mass of coal through the trunnel head.

In about 72 hours after the oven has been charged, if properly handled, the oven will be "around," or coked, and good foundry coke should be the result. When the oven is "around" it looks like a mass of red hot coals. The process of "drawing" the oven then begins. This was done formerly by means of the same instrument as that used for the leveling of the oven after first being charged. Now machinery has been devised and the work of drawing the oven much simplified and expedited. The drawing must await the cooling of the superheated mass. The coke drawers knock the doors down and by means of a hose to which a long piece of gas pipe is attached, spray the mass with water until sufficiently cooled to admit of its being handled. When the coke is thoroughly cooled it is drawn from the oven and is ready for loading upon railway cars unless it is desired that it be first crushed to any required size.

When the ovens are first fired, or started, the coal is ignited by means of wood or red hot coals, the same as the starting of any other coal fire. After repeated chargings the ovens become hot and the coal is ignited by the mere heat which the ovens

retain in their walls from the former charges. For cooling the coked coal, pure water is an absolute essential to insure the best and most perfect coke. If the water contains sulphur and any other impurities, the coke will absorb them and this in turn will become injurious to metals manufactured with them. The coke from the Pocahontas and Connellsville fields is of silvery lustre, cellular, with a metallic ring, tenacious and very free from inherent impurities. It is so tough that it is capable of bearing an extremely heavy burden in the blast furnace. Its porosity and ability to stand up in a furnace, and the extremely low percentage of sulphur is what has given it such a reputation as blast furnace fuel, and has created the demand that exists for it in all parts of this country.

All bituminous coals do not make good coke. Even Pennsylvania coals are defi-



Open Frame Trolley Larry—Made by
Scottdale Foundry and Machine Co.

ent in this respect—except those in the Connellsville region. By no means do all the coal areas in West Virginia supply a quality of coal sufficiently free from sulphur to produce marketable coke, but it is a fact that West Virginia possesses more coking coal than any other of her sister states, and in the Tygart's Valley, and near Philippi, the county seat of Barbour county, is found a vast supply in the lower and upper Freeport seams which produces a quality of coke the equal to the famous Connellsville article. This coke is especially free from deleterious substances which must be absent from coke in the process of Bessemer steel making.

Of the 28 coal states but 12 produce coke to any extent, and but five lay claim to figures that makes the state's supply an industry of importance. Illinois, second to Pennsylvania in soft coal production, is away down in the list of coke producing states, while Alabama, as yet low in tonnage, is high in coke production. In fact it almost equals West Virginia in the number of

tons produced in 1903. With Pennsylvania not considered, the contest for coking supremacy lies between West Virginia, Alabama and Ohio. Ohio produces an amount of coke but slightly smaller than West Virginia's record—2,707,818 tons, and of very fair quality. Alabama has but one fifth the coal area of West Virginia, and her geographical position precludes any possibility of her sending coke or coal to northern markets as cheaply as her rivals.

THE COAL PRODUCTION.

Edward W. Parker, a statistician, from reports of the United States geological survey, computes the coal production of the United States for last year as 351,196,953 short tons, having a total value at the mines of \$445,643,528. Compared with 1903 this shows a falling off of 6,159,463 short tons in quantity and of \$58,080,853 in value. This decrease was simply a natural reaction from the abnormal activity which has been maintained throughout the coal mining regions in 1903, due to the exhaustion of all coal stocks on hand by the great anthracite strike of 1902. The renewal of the coal stocks when the long and bitter wage war had been adjusted through the intervention of President Theodore Roosevelt caused all of the anthracite mines to be pushed to their full capacity. The railroads were taxed to their utmost to handle the tremendous production and set a limit, really, to the output of the hard coal mines. As a result, the enormous production of 357,356,416 short tons were recorded. The production in 1904, while less than that of 1903 by 6,159,463 short tons, exhibits in reality a normal increase when compared with the normal rate of increase for the 10 years preceding.

The statistics of bituminous coal production comprise all varieties except Pennsylvania anthracite, and include semi-anthracites, semi-bituminous, cannel, splint and block coals, and brown and black lignites. The small production of anthracite in Colorado and New Mexico is also included in the bituminous output. In 1904 the aggregate production of all of these varieties amounted to 278,040,244 short tons, valued at \$306,669,508 against 282,749,348 short tons, worth \$351,687,933 in 1903, comprising a decrease of 4,709,104 tons in amount and \$45,018,425 in value. The average price per ton for all coal mined and sold, including colliery consumption, fell from \$1.24 in 1903 to \$1.10 in 1904.

Of 31 States there were only 10 in which there was an increase of production in 1904. These 10 include the State of Nevada, which is credited with 150 tons in 1904, having no production the year previous. Of the more important producing States, West Virginia, Indiana, Kentucky, Iowa, Kansas and Wyoming were the only ones which showed an increase in production in 1904.

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TOUR OF THE OHIO BY RIVERS AND HARBORS COMMITTEE

BY HON. JAMES FRANCIS BURKE



From left to right the members of the Rivers and Harbors Committee who visited Pittsburg, were as follows: B. B. Dovener West Virginia; DeAlva Alexander, New York; Theodore E. Burton, Ohio; William Lorimer, Illinois; James H. Davidson, Wisconsin; E. F. Acheson, Pennsylvania; J. Adam Bede, Wisconsin; Stephen M. Sparkman and son, Florida; James Cassidy, secretary; Joseph E. Ramsdell, Louisiana; Wesley L. Jones, Washington.

VISITING REPRESENTATIVES Were Impressed by Necessity for Deeper Channel.

The members of the Rivers and Harbors Committee have come and gone so far as Greater Pittsburg is concerned. They have now concluded one of the most important journeys ever made by any representative body of Congress. Whether their keen observation will result in conclusions that will bear fruit in more liberal appropriations to our local waterway improvements, will remain for some time undetermined, but it is absolutely certain that the object lessons presented to them while here and on their journey down the Ohio cannot fail to impress on them the palpable necessity of enlarged facilities for handling that freight produced by our factories and farms which naturally finds its way to the markets of the World through the channels of water transportation.

The visit to Pittsburg was attended by a number of interesting instances. The failure of the members to appear on the first day was a distinct loss to the city, which had arranged to display its hospitality as well as its necessities in the most elaborate manner. We might add also that it was a distinct loss to the members of the committee, who were deprived of seeing, hearing and doing many things which would not have only proved of intellectual profit, but left the most pleasant memories.

At the big banquet Mr. Burton made a characteristic speech. A great many were

expecting to hear him make declarations committing himself and his committee to a definite policy regarding our local and river affairs, but those who knew the Chairman, expected just such a speech as he made. It was courageous and conservative. Mr. Burton is one of the best informed men on any specialty in Congress, and should he remain there, I believe he has one of the rarest opportunities ever presented to a statesman to inaugurate a new doctrine for the government of our rivers and harbors appropriations.

The Rivers and Harbors Committee has persistently pleaded with the people of the Ohio valley not to blame them for niggardly appropriations for the reason that they have been dealing quite as generously with this valley as with other sections of the country. Our answer to this plea is, that while we do not so much blame the Committee for discriminating against us, considering our enormous wants, we do find fault with them, or rather with Congress at large, because of the fact that so little money is appropriated to the Rivers and Harbors Committee as a whole, while other committees with far less important needs back of them receive far more generous treatment in the matter of appropriations. We also dislike to have our community placed in the position of one pleading for charity.

Our demands are the demands of right, and in determining what the Government of the United States shall do for this vicinity, we believe it fair that the Government

should also bear in mind what we have done for the country at large. For without exception we believe that no other section of the Republic has contributed any greater share to the upbuilding and the enrichment of our Nation from an internal standpoint and the advancement of interests where Americans have sought to compete with others in the markets of the world.

Another reason why the Government should be generous in the development of these waterways, is that private capital is practically barred from their development. In this instance it seems to have been a handicap rather than a blessing, because it is easy to assume that if the Ohio river were owned and controlled by any great corporate enterprise, it would have been improved and developed to a far greater extent than as characterized its career under the Government supervision.

While billions of dollars have been expended by enterprising capitalists in less inviting enterprises, the Government of the United States, which, of right, exercises exclusive control of this great natural channel of commerce, has moved with the speed of a snail in its development. And this delay has been occasioned not because of governmental parsimony, but because public interest has never been aroused to the extent justified by the magnitude of the enterprise itself. The people of Chicago erected their great drainage canal in eight years at a cost of \$35,000,000. The State of New York, unaided by the National Government at a time when neither the

magnitude of her manufactures nor the prosperity of her people, approached that of to-day, completed her own Erie canal in eight years, and provided \$51,000,000 with which to do it. The great Kaiser-Wilhelm canal, connecting the Baltic and the North sea, was completed in eight years by the German people at a cost exceeding \$40,000,000. The conservative and plodding English people erected the canal from Manchester, 36 miles long and 26 feet deep, at a cost of \$75,000,000, in seven years.

Having in mind, therefore, the traditional enterprise and liberality of our people, how absurdly penurious it seems that a quarter of a century must elapse before the necessary and yet moderate expenses of this great undertaking can be provided for by the richest government in the world. It appears none the less unreasonable when we realize that the six states skirted by this valley pay practically one half of the entire revenues of the Nation.

The great industrial metropolis at the source of this stream would be twice her present size today, were it not for the dog in the manger policy of those who have hindered the entrance of new railroad systems and discouraged the development of our water ways. But the bright light of commercial wisdom, like the X rays of science, is penetrating this "stand-still system," and revealing the stiff joints, the dead bones and the congested blood within, with the result that our intelligent enthusiasm has been at last aroused and will prohibit men from longer whistling "down-breaks" on the wheels of progress, or nailing fast the hands on the dial of time.

All the discouragements and delays that would ordinarily dishearten the most dauntless spirits have been encountered and overcome in this great enterprise by men whose eternal watchword is "work" and whose ambitions never end but in the achievement of their purposes, and as the waters of this mighty stream go gliding to the Gulf, and thundering over the wickets they will sing perpetual praise to Dravo, Henderson, Rodgers, Anderson, Vance, and kindred spirits who are gradually making a dream a deed and a romance a reality.

In keeping with the pessimistic spirit of those who are eternally looking backward, there are many who declare that the days of inland waterway transportation are over. In answer to that one of the greatest commercial authorities in the world, the London Chamber of Commerce not long since, declared that the continued improvement and development of inland waterways by Austria, France and Germany was in keeping with the most enlightened commercial policy of modern times, giving the easiest and most economical transportation to markets, and that Great Britain must follow in their footsteps or drop out of the race for commercial supremacy.

The policy of all far seeing countries is now and has been in recent years to in-

crease the depth of nearly all natural and artificial waterways, owing to the increased carrying capacity of modern water craft. Within 25 years ocean steamers have increased their capacity from 2,500 to 11,000 tons, while the average freight car which had then 15 tons has now 50 tons capacity. Moreover as the genius and handicraft of Western Pennsylvania produced the steel car, give us the great slack water system we ask, and at no distant date Pittsburg will produce a steel barge that may be loaded in our local harbors and sent from port to port and sea to sea, returning to us with the needed products of other countries.

The cry for increased transportation facilities by land and water is louder and stronger than ever before. During the past



Hon. James Francis Burke, M. C.

year coal mines in Western Pennsylvania were compelled to shut down for lack of sufficient cars to transport their products to the market; the story of how millions of tons of the products of our mills and mines have in the past been compelled to lie sleeping in our local harbors awaiting a stage of water that could bear them away to markets that were hungering for their coming.

If all the mills and mines on earth were centered here, even though manned by the most skilled of our Creator's craftsmen, their minerals would sleep in the hills forever and their wheels would never turn were there no mediums of transportation through which their products might reach the waiting markets of civilization.

As the rich, red blood of life finds its way to and from the heart of the human system and gives and sustains life, so would these great arteries conduct to and from the very heart of our industrial empire the corpuscles of commercial life, and thus

strengthen the entire republic from border to border. Let no railway be apprehensive of diminished business by competition. We have already proven that we can and will increase our products with equal if not greater rapidity than they can increase their mediums of transportation.

We want cars and steamers not only burdened with our products as they leave our gates but to return filled with the fruits of labor from the genial climate of the South, the fertile soil of the West, the rugged forests of the North and the busy cities of the East.

We have been sending our capital to open mills in the South, to build railways in Russia, to develop mines in Mexico, to light the streets of London and to promote a thousand other enterprises in distant lands while the possibilities of development and profit are a hundred fold greater here in this great valley and we but stop and study its wonderful possibilities.

RAILROAD RACE IN ALABAMA.

The Louisville & Nashville and the Southern railways are engaging in a race into Walker county, Alabama, with the phenomenal coal traffic there as a goal. The coal trade in that part of Alabama is growing at a remarkable rate. Both of the railroads are preparing to build from 15 to 20 miles of track right into the heart of the new coal region. The work is to be done this summer. Coal companies are now preparing to develop the territory on a large scale and some have begun operations.

The Louisville & Nashville railroad will extend its Mineral Springs branch, which now runs to Warrior river at Banner mines, to the edge of Jefferson county. This branch touches the mines of the Pratt Consolidated Coal Co. It is proposed to extend the line to the middle of Walker county, crossing the Warrior river and the Little Warrior river enroute.

The Southern railway proposes to extend the Ensley Southern, now extending from Ensley on a branch of the Southern, to Short Creek, near the Warrior river, where the Tutweiler Coal, Iron & Coke Co. has mines. The extension will run as far as Parrish in Walker county, where the Northern Alabama railroad has terminals. The Northern Alabama is the property of the Southern railway, and has branches to coal mines in Walker county, between Parrish and Jasper, and in Winston county, from Gamble and Leon. The distance from Short Creek, in Jefferson county, to Parrish, in Walker county, is but ten miles and it runs through a very rich coal field. Branches are likely to be constructed from this extension both up and down the valleys to valuable coal fields which are being purchased at a very rapid rate.

THE HYDRO-CARBONS OF UTAH

Gilsonite, Elaterite, Ozokerite, words that convey little or no meaning to the layman, are the names given to hydro-carbons found in commercial quantities in only one place in the world, to-wit, the State of Utah. In

through North and South by Green river. The rim of the basin is made up of the Uintah mountains on the North, which range has four peaks reaching an altitude of 13,000 feet and over; the Wasatch moun-

3,000 or 4,000 feet deep, showing layer after layer of sandstone between which sometimes occur thin strata of shale. The formation in the basin itself is almost entirely Tertiary from the Upper Green River and Fort Bridger sandstones down to the Dakotas. There are many coal seams exposed and some other minerals but the most interesting minerals in the whole basin are the veins of Gilsonite and Elaterite. These substances were unknown a few years ago and were brought to the attention of the world as is usual in such cases by the intrepid prospector, although the cowboys in that region were the first to call attention to them. The cowboys in riding over the mountain ranges observed in places that the ants had brought to the surface small particles of a peculiar black, shiny substance which, upon casual view, had the appearance of coal but upon closer inspection proved to be quite different.

At the most promising points where these discoveries were made prospecting was carried on more or less systematically until finally the veins were discovered and opened. One of the earlier and most persistent prospectors was a well-known pioneer in the West, Sam Gilson, one of those original but strong characters to whom the West is generally indebted for discovery and opening up of its various treasures. It was from him that Gilsonite derives its name.

Gilsonite occurs in perpendicular fissure veins cutting the sandstone formation almost as straight as an arrow and extending in some cases for miles, persisting in its straight course over mountains and across canyons showing like a black streak of paint whenever the surface debris has been removed. It is a hard, black, highly lustrous substance with a fracture somewhat similar to coal. The veins are from six inches to 20 feet wide and owing to their perpendicular position are easily and cheaply mined. The walls of sandstone between which they stand are generally clean and firm and do not need much timbering.

The dust from Gilsonite is highly explosive and therefore great care must be exercised in mining it. Electric lights are used exclusively in the deeper workings. The veins are known to extend down 500 feet or more, and it is supposed that they continue down to at least the underlying hard slates, several thousands of feet below. It is the general belief of geologists who have examined the basin that these substances have their derivation from oil. That after the basin had been lifted up and formed in some late geologic time it settled back somewhat and in doing so cracks were opened extending deep down which were filled with oil from below upwards. This infusion must have in later ages gradually solidified. As a proof that the substance was liquid or semi-liquid at one time, large blocks of sandstone are sometimes found



Black Dragon Gilsonite Mine, Utah.

fact, Gilsonite and Elaterite have never been found in any other place in the world and Ozokerite is only found in one other place, Moldavia, Europe. These substances are found in the Uintah basin in Eastern Utah, a region for the most part wild and desolate, the home of the raven, the jackrabbit and the coyote. This basin is cup-shaped, is about 200 miles in diameter and is cut

tains on the West; the Book, or Roar Cliff, mountains on the South and East.

From a geological standpoint this immense basin presents many features of interest. The formation is almost entirely sandstone except the Uintah mountains on the North. In the deep box canyons cut by the larger streams and rivers, the formation presents a perpendicular face often

in the center of these veins entirely submerged in the Gilsonite and above where the block lies embedded in the vein can be seen the place in the wall from which it came.

These cracks or fissures all have a North-westerly and Southwesterly trend. Gilsonite is comparatively unknown having only been discovered in recent years but it is entering largely into commercial use. It is used at the present time in making varnishes, paints, insulating substances, hard rubber goods, etc. It makes a Japanese finish that cannot be excelled. As a paint for structural iron, ship bottoms and the like it is considered to excel all other paints. It is not affected by water, does not oxidize nor is it affected by barnacles.

What has been said of Gilsonite may be said in general of Elaterite except that Elaterite, or mineral rubber, is not brittle like Gilsonite. It is difficult to fracture and cuts like rubber. Its quality is somewhat higher than Gilsonite and it makes a better adulterant for rubber goods. An excellent and most serviceable rubber pulp can be made from it.

It is found in veins similar to Gilsonite though the widest yet discovered is about six feet. Elaterite is found almost entirely in the western part of the Uintah basin while Gilsonite lies in the eastern part. They are not found together. The uses to which the substances are being put are constantly being extended, and chemists who are familiar with them unite in saying that these substances will have as extensive a commercial use as petroleum from which latter substances in some form they no doubt owe their origin.

Other substances of an allied nature, such as Lasterite and Albertite are found in the same region but only in small veins. The miners while working in the Elaterite veins often strike into pockets or holes which are filled with crude petroleum oil and what is more interesting and goes to demonstrate the claim of some geologists that petroleum oil has its origin from the bodies of vast masses of fish caught in some of the earth's great cataclysms is the fact that quite often in a fragment of Elaterite is found the clear imprint of a fish, the body seemingly having been turned entirely into Elaterite.

Ozokerite, or mineral wax, is simply natural paraffine. It is found near Colton, Utah, just west of the Elaterite district. It is found in vertical veins but usually closely associated with a bluish lime shale into which it has penetrated, although it is found in a pure state in varying thicknesses from one-half inch to 10 inches. It is obtained by mining the shale and boiling in water and then skimming off the paraffine as it rises to the surface.

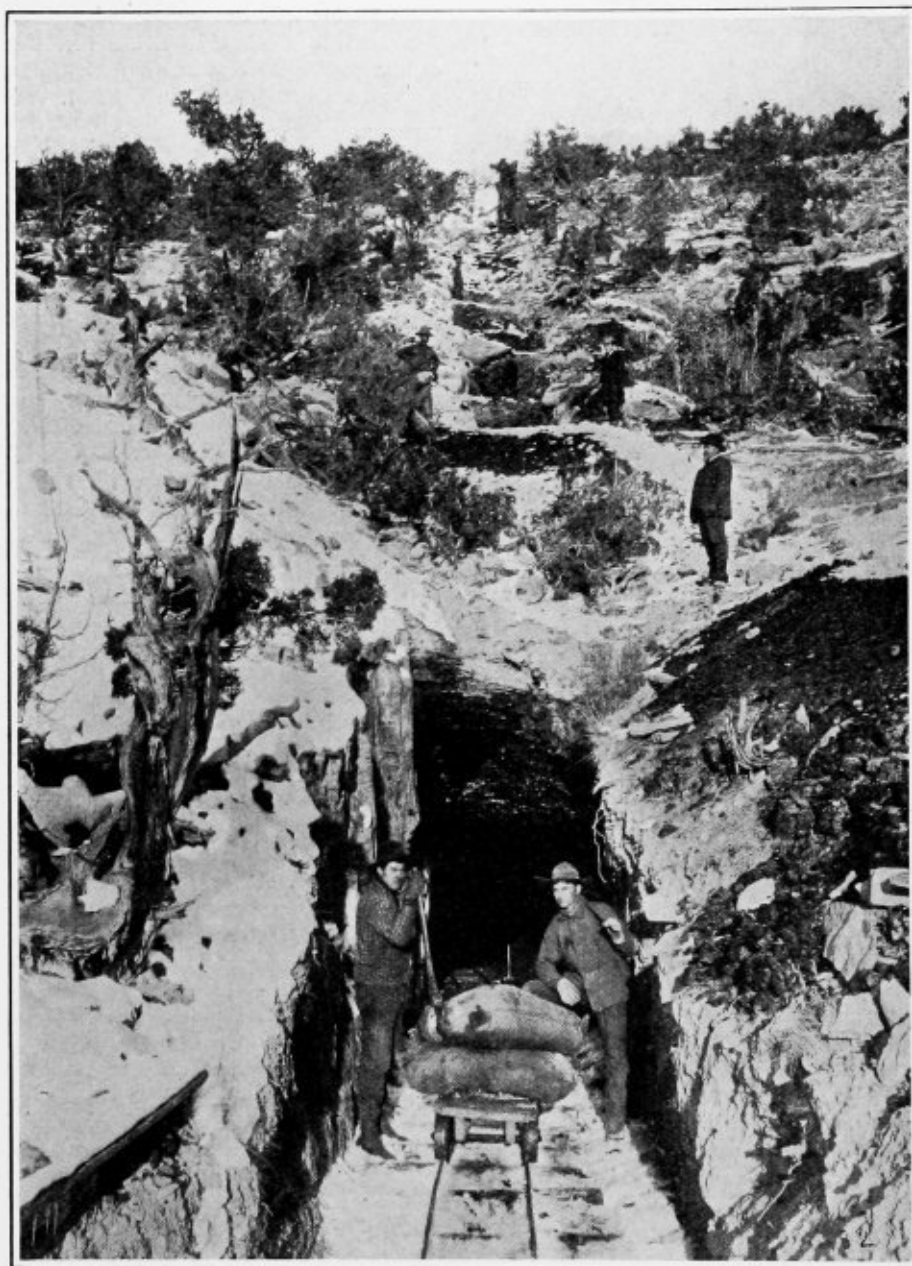
This substance is more valuable than the ordinary paraffine extracted from oil as it

possesses higher qualities of resistance to acids and electric currents. It is used in transformers in high tension work, for phonograph records, oiled paper, high grade candles, etc. It takes a high polish. In its natural state it is dark brown or black.

These hydrocarbons are all high priced and probably will remain so indefinitely as

and break up like many other asphaltums. Expert reports estimate that there are over fifty million tons of this material, practically all controlled by the Pittsburg-Salt Lake Oil Company.

The price of Gilsonite is from \$40 to \$60 per ton; Elaterite, \$70 per ton; Ozokerite \$240 per ton, and asphaltum \$25 per ton.



Cumberland Gilsonite Mine, Utah.

they are not found elsewhere and are controlled by less than a half-dozen companies.

In this district are large deposits of asphaltum, running from fifteen to twenty-five per cent. pure bitumen, of the very best quality for paving. It retains its elasticity after laying and does not become brittle

(Note: Though "Coal and Timber" is devoted to the interests suggested in its title, the foregoing brief description of hydro-carbons, written by an eminent western geological authority especially for this paper, must prove of interest to our readers, as the substances described are all kindred to the coal family. Editor.)

NEW CORPORATIONS.

The following new corporations have been granted charters:

Forbes Coal Co. Latrobe, Pa.; capital \$75,000.

Bennington Coal Co., Altoona, Pa.; capital \$5,000.

Thermic Coal & Coke Co., Hollidaysburg, Pa.; capital \$5,000.

Beautyville Block Coal Co., Lexington, Ky.; capital \$20,000.

The Arkansas Anthracite Coal Co., Spadra, Tenn.; capital \$350,000.

The Amos Boysen Mining Co., of Cheyenne, Wyo.; capital \$25,000,000.

Buffalo-Susquehanna Coal Mining Co., Galeton, Pa.; capital \$10,000.

Chicago-Carterville Coal Co., Chicago, Ills.; capital increased to \$750,000.

The Goshen Central Coal Co., Massillon, O.; increase of capital stock from \$50,000 to \$100,000.

Mines Finance Co., of Augusta, Me.; capital \$300,000 (nothing paid in); incorporator, I. L. Fairbanks.

A. D. Landerkin, Richmond, Va.; capital \$25,000; incorporators, A. D. Landerkin, E. N. Ferguson and S. B. Tyler.

Virginia Ore & Lumber Corporation, Roanoke, Va.; capital \$100,000; Frank A. Hill, C. V. Ferguson.

The Consolidated Coal Co., Augusta, Me.; capital \$4,000,000; J. Berry, of Augusta, president and treasurer.

Stewart Lumber Co., Stuart, W. Va.; capital \$20,000; incorporators, S. Dixon, J. W. Smiley, I. D. Smiley and S. A. Smiley.

Southern Coal & Timber Co., Bangor, Me.; capital \$1,000,000; incorporators, Benning C. Additon, Raymond H. Hitchcock.

Manchester Coal Co., Phoenix, Ariz.; capital \$1,000,000; incorporators, E. T. Hartje, L. C. Wood and J. M. Hupp.

Union Fuel Co., Omaha, Neb.; capital \$50,000; incorporators, Robert J. Aitchison, A. B. Cook and Samuel A. Corneer.

Mineola-Dixon Coal Co., Mineola, Tex.; capital \$50,000; incorporators, C. C. Sisler, H. C. Geddie and N. M. Harpole.

The Burt Lumber Co., Clio, Tenn.; capital \$16,000; incorporators, S. B. McCartney, Robert York and F. W. Culpepper.

Jefferson County Coal Co., Streator, Ills.; capital \$36,000; incorporators, M. A. Bronsan, Joseph Koenig and Seraphin Koenig.

Wisarkana Land & Lumber Co., Appleton, Wis.; capital \$50,000; incorporators, G. W. Jones, H. C. Humphrey and R. H. Jones.

Halley Coal Co., of Ohio; capital \$20,000; incorporators, David Halley, Morgan Evans, F. W. Allard, G. S. Morgan, and D. D. Davis.

Central Lumber Co., Columbus, O.; capital \$25,000; incorporators, T. B. Levitt, Levi Bowman, David Simon, L. L. Bowman and F. A. Levitt.

Tennessee Consolidated Coal Co., Huntsville, Ala.; capital \$500,000; incorporators, E. L. Hampton, E. B. Roberts and J. J. Lynch.

Hudson Lumber Co., Manistique, Mich.; capital \$100,000; incorporators, William Hudson, Charles R. Orr, Martin H. Quick and William R. Hudson.

Cotton Belt Lumber Co., Mobile, Ala.; capital \$1,000,000; incorporators, Archelaus S. Terrill, Willis H. Bennett and Theodore Emery.

Clarkson Coal & Dock Co., Cleveland, O.; capital \$100,000; incorporators, T. E. Young, C. E. Sullivan, C. E. Maurer, A. W. Young and S. B. Coolidge.

Evansville Coal Co., Evansville, Tenn.; capital \$6,000; incorporators, J. K. Clift, Sr., J. Walter Clift, Joseph Clift, G. M. Walker and M. H. Clift.

Ohio Coal Co., Dayton, O.; capital \$15,000; incorporators, Ed. B. Wright, W. F. Grimes, E. H. Jaeger, William Fetters and R. H. Boggott.

South Florida Land Co., Warren, Pa.; capital \$100,000; incorporators, J. B. Moore, J. Hazeltine, C. W. Stone, L. H. Freeman and W. H. Cobb.

Amelia Colliery Co, Terry, W. Va.; capital \$25,000; incorporators, Edward Thomas, H. P. Thomas, E. A. Thomas, W. W. Thomas and James H. Boyd.

Gladly Lumber Co., Gladly, W. Va.; capital \$150,000; incorporators, J. R. Droncy, M. G. Fitzpatrick, Wallace Weston, T. L. Bartlett and Allen J. Hastings.

Shelly Lumber & Land Co., Defiance, O.; capital \$25,000; incorporators, S. F. Shelly, W. S. Shelly, C. B. Shelly, H. G. Shelly and T. T. Ansberry.

Standard Lumber Co., Columbus, O.; capital \$10,000; incorporators, Emma Bayer, C. D. Douglass, C. L. Brunbaugh, H. L. Rockel and Lemuel D. Lilly.

The Berwyck Co., St. Mary's, W. Va.; capital \$5,000; incorporators, Alfred Ely, Harry D. McDanat, Harold Binney, Louis M. Fulton and Henry N. Cooper.

Elkhorn Coal & Coke Co., Kittery, N. H.; capital \$1,000,000; incorporators, Harold P. Knowlton, Jesse Forsythe and Sumner Paul.

Miller Land & Lumber Co., Texarkana; capital \$50,000 (not paid in); incorporators, R. J. O'Dwyer, John T. Ousley and James T. Black.

Milmix Lumber, Rubber & Transit Co., Milwaukee, Wis.; capital \$200,000; incorporators, Wilmer Sieg, Paul E. Thoas and William I. Lane.

Royal Coal & Mining Co., Brilliant, O.; capital \$35,000; incorporators, Edwin T. Hopkins, David M. Roderick, William John, Edgar T. Evans, Isaac I. Parry and others.

Ohio Lumber Co., Youngstown, O.; capital \$10,000; incorporators, Darwin Thompson, D. C. Struble, Parker Beck, Emery Hyme and J. Calvin Euring.

The Mississippi Valley Coal Co., Alton, Ills.; incorporators, J. W. Beall, H. S. Sparks, Charles Huskinson, Edward Rodgers, E. M. Dorsey and John Klasner.

Huntington Lumber Co., Huntington, W. Va.; capital \$10,000; incorporators, W. A.

Goodpasture, J. W. Koontz, Elmer Cummings, F. A. Ware and Mathias W. Dugan.

Bramwell Coal Co., Bramwell, W. Va.; capital \$5,000; incorporators, C. H. F. Scott, J. A. Staten, Barbara Scott, Daisy A. Staten, C. I. Scott and L. R. Staten.

Avery Coal & Mining Co., East St. Louis, Mo.; capital \$15,000; incorporators, Joseph T. Avery, Lulu J. Avery and Albert J. Avery.

Joseph McCreery Co., Toledo, O.; capital \$100,000; incorporators, Vance McCreery, W. E. Taylor, Gail McCreery, King McCreery and C. A. Langdon.

A. C. Williams Co., Ravenna, O.; capital \$200,000; incorporators, A. C. Williams, J. W. Williams, J. H. Bigelow, H. L. Cole and A. S. Cole.

Big Vein Coal Co., Baltimore, Md.; capital diminished from \$1,000,000 to \$100,000; Jacob H. Taylor, president and Frank J. Taylor, secretary.

Coahuila Coal Railway Co., New York; capital \$250,000; incorporators, James T. Gardner, George Foster Peabody and Edward M. Sheppard.

Clarkson Coal & Dock Co., Cleveland, O.; capital \$100,000; incorporators, T. E. Young, C. E. Mourer, E. S. Sullivan, A. W. Young and S. B. Wolidge.

J. W. Melick Coal Co., Morristown, N. Y.; capital \$25,000; incorporators, John W. Melick, James W. Pierson, Philip Jaque, Rudolph Hermes and Robert McMullin.

Montevallo-Shelby Coal Co., Birmingham, Ala.; capital \$25,000; incorporators, F. B. Dunlap, Mrs. C. E. Dunlap, Henry P. Riess and W. C. Shackelford.

Kootenai Coal Co., Olympia, Wash.; capital \$1,500,000; incorporators, R. G. Belden, W. J. Roberts, George H. Watt, C. N. Walters and J. H. Hemphill.

Toledo Fuel Co., Toledo, O.; capital \$10,000; incorporators, A. M. Donovan, J. E. Amendt, Alexander Munro, M. S. Darst and M. S. Donovan.

New Kentucky Fuel Co., Chicago, Ills.; capital \$10,000; incorporators, Richard E. Kropf, Adolph D. Weiner and Joseph Sabbath.

The Anderson Artificial Coal Co., Anderson, Ind.; capital \$50,000; incorporators, Frank Lambert, James K. Barkalow, Albert Harper, James T. Fulton and Charles L. Dowell.

Diamond Coal Co., Oklahoma City, Catoosa, I. T., Kansas City and St. Louis; capital \$500,000; incorporators, F. W. Casner, M. J. Harrington, W. B. Williams, A. M. Coffman and F. E. Sutton.

Missouri Central Coal Co.; capital \$1,000,000; incorporators, Daniel F. Lewis, Walter H. Chase, Frank A. Barnaby, Anson M. Bangs, of New York, and Foster M. Voorhees, of Elizabeth.

Brennan & Woodburn Coal & Coke Co., Kingwood, W. Va.; capital \$200,000; incorporators, S. D. Livingwood, H. F. Woodburn, James Murthee, C. S. Beeston, Hugo Lorentz, Fred Rowe, P. J. Brennan and George Keitzer.



Nearly 10,000,000 bushels of coal were shipped from Pittsburg southward on the high water in the Ohio river last month. The rise which was at its crest on the 13th and 14th of April, though unexpected, was quickly made available by the Monongahela River Consolidated Coal & Coke Co., and the independent river interests which ship by the Ohio to the South. The closest figures to the shipment which was made during the April rise from Pittsburg and the Monongahela river are 8,711,000 bushels of coal. In two days 65 towboats steamed southward. They had in tow 158 boats, 270 barges and 120 flats, besides a number of mosel barges laden with steel and iron products and machinery. The coal companies had made every effort to have a large number of towboats available for any rise, and when the high water did come all were ready to send out with as many craft as they could handle. Most of the steamers had got back from the South but a short time previous with large tows of empties which will at once be filled with coal at the upper river mines. The rise was most timely coming when it did, as it impressed upon the members of the Rivers and Harbors Committee of Congress, which was making a tour of the Ohio river, the importance of the river when its channel contained enough water to make the big stream safely navigable. This April shipment of coal will mean steady and profitable work for months to come for the miners of the Ohio and Monongahela river valleys. The supply of empty craft is larger than usual for this time of year and the lower harbors of the streams have been so cleared of boats that large numbers can be brought down to Pittsburg to await another rise. While the stage of water was not high the long stream of towboats and their coal craft got down safely with the exception of two small accidents incident to the dangerous condition of the Ohio at Merriman's island.

John I. Beggs, of St. Louis, states that in all probability the United Railways Co. will establish a transportation system of its own, to convey its immense coal supply by means of boats from Ohio, Kentucky and other points east of the Mississippi river in order to save the heavy cost of tonnage occasioned by the bridge arbitrary at St. Louis.

"The plan we have in view," said Mr. Beggs, "cannot be put into practical operation until we have figured it out in all of its details. Our judgment is that the water transportation scheme will not merely save us bridge tolls, but will expedite the de-

livery of freight. Whether we intend to buy a line of steamboats now operating on the river or shall build one of our own are matters still to be determined. It will necessarily require some time to work out this problem."

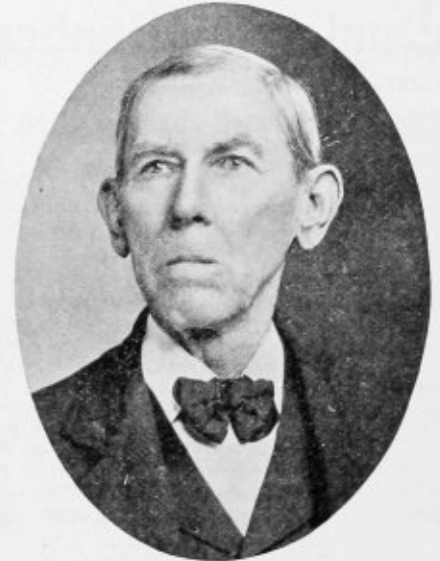
Under the proposed arrangement it is estimated the United Railways Co. will save \$50,000 a year on its shipping expenses alone. The company uses several hundred thousand tons of coal annually. Regarding improvements contemplated on the United Railways lines, Mr. Beggs says that the question of getting cheaper transportation for the company's fuel supply is but one of many that are in contemplation. He says that this will enable the company to expend more money upon the betterment of the company's equipment for the City of St. Louis. He declares that within a short time the company will be enabled to give the people of St. Louis the best street railway service they have ever had.

NEW COAL TOWN BUILDING.

The George's Creek Coal Co. is building a new coal town called Windell, three miles from Simpson, W. Va., in the Sand Lick region. John McGraw disposed of 5,000 acres of his coal land property at that place to the George's Creek people and that company is now building a railroad to the new field. The first contract called for a single track, but after the work was begun, the contractors, Hamilton & Huffman, of Fairmont, were instructed to grade the roadbed wide enough for four tracks and to build all culverts of iron and concrete. One hundred houses are now being erected at the terminus of this road, forming the new town of Windell. A complete water system and an electric light plant are to be installed and all the houses will be lighted by electricity and furnished with an abundant supply of water. The dwellings are two stories in height with brick and concrete foundations and are well finished throughout. Each house will have a bath room. The superintendent's residence will be built a short distance from the plant on a knoll overlooking the landscape. This structure will be a model of architecture and will cost when completed, in the neighborhood of \$10,000. Later in the season the company will build several hundred coke ovens at this point.

COAL LAND TRANSFERRED.

Lewis S. Weaver, Simeon Deems and Ira Clever, of Centerville borough, Washington County, Pa., have sold their holdings in coal lands to Jones & Laughlins, Ltd., of Pittsburg, at a uniform price of \$500 per acre. The property which was sold to the Jones and Laughlins firm is located in Centerville and adjoins coal territory which had formerly been transferred to the big steel firm.



No. 2*

Captain John F. Dravo.

Captain John F. Dravo, of Beaver, has truly been styled the father of Ohio river improvement. From 1862 until the present time he has labored unceasingly and successfully for the bettering of the great inland waterways which mean so much for this entire section of the country. Capt. Dravo was born at West Newton, Pa., October 29, 1819. He entered into the coal business with his father at McKeesport, Pa., in 1840 under the firm name of M. Dravo & Son. A few years later he bought his father's interests in the business and later sold this coal property to John C. Risher. In 1870, Capt. Dravo engaged in the coke business in Connellsville. He founded the Pittsburg and Connellsville Gas Coal Co. which he sold to H. C. Frick in 1880. When Capt. Dravo entered the coal trade men hauled the pit cars from the mine which was a few miles above McKeesport. At this time dams Nos. 1 and 2 were all that had been built in the Monongahela river. It was while Capt. Dravo was operating his first property that man power was replaced by horses and mules. In 1862 the Panhandle railroad built the bridge across the Ohio river at Steubenville. The channel allowed between piers was 300 feet, and it was in his protest against this that Capt. Dravo first began his campaign for river improvement.

*Coal and Timber will print each month the portrait and brief biography of men whose personality and life-work are of interest to the public they serve.

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Coal and Timber

PUBLISHED MONTHLY BY

COAL AND TIMBER PUBLISHING CO.

ARROTT BUILDING, PITTSBURG, PA.

Telephone—Bell, Court 2388; P. & A., Main 1790.

Subscription \$1.00 per year. Single copies 10 cents.
Advertising Rates on Application.

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COAL AND TIMBER PUBLISHING COMPANY.

RUSH T. JONES, Editor.

M. G. LEIBIN, Business Manager.

PITTSBURG, JUNE, 1905

THE RIVER'S ROMANCE.

Miss O-hi-o,
From Fort Pitt's shore
To Cairo in the West,
Shed many tears
For years and years
Nor took she any rest.
With might and main,
She cried in vain,
Until her wet eyes swam;
The more she tore,
Old Congress swore
He would not give a "dam."
But now at last,
Their quarrel past,
They quaff the loving-cup,
But Congress swears
When she's on tears
He's here to "lock" her up!

—McRome Howell.

THE MENACE OF FIRE.

Forests unscathed by the axe of the woodsman are ever menaced by an even more destructive agency—the demon fire. Spring and fall are the seasons of the year when this destructive element is unusually active. Thus early in the year the daily print has contained several news dispatches telling of destructive fires which have laid waste thousands of acres of forest lands. Thus at one fell swoop appalling financial losses have been entailed. But it is the same old story and so escapes the notice of the thoughtful who, were such events as forest fires unusual, would give heed and

probably think out some effective remedy. The frequency of forest fires is such, when the comparative small acreage of timber is considered, that the Nation should, without further delay, work out a method of protection at once adequate and effective. Forests should be protected, not alone from indiscriminate destruction by the unprincipled woodsman, but from the devouring flames which level in a few hours the invaluable growths of a century. The wanton aggressions on timber lands are not one whit more evil in their consequences than the criminal indifference and carelessness in the protection of the uncut forests. The Federal government has wise laws for the preservation of the forests on government reservations, and each state in the Union should provide as well. The lessons taught by the tremendous destruction of woodlands by fires should not pass unheeded. Something practical should be done and done at once. The amount of forest in this country at present is so small in view of the great demands made upon it that not a moment should be lost in framing wise laws and in enforcing them to the end that what forests we now have should be as free as possible from the menace of the fire fiend. Forest lands should be as safe from the match of the smoker as a department store or factory. Police protection of some sort should be provided, and every large forest should have its head keeper who should be assisted in his work of patrolling the domain by a large force of assistants. While there is yet time the remedy should be applied and it should be such that it would be availing for the purpose for which it is designed.

AMERICA LEADS THE WORLD.

In the production of coal, pig iron, copper and petroleum the United States leads the entire world. Is it any matter of wonder then that this Nation commands the supremacy, industrial and commercial? The wonderful development of this favored land during the past quarter century is readily explainable when its unfathomable mineral resources are considered. Twenty-five years ago the truth of America's almost boundless wealth became partially known, and since then development on a grander and more colossal scale than ever dreamed of followed. The wealth of the Nation grew marvelously, until to-day the young republic is the richest and most favored land upon which the sun shines.

In 1903 the United States mined 319,068,228 tons of coal while in 1880 but 67,998,164 tons were taken from the bowels of the earth. The entire coal production of the world in 1903 was 866,071,428 tons. In 1880 the entire world produced but 329,833,732 tons, or but very little more than was taken from the earth in this country alone in 1903. In 1903 the United States mined 37 per cent. of the entire coal output of the globe. What will be the position

among the nations of this young country the next decade no man can fathom.

That America occupies the first place among the family of nations there can be no surprise or mystery. With all of the advantages of nature at hand and with men alert to our best possibilities our remarkable development was bound to follow. The commerce of the United States increased from \$1,500,000,000 in 1880 to \$2,500,000,000 in 1904, while the commerce of the world increased from \$15,000,000,000 in 1880 to \$22,000,000,000 in 1904. The relative increase made by the United States has been far ahead of that of any other nation of the earth.

The relative growth in the production of coal in the United States and the entire world from 1880 to 1903 has been: coal, United States 251,000,000 tons, entire world 536,000,000 tons. Last year the United States produced almost 270,000,000 tons of coal. This country now mines more than 100,000,000 tons of coal in excess of that mined by Great Britain. Up until 1899 Great Britain mined more coal than did this country.

Six hundred thousand men and boys are employed in the mining industry in this country. The value of the coal which they mine is, at the pit mouth, about \$520,000,000, and by the time this fuel reaches the consumer it amounts in value to approximately \$2,000,000,000. Of the coal which was mined last year about 80,000,000 tons were anthracite and 300,000,000 tons were bituminous and lignite. In 1850 6,445,681 tons of coal were mined in the United States, while the total production in this country in 1903 was 319,068,228 tons.

The development of the great coal areas of this country will continue for years untold. The coal supply of the nations of Europe is all in sight and it will be merely a matter of years until it has been exhausted. That day will come long before the supply in this country has even been determined to a nicety. The commanding position which the United States now holds among the family of nations of the earth is bound to grow in dignity and might. Even now Europe is largely dependent upon this country for its supply of bread stuffs, and it will be equally dependent upon its supply of steaming fuel in a very short time. The shipment of coal to Europe is significant. More and more will the old world draw upon the new for fuel, and the other essentials of life.

America's future is something which passes the prophetic ken of man. It can be measured by its resources when compared with the impoverished store held by the older nations of the earth. As their stock of necessities diminishes they will come to depend more and more upon the United States for their supply. That will make the United States the creditor nation of the earth, a position long held to such great advantage by Great Britain. Even now the United States is selling more than it buys.

With this condition continuing in the future indefinitely the place the mining of fuel for the world will take as a component part of this Nation's resources cannot be conjectured with any degree of accuracy. It shows the foresight on the part of those who are buying vast coal tracts for the future days of this country's supremacy which are fast approaching.

TOUR OF THE OHIO.

The members of the Rivers and Harbors Committee of Congress have seen the improvements which the National Legislature has so far provided for the great inland waterways which have so much to do with the welfare and development of this great industrial community and the teeming Ohio valley. Right royally were the distinguished statesmen welcomed here, and their entertainment was with a free and cordial hand. That they appreciated this reception there is no doubt. They have made a tour of the Monongahela river and the Ohio from its source to its mouth. Men who know these great streams like a book and all the diversified interests which depend upon them for their very existence accompanied the committee on its tour. Nothing was concealed; everything was explained to the members of the Rivers and Harbors Committee. They were made to know that it is not Pittsburg alone which demands the deepening of the Ohio river to a nine-foot channel all the year around, but that millions of people and untold wealth depends upon the permanent improvement of this great inland waterway.

That the result of this personal and intelligent inspection of the Ohio will result eventually in good cannot be doubted when the personnel of the committee is taken into consideration. The members of the Rivers and Harbors Committee of Congress are carefully selected with a view to their fitness for just such service. They are men above petty local prejudice and predilection. They have seen what a wealth of resources this favored valley has. They have seen that much of its development depends upon the condition of the rivers which thread their way through the valley and they have been made acquainted with the great handicap which is thrown about Western Pennsylvania, West Virginia, Western and Southern and Eastern Ohio, Kentucky, Southern Indiana and Illinois by its lack of permanent improvement. Inland navigation can never develop in any measure of feasibility until the river interests are assured of stable and permanent navigation.

Upon Congress and upon Congress alone devolves the responsibility of inaugurating this all important improvement. When compared with the resulting impetus to all of the manifold interests of this section of the United States the outlay from the Na-

tional treasury requisite to place the Ohio river in permanent navigable state is but small. Millions, it is true, will be necessary to construct all of the dams necessary to provide a nine-foot channel in the Ohio, but billions of dollars will be added to the Nation's wealth as a result.

The bituminous coal interests more than any other will be affected. The deepening of the Ohio will afford a stable and dependable means of shipping coal at all seasons of the year. This will affect the millions of wealth which are invested in soft coal mining in several States. At the same time it will quicken the pulse of manufacture and industry in that great section of the South and Southwest which depends upon the bituminous coal States for their supply of fuel. The markets will be open the entire year and a fuel famine will be unheard of. As things are at present there is either a glut of coal in the South or a famine. Industries are obliged to close down months in the year when with a deeper river channel in the Ohio they could be kept running steadily and profitably.

There is but one side to this question, and it is hardly to be doubted that the members of the Rivers and Harbors Committee of Congress have been thoroughly convinced of this fact and will be heard voicing their sentiments accordingly when Congress next prepares a bill for the improvement of the inland waterways of the country.

FOREST LEGISLATION.

More and more is the subject of the reforestation of denuded lands becoming agitated and it seems to some effect. In Pennsylvania Governor Samuel W. Pennypacker has signed a bill passed by the recently expired session of the State Legislature providing for the granting of rebates for the planting of trees. The new law is designed to have an important bearing in promoting the movement to reforest the State. Any person who will plant not less than 300 trees an acre on ground which does not now contain trees shall be allowed a tax rebate of 80 per cent. for 35 years. This proviso is made, however, that the rebate is not to amount to more than 45 cents an acre. This bill has been most heartily approved by the advocates of the reforestation of the Keystone State. It is a move in the right direction. The operation of the new law will be anxiously observed.

Another important move is that made by Philip W. Ayres, State forester of New Hampshire, who has had 20,000 white pine seedlings shipped from Sturgeon Bay, Wisconsin, for planting on the shores of the Merrimack river. The trees will be set out on a portion of a 200-acre tract which was cut over two years ago by one of the great lumber companies, and the actual cost, including the first cost of the trees, which was \$77.60 at the nursery at Sturgeon Bay,

express charges of \$5.75 and the labor of planting will be \$6 per acre. The seedlings are of the same species as those which were cut from the land but are the first to be brought from the West for planting in New Hampshire. These seedlings are from four to eight inches high, and it is estimated that it will require not less than 40 years time for them to develop to sufficient size for profitable cutting. If one takes the trouble to make an estimate of the present prices of white pine lumber it will be found that the pine forest thus planted, at the end of 40 years, barring losses by fire, which is the great enemy of the pine forest, will have paid on an investment a return of 10 per cent. compound interest at the outlay of \$6 per acre. The investment is likely to prove far better than this because at the present rate of cutting pine the appreciation in price of this lumber in 40 years is likely to be considerable.

Forest legislation has received attention at the hands of an unusual number of State Legislatures the past winter and spring. The lawmakers of Maine, New Hampshire, Vermont, New Jersey, North Dakota, California, Indiana, Washington and Oregon have all passed bills of one kind or another bearing on the general subject of the preservation of the forests or the replacing of trees where the land has been denuded. The Legislature of North Dakota has placed an act on the books stimulating the planting of trees much similar in character to that enacted by the Pennsylvania law-making body. The North Dakota act allows an unusual reduction in taxes of \$3 for each acre planted in any kind of trees set not more than eight feet apart, in holdings of 50, 120, or 300 acres. The other legislation relates largely to the protection of existing forests. It affords striking proof that where a dozen years ago it was almost impossible to get a State Legislature to pay any attention to forestry questions, the care of the trees is now recognized to be as much in the province of a State's governing body as are matters of taxation or those relating to the public health.

The California Legislature was particularly active. Besides turning over the Yosemite Park to the Federal government, the State will join with the National Forestry bureau in an investigation of the best methods of forest preservation, to which end the Legislature has appropriated \$70,000. An appropriation for the establishment of a State forestry board with sufficient means to employ an adequate force of men was also voted.

WASTE.

The "miner" poets are the ones
Who burn the midnight wick
In trying to swing verses
When they'd oughter swing a pick,
—McRome Howell.



Coal and Timber Cartoon
Number Three.

"WOODMAN, S



SEE THAT TREE!"

Drawn Especially for
Coal and Timber.

KENTUCKY Letter

By M. F. Conley.

It will be a matter of only a few months until the development of the vast coal resources of the Big Sandy Valley in Kentucky and West Virginia shall have begun in earnest. The shipping facilities have not before been such as to make operations possible. But now we have the Chesapeake and Ohio railway extension from Ashland to Pikeville along the main stream and the Louisa fork, and the Norfolk and Western railroad along the West Virginia shore of the Big Sandy river proper and its Tug fork. This puts railroads into the heart of our great coal and coke regions. Then we have this season, for the first time, slack water on the Big Sandy and for a short distance up each of the two forks—which find their confluence at Louisa.

Preparations are now under way for a number of new coal operations along the valley, and a few companies are already shipping.

The Big Mud Coal Co. is the latest corporation formed. The capital is \$50,000, fully paid up. A valuable boundary of fine coal is owned by this company near the mouth of Mud Creek in Pike county and is to be leased to other parties for operation. This is on the new C. & O. line. John C. C. Mayo, the largest holder of Big Sandy mineral lands, is one of the largest stockholders in this company.

The Aerogen Coal Co. is almost ready to begin shipments from their excellent new mine one mile from Paintsville, Johnson county, on the new C. & O. line. The plant is equipped with electricity for power and lights and is up-to-date in all particulars.

The Peach Orchard Coal Co., the oldest operating company in the valley, is increasing its output and finding ready sale for the product.

A fine machine plant was recently installed by the Torchlight Coal Co. at its mines five miles south of Louisa. This property has three veins of good coal. Its mines are reached by both slack water and rail, and this is the only operation of any consequence as yet ready for shipping in this way. Col. Jay H. Northup is principal owner of this property, as well as that of the Whitehouse Cannel Coal Co., which is located 18 miles further south along the stream. This is as yet beyond the reach of slack water, but the government is going right along with the extension of this improvement.

At Meek station in Johnson county there is a new mine getting good results under the management of J. N. Meek.

Eight miles southeast of Louisa on the new line of the N. & W. R. R., a new town has been laid out under direction of Webb Hayes, son of ex-President Rutherford B. Hayes. The coal in the mountains overlooking the new town is to be developed at once. The property has belonged to the Hayes family for many years and is quite valuable. The place is to be known as Glenhayes. It is on the West Virginia side of the river.

The Louisa Coal Co. has acquired a large boundary of good coal five miles south of Louisa and will construct two miles of railroad to connect with the C. & O. Dr. M. G. Watson, of Louisa, is one of the large stockholders. Ohio capitalists are interested with him.

The largest company in the Big Sandy valley is the Northern Coal & Coke Co. The money invested and the value of its holdings run considerably into the millions. The greater part of the rich Elkhorn coking coal property belongs to this company. It was organized by John C. C. Mayo and he is one of the large stockholders. The railroad has not yet reached the Northern's property. Coke ovens have already been built, however, and much preparation made for starting active operations as soon as the C. & O. is ready to handle the product. Repeated tests show this company's coke to be among the best known.

Another railroad line has recently been surveyed from Ashland into the coal fields lying between the two forks of Big Sandy river, and there are good reasons for expecting the road to be built.

The price of coal lands in the Big Sandy valley has been very low until recently and the prices are yet much below what they will be within two or three years. Fifty dollars per acre for property containing solid veins of good bituminous coal has been sufficient inducement to cause the natives to part with the land in fee simple, and much the greater part of it has left their hands at a less price than that.

The Whitehouse Cannel Coal Co. is cutting a large amount of timber from its large tract of land in Johnson county. Numerous other companies have mills in the valley cutting poplar, oak, walnut and other kinds of timber.

The business of running timber to market in log rafts continues almost unabated. On a timber tide just closing in the river, more than a thousand large rafts have reached the Catlettsburg and Ashland ports.

Pennsylvania parties have just completed three promising wells in this county, six miles from Louisa. Several more test wells will be put down as rapidly as possible. The Standard Oil Co. recently found a remarkably strong gas vein in the western portion of this county.

Agents wanted to solicit subscriptions for Coal and Timber. Most liberal commissions. Handsome premium gifts for subscribers.



Mines in the central bituminous district of Pennsylvania have been making very fair time the last month. The settlement of the wage scale, which for so long a time had threatened to lead to a disastrous strike, has given the coal business renewed activity, and the result is that nearly all the mining plants have been having all that they could do to fill their orders. The coal industry in this section of the Keystone State is in a very prosperous condition. Of course, the terms of settlement of the scale did not exactly suit all of the miners, nor the operators either for that fact, but all bitterness has passed away and employer and employe seem determined to make the best of the situation. One good thing is that if the men did not get all that they asked they are assured of an abundance of work which is after all the great desideratum.

Shipments to the East from the central part of the State the past month have been very heavy. While the market is not all that could be asked, under the circumstances the outlook is sufficiently bright to warrant the operators in preparing for still heavier business. Many plants are being enlarged and new machinery is being installed. All indications point to the fact that the operators are expecting a long and prosperous run and that they are getting their plants in shape to meet the demand.

The appointment by Governor Samuel W. Pennypacker of Joseph Williams as inspector of the Tenth district is naturally pleasing to both operators and men. Mr. Williams needs no encomium. His work has stood for itself. He is popular and thoroughly respected for his sterling honesty and integrity. The Governor made no mistake when he placed Joshua T. Evans at the head of the Ninth district. Mr. Evans' ability and competency is unquestionable. The operators and miners of this general region think that the mine inspectors chosen for the important duty all over the state were the best who could have been named both as regards character and fitness.

Options involving practically all of the coal mines north of the Kiskiminetas river in the Allegheny valley are being taken. Sixty-seven coal companies, including the Kittanning Coal Co. are involved and over \$6,000,000 will figure in the deal. More than 100 mines in the Allegheny valley have been taken over. Some of the options were closed and are thought to be for the Pennsylvania railroad. The names of E. C. Robert and W. D. Ward, of Buffalo, appear on the leases. The Kittanning Coal Co. has about 1,000 acres of coal land, one of the mines having 22,000,000 tons of coal. All are said to have been cash options.

Wheeling Letter

By W. H. Woodruff.

The coal interests of West Virginia and other states which have suffered from the car-shortage evil are watching with unalloyed interest the result of the proceedings now in progress before Judge Kellar, of the United States Court for the district of Southern West Virginia, against Norfolk & Western railroad and thirty-one coal companies in that territory. The object of the suit is to compel a fair distribution of cars, especially a fair division with the Greenbrier Coal & Coke Co. at whose instance the writ of mandamus issued alternatively a few days ago allowed. The relator alleges that the defendant has been violating the law prohibiting the retention for another's use of cars; by discriminating against it and by other acts relating to the hauling of coal. As one instance, the bill points out, it is alleged that the Turkey Gap Coal Co., whose output entitles it to receive two and one-half per cent. of all the cars distributed in the Pocahontas field, receives fully five per cent. The relator alleges further that the railroad company for the express purpose of securing from the defendant companies a supply of coal, for its own use, agreed to give them an advantage in the matter of cars, and that it does so by not counting as part of their supply those cars which are used in shipping the coal used by the railroad. The action is brought under the interstate commerce act of 1887. The writ is made returnable June 6th, when Judge Kellar will sit at Charleston to hear it. It gives every promise of being the basis of a notable legal battle, one in which the fate of many an independent coal concern will figure vitally.

The number of new incorporations allowed by the Secretary of State is in part a barometer of the way coal operators are viewing the immediate future. Signs of prosperity are never seen than the organization of new companies reopens on a more than usually extensive scale. Just now every day brings its quota of new companies. Among the more important ones formed the past few days are:

The Fort Branch Coal Co., Logan, W. Va.; capital stock, \$40,000; incorporators—Martin Williams, Parisburg, Va., J. D. Honaker, Sr., J. J. Honaker, Jr., Rocky Gap, Va.; C. H. Mustard, Christiansburg, Va.; W. A. Linsley, Graham, Va.

Colliers Supply Co., of Wellsburg, to operate a general merchandise business; capital stock, \$25,000; incorporators, W. A. Lewis, L. W. Dalzell, B. W. Lewis, A. E. McKee, Pittsburg; G. B. Findley, Freeport.

Price Hill Coal Co., Fayetteville, W. Va.; capital, \$250,000.

Teter Creek Coal Co., Philippi, W. Va.; capital, \$200,000; incorporators, C. T. Teter,

who was candidate for Governor in the last election; J. W. Green, Middlebourne, W. Va.; O. H. Suck, E. R. B. Martin, St. Marys; Charles W. Wertz, of Parkersburg.

Another development is implied by the fact that a deal has been closed by which 7,000 acres of splendid coal land in Braxton county has passed from J. L. Francis, of Perryopolis, to the control of the West Virginia Wabash Coal Co., composed of Fayette county men. The consideration is said to have been \$100,000. The deal is one of the largest of the sort in recent months in that end of the field.

In the report of the State Mining Inspector it appears that Fayette county continues to be the banner coal producing county of West Virginia. No other except McDowell produces anything near the quantity of coal mined in Fayette. Kanawha, which has stood on the list as third, produces but half as much as Fayette. McDowell came within 125,000 tons of Fayette's record. The output for the year ending June 30, 1904, was: Fayette, 5,650,217 tons; McDowell, 5,524,376 tons, and Kanawha, 2,792,078 tons. The report indicates that the total number of men employed in mines of the State was 45,492, and the total output of the entire state was 26,984,715 tons. The total production of coke was 2,276,415 tons.

Frank Cox, of the firm of Frank Cox & Bro., of Somerset, Pa., who recently purchased the Channel timber near Mill Creek, is on the ground and will make arrangements at once for beginning development of the tract.

What will be the best of the 50 mines owned and operated by the Fairmont Coal Co., is now being constructed opposite side of the river from Monongah. This means that it will be one of the best equipped mines in all the country. The cost of constructing it will be enormous, for the machinery will be nearer up to date than any found in that region—already well advanced. Once under headway the output will be practically unlimited. On an average there are now 8,000 men in the employ of the company, and the payroll is about \$400,000.

Very extensive coal developments will be made in Brooke county, West Virginia, by the Rex Carbon Coal Co., of Pittsburg. The lands of the company adjoin the Washington county line between the Wabash and the Panhandle railroads and cover 3,000 acres. The company has Pittsburg offices in the Farmer's bank building and is capitalized at \$350,000.

Picket Bros., of Wheeling, wholesale lumbermen, have purchased the holdings of the James Lumber Co. at Redwood, N. C., consisting of 250 acres of choice timber, one hand sawmill, two large drykilns, one steamboat, two barges, large number of houses, hotel, six miles of narrow gauge railroad, also included is an option on 7,000 acres of choice long-leaf yellow pine, at a very attractive figure. The plant is said to be the best equipped and located north of Durham, N. C.

Uniontown Letter

Although prices fell off somewhat during May, the production of coke in Fayette county held up exceedingly well. Prices were not affected so much for the reason that the largest producer in the Connellsville field is holding up both furnace and foundry coke. The market is simply a waiting one, and this fact does not disconcert the producers in the least. The small operators have been inclined to curtail production where they do not have contracts made at profitable prices and where they are in a position to have their works remain idle for a short time. June will see fewer ovens in operation than did the first of May. During this month shipments have continued to be very heavy. Western consumers are heavy buyers and are taking a great portion of the total production of this region. The large concerns are still filling contracts made early in the spring and they are, as a consequence, getting very fair rates.

Mine Inspector Bernard Callaghan of the Ninth Bituminous district has given out his report of the coal mined and coked. There were 2,298,154 tons of coke made in the Ninth district. The total number of tons of coal mined was 7,556,981. During the year 34 men were killed in the mines of the district and 39 were injured. The different companies operating in the district employed 8,000 men inside the mines last year and 2,900 men were employed on the outside. The total number of tons of coke by companies manufactured in the Ninth district during 1904 was as follows: H. C. Frick Coke Co., 877,000; Pittsburg Coal Co., 13,610; Washington Coal & Coke Co., 458,007; Somerset Coal Co., 261; W. J. Rainey coke interests, 368,401; Cambria Steel Co., 242,835; Brown & Cochran, 158,332; Juniata Coke Co., 119,540; James Cochran Sons, 59,800; Dunbar Furnace Co., 368.

The recent purchase by the Jones & Laughlin Co. of 9,000 acres of Washington county coal gives that great corporation between 16,000 and 17,000 acres of black diamonds in southeastern Washington county. The Jones & Laughlin people have been increasing their holdings steadily since they began to acquire coal land in that neighborhood. Their first purchases were made about ten years ago and some coal was bought then as low as \$25 an acre.

Another Fayette county coal sale has been effected whereby George L. Hibbs, of this place, and John G. Hibbs, of Redstone township, have sold to Walter Clark Runyon, of New York City, a tract of 236 acres above Brownsville for \$283,140. This is at the rate of about \$1,200 an acre and is probably the best price that has yet been received for coal in that section of the county.



—James R. Woodburn has sold the coal underlying a tract of 150 acres of coal land in Washington county, Pa., for \$5,000.

—The Fairmont Coal Co., of Fairmont, W. Va., is making improvements in its plants that will cost from \$200,000 to \$250,000.

—Former Police Captain John W. Bell, of Pueblo, Colo., has discovered a wide vein of the best lignite about six miles west of Junkins Park.

—The Amsterdam Coal Co., of Cleveland, O., has reduced its capital stock from \$200,000 to \$10,000. F. M. Osborne is president of the concern.

—The Ellsworth Coal Co. has purchased the coal under the farm of Mrs. Rosanna Mankey, in Somerset township, Washington county, for \$300 an acre.

J. Leslie Francis, of Perryopolis, Pa., sold about 7,000 acres of coal land in Braxton county, W. Va., to the Wabash Coal Co., the consideration being about \$100,000.

—The Alabama Mineral division of the Louisville & Nashville railroad, passing through some of the richest land in the South, is open for traffic of all kinds.

—The Secretary of State of West Virginia has authorized the increase of the capital stock of Stewart's Creek Coal Co., Uniontown, Pa., from \$240,000 to \$300,000.

—C. C. Wolfe and J. N. Montgomery, of Claysville, Pa., have bought 433 acres of coal land in Donegal township, Washington county, Pa., for \$33 an acre.

—The extent of China's coal fields has been estimated at 400,000 square miles, more than 70 times the aggregate extent of all of the coal fields of Great Britain.

—Farmers of Roberts Ridge, Marshall county, W. Va., have sold about 1,300 acres of coal lands to Pennsylvania capitalists for a uniform consideration of \$30 per acre.

—The Geneva Coke Co., the Sunshine Coal and Coke Co., and the Riverview Coal and Coke Co., all operating in the lower Connellsville region, have installed new coal washers.

—Farmers of Belmont, O., about five miles east of Barnesville, will receive \$600,000 for 30,000 acres of coal lands which have been purchased at the uniform price of \$20 an acre.

—George H. Ramsay, of Oskaloosa, Ia., has purchased 500 acres of coal land in Mahaska county, Ia., from the Williams brothers of Beacon, the consideration being \$44,155.

—Weakland brothers, of Meyersdale, Pa., have secured another contract for the erection of 250 coke ovens for the United States Steel Corporation on the Tug river in West Virginia.

—Kanawha county, West Virginia, in the

year ending, June 30, 1904, produced 2,792,078 tons of coal, this record placing it third among the coal producing counties of that State.

—A company of eastern capitalists are about to develop lands of the Eastern Railway and Lumber Co., in Washington, near Centralia, and several shafts are to be sunk at once.

—J. D. Porter, of Summit Mines, Pa., sold a tract of coal of five acres of Connellsville coking coal to J. S. Bryner, E. L. Marietta and Henry Hetzel, of Connellsville, for \$800 an acre.

—The Miners' strike which has been in progress in the Meyersdale, Pa., district since December 15, 1903, has been called off at last by the United Mine Workers of America.

OF COURSE!



Drawn for "Coal and Timber."

Scanlon: "Egan 'I break his neck soom day. He's always droppin' down the shaft. What's the matter wid him?"

Haggerty: "He inherits it—his parents both died av dropsy."

—Expenditures aggregating about \$250,000 are being made on Walden's Ridge, three miles south of Harriman, Tenn., by the Domestic Coal Co., composed of Alabama capitalists.

—A contract has been let to Christman & Co., of Massillon, O., to sink a prospecting shaft to the Atchison 40-inch coal vein about three miles west of the present mine near Atchison, Kas.

—S. H. Cauffiel, acting for the Kennerly Coal and Coke Co., has purchased from David M. Hammer, of Somerset county, Pa., 424 acres of coal land paying for the same \$42,555.62.

—The Bloomfield Coal and Mining Co., of Iowa, has awarded contracts for the manufacture of mining machinery which will be used to develop a large area of coal land near Des Moines, Ia.

—R. O. Thomas, superintendent of the Kendall Coal & Coke Co., which recently secured a lease on the old Tyrone plant at Broad Ford, Pa., has the work of reconstructing the works well under way.

—The Quemahoning Coal Co., which owns and operates about 3,000 acres of coal land in the Quemahoning Valley and which has a daily capacity of about 800 tons, has placed an order for 400 new coal cars.

—The Sligo Coal and Coke Co., of Butler, Pa., has given an option for the sale of the coal and coke plant owned by the company on the Allegheny Valley railroad, to F. W. Williamson and others, of Buffalo, N. Y.

—Another attempt is being made to introduce anthracite coal into Europe and with improved economical burners it is believed that it can be demonstrated that hard coal can be successfully marketed in the old world.

—For the year there have been shipped over the Pennsylvania railroad east of Pittsburg and Erie 1,447,683 tons of anthracite, 8,960,278 tons of bituminous and 3,549,166 tons of coke, an increase over the same period of last year.

—The Maple Hill Coal Co., the W. J. Hamilton Coal Co. and the Twentieth Century Coal Co., of Ohio, have combined their interests, and their mines having a daily output of 2,000 tons will be handled by the Hamilton Coal Co.

—W. E. Leake, of Birmingham, Ala., and Judge Peyton Norvell, of Walker county, Tenn., have purchased a large acreage of coal lands near Prospect and Nauvoe, Walker county, where several coal mines will be opened in their 5,000 acre tract.

—George L. and John G. Hibbs, of Fayette county, Pa., have sold to Walter Runyon, of New York, a 236-acre tract of coal land near Brownsville, Pa., for \$238,140, a top notch price for coal lands in that part of Fayette county.

—The Clark Coal & Coke Co., organized two years ago by Pittsburg capitalists and owning large coal tracts in Butler county, Pa., has increased its capital stock from \$200,000 to \$500,000 with a view of developing the field by the erection of coke ovens.

—Robert H. Sayre, president of the Sayre Mining & Manufacturing Co., which is developing the North Jefferson county, Ala., coal fields, reports that his company has expended \$200,000 cash in the new enterprise and now has 100 coke ovens in operation and ten drifts opened.

—E. L. Hampton has sold and transferred to the Tennessee Consolidated Coal Co. the property which he recently purchased from the Tennessee Coal, Iron and Railroad Co., consisting of all the coal mines, coke ovens, stores, machine shops, etc., in and around Tracy City, Tenn.

MISCELLANEOUS NEWS

—In order to dispose of their product, certain Kansas oil producers are planning to put crude oil on the market in hope that it may replace coal as a fuel.

—G. G. Gans and George L. Hibbs, of Uniontown, Pa., have secured an option on 1,800 acres of coal land in Marshall county, W. Va. Messrs. Gans and Hibbs are the promoters of the proposed Ohio & Marshall railroad.

—The Crow's Nest Pass Coal Co., of Quebec, Can., has signed a two year's agreement with its employes, the changes made in the scale being of merely minor importance.

—Attorney George B. Drake, of Waynesburg, Pa., has closed the sale of a 1,500 acre block of coal land situated in the Graysville, Washington county, Pa., neighborhood.

—Rumors of a deal by eastern capitalists to take over the Monongahela River Consolidated Coal and Coke Co. are still persistent in some quarters despite apparently authoritative denials from officials of the Pittsburg Coal Co.

—Gross earnings of the Tennessee Coal and Iron Co. decreased \$3,933,131 in 1904, according to a report for the year, the net falling below \$1,327,160. The result of all operations was a net surplus of \$388,173, against a surplus of \$1,734,162 the preceding year. The total surplus now stands at \$2,122,335.

—The H. C. Frick Co. has let the contracts for the erection of two large and substantial machine shops. One of these is to be at Trotter, Pa. and the other at its Leisenring plant, No. 3. The buildings will be 30x66 feet, constructed of brick with slate roofs. The interior will be arranged in a modern manner for the repair of pit wagons and all necessary carpenter and machine work.

—The Pittsburg & Erie Coal Co. was organized in Erie early last month. It is said that the new concern will take over the coal interests of the W. L. Scott Coal Co. Erie will be the headquarters of the new corporation. The officers of the new company are: President, M. H. Taylor; vice president, George B. Taylor; treasurer, A. G. Scheidenhelm; secretary, Frederick H. Lee; general sales agent, W. P. Bonney, and mine manager, W. A. Luce.

—One of the striking features at the Lewis and Clark Exposition will be a facsimile of one of the mines of the Pacific Coal Co., occupying a large space in the center of the mining building. The mountain will be covered with canvas painted to life and showing a mountain stream winding down a deep gulch while below will be

miniature cars running in every direction in the interior carrying coal and showing all the workings of a coal mine in operation.

—Large tracts of coal lands in South Franklin and Morris townships, Washington county, Pa., have been optioned, and the farmers of that section of Pennsylvania think that it presages the coming of the Wabash railroad. Frank DeYo, of Pittsburg, has taken over about 1,000 acres at a uniform price of \$100 per acre for coal alone. The coal underlying some nine or ten farms has already been optioned, these options running for 90 days from the middle of April.

—Rumor has it that the Western Allegheny railroad is to be extended from New Castle, Pa., to Youngstown, O., and that the road is to be a link in a new freight railroad from Lake Erie to the Atlantic seaboard. It is stated that \$1,000,000 is to be expended. The first aim of the extension is to reach the industries of the Mahoning Valley and find a market for the Great Lakes Coal Co. Another plan is that the Western Allegheny is to connect the Lake Erie & Pittsburg with the Buffalo, Rochester & Pittsburg.

—Since the purchase of the Hecla Coke Co.'s interests by the H. C. Frick Coke Co. some changes have been made in the management of the former concern. Charles H. Spencer, formerly general agent of the Frick company at Pittsburg, has been made general manager of the Hecla interests and J. D. McCreary, of Pittsburg, has been made secretary and treasurer of the company acquired by the Frick corporation. Both men assumed their new positions the first of last month. Although the Hecla company is really a subsidiary concern, it is to be operated as an independent plant in connection with the Frick interests.

—The Proctor Coal Co., of Tennessee, which owns 7,000 acres of rich coal land, three large operating mining plants and a line of railroad about two miles long in Kentucky and Tennessee, not far from Jellico, will, according to a rumor pass into the ownership of a company of which R. O. Campbell, a well-known coal operator of Atlanta, Ga., is the principal owner. The Proctor Coal Co. has a capital stock of \$300,000 and owns Grinstead, Proctor and Indiana mountain mines, three and one-half miles from Jellico and a line of road connecting the Southern Railway and the company's property. R. O. Campbell is president of the Campbell Coal Co. and the Piedmont Coal Co., which owns extensive mining properties at Oliver Springs, in Elk Valley, near South Pittsburg, Ala.

Does Coal and Timber please you? The price is \$1 per year. If you will subscribe now we will send you a handsome present and any of our cartoons (printed on plate paper) which you may select.



—The McClure Lumber Co. is putting in a large lumber mill near Birmingham, Ala., on the Warrior river.

—A prominent Chicago capitalist has purchased timber lands in Louisiana amounting in all to nearly \$300,000 in value.

—The Kentucky Lumber Co. is erecting a modern band-sawmill at Tutwiler, with a daily capacity of 30,000 feet of mercantile lumber.

—A number of new lumber manufacturing concerns will be established at various points in Tennessee with English labor, so it is said, which will be colonized later.

—Ed. W. McNeil, of Morgantown, W. Va., has sold to the lumber firm of Donley & Hatfield, his tracts of timber land in the Allegheny mountains, for \$25,000 cash, Mr. McNeil reserving the land and the minerals.

—John J. Dempsey, a rich lumberman of Manistee, Mich., and his sons have purchased more than 100,000 acres of Washington state timber lands. On 60 acres bought at Tacoma they will erect several large and well-equipped sawmills.

—Retail lumber firms of Columbus, O. all declare that business in their line has never been so good as it is this season. All the firms are having hard work to keep up with their orders.

—The Ohio Pyle Lumber Co., of Pennsylvania, capitalized at \$60,000, ten per cent. of which has been paid in, has been granted a charter.

—J. Kirk Jackson, private secretary to the Governor of Alabama, was kept very busy for quite a long time signing patents to the 174,000 acres of land in South Alabama, which were due to the Perdido Bay Lumber Co. as far back as 1879, when Governor Lindsay was authorized to issue them.

—Gov. Samuel W. Pennypacker, of Pennsylvania, has vetoed the bill passed at the last session of the State Legislature providing for a miner's relief association. He vetoed the bill on the ground that nothing definite is provided by the bill. The bill provided for a board of five appointees by the Governor. Custody by the association of moneys specifically appropriated for the payment of miners' pensions is covered by another section. This feature is objected to by the Governor because no such appropriations have been made. The Governor says: "In the absence of appropriations for this purpose, to hold out such hope to the families of dead miners would be only a deception and a delusion. When the commonwealth is ready to provide means for this purpose it will be time enough to arrange a system for their control."

THE TIMBER MARKETS

"Both in the timber land markets and in the lumber business not for years has the outlook been so reassuring," said William H. Mace, vice president of the A. M. Turner Lumber Co. "At the very least, I can see nothing ahead but prosperity for a year or two to come. Every condition of trade to-day augurs well. Prices for timber lands are steadily advancing, and the condition of the market is such that this state of affairs must continue.

"Mississippi is the scene of the greatest activity, and the cutting of yellow pine is going on there at a rate undreamed of a few short years ago. The demand for timber land in Mississippi is steadily increasing and prices for good yellow pine lands are steadily advancing. One of the best and most reassuring features of the situation is that there are no spasmodic advances. The demand is growing strongly and in direct proportion the prices of the lands with a good growth of yellow pine are keeping pace.

"In Alabama, while the demand is brisk and operations are steady and strong, the situation is less active, due to the fact that the timber lands in that State have been well taken up and cutting has proceeded far ahead of Mississippi. In the peninsula of Florida, too, mills are being built and cutting is active. The Florida yellow pine, while of smaller growth than that of Alabama or Mississippi, is harder and makes better lumber for many purposes. The greatest development in the lumber business to-day is in the far South and from the present outlook it will continue and even grow in magnitude.

"We have the utmost confidence in the lumber business for several years to come. The best proof of that is that we have contracted for 30,000,000 feet of lumber for our own business. Of this lumber which we are buying, 25,000,000 feet of it is the best white pine on the market. We are pressed for orders, in fact, and I understand that this is the case of the trade at large to-day. Never was there such a demand for good lumber. The steady advance in prices is easily and naturally explainable. The cutting of timber has gone on so extensively that the supply is getting farther and farther away from the markets and the cost of transportation is growing as a consequence. Railroads have to be built to the timber lands to-day. They no longer pass through them as they formerly did. This, naturally, increases the cost of lumber and the consumer must share the added expense.

"To-day the most extensive operations by far are in yellow pine. In the Northwest, Wisconsin and Minnesota, there are still large tracts of the best of white pine but this is being rapidly cut. Each year the

cost of good white pine is advancing for the visible supply is steadily diminishing. Of course there is enough to last for years to come but the prices will make it more and more of a luxury. There can be no better investment than in timber lands to-day. Money is needed to make this a paying investment for much of the best timber still lies far from railroads, and the investor in timber lands must put his money in the timber and then wait until transportation comes to it. But the returns on such investments pay and will pay in ever-increasing proportion.

"I know of one great concern which has bought practically all of the timber of the

OVERHEARD IN THE "KRAUT BELT."



Drawn for "Coal and Timber."

Mrs. Neumeyer: "Haf youse mate your kraut yet dis year, alreatty, Mis' Schwartz?"

Mrs. Schwartz: "Oh, we dit'nt make scarcely no kraut dis year, Mis' Neumeyer, only jist a couple o' barrels in case o' sickness!"

Bahamas. In speaking about the deal to a member of the concern, he mentioned that they had not put much money in the transfer, to hold the timber there for them—only something like \$108,000. But there are millions upon millions of feet of the best yellow pine on the islands, and the day is not far distant when all of the money invested by this great concern will come back to it and a hundred-fold added. Having the money to invest there is no more promising field in business to-day than in timber lands.

"For this part of the country, a most promising field of operations is West Virginia. The railroad rates are easy, and the timber there is the best that can be cut. Opera-

tions are fast increasing in that State. The holders of good tracts of West Virginia timber lands are bound to reap large returns from their property. At the rate of operations now, this supply will be bought up in a few years and its cutting for market will swiftly follow."

VALUABLE VALVES.

Golden-Anderson Valve Specialty Co., Pittsburg, Pa., are the sole manufacturers of the Anderson Cushioned Non-Return Valves, Anderson Pressure Reducing Valves, Anderson Float Valves and Tank Valves; also automatic valves and water column for railroad service, and the Golden High and Low Pressure Tilting Steam Trap. The Anderson Cushioned Non-Return valve supplies a very vital part of the general piping system of power plants. The valve, when placed between the boiler and header, will equalize the pressure between the different units of a battery of boilers so they remain closed as long as the boiler pressure is lower than that of the header. When the boiler pressure equals that of the header pressure, they open and will remain in that position without chattering or hammering. They will automatically cut off a boiler in case of accident to the boiler, such as the bursting of a tube, and will also act as a safety stop to prevent steam being turned into a cold boiler while men are working inside. They also manufacture the Anderson Cushioned Triple Acting Non-Return valve, designed for not only taking care of the boiler, but has a safeguard for the steam lines. The main office of the Golden-Anderson Valve Specialty Co. is No. 105 Pike Street, Pittsburg, Pa.

NEW COKING PLANT.

The West Virginia Coal Co. has begun the erection of 90 new coke ovens at its plant at Bretz, on the Morgantown & Kingwood railroad, and will shortly afterward begin the erection of 100 additional ovens at its plant at Richard, on the Morgantown railroad. United States Senator Stephen B. Elkins is president of the West Virginia Coal Co., and his son, Davis Elkins, is one of the principal owners of these two plants. For some time the work of placing the most modern and improved machinery in these mines has been going forward and a large number of new dwelling houses for the use of miners and other employes are in course of erection. The increased number of coke ovens at the two plants, at Bretz and Richard, will give employment to a large number of men in addition to those already in the employ of the company. The electrical machinery which has been and is being installed in the plants is of the latest and most improved pattern and every effort is being made to the end that the output of both plants be continuously at their capacity.



John H. Jones, president of the Pittsburg-Buffalo Coal Co., takes a very hopeful view of the coal situation at present. Said Mr. Jones: "The Pittsburg-Buffalo Coal Co. is operating almost to its full capacity. Our mines are working at an almost 100 per cent. rate and we are disposing of every ton of coal which we mine. I think the present situation in the coal industry is extremely reassuring. There are no disquieting features to cloud the sky and I believe that as the season advances things will get better than they are now and that is saying a great deal. I believe that others are doing well also. Operators will have all they can do this summer and fall to supply the demand which I think will grow heavier and more pressing as the season advances. The lake season is now in full swing and the northwest is buying freely and will be buying heavily another month from now. Prices are better than they were 30 days ago and the demand has stiffened considerably. Of course prices are not what they were this time two years ago but the reason for that everyone knows. Prices for coal are well in advance of what they were one year ago and I see no reason to change the statement which I made in Coal and Timber in May wherein I stated that this year would probably record the greatest output ever known in the coal industry. The railroads are affording every facility to both shipper and consumer this spring and early summer and this very condition has caused some of the buyers to hold back their orders. They are bound to come in later and if there is the least disturbance of traffic conditions prices will bound upward for few of the consumers are carrying anything like heavy stocks at present. The outlook from all quarters is very reassuring, and the condition of the country generally is such as to warrant the most supreme confidence in the prosperous future of the coal trade. The Pittsburg-Buffalo Coal Co. has all that it can do to keep up with the demands which are made upon it by its customers. It is taking every ton of coal to supply the ordinary demands of the trade. This condition warrants the belief that prices are bound to grow higher as the season advances and that consumers will have to pay more for coal later on in the year than they are doing at this time. The general outlook the country over is very reassuring. There is no pause in prosperity and while things may not be moving at a feverish pace, industries generally are in a most healthy state and with everything pointing to a continuance of this condition. This season was one unusually slow to open but it has been steady and one of ever-increasing strength from its start. The lake

season is now on in earnest, and the traffic to the Northwest is gaining strongly in volume every week. There seems to be no signs of any halt, and the demand for coal and coke is keeping pace with the business of the country. Of course for a couple of months things will be comparatively easy owing to the fact that some consumers never order until the fall has come, but the windup of this season will be brisk enough to satisfy anyone."

"The Pittsburg Coal Co. is entirely satisfied with the situation in the coal mining industry of the country and the demand for bituminous fuel," said a representative of this concern to a representative of Coal and Timber. "The situation, while a very quiet one at present, is what is naturally to be expected this year. The present season is one unusual in its lateness. It has been slow from the start—slow for the opening of the lake season and one of unusual slowness on the part of consumers and dealers to buy coal. It has been a sort of pause and one not in the least alarming or unnatural. The coal dealers and consumers in the Northwest are simply taking their own time in ordering coal. They think that they have the rest of the season ahead of them to stock up for next winter and are not in a hurry to prepare for the inevitable. They will all come in with a rush at the close of the season and we shall have the usual whirlwind finish at the close. There is little or no reason that this should be so but it is. The delay will advantage no one. The dealers will possibly have to pay more for coal at the close of the season than they are doing now and besides they will have to take chances of getting what they want. Lake navigation sometimes closes long before it is expected to and the tardy ones are often left in the lurch. Prices are as good as could be expected, and the Pittsburg Coal Co. is maintaining a steady output. Possibly not so many of our mines are operating at present as have been at times but our output is steadily increasing. That is the policy of the company. It is not the number of openings which are being worked that count so much as the amount of coal got out per opening. The hesitancy this season is not remarkable. The average will be more than met this year. The country is consuming more and more coal every year and it does not matter when this coal is ordered or shipped; taken by the twelve-month the year will average up higher than its predecessor. We are getting out more coal this year considerably than we did last, and preparations are being made to increase even this high output. The railroads are able to handle our coal with expedition, and the lake boats can get away with their heavy Northwestern trade. The shippers feel easy and are not falling over each other to get their orders in, thinking that they will have plenty of time. The coal trade is bound to be good so long as the present prosperous condition of the country con-

tinues, and there is no sign of any halt from that quarter. Steel and iron, the best indication of the country's industrial condition, are both active. The mills are working many of them 100 per cent., while shut-downs now are but natural as mills must close for repairs, and this is the best time of year to make any repairs and alterations on large industrial plants. May was a somewhat quiet month, but we are expecting better things of June and still better as the season advances."

W. C. Magee, president of the Pickands-Magee Coke Co., is entirely confident that the coke trade is going to hold its own this season. He said: "Things have been pretty quiet during May. March was flat and April was not better and we had hoped for something good from May. Conditions are getting better, and the end of May brought signs of relief and a general loosening up of business. The country has been having a sort of halting season. There has been not the least uneasiness but the policy of waiting has been general. This has caused a quietness in the coal and coke markets. It was to be expected and operators adjusted their output and development accordingly. While conditions are daily growing brighter and better it is to be expected that coal and coke will be easy for a month yet as the season for furnace repairs is at hand. Many furnaces have been run overtime and are now suffering from over-work just as a man would. These furnaces must be closed down and thoroughly repaired. This will take time and will cause a decrease in output as well as a shrinkage in the amount of fuel which will be consumed. Of course the season of furnace repairing is a short one and it will not be much more than noticeable in the coal and coke trade. Last year furnaces were so busy catching up with orders that some of them were not shut down at all and when one was closed for repairs it was for the shortest possible length of time. The condition of the country is too good for the fuel trade to be slack or for anything like stagnation to seize it. The next few months are bound to be far better than the last, and all operators and coke manufacturers are ready to strain every nerve to meet all demands."

Plans for the enlargement of the present facilities of the Kanawha Fuel Co., of Milwaukee, Wis., involving the expenditure of \$300,000 for docks and coal handling machinery, have been ratified by the officers and stockholders of the company at a meeting held last month. With the expenditure of \$300,000, the capacity of the company will be increased by 300,000 tons a year, capacity of the Milwaukee branch of the company 450,000 tons annually. The Kanawha Coal Co., is one of the most powerful and influential of the independent coal handling and producing concerns in this country. It is composed of 96 independent operators of the Kanawha coal field.

CUTTING PENNSYLVANIA TIMBER.

Within six miles of the little town of Confluence on the Youghiogheny river is a tract of 2,000 acres of timber which until recently has escaped the ax and saw of the woodman. It is situated on the line of the Baltimore & Ohio railroad in the southern part of Somerset county, Pa. This tract has been invaded and in a short time will be entirely denuded of its timber. The Whites Lumber Co. is now cutting the timber down and marketing it as fast as cut and sawed. The company is composed of H. C. Beerits, U. M. Phillipi, and J. H. Beerits. Mr. Phillipi is the resident manager, his home being in Confluence. The office, yards and shipping points are at Firestone, on the Whites Creek branch of the Baltimore & Ohio. The company has 1,000 feet of siding and the yards occupy from four to five acres. From the yards to the saw mill is about one and one-half miles. The lumber after being sawed at the mill is transferred to the yards on a tram road. The saw mill is located at the outlet of the 2,000 acre tract. This tract has been conservatively estimated to contain sufficient timber to cut 10,000,000 feet of prime hardwood lumber, besides 300,000 railroad ties and large quantities of telegraph and telephone poles as well as thousands of props for use in coal mines. Thomas Flanigan & Son, experienced saw and mill men, have the contract for cutting the timber, sawing it at the mill and transferring the lumber to the yards. The company now employs 50 men.

GREAT TIMBER OPTION.

George C. Bayless, president of the Bayless Pulp and Paper Co., Binghamton, N. Y., has secured an option from the William Richard Co., on that concern's timber lands and mills in New Brunswick. Mr. Bayless and several of his business associates have recently visited New Brunswick and inspected the mills and timber land which they expect to purchase at an early date. They are especially interested in one tract of 160,000 acres along the Southwest Miramichi and Taxis River. Their expenditure, if the company decides to locate here—and President Bayless says they probably will within the next few months, will be between \$1,000,000 and \$1,500,000. "Pulp and paper manufacturing," says President Bayless, "are of course our primitive object, but we want enough lumbering possible to insure us on our investment and we feel that we have it. Our intentions are to within a few years start a pulp and paper industry. This would mean a plant for New Brunswick like that which we operate at Austin, Pennsylvania, where we have 450 men employed." The capitalists did not interview the Government and said that they could see no reason for doing so, as they will not ask assistance unless it is a subsidy for building a railroad.

A FEW APPRECIATIONS.

The Editor of "Coal and Timber" has pleasure in printing the following unsolicited letters of kind commendation from subscribers and advertisers.

Commonwealth of Pennsylvania.

FIFTH BITUMINOUS
INSPECTION DISTRICT.

ISAAC ROBY, Inspector.

Uniontown, Pa., May 6, 1905.

Coal and Timber Publishing Co.,
Pittsburg, Pa.

Gentlemen:

I have received and read with much interest your May issue of "Coal and Timber," and am pleased to note that, while there have been but a few previous issues (and I have considered them all good) the last number is exceedingly instructive, teeming with valuable information. After reading one issue I anxiously await the next. To those who had not received a copy of the preliminary experiments at the Louisiana Purchase Exposition at St. Louis, this number is worth many times the subscription price. Your journal is wide awake, spicy and up-to-date.

Yours respectfully,

I. G. ROBY,

Secy. Central Mining Institute, W. Pa.

PITTSBURG-SALT LAKE OIL
COMPANY.

(Incorporated) Capital \$5,000,000.

Eastern Offices Keystone Building,
Pittsburg, Pa., May 2, 1905.
Coal and Timber Publishing Co.,
802 Arrott Bldg., Pittsburg, Pa.

Gentlemen:

We have just received the May issue of "Coal and Timber" and desire to compliment you on this very excellent paper.

We have watched with considerable interest, the growth of your publication since the first issue, and thinking it time for a word of encouragement, wish to say that we consider you are producing a paper which is a credit to yourselves and of real benefit to your subscribers. You are certainly giving the news of the coal and timber districts in a very interesting style, and permit us to predict for you a great success. Your journal has shown a marked improvement with each succeeding issue, and as long as you keep up the tone and quality of the same, your place in trade journalism should be securely fixed.

Our advertisement in "Coal and Timber" has been very profitable to us and we are pleased to continue it.

Believing you are meeting a long felt need of these joint interests, and with earnest wishes for your success, we are,

Yours very truly,

Pittsburg-Salt Lake Oil Company,
By E. T. Brockman,
Vice President.

Office of
FRANK B. HAMBRY.

De-ler in

Pennsylvania, Maryland, Virginia and
West Virginia Mineral, Oil and
Timber Lands.
Donora, Pa., May 3, 1905.
Coal & Timber Publishing Co.,
Pittsburg, Pa.

Gentlemen:

The May number of your valuable publication just at hand and I have read it with a great deal of pleasure and profit. I subscribed for your publication several months ago and consider it a great privilege to receive it, as I deem it the best Coal and Timber paper I have ever seen.

Wishing you every success and believing that you are doing the Coal and Timber interests of this district a great assistance, I am,

Very truly yours,

FRANK B. HAMBRY.

Office of

WM. L. AFFELDER.

Superintendent Mosgrove Coal Works.

Mosgrove, Pa., May 12, 1905.

Coal and Timber Publishing Co.,
Pittsburg, Pa.

Gentlemen:

I have received in this mail the January number of "Coal and Timber" as per my request of the 8th inst., as I had mislaid this number and desired to keep my files complete. Since looking over the May number carefully again, am pleased to state that I consider your magazine an unusually meritorious one, especially so, on account of the short time that it has been before the public. I hope that the path of "Coal and Timber" will neither be as dark as coal nor as rough as timber!

With best wishes for your continued success, I am,

Very truly yours,

WM. L. AFFELDER.

First V. Pres., Central Mining
Institute, W. Pa.

CHARLES N. HALEY,
Investments.

Keystone Building,

Pittsburg, May 13, 1905.

Publishers of Coal and Timber,
Pittsburg, Pa.

Dear Sirs:

In renewing my advertisement in "Coal and Timber," I take the liberty of complimenting you on presenting to the coal and timber interests, one of the most practical, readable and necessary trade journals I have had the pleasure of reading.

I find more information of actual practical use to me in my coal business, than in any other journal I have on file, and for a new journal, the answers to my ad. of the "Industrial Coal Company," and my own card, have been very gratifying.

I compliment you, gentlemen, and wish you a continuance of the evident success you have had.

Very truly yours,

CHARLES N. HALEY.

SMITH & IRELAND

—INCORPORATED—

COAL AND TIMBER LANDS ONLY

OFFICES, SUITE 801-2-3 ARROTT BLDG.,

PITTSBURG, PA.

LIST OF SELECTED PROPERTIES, REVISED TO JUNE 1, 1905.

510—1371 acres, coal rights, Monongalia Co. W. Va., at Pennsylvania State line, fronting two miles on Pools 8 and 9 of the Monongahela River and two miles from B. & O. R. R. Six foot vein, 237 feet deep. Ship by rail and river from same tippie. Natural drainage; fine coking coal. \$35 per acre.

514—11,000 acres in Braxton Co., W. Va., on Elk and Birch Rivers, B. & O. and C. C. & S. Rs. 4½ to 7 feet of coal. Price on application.

519—10,000 acres coal rights, including timber, of which 5,000 acres is in fee, on Little Coal River and other streams in W. Va. Price, \$17.50 per acre for limited time.

520—600 acres, coal lands in Jackson Co., Ohio. Two veins, four feet eight inches and three feet. Two mines opened and in operation. Electric machines in use. Miners' houses, R. R. Switches, etc. Price \$35,000.

521—1200 acres of Pittsburg seam on the Fayette County side of the Monongahela River, Pa. An extraordinarily fine opportunity. Write for price.

522—610 acres coal at Bainbridge, Williamson Co., Ill. About fifty feet to coal. Price \$45 per acre.

523—694 acres, coal under lease, plant in operation, now shipping 250 tons per day, McDowell Co., W. Va. 25 Miners' houses, commissary store, tippie, etc. 900 acres adjoining this tract can be secured. Coal averages 4 feet.

564—7,000 acres, timber land in fee, or timber rights only, in North Carolina. Two miles from Murphy Branch of Southern R. R. Down grade to R. R. Oak and other hard woods, poplar, chestnut, etc. Price \$7 per acre in fee, \$6 for timber only. Terms, half cash, balance on short credit.

565—32,700 acres, timber land, mineral reserved, in North Carolina, 10 miles from Murphy Branch of Southern R. R. Finest piece of timber in the Southeast. 450 million feet of finest Spruce. 150 million feet of fine Red Oak, Poplar, Ash, Cherry, Walnut and Hemlock. Price, \$12.50 per acre. One-third cash, balance on fair terms. Will build R. R. to property on reasonable basis. Shipping rate on application.

566—Coal lands in Lincoln Co., W. Va., on G. V. Branch of C. & O. R. R., 232 acres being operated on R. R., 143 acres adjoining on R. R. undeveloped; 375 acres adjoining but off R. R. Sell together or separately. Write for terms.

567—About 50,000 acres, Timber lands on Dee Pee and Antee, navigable rivers and few miles of R. R., near Georgetown, S. C. This is a large but grand proposition and will show superb returns on investment. Write for details.

569—A magnificent operating coal plant for sale for private reasons. \$50,000 improvements, 1,500 acres mineral rights only. In Fayette Co., W. Va., on branch of C. & O. R. R. and Paint Creek. 6 veins of coking, steam and domestic coal from 3 to 5 feet thick. Drift mining aggregating 27 feet. Property thoroughly developed for operation. Other details and price on application.

576—24,000 acres of Black Mountain steam and coking coal in Harlan Co., Ky., on Cumberland River. Very extensive coking operation adjacent. The Elkhorn seam, which is the No. 1 in this section, is 87 to 97 inches thick. Ten distinct seams of coal, above water; self draining; aggregating over 50 feet of coal. Three railroads within 15 miles, one 2 miles distant. Easy grade for R. R. connection. If property shows prospective development, R. R. will without doubt build branch. Tract covered with good timber. Price, \$25 per acre. Write for terms.

577—About 3,000 acres of coal lands in Tazewell and Buchanan Counties, Va. One half in fee, remainder mineral rights, on Town Hill Creek and less than a mile from Norfolk & Western R. R. Twelve openings showing coal veins from 40 inches to 6 feet thick. R. R. graded half way through property. Rare bargain at \$30 per acre.

578—1052 acres, of stumpage on Norfolk & Western R. R. in Virginia. Soft and hard wood. Price \$15 per acre or \$4 per tree. Eight years to remove. Terms half cash, balance reasonable terms.

579—8,500 acres of timber on Tombigbee River in Alabama, and on Mobile & Ohio R. R. Good cotton land after timber is cut. Price, \$94,000 on fair terms.

580—10,000 acres, timber in Caldwell Co., North Carolina. Estimated 8,000 to 10,000 feet, White Pine, White Oak and Poplar to acre. All accessible to R. R. Large variety of woods. Shipping and other data on application. Price, \$19 per acre.

581—40,000 acres, timber land in Western North Carolina. Best poplar tract in the country; also Oak, Hemlock, Chestnut and other woods. Virgin forest, no squatters. 14 miles from Southern R. R., which has surveyed to it and constructed almost 10

miles. Terms to suit purchaser; 261,000,000 feet estimated. Price, \$12 per acre for timber alone; one-third cash, balance in one and two years or longer if larger cash payment is made. Title perfect.

582—21,000 acres, timber in Western North Carolina on Tennessee lien, T. & N. C. R. R. runs through property. Equipped for immediate operation with mills and machinery. Large variety of hard woods. Price on application.

592—2,300 acres of hard wood timber, with 2,800 acres same woods adjoining, on Clover Creek, Branch of Greenbrier River, Pocahontas Co., W. Va. Good, easy grade all the way to R. R., 5 miles distant. Fine large timber, never culled. Mostly White and Red Oak; fully 25 million feet of same. 250,000 feet of fine cherry wood. Tract never had an axe in it. Price on application.

595—25,000 acres of coal rights on Levisa Fork of Big Sandy River in the south-western part of Buchanan Co., Va. Ten miles north of Norfolk & Western R. R., in the great coke and steam coal field of south-west Virginia. The river offers fine location for cheap R. R. connection. The South & Western R. R. surveyed to 8 miles of property. Four to 5 veins workable coal above water level and 3 Pocahontas seams below water level. Rare opportunity for this kind of coal. Price \$17 per acre.

597—28,114 acres, coal and timber lands, in Raleigh and Wyoming Counties, W. Va., to which 30,000 adjoining acres can be added. Timber runs 6,000 feet per acre, virgin growth. Poplar, oak and other hard woods. Several fine coal mines underlay tract. All above water and self draining. No. 3 Pocahontas vein 93 per cent. of entire tract, averages 53 to 60 inches clean coal. Carries also veins of No. 4 and No. 5 of this coal. Land lies on Guyandotte River and several creeks. The C. & O. and Deep-water R. Rs. are now building through this land. Price for 28,114 acres in fee is \$52.50 per acre, and of the 30,000 acres adjoining \$37.50 per acre.

599—60,000 acres of timber lands in Watauga, Wilkes and Caldwell Counties, N. C., on the Yadkin River. None better in the south. Principal timbers, white pine and poplar; also many others. Eight miles from So. R. R., which promises facilities to these lands. Price, \$22.50 per acre. Title perfect.

600—10,000 acres of fine timber lands near Rasar in East Tenn. Two miles from Little Tenn. River, which is navigable, with R. R. now building to within 1½ miles

of tract on down hill side of same. Poplar, oak, hemlock, white and yellow pine, chestnut, ash, cherry, gum, hickory, etc., estimated conservatively at 33 million feet besides ties, poles and tan bark. Tract in fee simple and title is perfect. Price, \$9.50 per acre.

602—Timber tract consisting of 19,000 acres on Clinch Mountain Range in Russell, Smyth, Tazewell and Washington Counties, in the southwestern part of Virginia. Heavily timbered, chiefly in poplar, oak, spruce and hemlock, principally the latter; also cherry and birch timber could be conveniently assembled 3 miles from R. R. at Saltville, Va. See No. 603 below for terms.

603—8,000 acres, timber in Washington and Russell Counties, Virginia, 5 miles from above tract and timber is very similar. Terms of sale and time for removal, etc., on application; 60 day option for inspection. Price \$8 per acre. Same owner as No. 602.

604—100 acres of coal rights reserved for 5 years on the Wabash R. R., between Elkins, W. Va., and Cumberland, Md. Carries the 3 foot 6 inches, 4, and 9 foot veins. Price, \$85 per acre. Back of this lies 1,000 acres, which cannot be worked without above tract. Can be bought for about \$35 per acre. The only coal lands in this location not absorbed by some large corporation.

607—Operating coal mine property on the L. E. A. & W. Ry., in Jefferson Co., Ohio. 109 acres at 6 cents royalty, and 170 acres 8-12 screened coal. Plenty of adjoining land can be bought reasonably. Description of equipment, freight rates, etc., on application. Price, \$20,000.

608—23,000 acres of timber in Haywood Co., N. C., 6 miles from R. R. Estimated to cut 410,000,000 feet. Write for price.

609—70,691 acres, timber and mineral lands in fee on Wolf Creek, in Giles and Bland Counties, Va. One mile from Norfolk & Western R. R. Estimated to cut 940,000,000 feet poplar, white, red, chestnut and black oaks, white pine and other woods. Also finest body-iron ore in southern states underlying. Write for price.

611—16,821 acres, timber lands in fee on C. & O. R. R., Greenbrier River and Laurel Creek, in W. Va. Estimated to cut 100,000,000 feet, 30,000 cords hemlock bark and 7,000 cords oak bark. Write for price.

612—25,000 acres, timber in Bath and Highland Counties, Va., 2½ miles from C. & O. R. R., principally white oak. Estimated to cut 250,000,000 feet. Write for price.

613—13,000 acres, timber in Giles Co., Va., 2 miles from R. R., 40 per cent. white oak. Estimated to cut 5,000 feet per acre. Write for price.

614—20,000 acres of virgin forest in Bland County, Va., 4 miles from narrow gauge R. R. and 7 miles from Norfolk & Western R. R. Never been culled. Write for price.

616—30,000 acres, coal and timber land in Pike Co., Ky., near 2 R. Rs. Three seams excellent coal, from 4 to 6 feet thick. Timber estimated to cut 5,000 feet per acre. Write for price.

617—10,000 acres of timber in N. C., 4 miles from Southern R. R., 2 navigable rivers through property, floating logs to R. R. Oak, poplar, chestnut and white pine estimated to cut 70,000,000 feet. Write for price.

618—32,000 acres, timber, near Asheville, N. C., near Southern R. R. Can be floated to R. R. by several non-failing streams. Claimed to be the finest timber tract in N. C. Estimated to cut 775,000,000 feet. Write for price.

619—26,000 acres of timber, near Hot Springs, N. C. R. R. passes through corner of tract. Estimated to cut 175,000,000 feet. Write for price.

620—12,000 acres, timber in N. C., (8,000 in fee) on navigable water and R. R. Estimated to cut 70,000,000 feet; 40 feet above sea level, and land valuable for farming. Write for price.

621—12,000 acres, timber, near Asheville, N. C. Guaranteed to cut 14,000 feet per acre. Logs floated to R. R. by 2 deep rivers and creeks. Good titles. Write for prices.

623—37,000 acres, valuable manganese land, in Virginia, covered with timber, principally white oak. Estimated to cut 70,000,000 feet; other woods, 105,000,000 feet. Four miles from Norfolk & Western R. R.; \$6.00 per acre.

624—About 4,000 acres, coal lands, in Logan Co., W. Va. Branch of C. & O. R. R. being constructed to property. Openings shows 5 veins from 5 to 8 feet thick, well timbered with white oak, maple, beech, etc. Price, \$32 per acre.

628—500 acres, fine coal land in Fayette Co., W. Va., near Sewell, on C. & O. R. R. Valuable timber on tract. Price, \$16 per acre.

634—7,500 acres (4,500 in fee), well timbered, balance, mineral rights, near Madison, W. Va. There are 3 seams of gas and steam coal 3½ to 6 feet thick; also, 6 feet of cannel coal. Write for price.

635—60,000 acres timber in N. C., fronts 7 miles on branch of Southern Ry. Bears finest poplar, oak, ash, cherry, walnut, chestnut, basswood, spruce, hemlock. Large quantities oak bark and chestnut acid wood, selling for \$3.25 per cord. 10,000 feet to acre is low estimate of timber. Perfect title. Price, \$385,000.

636—30,000 acres of fine coal and timber land in Kentucky, on a trunk line R. R. Rare bargain; guaranteed title; 6 miles of R. R. with steel rails; miners' houses, engine, etc. Price, \$8 per acre.

642—25,000 acres of coal and timber land in a practically solid block in Braxton, Gilmer and Calhoun Counties, W. Va., on tributaries of the Little Kanawha River. Timber untouched on 8,000 acres and only poplar timber removed from rest. White and other oaks run high per acre. Railroads being built from several directions to this property; 4 to 6 foot vein of coal underlying, mostly above water level. Pittsburg and Freeport veins. Price, timber only, \$22 per acre; 1-3 cash, balance, easy payments. Timber and surface, \$30 per acre, same terms. Land in fee, \$40 per acre; oil and gas reserved.

643—9,000 to 10,000 acres of timber land near Franklin, N. C. Down grade and good roads; 2 to 8 miles to Southern R. R. Mountain oak, yellow poplar, chestnut, basswood and cherry estimated to cut 4,000 feet per acre. Estimated one cord oak tan bark and 10 cords tannic acid wood per acre. Poles and cross ties in large quantity. Price, \$6 per acre; half cash, balance, fair payments. A bargain at the price.

646—600 acres, coal rights in Raleigh Co., W. Va., 4 miles from R. R. Price, \$15 per acre; 200 acres nearby, fine coal vein, \$20 per acre in fee; 50 acres adjoining this, for \$800 in fee. Small tracts, but bargains considering coal veins.

648—500 acres, timber and coal land, in Fayette Co., W. Va., on Gauley River. Price, \$27.50 per acre. Write for details. Parties interested in coal and timber land

on Big Hewett Creek, Coal Creek, Laurel Creek and Jacks Fork, Boone Co., W. Va. Write for particulars. Richest coal belt in State. Can be bought 1-3 cash, balance in 1 and 2 years; 2,670 acres in all.

658—3,000 acres coal tract (or any part thereof) in Braxton Co., W. Va. Good quality Upper Freeport coal. Fronts Elk river and coal and coke R. R. Price \$25 per acre.

659—Fine fire clay property of 1,200 acres on river between Clarksburg and Grafton, W. Va., on B. O. R. R. and Wabash R. R. survey. Crops out at good height and has 2 coal veins, one above and one below the clay. Price \$20 per acre.

661—20,000 acres of timber, fine white oak, poplar, hickory, lynn, walnut, etc., in Breathitt Co., Ky., accessible to the Lexington & Eastern R. R. (by water) 10, 12 and 20 miles away. Easy floating. Virgin forest. Will cut 5,000 feet per acre. Price \$13 per acre.

666—5,440 acres virgin timber in N. C., 26 miles from R. R. Good roads. Oak, poplar, cherry, hickory, etc. Underlaid with copper ore. Never offered before. Title guaranteed. Write for prices.

669—900 acres of coal land near Hallsville, W. Va. Shows 47 inches coal. This is a 30-year coal lease. Write for price. All rights for operations.

672—3,000 acres timber in fee in Edmonson Co., Ky., less than 3 miles from the navigable Green river which will by June, 1905, have water year around by government works. Price on application.

678—About 3,500 acres coal land in Dodridge and Welzell Cos., W. Va., one-half mile from W. Va. Short Line R. R., 25 miles by R. R. to the Ohio river. Pittsburg vein coal 6 to 9 feet thick. Shaft mining. \$37.50 acres in fee on easy terms.

681—26,000 acres timber land in Poinsett Co., Ark., between two R. Rs., 3 and 5 miles away. Cut 10M per acre. One-quarter oak, balance ash, pine, gum and elm. Level land, does not overflow. \$18 per acre. Worth \$20 for cotton when timber is cut.

682—3,000 acres coal near Clarksburg, W. Va. Three and one-half miles from B. & O. R. R. survey. Pittsburg and Redstone veins, 6 and 7 feet 4 in. thick. \$100 per acre.

683—25,000 acres coal and timber land in fee in Braxton, Gilmer and Calhoun Cos., W. Va. Branch R. Rs. being built close to tract. Has Pittsburg vein 6 ft.; Freeport, 7 ft.; Kittanning, 4 to 5 ft. Fine virgin timber. \$23 for timber per acre. \$30 for timber and surface. \$40 for land and all in fee.

684—1,200 acres coal rights in Marshall Co., W. Va., near B. & O. and Ohio River R. Rs. Three miles to Ohio river by R. R. switch. Price \$75 per acre.

685—800 acres manganese ore lands, near Batesville, Ark. One-half mile from R. R. 50% average metallic manganese. Full data and price on application. Said to be one of the finest manganese properties in the U. S.

686—12,000 acres coal and timber lands in Perry Co., Ky., covered with magnificent big trees. On Kentucky river and Carr's creek, furnishing good rafting. First class titles. Very full data and price on application.

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689—4,221 acres of hemlock and oak timber in Pocahontas Co., W. Va., on Greenbrier Division of the C. & O. R. R. Contains fine variety of woods, estimated 5 million feet, including 12 to 20 million of hemlock and 1 million of white pine, also 14,800 cords of bark for which there is demand from nearby tanneries. Freight rates and all particulars on application. Price \$23 per acre.

690—1,800 acres of spruce and hemlock on the C. & I. R. R. in W. Va. 14 to 15 million feet of saw timber on tract mostly spruce and hemlock, also cherry, ash and basswood. Easy to stock and timber all coming to one place. Price \$44,500.

691—1,428 acres of timber land in Logan Co., W. Va., 60 miles from Huntington. Carries basswood, hickory and 4,500,000 feet of white and chestnut oak. Owned by National Bank and title warranted. Price in fee \$9.50 per acre, mineral rights reserved.

692—20,000 acres of timber in Randolph Co., W. Va., on Elkwater Creek, tributary of Tygart's Valley River and 7 miles from the Wabash R. R. Boundary including a 10 mile creek valley with tributary, virgin forest of W. Va., hardwoods including poplar, white and red oak, ash, cherry, maple, lynn and hickory and some fine black walnut. Ideal location for operation with cheap tram road. Price \$16 per acre inn fee, \$14 for timber only. Nothing finer in timber in this state.

693—17,000 acres of timber lands in Pocahontas Co., W. Va., near Seebert on the Greenbrier Division of the C. & O. R. R. Can all be operated at one point. Lies on Laurel Creek and Old Hams Run. Sufficient surface for operating. A mouth of Laurel Creek goes with tract. Estimated 37 M. cords of bark with perpetual market to nearby tanneries. Timber estimated 100 million feet; 60 million hemlock; 20 million white, red and chestnut oak, 20 million basswood, chestnut and other woods. Price \$12.50 per acre.

694—7,000 acres of timber lands in Eastern W. Va., on C. & O. R. R. Estimated to cut per acre 6 M. feet hemlock, 2 M. feet spruce, 2 M. red and white oak. Fine bark output, also pulpwood. Price \$22 per acre.

695—2,056 acres of timber land on the East branch of Greenbrier River, between the C. & O. and Dry Fork Railroads. Will cut 20 million feet of spruce and hemlock, besides other timbers. Tract easily lumbered. Price, in fee, \$21 per acre. Timber rights \$18.

696—2,000 acres of timber land in W. Va., on the C. & I. R. R. Will cut 16 M. feet to the acre. 50% hemlock, 40% spruce, 10% poplar, cherry and ash. Fronts on the R. R. 3 miles. None of timber further than 1½ miles from road, tract slopes to the road and can be operated at one site. Easily

stocked. Price \$75,000. 1-3 cash, balance in one, two and three years, with interest. Ten years to remove timber.

697—20,000 acres of hardwood timber lands in Macon Co., N. C. Yellow poplar, oak, hemlock, white pine, hickory, etc. Estimated to cut 8 M. feet per acre. Railroad will be extended soon through this property. Price \$6.50 per acre.

698—2,000 acres of hickory timber, 7 miles from R. R. in W. Va. 3 M. feet to the acre. Both shell and tight bark. Easily operated. Plenty of water. Down grade road to R. R. No high hills. Price \$9 per acre.

699—500 acres of hickory timber land on head waters of Good Creek, 5 miles from R. R. in W. Va. Lies between two mountains. Carries principally hickory, some white oak and pine. 4 M. feet per acre. 50% hickory. Good roads, easy grade, plenty of water. Price \$12 per acre.

700—400 acres 9 miles from R. R. in W. Va. 10M feet per acre. 75% white oak, 25% hickory. \$16 per acre. Further information on request.

701—960 acres of semi-anthracite coal, 3 four foot veins. Operated and fully equipped, on two railroads in Indian Territory. Write for particulars.

702—107,125 acres in two tracts of 63,230 and 43,895 acres each, of coal and hardwood in Kentucky. Seven veins of coal, fine for coking. 5,000 feet of timber to the acre. Railroad building along side tract for 15 miles. Write for price.

703—1,200 acres coal, timber and farm land in North Carolina, 100 yards to one railroad and one-half mile to another. Four ft. of coal, 40 ft. down. Oak and pine timber. Write.

704—17,000 acres in eastern South Carolina on deep water and a large river. 155 million feet of pine, oak, ash and other woods and small saw mill. Write for price.

705—20,000 acres of oak, poplar, hemlock, etc., in S. C.; 5 and 6 miles from two R. Rs. Write for price.

706—35,000 acres in White Co., Ga. Poplar, white and red oak, hemlock, walnut, etc. Very cheap. Write for data.

707—2,500 acres fine timber and sawmill property in N. C., on large river, 20 to 25 million feet pine, oak, poplar, gum, cypress and juniper. New R. R. touches tract this summer. Tugboat goes with deal, low water rates east and north. Price, \$35,000. Easy terms.

708—3,000 acres coal and timber land in Logan Co., W. Va., 2 miles from R. R., 3 veins coal, 11 ft. in all. \$23 per acre. A bargain.

709—500 acres, operated in Mingo Co., W. Va. Fine royalty proposition. Owner will retain good sized interest if desired; 5 veins of fine coal; very low price. Interesting data on application.

710—Fine coal operation in Kanawha Co., W. Va. Best private reasons for selling. 1,250 acres; new equipment; on a R. R. and stream. 7 veins of coal, 40½ ft. in all. Rare chance at \$175,000.

711—A nice little coal tract of 147 acres in Braxton Co., W. Va., 4 miles from Coal & Coke R. R. Write for prices and particulars.

713—400 acres coal lease in Indian Territory, on a R. R.; best analysis in U. S.; one 12 ft. vein bituminous; no partings; opened up. Price, \$35,000.

714—20,000 acres timber land in State of Washington, on R. R.; grand timber. Write for full data.

715—30,000 acres timber and iron ore land in Iron Co., Mich. Several R. R.'s on tract. Hardwood, hemlock, cedar, pine. \$120,000. Easy terms.

716—379 acres of fine glass sand in Preston Co., W. Va.; 96 to 98% silica; plenty water; main line B. & O. R. R. Price, \$35 per acre.

717—20,000 acres coal land in Southern Kentucky; 7 veins coal; 4,000 to 8,000 ft. per acre of fine timber, principally hardwood; R. R. 14 miles away; branch line to be built to tract.

719—9,000 acres timber land in Raleigh Co., W. Va., on branch of the C. & O. Ry.; 4,000 ft. to acre; 13 million ft. of poplar. \$20 per acre; cheap.

720—10,000 acres coal in Pulaski Co., Ky.; crop vein 4 to 5 ft. thick; 2 other veins 4 to 7 ft. thick; superior coal; mine opened, capacity 300 tons a day; equipped with houses, etc., for full operation; on R. R.; good car service. \$8,000 worth improvements. Price, \$160,000. A bargain.

721—10,000 acres valuable coal and timber land in Boone Co., W. Va.; R. R. building to tract; 9 workable veins Kanawha coals. 30 millions ft. timber. Price, \$25 per acre.

722—10,000 acres coal in Boone and Lincoln Co's., W. Va.; 4 veins, 4 to 7 ft. thick R. R. being built to tract. Price, \$17.50 per acre.

723—5,600 acres of hardwood in Westmoreland Co., Pa.; 2 miles to Penna. R. R.; easy grade; 10,000 ft. to acre; 50% oak, virgin; 30% poplar; 20% other wood. Also carries coal, limestone and glass sand. \$35 per acre, in fee or sell timber only.

724—9,800 acres timber land in Miller Co., Arkansas; on 2 R. R.'s; white oak, 2 to 3M per acre; pine, ash, and poplar. Price, \$4.50 per acre.

725—5,300 acres of coal in Lawrence Co., Ky.; on the C. & O. Ry.; 30 miles from the Ohio river, locked and dammed all the way via Big Sandy river; 2 veins of coal, 9 to 11 and 5 to 6 ft. thick. Price, \$25 per acre. Very cheap considering shipping facilities, kind of coal, etc.

726—21,900 acres coal and timber land in Knott, Letcher and Perry Co's., Ky.; 10 veins of coal, over 50 ft. in all; 18 miles to R. R., others surveyed through tract; 5,000 ft. to acre, good timber, good titles. Price, \$22 per acre; ½ cash, balance in 1, 2, and 3 years.

727—2,215 acres of coal land in Tazewell Co., Va.; lying between 2 streams; ½ mile to N. & W. Ry.; Clinch Valley coals; 3 seams above water level; plenty fine timber; can be logged on streams. Price, \$40 per acre.

728—30,000 acres coal and timber land in Perry and Knott Co's., Ky.; 5 veins coal, one 10 ft. thick; also fine cannel vein; 8 to 10 M ft. timber to acre. Write for particulars.

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C. 10,000 acres coal land in Pulaski Co., Kentucky. Crop vein 4 to 5 ft. thick. Two other veins 4 to 7 ft. thick. Superior coal. Operating with 300 tons per day output. Fully equipped, houses, etc. On railroad with good car service. \$8,000 improvements. A bargain at \$160,000 on easy terms.

D. 16,000 acres of coal lands in Letcher county, Kentucky, including 4,000 acres cannel coal. Veins 32 in. to 10 ft. thick including fancy smokeless and coking coal. Heavily timbered with oak and pine. Railroad building through tract (C. & O. extension spur). Coal all about selling as high as \$175 per acre. This tract with perfect titles can be bought for a limited time for \$31 per acre.

E. A magnificent operating coal property in Kanawha county, W. Va., on a railroad and stream. 1250 acres of Kanawha coal seams, 7 veins, 40½ ft. thick in all. New equipment. Best private reasons for selling. A rare chance at \$175,000 on fair terms.

F. 5,300 acres of coal in Lawrence county, Kentucky on the C. & O. railway and Big Sandy river which is slack-watered to Ohio river 40 miles away. Two veins of fine coal 9 to 11 and 5 to 6 feet thick. Considering amount and kind of coal, shipping facilities and other local prices this is dirt cheap at \$25 per acre.

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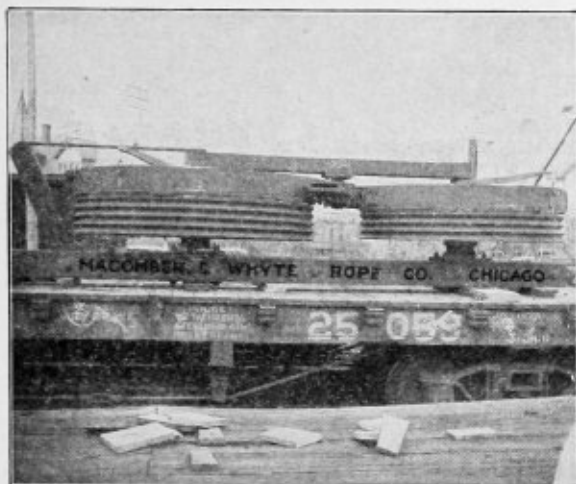
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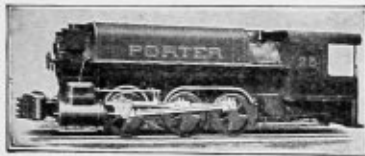
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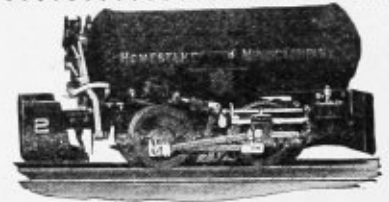
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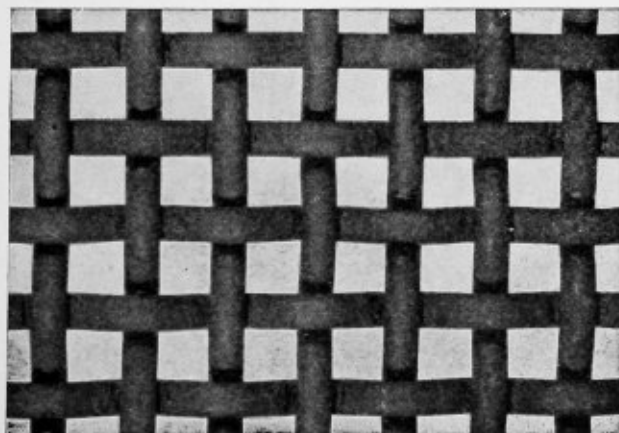
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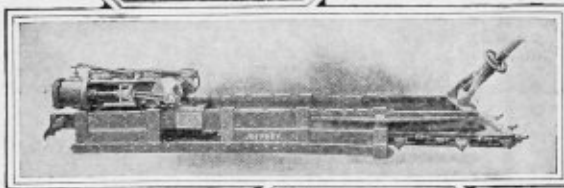
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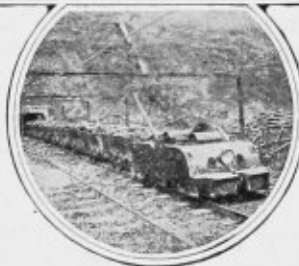
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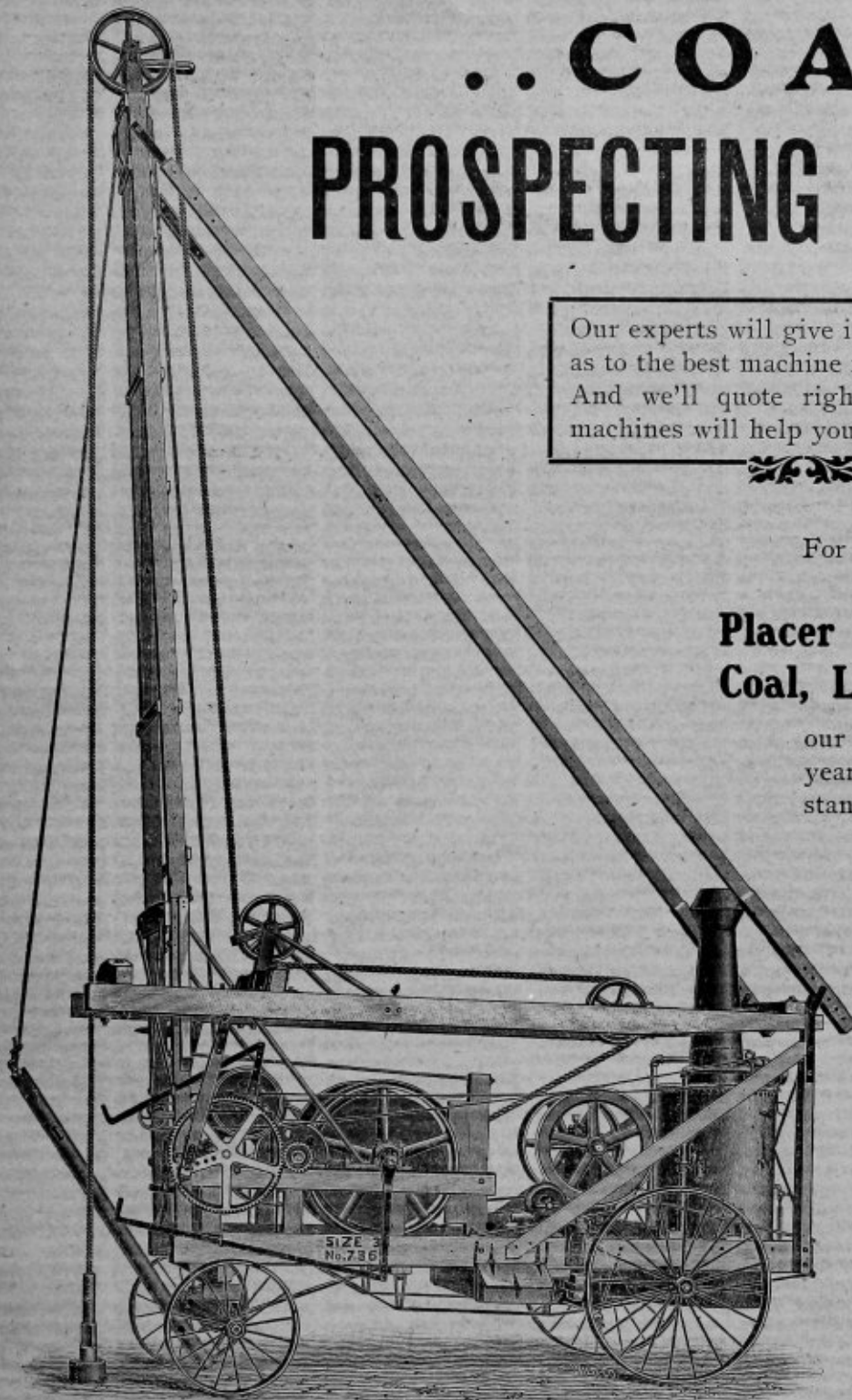
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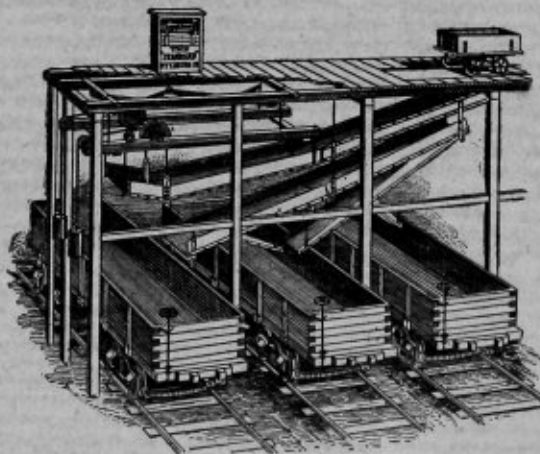
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