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BY THE HOUSE OF DELEGATES,
JANUARY 9th, 1884.
Read and referred to the Committee on Inspections.
By order,
THOS. H. MOORE,
Chief Clerk.

REPORT

OF

THOMAS BROWN,

INSPECTOR OF MINES

FOR

Allegany and Garrett Counties,

FOR THE YEAR ENDING DECEMBER 31, 1883.

ANNAPOLIS:
JAMES YOUNG, STATE PRINTER.
1884.

REPORT.

Dec. 31. 1883

To his Excellency, WILLIAM T. HAMILTON,
Governor of Maryland.

HONORED SIR: In compliance with the mining law of the State of Maryland of 1878, I have the honor to submit to you my fourth annual report as Inspector of Mines for the counties of Allegany and Garrett.

In my last brief report I promised to give an account of the great strike of 1882, and the causes which, in my humble judgment, led to that great struggle between capital and labor.

The Cause of the Strike of 1882.

I have therefore determined to devote a space in this report to a statement of the causes which, in my opinion, led to the strike. In order to better understand the subject, I will review the coal trade of this region since the opening of the canal in 1850. That year there were 4,042 tons shipped by the canal. Transportation of coal by the canal increased from year to year, until in 1875 it reached 879,838 tons, which is the largest amount of coal that has ever been carried in any one year over the canal. In 1842 the first coal was carried over the Baltimore and Ohio railroad. The number of tons carried by this route was 1,708. In 1873 the Baltimore and Ohio railroad transported 1,780,710 tons, the largest amount ever carried by it in any one year. The whole amount of coal so far taken from this region by railroad and canal is about 43,000,000 tons, which is a fraction more than 1,000,000 tons annually since the opening of our mines. During a period of forty years there were seven years in which our coal shipments exceeded 2,000,000 tons annually, viz.: In 1871, 1872, 1873,

1875, 1880 and 1881. I have been asked if our coal fields are not almost exhausted, and if not, why it is we do not produce more coal annually? This is a question about which there is much diversity of opinion, and about which I have failed to find any two persons who agree. When we consider the increased demand for soft coal in the last twenty years, and the rapid development of coal mines in competing regions, and the increased shipments therefrom, there must be some good cause for our failure to mine and market a supply of coal proportionate to the increased consumption. I confidently assert that this failure is not caused by any deficiency in our coal fields or the quality of our coal. But one vein in this region has been developed, and its quality is unsurpassed in America. Underlying this vein are four seams of coal that can be successfully mined, and they extend through the whole area of our coal basin. These veins are as good in quality, if properly mined, as the coal found in any of the sections of Pennsylvania and West Virgina now competing with us. Our failure, therefore, to keep pace with competing sections in the increase of production cannot be caused by lack of quality or quantity of our coal. From a personal experience and observation of thirty years in the coal mines of Allegany and Garrett counties, and of the coal trade of this region generally, I am constrained to attribute the slow process of development in this region to various causes, prominent among which is the well known fact that many of our coal companies conducted their business upon no recognized legitimate principles. So reckless was the spirit of competition that coal was frequently mined and put upon the market at and below cost, leaving the impression upon the public mind that a legitimate profit upon coal was not a consideration in their mode of doing business, but that there were other sources from which the stockholders might be reimbursed. This fallacious policy could have but one result, and in process of time its legitimate fruit was seen in numerous foreclosures, sales, changes, transfers and reorganizations of companies, bringing in their train confusion and general derangement to business, and keeping the trade in an unnatural, unhealthy and unsettled

condition; while some of the mines were kept closed for a long period of time.

Another cause of the slowness of production in this region may be found in the fact that until of late years there was but one rail line of transportation to the seaboard and eastern markets, and that during four months of each year, when navigation on the Chesapeake and Ohio Canal was closed, the region was without any competing line of transportation whatever. This state of things naturally left this coal region to contend with a high and discriminating rate of freights, which depressed trade and greatly reduced the coal output during the winter months. The partial, and in some instances total suspension of business during the winter months, practically reduced the working year of our miners to eight months, which circumstance was eagerly seized upon and made use of by them in insisting upon and enforcing a higher rate of wages than that prevailing elsewhere. It is a plain proposition that a year's work in other coal fields will produce more coal than eight months' work in our coal field in the same number of mines and with a like number of miners. This condition of things is also a cause of the deficiency of output from our mines.

It was of course natural for miners to flock to a region where they could earn as much in eight months as they could earn in twelve months elsewhere, hence this region became overstocked with labor. The high rate paid, however, soon became of little benefit to the miner, because of the manner in which it was divided or parcelled out under the regulations of labor organizations. The surplus labor was of no value to the companies, because they were unable to utilize it. This unnatural condition of things, combined with the irregular and illegitimate mode of business pursued by some of the companies, rendered all community of interest between the several companies of the region impossible, and made it impracticable for them to combine for mutual protection against the arbitrary exactions of labor organizations. Strikes, therefore, were few and far between, because there was never found wanting one or more companies among this ill-assorted community of

operators whose inclinations or necessities were such as to impel them to an immediate and sometimes hasty and undignified accession to every demand made upon them by their employees. The other companies were of course compelled to follow, until from one concession to another, the condition of business became so deranged that the companies not mining and selling coal at a loss, or at least cost, were the exceptions. The companies that endeavored to conduct their business upon legitimate principles could not successfully meet the competition of their neighbors, and were frequently compelled to suspend operations. These companies did not declare large dividends, but they saved their coal and maintained their mines in good condition, while their neighbors wasted their coal and damaged their mines to a more or less extent.

Competition has at last revolutionized our coal trade. Coal must now be mined and sold at a profit, so that the stockholder may realize a fair return for his capital invested in the mines. The time has passed when more will be paid our miners for working the big vein than our competitors pay for mining the small vein. The superiority of our coal will command sale in the market, be in greater demand, and thus secure our miners constant employment. The nature and thickness of our coal seam will also insure them easier work than that in other coal fields. The sooner the companies conduct their mines as this change in affairs demands they should be conducted or operated, the better it will be for all parties interested in the coal trade.

During the last forty years the price paid per ton for mining coal has ranged from twenty-eight cents to one dollar, which last price was paid during the war. But for a number of years since the war our miners were paid sixty-five (65) cents per ton, whilst the price per ton for mining paid by the Clearfield companies, our greatest competitors, was fifty (50) cents. In the early part of 1880 an effort was made by the Clearfield and George's Creek miners to establish a uniform price for mining at sixty-five cents per ton. Our miners succeeded in obtaining that price, but the Clearfield miners failed, and at once began their strike, which lasted for twelve weeks.

Throughout the whole time of the Clearfield strike our miners supported the strikers liberally. At the end of twelve weeks, however, they (the strikers) resumed work at their mines at fifty cents per ton. This strike enabled our companies to regain a part of the trade they had lost by the strong competition of the Clearfield region. Our shipments increased five hundred thousand tons over the previous year. The Clearfied miners having resumed work at fifty cents per ton, the Clearfield companies could go into the market and undersell our companies. Our companies then appealed to the miners to submit to a reduction in the price of mining to enable them to keep the trade they had regained during the Clearfield strike. But our miners paid no attention to this appeal In this they made a great mistake. After common cause had been made by the miners of this and the Clearfield region to establish a uniform price at sixty-five cents per ton for mining, and it had failed in Clearfield, it would have been wise in our miners to have submitted to the proposed reduction when thus appealed to. Had they done so the great strike of 1882 would have been averted here. I am happy to say that many of our conservative miners sustain me in this view of the subject. It is plain to every reasonable man that our companies cannot pay fifteen cents more per ton for mining than their competitors pay, and sell coal as low as their competitors can sell it. It is also clear that if our companies pay more for mining coal they must obtain a higher price for it in the market than their competitors, who produce it at less cost, sell it for. Consumers will not pay more for our coal, although of better quality, than they will pay for Clearfield coal, and it is a well known fact that in 1880 and 1881 ninety per cent. of our coal was sold at the same price as Clearfield coal. Our companies, therefore, cannot pay more for mining than is paid in Clearfield, if they wish to keep their trade and get a fair profit upon their investments in the mines. Why our miners did not consent to the reduction, as proposed in the price of mining, I am unable to say. The contracts made by our companies in the early part of the Clearfield strike helped them to continue mining at sixty-five cents per ton for the balance of that sea-

son, and some of them declared small dividends, which they had not done for years before. During the year 1881 our miners were paid sixty-five cents per ton, whilst the Clearfield miners were paid fifty cents. Under this great difference in cost of mining, our tonnage and shipments of coal, during the year 1881, despite the energy of our companies, was accompanied with a total loss of dividends. The output from our mines for that year (1881) was two million two hundred and fifty thousand tons without profit. It was evident to our intelligent miners that this state of affairs could not last much longer, and it was a common subject of conversation among them.

Previous to the years 1880 and 1881 our leading coal companies discovered they had more miners than they needed, and therefore discharged many of the young men to give thereby more work to the men of large families. Experience has shown that it is hard to drive from our mines men who have worked in them some length of time. It proved true in this case. The discharged men did not seek employment elsewhere, but, contrary to sound advice given them by the wiser men of the place, they remained here in idleness. Then it was that branches of a secret society were organized here. Our miners, drivers and laborers joined this society. Their first move was the adoption of a policy by which the discharged men could again obtain work in our mines. That policy was the adoption of rules restricting the employed miners to four tons of coal per day each, which was strictly enforced and adhered to by the members of the society. After mining four tons in the day each, these miners stopped work, giving no reason for doing so to the companies. The organization gained a large membership under this policy. On account of the four-ton rule the companies could not procure enough coal to supply the demand with the miners then employed, and were forced to employ all the miners they had discharged, in addition to the men at work, to enable them to get a supply of coal equal to the demand. Elated by their success, they adopted more rules and regulations for working our mines, which were as rigorous upon their members as the

mandates of a despot. The Czar of Russia never had more complete authority in his empire than this society had over our miners belonging to it. They strictly obeyed the rules and regulations of the society. They even went so far as to deny the companies the right to discharge anyone of their number from employment, no matter how just the ground for discharging him might be, unless a committee of themselves, appointed to investigate the matter, agreed that the member ought to be discharged. If the committee did not consider the cause of complaint sufficient to authorize the company to discharge the member, he would have to be reinstated and kept in his place, or work at that particular mine would be entirely suspended by them They reduced the working day to ten hours, which is long enough for work in the mines, but the drivers and laborers, working by the day, took an hour for dinner, making their working-day only nine hours. They, however, called it the "ten hour system." Under their rules —whether a member of the society or not—no miner was permitted to enter the mines before 7 o'clock A.M., and was compelled to leave the mine not later than 5 o'clock P.M. The penalty for breaking this rule was the refusal of the boss driver to furnish cars to the offender the next day, without assigning any cause for the refusal, thereby preventing him from turning out any coal that day, and forcing him to lose a day's wages that he could have earned if cars had been furnished him. There was no use for the offender to appeal to the company officials, because interference in his behalf would have resulted in a general suspension of work at that particular mine. Their rules became so arbitrary and despotic that by their means the society got absolute control of many of the mines, and dictated to the owners how their mines should be operated. Many of our well-disposed and reasonable miners did not approve this policy, but in this organization, as in all other labor organizations that I have known for forty years past, the ignorant and hot-headed members always out number the cool and prudent members. As a majority always rules in organizations of this kind, the will of the ignorant and hot-headed members prevails in spite of the opposition and wiser

counsel of the conservative members, which was the case in the meetings of this society.

It is my belief, founded upon my observation of labor organizations of the present time, that as they are now and recently have been conducted, they are of no advantage to the working man. There is always a petty jealousy existing among the ignorant and excitable members, who, as I have before said, are in the majority, whose unreasonable course adopts measures calculated to bring the order into disrepute and array capitalists against them for self-protection. Capitalists who invest their money in mines and public works expect a fair return for the investment, and in order to insure it must operate to the best advantage and control their own property. Of course the workman must receive fair remuneration for his labor. The wages of labor, in my judgment, is regulated by the well-known law of supply and demand. No effort on the part of workmen can force high wages when the operator must lose money to pay them the wages demanded. This branch of the subject could be discussed at some length if it were necessary. Every man of common sense can reason upon it to a just conclusion if he will lay aside prejudice while he is going through the reasoning process. This jealousy goes so far that intelligent members of the organization, who favor just measures toward the companies, are denounced as traitors, willing to sell out, or who have sold out to the companies. When a strike is ended it unfortunately happens that the reasonable and orderly men of the organization are the chief sufferers, because a strike once begun they hold out for what seems to them a principle, whilst the hasty and ignorant, who have been the originators of the strike by being the majority, are the first to abandon it and cry for quarter from the companies. It may seem strange on the part of reasonable and conservative men to continue in a measure they did not favor in the beginning, and do not even then favor. But being a measure of the organization it is their belief that they ought to submit to the will of the majority, and resume work only when the organization regularly declares the strike off. They are, moreover, under the secret

obligations of the society, which they feel bound to keep, and they will not move except with the society or organization. It would be better for conservative men to cut loose from all societies controlled upon such principles. I have lost all faith in the power of labor societies to benefit the working men since they are sure to be governed by the ignorant and disturbing element amongst them.

This combination of circumstances, viz.: the inability of the companies to pay sixty-five cents per ton for mining: their united determination to assert and maintain supreme control of their mines; to regulate the hours of labor, the number and character of the men they would employ and the wages they would pay them: and their further determination as a unit to utterly disregard the arbitrary, unreasonable and assumed authority of this society over the mines and miners, all of which our companies made known in the early part of the spring of 1882 by sufficient notice to the miners, and the unwillingness of the latter to accept this condition of things, brought about the great strike in this region, which lasted for months, and which proved so disastrous to our miners and to business in general, and which ended in the complete success of the companies, enabling them to resume operations on their own terms, and without any concession whatever to the miners or laborers.

The Great Strike of 1882.

On the first of March, 1882, the several coal companies operating in this region, through their executive committee, issued a notice to their employees in the shape of a circular prescribing a new and lower rate of wages for every department of labor connected with the work of mining coal, in words following, to wit:

"*To the Miners and Mine Laborers of the George's Creek and Cumberland Region:*

"The undersigned, mining companies of the George's Creek and Cumberland region, after a careful consideration of the situation of their trade, have determined upon a reduction of the cost of production for the season of 1882, and the adoption

of such rules and regulations as may be necessary for the proper control of their property, in which they have of late been greatly embarrassed by the arbitrary and unjust rules instituted by the labor organizations of the region—regulations that have been most unjust to the companies and really advantageous to none.

"With this object in view the companies have decided to fix the price of mining at fifty cents per ton; the wages of drivers at $1.65 per day, and other labor in proportion; to make a day's work twelve hours, as is customary elsewhere, from 6 A.M. to 6 P.M., with one hour for dinner, and to adopt such regulations and rules as are necessary and just, alike for owners and employees. The change to take effect on the 15th of March, 1882.

"If any one can doubt the absolute necessity for these changes, a necessity admitted by the published statement of those authorized to speak for the men in our employ (or a majority of them), they need but consider the condition of the Cumberland trade as compared with that of its competitors, to be convinced that the changes now determined upon should long ago have been made. While the Cumberland region was formerly the largest producer and the leader in the trade, it now occupies a secondary position, while its Clearfield competitor has each year largely increased its output. Cumberland has barely maintained its business, and in some years has largely decreased. And even this unsatisfactory result has been obtained by the sacrifice each year of the large bodies of valuable coal lands without any return above the cost of production. The semi-bituminous trade of the Atlantic seaboard has more than doubled in the last few years. Cumberland has obtained none of this increase but has made a large decrease. Our region has also this year an additional competitor in the Elk Garden region, recently opened in our immediate vicinity, while the competition from some of the other basins will be more active this year by reason of improved railroad facilities.

"That the only cause for this being the situation of the Cumberland trade, is the higher cost of production in that

region, is well known by all who have fairly and impartially looked into the subject. The companies have long hoped that the conservative element among their employees would recognize the ultimate disastrous effect of this upon their trade, and would have aided the companies in correcting the evil. This, however, they have not done, and the companies now undertake the necessary measures to place the cost of production and the rules and regulations in our region upon the same basis with that of competing regions.

(Signed.)

"A. H. Stump, for George's Creek Coal and Iron Company.
"S. S. Lee & Son, for Swanton Mines.
"James Boyce, for Maryland Union Company.
"P. G. Lloyd, for American Company.
"H. Loveridge, for Maryland Company.
"J. George Repplier, for Balt. and Hampshire Company.
"C. F. Mayer, for Consolidation Coal Company.
"W. S. Jacques, for New Central Company.
"William Borden, for Borden Company.
"A. G. Greeley, for Potomac Company.
"A. G. Taylor, for Atlantic and George's Creek Company.
"A. Spier, for Blaen Avon Company."

Immediately after the promulgation of the aforegoing circular, the following notice appeared posted in all the various towns, villages and mining localities of the George's Creek region:

Notice!

Whereas, we, the employees of the mining companies, have been notified of a change in the rate of mining and other labor; and whereas, we are not willing to accept the proposed offer; therefore,

Resolved, That we suspend work after Tuesday, the 14th of March, 1882, and all those whose wages will be effected by the proposed change are expected to suspend.

Knights of Labor.

On the 15th of March, the following formal reply to the circular of the operators was made public, as emanating from the miners or the organization to which they seem to have delegated the control of their affairs:

"*To the Mining Companies of the George's Creek-Cumberland Coal Region:*

"We, the employees of the several mining corporations of Allegany and Garrett counties, in reply to your declarations, would say that in view of the fact that you have determined to reduce the cost of the production of your coal, and to enact such laws and regulations as will give you proper control of your property; and further, you declare that 'your interests have been greatly embarrassed by the arbitrary and unjust rules instituted by the labor organizations of this coal region —regulations that have been most unjust to the companies, and really advantageous to none.'

"As to the first declaration of your determination to reduce the cost of production, and to enact such laws and regulations to control your property. This is your right, we concede, if it be not injurious to your employees.

"Further, as to the second declaration—'that the laws and regulations governing your employees in and about the mines at the present are unjust and embarrassing to the companies and really advantageous to none'—we cannot concede, for the fact has been clearly proven that your employees have been greatly benefited by the same; employment more generally distributed among your employees, and the interests of the companies greatly secured. Therefore, we cannot consider your determination to reduce the cost of production as just and reasonable; nor do we accept as reasonable your purpose to make twelve hours a day's work, but consider it unjust and illegal. The necessity for any changes in the cost of production, or an increase of the time, has never been admitted by your employees. The appeal made by us to the Clearfield miners, from which you draw such inferences, was not an admission upon our part of such necessity, but that they, with us, would ask for and secure from their employers just compensation for their labor.

"Therefore, gentlemen, we, your employees, deem it unnecessary to go into any lengthy argument in reply to your bill of declarations at this time, but we are willing to appoint a committee of five to meet a similar committee from your body

at Cumberland, Md., at any time between now and the first of April, to take into consideration the differences now existing between us, and we will accept whatever is fair and just to you and honorable to our country and county, and all interests appertaining to the business community in which we reside, as well as to our families and ourselves.

"KNIGHTS OF LABOR.

"Address all communications on this subject to R. W. Price, Lonaconing, Allegany county, Md."

Simultaneous with the aforegoing reply of the miners the following notice was conspicuously posted throughout the region:

Special Notice!

WHEREAS there is offered to the miners of the George's Creek-Cumberland region a reduction of fifteen cents per ton —from sixty-five cents to fifty cents; drivers from $2.48 to $1.65 per day, other labor in proportion; and

"WHEREAS, we, the miners and laborers of the George's Creek region, have decided that we will not accept the proposition offered; therefore, be it

"*Resolved*, That we cease work after the 14th of March in this region or in any other region that produces coal for the same market at a lower price than for what we are now contending; as war has been declared on all mining labor, all should fight the battle together.

"*Resolved*, That any one working at any labor in the mining department in this or any competing region while this question of wages is pending, shall be considered a black-leg and an enemy to the cause of labor.

"KNIGHTS OF LABOR.

"FROSTBURG, MD., March 14, 1882."

It will thus be seen that on the 15th of March, 1882, the issue was fairly made, and a strike, unexampled in the history of this section, for the bitter spirit of intolerance and denunciation it developed, was commenced. In many cases the miners left their tools in the mines, and their cars, unloaded,

were left standing in the rooms. The cessation of work from one end of the region to the other was instantaneous, and both sides to the controversy appeared determined and confident—the miners to maintain the rate of sixty-five cents per ton for mining coal in face of the fact that all the bituminous regions of Pennsylvania and West Virginia, including the small veins in our own state, were actually at work at fifty cents per ton.

It may be proper here to say that the miners claimed that the companies were aiming a blow at their protective organization. In reply to this it was stated on the part of the companies that their object was simply to maintain their right to control their own property, and to manage their own affairs. It may be truly said that this point involved a question of as grave importance to the companies at least as the matter of wages. The secret order known as the Knights of Labor had stealthily acquired control over the workingmen of George's Creek, and had gradually enforced the observance of a code of rules and regulations—formulated in the secrecy of the lodge—in every mine in the region. These regulations were generally in conflict with the wishes of the legitimate management, and always took precedence of what was supposed to be the governing and responsible head of the work. To ignore the most trivial of these rules and regulations of the Knights of Labor was certain to provoke a strike at that particular mine. At the time of the commencement of the strike the rule of the Knights of Labor over the miners of George's Creek was absolute, autocratic and undisputed by even those who declined to participate in its membership. The miners of this region belong to the great body of workingmen of the country, and as a class possess the same general characteristics. The claim that, as a class, they are superior in point of education and general intelligence to the workingmen of other communities, is without any better foundation than the assertion of the cross-roads editor and the ward politician. Among them will be found the same percentage or proportion of respectability and viciousness; of education and illiteracy; of intelligence and stolid ignorance, as prevail in like communities elsewhere. But the hot-

headed, the vicious and the ignorant are always foremost in the management of labor organizations, while the more intelligent and conservative generally decline prominence in such matters, and soon retire in disgust, leaving the control of affairs in the hands of ignorant and inconsiderate youths, directed by the selfish cunning of a small coterie of political demagogues. In about such form was the Knights of Labor organization in this county, at the commencement of the strike last March. The intelligent and conservative members were without influence—I had almost said without voice—in its affairs, and by the ignorant clamor of an irresponsible majority, were forced into the untenable position of going "upon strike" for a rate of wages higher than that prevailing elsewhere. Being unable to understand or appreciate fully the reason for holding out for a price greater than that prevailing in other bituminous regions, I endeavored to use my influence with the more conservative element among the miners to effect such a compromise as would speedily terminate the strike. In this I was unsuccessful. The older and wiser were outvoted, bullied and intimidated by the thoughtless, the ignorant and the vicious.

On the 30th of March a conference was held in Baltimore between the Executive Committee of the Operating Companies, consisting of Messrs. S. S. Lee, A. Spier, C. F. Mayer and A. H. Stump, and a delegation of miners composed as follows: Messrs. R. W. Price, James Park, Andrew Patrick and Saml. Vaughn. The delegation of miners originally included one Benjamin Stewart, a colored barber and local politician, of Cumberland. But as Mr. Stewart had never been a miner, and was not, and never had been an employee of any of the coal companies, the committee of operators declined to admit him to the conference on the ground that the questions upon which they were about to confer concerned only the companies and their employees.

The committee of miners was patiently heard in defense of their claim for a rate of pay greater than the prevailing one, but I have been unable to learn that they made any point stronger than the assertion of their inability to live upon a

rate lower than sixty-five cents per ton. Perhaps if the injunction of secrecy had been raised from the proceedings of this conference I should have been further enlightened as to the claims of the strikers, but in common with the rest of the public, to whom the crafty leaders of the strike never gave any information, I was not furnished with any argument in support of their cause less ridiculous than the claim, actually asserted by prominent promoters of the strike, that the George's Creek miners, as a body, laid claim to a higher degree of culture and refinement than other classes of workingmen, hence their physical and intellectual wants were greater, and that a higher rate of pay was required to sustain the dignity of a roast beef, silk dress and broad-cloth aristocracy of labor, as against the corn bread, pork and beans and linsey-woolsey common places of competing neighborhoods. They seemed to contend for a sort of civilization of reed-organs and concertinas, as against the hand-organs and Jew's-harps of the imported labor of Clearfield, and actually asserted their right to protection in such claim at the expense of the business prosperity of the region and the success of the investment of the capital that supplied them with employment.

As the issue between the arrogant rule of a secret order over the minds and bodies of the working class, and the prudent movements of organized capital was being tried, and weeks rolled away into months without a sign of weakening on the part of the operators, a slight degree of restlessness was observed among the class of miners who, in silence, awaited the culmination of the strike. Still the leaders were untiring in their efforts to hold the strikers together. A system of espionage was established, and spies set upon all quiet and unobtrusive men, because quietness of demeanor was now construed to mean something like opposition to a continuance of the strike. The man who yelled the loudest, who was the most profuse in the use of profane language, and had the largest stock of vulgar epithets to apply to his neighbor, became at once the idolized champion of labor, while the sober-minded citizen, who happened to shake his head in grave apprehension for the future, was denounced, bullied and threatened

into silence. Merchants, mechanics and others were forcibly reminded that their active aid and sympathy was required, and an intimation that they might be "boycotted" if they fell under the displeasure of the Knights of Labor, was generally sufficient to bring them into seeming co-operation with the strikers. If any person was suspected of act or word seemingly at variance with the object of the strikers, he was at once denounced as a traitor to the cause of labor, and a crowd of hoodlums was set upon his track to follow him with open denunciation of the vilest and most violent character. In fact a sort of miniature reign of terror was inaugurated to deter and intimidate the sober and conservative class from the slightest act or expression that might open the way to an honorable compromise or settlement of the difficulties. In shaping the course of the strike, or in keeping its management within reasonable bounds, the respectable and intelligent element among the strikers was utterly powerless. But they are entitled to the great credit of being watchful in the suppression of incipient riot and the prevention of actual violence. But for the moral force of this class in the preservation of the peace, no one against whom the frenzy of the mob happened to be turned would have been safe in this region for one hour.

When rumors became rife of the purpose of the Consolidation Company to import new labor, Mr. P. L. Burwell, general manager of the Cumberland and Pennsylvania railroad, suggested that another opportunity be given the men to resume work upon the terms offered, and accordingly another conference was held in the latter part of May at Cumberland, between Mr. Charles F. Mayer, president of the Consolidation Coal Company, and a number of his employees. Mr. Mayer informed the men that the time had arrived when his company could no longer wait upon the old hands to resume work, and that he had sent for them to inform them that unless they resumed work at once upon the terms offered other miners from abroad would be brought here and installed in their places. He begged them not to misconstrue his motive in sending for them, as it was only out of consideration for them and their families that he took the trouble to offer them

a last opportunity to resume work. The men returned to the mines, and the matter was laid before the lodge, but as Mr. Mayer had not approached them as Knights of Labor, but simply as his employees, his invitation to resume work was treated with offensive silence and remained unnoticed.

Preparations for the reception of a large force of workingmen were then actively commenced at Eckhart Mine of the Consolidation Coal Company, and in an incredible short space of time commodious buildings were erected, contiguous to the mouth of the mine, for the accommodation of five hundred miners and a suitable police force for their protection. The magnificent scale of preparation, denoting as it did a great expenditure and unconquerable determination on the part of the companies, failed to impress the strikers as it impressed others. The former affected to view the scheme as a mere attempt to frighten them, and at first greeted the mechanics at work upon the new buildings with great humor, as they assembled in large crowds around the mouth of Eckhart slope. But when the first installment of state police arrived, quickly followed by about one hundred stalwart looking strangers, surrounded by a still stronger force of state police, an instantaneous change in the bearing of the strikers took place; the greatest excitement was apparent among them, and it was plain to be seen that they had become suddenly aroused to the fact that the companies, especially the Consolidation under the active personal lead of its indefatigable president, Mr. C. F. Mayer, were thoroughly and unmistakably in earnest. It was in the early part of June when this first installment, of foreign labor reached Eckhart, and although they were surrounded on all sides by a heavy force of police, the striking miners crowded upon them in overwhelming numbers, and with cries of "come out," "come out," besought them not to enter the quarters provided for them. In this they were unsuccessful; the new men quietly entered the barracks; a cordon of police was thrown around the camp—to which the name of Camp Mayer had by common consent been given—and thorough quiet and order prevailed. The policy of the strikers now took a sudden change. Cajolery had failed. In-

timidation was the next remedy. The mechanics at work erecting additional buildings were threatened, and several frightened away. No one was allowed to hold any intercourse whatever with the new miners, the police, or any employee at Camp Mayer. The shops and stores at Eckhart and Frostburg were closed to every one having any connection with Camp Mayer. From morn till night of each recurring day an idle crowd stood near the mouth of the mine greeting the men as they went to and from their work with offensive cries and profane epithets. To get rid of this annoyance a substantial fence was erected around three sides of the camp, and thus the new men were no longer exposed to contact with the strikers. But the few old employees who had resumed work with the new labor—all of whom were old citizens of the highest worth and respectability—were exposed to every conceivable insult that the ingenuity of the most depraved heart could conceive or invent. The roads to and from their homes to the mine were lined morning and evening of every day by foolish women and girls, vulgar boys and infuriated and profane men, who greeted them with every vile and opprobrious word known in the vocabulary of obscenity. Rude effigies were erected at every turn of the road, or carried in procession as the shameless mob followed old respected citizens—guilty of no greater offense than that of laboring for the most they could get—to their very doors. The power of the Knights of Labor was now brought into its fullest play. They ordered the train men on the Eckhart Branch road to refuse to move the trains that carried the coal mined by the new labor from Eckhart to Cumberland. The order was promptly obeyed. Through the watchful energy of General Manager Burwell new men were quickly found to take the place of the railroad men, however, and no interruption to trade was occasioned by this attempt to retard the progress of resumption. They decreed that a certain Baltimore newspaper should not be sold upon the streets of Frostburg. Not a carrier could be found to deliver it or offer it for sale. They procured the several ministers of the gospel at Frostburg to address a letter to Mr. Mayer protesting against the restraint put upon the new

miners at the camp, and begging that they be granted the liberty of attending church at Frostburg. To this the reply was made that it was not thought advisable at that time to expose the new men to any unnecessary danger, and therefore it was deemed best, in view of the state of public feeling, to keep them in camp, where their every want, physical as well as spiritual, could be properly looked after. The ministers were also informed that any or all of them would be kindly and cordially received in their spiritual capacity at Camp Mayer, where every accommodation would be afforded such as desired to hold divine service after any form. If any of these ministers of the gospel ever visited Camp Mayer I never heard of it.

Upon several occasions obstructions were placed upon the railroad track in the vicinity of Eckhart, but timely discovery always prevented accident. The county press was either intimidated into silence or converted into a supine apologist for the mob—for into nothing more respectable than an unorganized mob had the active element of the strikers now developed. In this condition of affairs it was thought advisable to properly arm the police force, now numbering one hundred men. To effect this a box of improved firearms was sent to Eckhart, and having been seen carried into camp the report quickly spread that some one had been killed and was about to be secretly buried in the camp. Imagining that he saw a first-class opportunity of developing a sensation, a pompous constable from Frostburg, with more impertinence than knowledge of his duty, forced his way into the camp, and claimed the right of making an investigation as to the introduction of the supposed coffin into the camp. He was courteously shown the box of improved breech-loaders, and retired a thoroughly disgusted official.

The new labor at Eckhart soon began to develop considerable skill in mining coal, and in a short time all doubts as to the success of the experiment vanished, and Eckhart slope was producing its average output of coal. Small detachments of new laborers arriving almost daily, until in the latter part of July, Hoffman mine, of the Consolidation Coal Company,

about two miles from Eckhart, on the road to Pompey Smash, was opened by a force of men from the camp at Eckhart.

Previous, however, to this aggressive movement on the part of the Consolidation Company, the real management of the strike had from some reason been taken out of the hands of the local management in this county and transferred to headquarters at Pittsburg, Pa., as the following correspondence shows:

"Noble Order of the Knights of Labor of North America,
Office of the Grand Secretary.

PITTSBURG, PA., June 30, 1882.

"S. S. LEE, ESQ., *President Swanton Coal Co.,*
Baltimore, Md.

DEAR SIR: The following resolution was adopted jointly by the miners of the George's Creek, Maryland coal region, comprising District Assembly No. 25 of the order of the Knights of Labor, and the miners of Clearfield and Center counties, Pa., comprising District Assembly No. 40 of the same order:

"*Resolved,* That the Grand Executive Board of the Knights of Labor be requested to act as a conciliatory board to effect a settlement of the difficulties existing in the George's Creek, Md., and Clearfield, Pa., districts—the districts having amalgamated. All correspondence tending toward a settlement to be sent to the Grand Executive Board of Knights of Labor through the grand secretary."

The above request has been complied with on the part of the grand executive board, and upon notification from the operators interested of a desire to arbitrate or settle the difficulty in an honorable manner, the executive board pledge their influence to effect an honorable settlement.

"Hoping you will give this matter a favorable consideration, I remain, Very truly yours,

(Signed.) ROBERT D. LAYTON,
Grand Secretary."

To this letter the operators, through Mr. Lee, their chairman, replied as follows:

"BALTIMORE, July 5th, 1882.

"ROBERT D. LAYTON, ESQ.,

"*Grand Secretary, Pittsburg, Pa.*

"DEAR SIR: I beg to acknowledge the receipt of your favor of June 30. We are at all times ready and willing to confer with the men in our employ, but we do not realize that there is any need of an intermediary.

"I am bound, in frankness, to say to you, that the condition of things in our region has been, and still is such, that it is impossible for the companies to accept anything but what they have asked for.

"I believe *you* would concur in this were you as fully informed upon the facts as we are.

I am yours, very truly,

(Signed.) STEPHEN S. LEE, *Chairman.*"

The companies having declined to recognize the Grand Executive Board of the "Noble Order of the Knights of Labor of North America," with headquarters at Pittsburg, as a party to the controversy between them and their employees, a Mr. James Campbell, a non-resident of this locality, but believed to be some kind of adjunct to the "grand executive board" above mentioned, tried his hand at negotiation by telegram, as follows:

"CUMBERLAND, MD., July 27, 1882.

"STEPHEN S. LEE, *Chairman, Balt.*

"Will you appoint committee to meet two representative miners from each works, to try and effect a friendly settlement of existing trouble. Answer at once. State time and place. (Signed.) JAMES CAMPBELL."

To which Mr. Lee sent the following reply:

"BALTIMORE, MD., July 28, 1882.

"JAMES CAMPBELL, ESQ., *Cumberland, Md.*

"Your dispatch of yesterday received. We have always been willing to meet our men, but we have, and still do, positively decline conferring with officials of any kind or any outside parties. (Signed.) STEPHEN S. LEE, *Chairman.*"

Thus ended the efforts of outside parties to thrust themselves into the strike as intermediaries.

The resumption of work at Hoffman mine, as before mentioned, effected a momentary change in the scene of turmoil and excitement. A great many of the strikers, who had been employed at Hoffman mine, had their homes in the village of Pompey Smash, and new laborers were now filling the places which they refused. In my official capacity I had frequently inspected Eckhart mine, and this seems to have given great offense to the strikers. I wish to draw a distinction here between the decent and conservative men who always deported themselves in a becoming manner and never behaved toward any one with a want of common courtesy or lack of gentlemanly behaviour, and the active strikers. In the use of the word "strikers," I, therefore, desire to be understood as referring to the turbulent element. This class was very numerous and troublesome, especially at Pompey Smash. Among them the report was circulated that I was engaged instructing the new labor at Eckhart; that I had gone to New York, Baltimore and other places to secure new laborers for the Consolidation Company, and that I had accepted employment under that company, to assist in breaking up the strike. I take occasion here—although I hardly believe it to be necessary—to brand all such statements as unmitigated falsehoods from whatever source they may have originated, as I was never absent one night from the region during the strike. But they served the purpose of the originators in turning the mob of hoodlums loose upon my heels. I bore their threats and abuse in silence until the manifestations assumed a threatening character toward my family, and then I appealed to the law and had warrants issued for a number of the offenders. These warrants no constable would or dare serve, and so I had them directed to the sheriff. I found that officer failed to execute them. He sent a deputy to serve the warrants. The deputy made two arrests, and then kindly told his prisoners to *remain where they were* until he returned, and after a time returned to find his birds had flown! Thus it will be seen that the power of the Knights of Labor overrode the law

itself, and that the citizen was completely at the mercy of a lawless mob which was only restrained by two agencies, viz.: their own abject cowardice, and the moral force of the small band of respectable men composing the conservative element among the strikers. These violent demonstrations were not incidental outbursts. They were devised systematically and kept up through every hour of every day. The demonstrations along the road from Eckhart to Frostburg toward the employees of the company who resided in the latter place, and were engaged at Eckhart, finally became so threatening that the sheriff and state's attorney were called upon for protection. The sheriff, at the head of a force of state police, escorted the men to their homes on one or two occasions, but his presence had little or no effect upon the mob, and no arrests were made, although the public highway was used as a place in which respectable citizens could be abused, threatened and blackguarded with impunity. The Knights of Labor denied all responsibility for these violent demonstrations, but prominent members of that order—aye, old men—were seen in the background urging women and girls and half-grown boys to do that of which they themselves were ashamed.

The police force at Eckhart, numbering about one hundred men, under command of Capt. Charles Hancock, now under excellent drill and discipline, were fully employed guarding a line over three miles in length day and night, including the camp at Eckhart, the mine opening, wharf, engine-house and offices at Hoffman, and the two mine openings at Eckhart, which connected with the immense works at Hoffman. At the latter place no offensive manifestations ever occurred. The few miners living in the immediate neighborhood of Hoffman mine maintained a quiet and dignified behaviour. But at Pompey Smash, something over a mile distant, hostile demonstrations were of daily and hourly occurrence, and became so violent upon several occasions as to necessitate the reinforcement of the police force at that place.

In the meantime the new labor at Eckhart and Hoffman was making satisfactory progress, and the output was increasing daily. The strikers could no longer dodge the indisputable

fact that these mines were being successfully worked with unskilled labor, and a new movement to bolster up the waning rule of the Knights of Labor was at once set on foot. Emissaries were dispatched to Clearfield, Myersdale and Elkgarden for the purpose of fomenting strikes in those localities. At Clearfield they met with some slight success at first, but the strike inaugurated was of very brief duration, new labor quickly taking the places of those rash enough to attempt the experiment. At Myersdale an attempt at strike was also made, but the effort was feeble and without effect. At Elkgarden the attempt was a still more complete failure.

When the success of Mr. Mayer's experiment of introducing new labor at Eckhart and Hoffman mines of the Consolidation Coal Company was demonstrated beyond all doubt, the policy was adopted by the New Central Company, whose mines are near Lonaconing, in the heart of the coal region. The erection of quarters for the accommodation of new laborers at Koontz mine, of the New Central Company, was soon completed and a force of twenty-five state police from Camp Mayer sent there for the protection of the property of the company. The arrival of the police force was the signal for the assemblage of the largest crowd of strikers and their sympathizers that had yet marked the progress of the strike. All was in readiness for the reception of the new labor, which was hourly expected to arrive. In the night the crowd increased rather than diminished, and the police discovered that they had been quietly surrounded on all sides by a hostile crowd to the number of several hundred. The sergeant in command was then notified that he must retire with his force by a certain hour or suffer the consequences. The sergeant thought it best to submit to the inevitable, and at the appointed time withdrew his force and retired to Camp Mayer. It was decided to make no further attempt to use the state police at Koontz mine, but to formally call upon the county authorities for protection. This was done, and the sheriff was directed to summon a *posse* and proceed to Lonaconing for the protection of the property of the New Central Coal Company. The sheriff promptly summoned seventy men from among those against

whom his force was supposed to have been called out. The next day a small force of new laborers arrived at Lonaconing, and were at once taken to their new quarters at Koontz mine, followed by an unwelcome escort of yelling strikers. Under the circumstances it could hardly be expected that the sheriff's *posse* would make any effort to keep the strikers from mingling with the new laborers, and consequently it did not require more than a few hours to have the small body of strangers badly demoralized, if not thoroughly intimidated. Nevertheless a number of them entered the mine, and work at Koontz mine was resumed in a small way. Several of the old employees of the New Central Company resumed work with the new men, and upon their heads the concentrated wrath of the entire body of strikers was hurled. Their condition at once became truly pitiable. The old hands succumbed to the intimidating methods of the strikers, but the *posse* remained on guard over the property of the company, and the new laborers persisted in sticking to their employment. The effect upon the strike generally was instantly apparent, and demonstrated conclusively that had the example of the Consolidation Company at Eckhart and Hoffman been quickly followed by the companies along George's Creek, the strike would have culminated two months sooner than it did, and a large amount of loss and suffering would have been thereby averted. Great credit is due to Mr. Mayer for the energy and prudence he exercised during this eventful struggle; he was ably assisted by P. L. Burwell and James B. Thomas, two officers of the company. It was evident that the backbone of the strike was broken. The weakening of the striking miners was made apparent by the solicitation of a conference on their part.

This was acceded by the executive committee of operators, and the meeting took place at the Queen City Hotel, in Cumberland, on the 15th day of August.

The delegates represented every mine in the region, and were generally regarded as leading men in the Knights of Labor. The conference lasted several hours, every opportunity being given the delegates to state their case and submit their proposition, if any they had, looking to a compromise.

In the published reports of the meeting—the public, with the exception of the reporters, being excluded—I am unable to discover that any claim whatever was made for a higher rate of wages than that which prevailed elsewhere, except that sixty-five cents per ton was the lowest they could sustain life upon. The meeting was as barren of results as the miners were of argument in support of their pretensions. Flapdoodle speeches about the dignity of labor and the rights of the masses were quite numerous, but the inquiry, why should sixty-five cents per ton for mining and two dollars and forty-eight cents per day of nine hours be paid for other labor by the Cumberland operators, as against fifty cents per ton for mining and one dollar and sixty-five cents per day of eleven hours for labor in other coal regions, was skillfully evaded, or conveniently ignored. The meeting closed with the ultimatum from the operators that the men could resume work at any time on the terms offered on the 1st of March, but without any promises or other pledges whatever. Shortly after this conference it was evident that the George's Creek miners were resolved not to be supplanted by new labor, and it was the certainty of this fact, now evident to them, that caused the first break in the line to be made by the employees of the George's Creek Coal and Iron Company, as large numbers of its employees applied to Superintendent John Douglas for work upon the company's terms. When this became known large numbers of the strikers in the upper part of the region visited the mines of the George's Creek Company to persuade their men to hold out a few days longer. When another conference was asked, but was refused on the part of the companies, and on the 22nd day of August the strike was declared off by the Knights of Labor, by the following notice:

The Strike Abandoned—Notice!

To Whom it May Concern:

On August 24, 1882, we, the undersigned, have decided to resume work. All parties are hereby notified to apply at their respective places of working, at 7 A.M., for their tools.

K. OF L.

Thus ended a strike that marks a memorable era in the history of labor movements in Allegany county. It was a signal victory for the companies, not over the miners as a body, but over the arbitrary and iniquitous rule of a secret organization that had shamelessly prevented every good purpose for which it had been organized. Two more years of such restrictions as it imposed upon the mines through the stupidity of its infatuated leaders would have effectually destroyed the business and ruined the investments of capital in this entire region. Of course the business of this section was almost irretrievably destroyed for the remainder of the year, and yet from the best information I can gather, the men earned as much upon an average during the months of September, October, November and December, 1882, at fifty cents per ton, as they had previously earned in the same length of time at sixty-five cents per ton. This is accounted for in two ways: Under their own rules the companies are not compelled to employ every miner that happens to drift into this region, so that the number of employees is now not so great. Then, again, the men are not allowed to restrict their labor to five tons per day, which was one of the obnoxious regulations of the Knights of Labor. Under the rule of the K. of L., when two men, working together had loaded five cars, their day's work was complete, no matter if it had been accomplished in three hours, and they left the mine, no matter what might have been the business needs of the company.

General Remarks.

The following facts have been demonstrated by the strike:

1st. That the eastern market can be supplied with coal (bituminous) independently of the Maryland product.

2nd. That the coal in our basin can be mined successfully by unskilled labor, a fact disputed by some of our miners before the strike, but now fully recognized by a large number whose places are at present filled by imported laborers.

3rd. That the price of mining in this region in the future will be the same as that paid in competing regions.

The various strikes of 1882 in our mining and manufactur-

ing centers demonstrated beyond a doubt that the irrepressible conflict between capital and labor is still going on, and that all labor organizations that resort to strikes in order to maintain a high rate of wages prove signal failures in every sense of the term. Our tariff commission might have learned a lesson from the great labor strikes of 1882 that would have enabled them to frame a modification of our discriminating tariff law, and to adopt or suggest a more *liberal* commercial policy with other nations for the benefit of the consumer as well as the producer.

The recent disastrous strikes ought likewise to open the eyes of every intelligent workingman in the country to the fact that he cannot better his condition by a resort to such methods. They ought to enable him to see through the tariff blind which has been used so successfully by politicians to deceive him. For what is the benefit of a tariff upon coal and iron to the miner and iron-worker when bone, muscle, brain and stomachs are placed upon the free list? The leaders of labor organizations in Europe recommend emigration from the overstocked labor market as the only means of elevating the laboring class. But stomachs are made to be fed, and if food cannot be had in one continent it may be got in another, and so the laborer of Europe gladly accepts the invitations and inducements held out to him to come among us. It is the brain, muscle and bone of such men that has developed our great mineral resources, built our vast public improvements, and made our valleys to bloom as a rose. But what kind of a reception do they meet with from our labor organizations, composed chiefly of men who have preceded them into the country only a few years? In case of one of them offering to work in place of a member of an organization that is upon "strike," what is the result? The striker claims the right of *advising* and *instructing* him that it is not in accordance with sound principles for him to come here and take the bread out of his (the striker's) mouth and the mouths of his family. But the immigrant has *his* family and their needs to think of, and he concludes that *principle* is poor food for an empty stomach, and he is very likely to continue at work. Then, if his em-

ployer fails to furnish him protection, he is likely to receive the same kind of treatment accorded the grasshopper and potato-bug when they take the bread from the mouth of that noble animal known as man. All this seems to prove that in every generation a great many more persons are born than can survive in ease and comfort, which proves the correctness of the doctrine that the fittest survive, and consequently there is a continual and persistent battle for existence going on among all classes born to a life of poverty and labor, and all the grips and passwords of labor organizations the world over cannot prevent it, or change the conditions of society sufficiently to even modify it. In my opinion the sooner co-operation takes the place of strikes as a means of elevating labor, the better it will be for the workingman. By co-operation they can help themselves in various ways; by adhering to the method of strikes they can only entail upon themselves and their posterity a life of poverty and degradation.

Our Coal Trade.

The great strike of 1882 had the effect of demoralizing the trade, by compelling large consumers of coal to go to other competing regions for their supplies, and although a portion of the lost trade has been regained back, yet a number of our mines has remained closed during the season, while others have only been partially worked, thereby throwing a large number of our miners out of employment, entailing a certain amount of distress upon them and their families. But nevertheless the output for the season will be two million tons from the region proper.

Early in the season it became generally understood that a uniform tariff of rate for the transportation of coal to the seaboard had been agreed upon by the P. C. railroad and B. and O. railroad companies. The former being the carrier of Clearfield coal, the latter of the George's Creek and Cumberland coal.

With the price of labor being adjusted between the two competing regions, our people knowing the established superiority of our coal for steam purposes, were in high spirits over

the prospects of a good season's work, which they so much needed, after the long strike above referred to.

But it soon became apparent that if such an agreement had been made between the above-named transportation companies, that it was not being carried out in good faith. For in the spring, when large consumers make their contracts for their supplies for the season, those contracts were taken by the Clearfield operators at prices that the operators of this region, that shipped by the B. and O. railroad, at the agreed rates, could not enter the market. There were exceptions to this state of affairs in the region. The Maryland and American Coal companies that ship the product of their mines by the George's Creek and Cumberland railroad, and connects with the Pennsylvania Central railroad, near Cumberland, received some of those contracts, and were enabled to compete with the Clearfield shippers, no doubt by getting special rates.

The miners employed by these companies have had a fair season's work.

The New Central Coal Company has shipped a large amount of coal by the Pennsylvania system, connecting at the state line below Mount Savage.

Another new route of transportation, by which a large amount of the coal mined by some of our companies has found its way to tide-water, is over the Broad Top and Huntington railroad. Then by the way of Northern Central to Canton, near the city of Baltimore. But Locust Point, being a much shorter route, getting the go-by; where are you, John W. Garrett? The remainder of the shippers that had no other outlet but the Baltimore and Ohio railroad, did little or no business until midsummer, when it was rumored that the Baltimore and Ohio Railroad Company was giving drawbacks to shippers. Be that as it may, trade began to improve about this time. Also the Chesapeake and Ohio canal reduced their tolls and the tonnage did increase steadily along.

There are only two years in the history of the trade that the Chesapeake and Ohio canal has carried more coal to market.

What the coal basin of Allegany and Garrett counties re-

quire to develop their mineral resources, is cheap transportation.

Our Coal Basin.

Our coal basin has so often been described that I deem it unnecessary to enter into details concerning it.

The area of the big vein, now being worked in the basin, known as the big vein, is upon the best information attainable, seventeen thousand acres.

By our system of mining we have mined out eight thousand five hundred acres of the big vein, which has produced fifty-three million tons, or a fraction over five thousand tons per acre. So much for mining the celebrated so-called fourteen-foot vein of the George's Creek basin. It has taken a period of over forty years to accomplish this. So much for the development of our mineral resources.

That we have made some improvement of late years in our system of mining, no one can deny. And that more tons of coal will be mined out of the remaining eight thousand five hundred acres of the big vein is an assured fact.

For our coal companies are beginning to realize the truth of the old proverb, "That we never miss the water till the well goes dry." So, accordingly, they are improving their mode of mining. In my judgment the great evil in our past and present system of mining our big vein consists of driving the rooms too wide, and leaving the pillars too narrow. With narrow rooms and wider pillars a much larger percentage could be mined out per acre.

The practice now generally in use, in leaving from two to three feet of bottom coal, is a waste that cannot be justified upon any practical business principle. As it is not only a dead loss to the capital invested, but to the community at large. The objection that on account of the small strata of slate running through it, it cannot be kept clean, is too ridiculous to be entertained for a moment by any practical miner. For it is a well-established fact that there are more slates in the veins of coal in Pennsylvania and West Virginia, the coal regions that compete with us, than there are in this portion of our vein that is left unmined. If there was no bi-

tuminous coal mined, but from veins without slate, the production would amount, seemingly, to nothing in comparison to what it is at present. There is also about two feet of the top of our vein lost, which is left for the purpose of securing a safer roof for the protection of the miner.

But a large amount of it could be saved when drawing back the pillars.

By our present system there is too much space mined out before there is any attempt made to save any of the top coal, and in fact in a large number of the mines there is no effort made to save any of it, but it is left until the weight from the strata above breaks the props, and when the cave comes it is lost forever.

Our Lower Veins.

There is also in our basin, below our big vein, three other workable seams of coal known as three, four and six-foot veins, all of them having a thick strata of rock for a roof. They are well adapted to be worked upon the long wall system of mining, and every acre of the basin is underlaid with these veins. The opening into the four-foot vein, upon Morrison's property, below the town of Barton, was a failure for want of practical experience in the management. It ought never to have been started upon the pillar and room plan, but upon the long wall system. With its rock roof and fire clay bottom it was admirably adapted to that system of mining.

The same prejudice that exists against the working the bottom coal of our big vein exists against working our lower veins; but as our big vein is rapidly disappearing, the prejudice will gradually die out. There are twenty-eight openings in our big vein in the basin, and if worked one-fourth of them will be mined out two years from date, and I have given up all hope of ever seeing the long-prophesied three million tons per annum being mined and shipped from our big vein.

Garrett County Coal Basin.

There is a large basin of coal laying undeveloped in Garrett county. Several outcroppings of fine seams of coal can be

traced along its streams, and at no distant day some of the projected railroad enterprises will penetrate this undeveloped territory, with the horizon, illuminated with the blaze of coke ovens of Pennsylvania, almost up to its boundary line on our sides, coupled with the reflecting light from the same cause from the mountains and valleys of West Virginia on the other side. This broken link between her two adjoining sister states will soon be filled up. In the near future the light from the coke ovens of Garrett county will illuminate the ragged peaks of "Nigger Mountain" and the banks of her noble streams—the Youghiogheny and Casselman.

The Condition of Our Mines.

I am happy to be able to report that the condition of the mines in Allegany and Garrett counties are generally improved since the date of my first commission in 1880.

The miners have had a liberal supply of timber furnished them. There has also been a large increase of trap-doors in the various mines, and a number of new furnaces for ventilating purposes have been erected, and more attention has been paid to bratticing up abandoned workings, all of which has improved the ventilation of our mines, thereby adding to the comfort of the miner.

This has been accomplished in part by reasoning with the superintendents of the various coal companies, whom I must say, are a class of as humane men as can be found in the same business in other coal regions in the country.

They know full well the importance of good ventilation in the process of mining.

There are but few mines in the region of any importance that has not got a ventilating furnace, and those without one will soon be supplied, as the owners find it to their advantage, as it enables them to mine more coal per acre from their property, especially in drawing back pillars, for it is a well-known fact that millions of tons of coal has been lost in the region for want of proper ventilation.

The Maryland Union Company.

This company has three openings upon the big vein, namely: Franklin, No. 1 and 2, and the Phœnix mines, and one opening upon the three-foot vein, which looks better than any other place. I have seen it opened in the basin. It is a good opening and well laid off inside. I am of the opinion that it ought to be mined upon the long-wall plan. The coal is of excellent quality, with a heavy bed of rock overlaying it as a roof. The Phœnix mine is in good condition. The tract of land bought by this company adjoining that which was put down by the wise men of the region, as all out-crop coal has turned out otherwise. A heading has been driven into it over six hundred feet, and the coal is black and of good quality. The Franklin mines of Nos. 1 and 2 are both in good condition, men having all the timber supplied them that they require, and all the cry about the coal being exhausted in this company's property is humbug. The property lays at the southern end of the basin, and all the lower veins can be worked above the water line, and contains millions of tons of coal, enough to last for fifty years. I consider it one of the valuable properties in the region.

The Baltimore and Hampshire Coal Company.

This company has two openings in the big vein upon their property, the New Hampshire and Midland mines.

They have done more business this year than they have done for years past, but suspended operations at the Midland mines on the first of November last. The New Hampshire mine contains a large amount of red coal, which the company has been mining and delivering at Piedmont to the Baltimore and Ohio Railroad company for the use of their engines, and it gives general satisfaction. This mine is in good condition.

The Potomac Coal Company.

The property of this company has of late changed hands. The new firm is Black, Sheridan & Wilson. All of these gentlemen have long been identified with our coal trade.

They are energetic business men, and are building up a large business. They have doubled the capacity of the mines since they have taken hold of it. Amongst other improvements that have been made is a new dump, with a four-inch screen, for their western trade, which is rapidly increasing. The fine coal is shipped to the west for blacksmithing purposes, and the lump to the eastern market. It is a fine coal property and is well managed, and I feel certain little of it will go to waste.

This firm will make its mark in our coal trade. This mine is in good condition.

The Swanton Coal Company.

This company has two openings upon their property, one upon the big vein and one upon the three-foot vein. A new ventilating furnace has been erected at the mine upon the small vein. Both mines are in good condition.

The Atlantic Coal Company.

What is known as the Pekin mine is upon this property. This mine is nearly mined out. The management has had much trouble during the season with water and black damp. A siphon pipe had to be introduced to lift the water out of the mine, and two small ventilating furnaces had to be erected to clear the mine of foul air, and it is now in tolerable fair condition.

The Maryland Coal Company.

This company owns a valuable coal property. There are four openings upon it, the new and old Detmold, Savage Mountain and Kingsland mines.

New ventilating furnaces have been built at the old Detmold and Kingsland mines. Trap-doors and a large amount of brattice has been put up inside of these mines, which has improved the ventilation.

A large amount of timber has been stood in the Kingsland mine, and has partially succeeded in stopping a creep. The capacity of this company's mines, without straining, is two thousand tons per day. The George's Creek and Cumberland

railroad runs close by the mouth of the mines, and there is no doubt that coal is dumped into the cars cheaper than any other mine in the region.

These mines are in better condition than they have been for some time past. I have had some trouble with the superintendent of the company about the quality of the timber supplied the miners, but I am happy to state that he is now supplying good quality and sufficient quantity.

This company also owns a large tract of mountain land, that contains the best deposit of fire-clay in the county.

The American Coal Company.

There are three mines opened upon this company's valuable coal property. They are economically and practically worked. There is more top coal saved in these mines in drawing back pillars than there is in all the other mines of the region combined. In fact, in saving, the top coal is reduced down to a perfect system. A thorough practical knowledge is displayed in mining out this portion of our vein. There has been some brattice and trap-doors put up, and all that is wanted in these mines is a good ventilating furnace, and as the general superintendent of this company is well known as a thorough business man of few words, and the gentlemen having charge inside are practical men, there is no doubt that a new furnace will be erected at these mines to enable them to save their coal in drawing back the pillars. Coal from these mines is shipped by the George's Creek and Cumberland railroad. The influence of the superintendent's business habits seems to have extended to every employee of the company, as everyone seems to be attending to his own business and everything going on like clock-work.

The New Central Coal Company.

The Koontz big vein and Midlothian mines are owned and operated by this company. The first-named mine is the only one that has run steadily during the season. The Midlothian has worked about half time, the big vein remaining idle all

the season. Both Koontz and Midlothian mines are in good condition.

The Koontz mine is a very expensive mine to work on account of its heavy grades. I have always been of the opinion that steam-power ought to have been introduced into this mine long before now.

George's Creek Coal and Iron Company.

There are three openings upon this company's valuable property, but two of them only are being worked. They are both in excellent condition.

A new ventilating furnace has already been built to increase the ventilation of one, and there are fair prospects of a furnace being built for the other.

The superintendent is one of the oldest practical miners in the region.

Early next spring he will erect a stationary engine at one of his mines for the purpose of superseding horse-power, and no doubt it will result to the benefit of the company.

The Miller Mine.

This mine is owned by the National Coal Company, but was leased by "Hitchen Bros.," of Frostburg. When they took hold of the same they gave it a thorough overhauling and put it in good condition, as Mr. Owen Hitchens, the senior partner of the firm, is an old practical miner.

The coal is pretty well mined out of it, nothing being left but some pillars.

The Consolidation Coal Company.

This is the leading coal company of the region. They own five-eighths of the big vein remaining unmined in the coal basin. They are the largest shippers in the trade. A large portion of their property is located in the Traverse Ridge of the coal basin that connects Savage Mountain on the one side with Dan's Mountain on the other, this being the widest part of the coal basin.

A large portion of their property lays below the water-line. But through the engineering skill of the superintendent, the Hoffman, Eckhart and New Hope slopes are drained by a level near the old Allegany mines. The old Ocean mine is getting well mined out. The new slope alongside of this mine has been sunk down on the vein to a depth of one thousand feet. A number of headings are being driven, and a large amount of territory has been opened up in this lift. This slope is now being sunk another lift of a thousand feet. It is already across the Cumberland and Pennsylvania railroad, and also George's Creek. It is expected soon to strike the basin, when headings will be driven off in opposite directions. This opening will develop more territory than any other opening in the basin. There is a large body of water to contend with in this new mine. It takes two large Cameron pumps, that are supplied with steam from the stationary hoisting-engine outside, which is used in lifting the coal to the surface. There is a traveling road for man and horse, running parallel with the slope, and is used also as an airway.

The Hoffman slope is the deepest coal slope in the country. Its depth is three thousand one hundred feet. There has been lifted out from this depth, in one day, two thousand tons of coal.

Eckhart slope, located at the village of Eckhart, is the mine where the new miners were introduced during the strike. There are still one hundred of these new men working in the mine, and are making efficient miners. There are a few old miners employed.

The new Hope and Allegany mines belonging to this company have been idle all season. The superintendent of this company, James B. Thomas, is the oldest superintendent in the region, and has no superior as a practical miner in the coal field. He was first to introduce fire draft for the purpose of ventilating the mines; and the other superintendents thought that it was an unnecessary expense, but now they have to follow his example.

Trap doors and brattices are the order of the day with

him at all times. He is standard authority on all mining matters in the county. I may here state, also, that at Ocean, Hoffman and Eckhart slopes, the empty cars are hauled from the dump to the mouth of these mines by steam, thus saving horse-power.

The Borden Coal Company.

This company's property consists of the well known Borden pit and the old Borden mine. The late lamented A. C. Green, whose name will ever be identified with the history of our coal trade, and respected by his employees and the public at large, was connected with this company from its first organization, and there were few men connected with the trade that were better posted in the details of the trade. There is a large amount of coal yet to be mined out of the Borden shaft, and a considerable amount out of the old Borden mines. Both mines are in good condition.

The Blaen Avon Coal Company.

There is but one opening upon this company's property. They have lately purchased some adjoining coal property from the heirs of the late Robert McCulloh. There has been more coal mined and shipped from this mine this season than for years past. It has been troubled somewhat with black-damp, but a small ventilating furnace was erected which improved the ventilation greatly.

The Piedmont Coal and Iron Company.

The Empire mine, located in Garrett county, is opened upon the six-foot vein on this company's property, and the prejudices that exist against these small veins has had the effect to curtail the shipments from this mine.

The West Virginia and Pittsburg Railroad Company.

This road connects with the Baltimore and Ohio at Piedmont, West Virginia. It is now built to Fairfax, a distance of forty-seven miles. The coal mined upon the line of this road at Elk Garden, is the big vein, fourteen feet thick, and

lays in the same basin, known as George's Creek and Cumberland coal basin.

The coal is of the same quality, and is classed as George's Creek and Cumberland coal in the market. Therefore I have thought proper to include in this report a description of the openings and improvements that have been made in this portion of the basin.

At the Elk Garden mines, owned by this company, there are three fine openings upon the property, their capacity being about eighteen hundred tons per day. They are in first-class condition in every respect, Mr. Wm. Byers, a well known miner from George's Creek, having charge of the workings inside, and from what I know of the practical knowledge of this gentleman, there is no doubt but that one thousand five hundred tons per acre will be mined out of the property, and I believe the company was fortunate in securing the services of Mr. Byers. The general opinion of the public at the time this property was developed, was that the area of the big vein would not justify the expense necessary to build the improvements to get the coal to market.

Upon a recent visit I spent two days looking over the area of the big vein, and after viewing the out-crops, I came to the conclusion that there was eight hundred acres of big vein coal, which is equal to sixteen hundred acres of the same vein on the George's Creek with the present system of mining in that valley. The improvements on the outside are all of a substantial and first-class character.

The Big Vein Coal Company.

This company has also opened a mine on the line of this road. It is connected with the road by two incline planes and a tram road, and is in charge of Mr. James Little, a well-known practical miner from George's Creek.

No Labor Troubles.

There has been no trouble in the shape of strikes with any class of employees connected with the coal trade during the

season. Apprehension was felt early in the spring that the drivers in the various mines would strike for higher wages, as it was well known that a great deal of dissatisfaction existed among them, owing to the reduction of wages they sustained by the late strike; and I am of the opinion that the reduction was too heavy, when taking into consideration that dangerous occupation, as there are more of them hurt in the mines than any other class of employees.

The late strike terminated by an unconditional surrender on the part of the miners, they accepting the terms of the companies. One of the stipulations was to work twelve hours per day, allowing one hour for dinner. The companies acceded one hour—from the first of November until the first of March—four months during the winter. This magnanimous spirit displayed by the employers had the effect of wiping out a great deal of the bitterness that existed in the minds of the employees, owing to the failure of the strike. But I am sorry to be compelled to state that at a number of the mines the dinner hour is not adhered to—only half of this time being allowed.

This breach of contract is causing great complaint throughout the coal field, and no doubt will cause trouble in the near future. The companies ought to see that the terms of their own manifesto be carried out. It is true policy for employers to keep good faith with their employees. It tends to keep down dissatisfaction, which engenders strikes, that ought to be avoided under all circumstances, as poverty, crime and degradation are their legitimate results.

What a vast contrast there is in the condition of the miners at present compared with two years ago. Then they were all employed at wages above the average of other competing regions Now there is a large number of them that have been without employment all the season, and quite a number of them have been compelled to leave their comfortable homes and seek employment elsewhere.

The late strike was the cause of all this. It ought to teach the conservative element of our mining population that strikes are a relic of the past. Coal miners' strikes are a failure

everywhere and under all circumstances, as a means to elevate them as a class. There are too many persons engaged in the business of mining, and a strike in our coal district has no effect upon the market, as the consumption can be supplied from other districts, so it is only foolishness for miners in one district to strike to maintain a higher rate of wages than they are paid in other competing regions for the same amount of labor performed.

A List of Non-Fatal Accidents.

1. John Boyd, boss miner, both legs and six ribs broken by cars running over him, in the old Cony mine.
2. Daniel Reynolds, arm broken by a fall of coal, in the Kingsland mine.
3. Thomas Morgan, driver, foot crushed by cars, in Pekin mine.
4. John McCady, leg broken by a fall of coal in Kingsland mine.
5. John H. Simmons, crushed by a fall of coal at Potomac mines.
6. Patrick Conner, hurt by a fall of breast coal.
7. Robert Steal, leg broken by cars.
8. Christopher Keofh, hurt by a fall of top coal.
9. .. ... Clifford, crushed by a fall of top coal at Midland mine.
10. Henry Johns, crushed by a fall of slate in Potomac mine.
11. Daniel F. Johns, arm hurt at Jackson mine.
12. John Lamb, leg crushed in Pekin mine.
13. William Ritchie, leg broken in Koontz mine.
14. William Bacon, crushed by a fall of coal in Potomac mine.
15. Thomas Carney, crushed by a fall of coal in Franklin mine.
16. Robert Dick, crushed by a fall of top coal in Jackson mine; died next morning.
17. Michael Bowan, crushed by a car in Kingsland mine.
18. John Harper, driver, crushed by car in old Cony mines.

19. Alexander McKinzie, crushed by a fall of top coal in Koontz mine.

20. Andrew Mooney, crushed by top coal in Jackson mine.

21. Benjamin Pearson, hurt by a fall of breast coal.

22. James Tensdale, foot hurt by fall of coal.

23. John Cramer, leg broken in Miller mine.

24. John Connelly, leg broken by a fall of coal in the Hampshire mine.

25. James Hott, crushed between prop and car.

26. Frank Pryle, leg broken in the Miller mine.

27. John Carroll, hurt by a fall of coal in the old Detmold mine.

28. Esau Morgan, crushed by a fall of coal in the Jackson mine.

29. Joshua Langham, leg broken in Potomac mine.

30. Geo. McAlester, both legs broken by a fall of coal in the Hampshire mine.

31. Edward Brown, crushed by a car in Franklin mine.

32. Abraham Bennett, leg broken by mine cars in the Blaen Avon mine.

33. Lewis Kreiling, hurt by a fall of top coal in Blaen Avon mine.

34. Enoch Jones, crushed between a rib and car in the Ocean mine.

35. Geo. Bauers, leg badly smashed; amputation necessary.

A List of Fatal Accidents.

1. Robert Read, killed by a fall of top coal in the Kingsland mine.

2. Patrick Murphy, killed by a fall of top coal in the Midland mine.

3. Jno. Graham, killed by a fall of top coal in Koontz mine.

4. Daniel O'Neal, killed by a fall of coal and slate in the Koontz mine.

5. Thomas Shaw, killed by premature blast of powder in small vein mine at Swanton.

6. Henry Williams, crushed between the rib and mine car at Eckhart slope.

7. Mark James, killed by a fall of top coal at Blaen Avon mine.

8. Robert Hadda, killed by a fall of slate and coal in the Hampshire mine.

Our Coal Measures.

The following section of the upper coal measures of this basin was taken by Prof. Philip Tyson from survey and actual measurement in 1852.

This section I included in my report of 1881, but from some cause the public printer inserted minutes and seconds instead of feet and inches, and I have thought proper to embody it again in this report, hoping that the representatives from Allegany and Garrett counties will attend to having it published right.

Feet above Tide.	Number.	Character of Rock.	Thickness. Feet.	Inches.
	28	Shale	1	6
	27	Coal, 1	2	0
2,050	26	Shaly sandstone	19	0
	25	Shale	23	6
	24	Coal, K. Waynesburg	6	0
	23	Limestone and shale	12	0
	22	Fire clay	13	9
	21	Unknown	3	9
	20	Iron in shale	27	3
1,950	19	Shale	27	9
	18	Fine grain sandstone	3	6
	17	Shale	2	6
	16	Coal, 2 inches, in slate, j	4	3
	15	Fire clay	10	0
		Coal, J. Sewickly	3	6
1,900	14	Fire clay	3	0
	13	Shaly sandstone		
	12	Miaceous	51	0
	11	Coarse		
	10	Shale	42	6
	9	Coal, J. Redstone	4	6
	8	Shale	2	0
1,800	7	Coal	1	0
	6	Shale	4	9
	5	Coal	0	10
	4	Shale	1	3
	3	Shaly sandstone	1	0
	2	Shale, ferruginous	4	8
	1	Main coal, H. Pittsburg	14	0

Prof. Tyson also gives the following elaborate section of the Barren Measures, as they are called, in Pennsylvania (lying between H., or the Pittsburg or Cumberland coal bed), and the lower measures. It is worthy of preservation for the use of those interested in the region.

The measurements, from 670 to 1,120 feet, were taken on the Savage river and Potomac; thence to 1,349 feet on Mill run, which flows into the George's creek; thence to 1,443 feet on Laurel run, which also flows into George's creek, from 1,443 feet on the southeast face of Dug hill, at the foot of which is Lonaconing.

Feet above Tide.	Thickness. Feet.	Thickness. Inches.	Character of Rock.
1,800	14	0	Main coal, H.
		4	Bank of iron ore.
	11	8	Shale.
	3	0	Fire clay.
1,750	1	6	Limestone.
	15	6	Shale.
	29	0	Sandstone, fine grain.
1,700	27	6	Shale.
	2	6	Coal, G.
	4	0	Shale.
	16	8	Shale, ore No. 20 at its top.
	1	0	Shale, ferruginous.
	3	9	Coal.
	1	0	Shale.
	1	0	Coal.
1,650	2	6	Ore Nos. 17, 18 and 19, in shale
	3	0	Ore No. 16, in fire clay.
		6	Shale.
	1	0	Coal.
		7	Ore No. 15, in shale.
	2	0	Ore ball, in stratum of fire clay.
		6	Shale.
	1	6	Coal.
	2	6	Shale.
	5	6	Ores, Nos. 13 and 14, in fire clay.
	1	6	Sandstone.
	6	6	Ores 12, 11, 10 and 9, in shale.
	6	6	Shale, with ore balls, Nos. 8 and 7.
		7	Ore No. 6.
	4	3	Shale, with ore No. 5.
		6	Coal.
		6	Ore No. 4, in shale.
	1	6	Coal.
	[illegible]	[illegible]	Shale.
	3	3	Shale and coal together.
	3	2	Ore No. 3, in shale.
	2	1	Coal.
		6	Shale.
1,600	2	8	Ore No. 2, in fire clay.
	4	10	Ore No. 1, in shale.
	2	6	Ore in shale.
	1	6	Upper Black Band. — Undermine in the 3 inches coal and all the ore above 4 feet will come down. If stacked in rows and self-washed for a month, it will yield 40 per cent.
		3	Coal.
	2	0	Shaly sandstone.
	4	6	Shale.
	2	6	Coal, B.
	3	0	Limestone.
	3	6	Fire clay.

Feet above Tide.	Thickness. Feet.	Thickness. Inches.	Character of Rock.
		8	Coal.
	1	6	Shale
	1	6	Shale, ferruginous.
	1	0	Shale.
	1	3	Coal.
	1	3	Shale.
	1	6	Coal.
	1	6	Shale.
	1	6	Coal.
	2	8	Shale, brown.
	5	0	Shale, sandy, with balls.
1,550	8	0	Shaly sandstone.
	4	6	Shale.
	1	6	Coal.
	7	4	Fire clay.
	5	0	Shales, ferruginous.
	7	0	Shale, with balls.
	2	0	Shale, ferruginous.
	1	0	Shale.
1,500	39	0	Sandstone.
	15	0	Shale.
	3	0	Ore in fire clay.
	6	0	Limestone.
	2	0	Ore in fire clay.
1,450	10	0	Shale.
1,450	44	0	Sandstone.
1,400		8	Coal.
		10	Shale.
	2	2	Limestone.
	23	6	Sandstone.
	6	0	Shale.
	6	0	Hard black band.
	6	0	Shale, very ferruginous.
	4	0	Shale.
1,350	1	8	Coal, shaly. } 5th and 8th.
	1	0	Coal, hard. } 5th and 8th.
	3	0	Coal, good. } 5th and 8th.
	4	0	Sandy fire clay.
	6	0	Ore in shaly fire clay.
	6	0	Limestone.
1,300	33	0	Sandstone.
	9	6	Shale.
1,300	11	0	Ore balls. Marine shells. Balls in shale.
		2	Coal.
	6	0	Shale.
	2	2	Coal.
	14	0	Shale.
1,250	4	0	Coal.

Feet above Tide.	Thickness. Feet.	Thickness. Inches.	Character of Rock.
	23	6	Shales. Fire clay. Sandstone. Not explored
	2	0	Coal.
1,200	102	0	Unknown.
1,150			Coal crop near top. Sandstone at bottom.
1,100	24	0	Ferruginous shale. Gray shale. Black shale.
	2	0	Six feet coal.
		6	
	3	6	
	3	0	Fire clay.
	6	0	Shale, with balls of ore.
	27	0	Unknown.
	3	0	Coal.
1,050		4	Shale.
1,050	19	0	Sandstone.
		8	Coal.
	20	0	Shales. Fire clay. Shales. Fire clay.
	1	6	Coal.
1,000	10	0	Fire clay.
990	92	0	Sandstone (XII).

This rock is constant. It makes the flat summit of the West mountain, and, north of Savage creek, has lying on it isolated cubic blocks, fragments of themselves, as large as three-story houses: very remarkable objects.

Feet above Tide.	Thickness. Feet.	Thickness. Inches.	Character of Rock.
	3	0	Large balls of ore.
900	14	6	Shale.
		3	Shale coal.
	12	3	Sandstone, thin layers.
	2	0	Coal.
	2	6	Shales.
850	42	6	(Sandstone, etc., not explored)
			Shale, small interval.
	27	0	Sandstone, thin bedded.
	2	0	Lowest known coal bed.
530	160	0	Principally sandstone, but not much explored.
	90	0	Green shale, of XI.
450			Gray Limestone, of XI.

Recommendations—Geological Survey of Allegany and Garrett Counties.

It will be seen by the foregoing report of Prof. Tyson that a considerable portion of our basin and its formations are marked I, unknown. Now that such mechanical skill has been expended upon the perfecting of drilling tools that surveys may be made with considerable ease and accuracy, I would venture to suggest that the Legislature of Maryland follow the example of surrounding states and appropriate money sufficient to make a geological survey of Allegany and Garrett counties. If this be done, I think coal strata of a superior quality would be found in Garrett alone to justify the outlay. If some of this coal were developed, it would become a new feeder to that languishing state work—the Chesapeake and Ohio canal.

How the Ancient Forests became Coal.

The carboniferous formation represents the most wonderful episode in the history of our globe. It gives us an impression comparable in strangeness to that produced by those wonderful civilizations which blossomed out so suddenly and so splendidly in the infancy of mankind. Only a rare concurrence of circumstances could have brought on the expansion

of plant-growth which characterized its epoch. The world of plants was still young and imperfect. Vegetation was characterized by the abundance of green parts susceptible of rapid growth and of an almost indefinite development. It was, however, destitute of two characters which have been acquired by the later plant—those of the periodical and gradual increase of parts destined to endure, and of an absolute specialization of the reproductive apparatus.

The vegetable kingdom was the first factor in the production of coal, but not the only one: and two other factors must be taken into account in studying its genesis. One of these related to the condition of the environment, the climate and the temperature: the other to the situations in which the plants that were converted into coal were placed. Had either of these conditions been essentially different, or left out, we would have had no coal. The influence of situation is shown by the fact that the coal beds are always intermittent; that they are limited in extent, and pass laterally into shales and sandstones, so as to show that there was nothing universal in the phenomenon, and that it was liable to interruption by physical changes. It is also easy to conceive that the formation of coal could not have gone on unless the vegetation was adapted to the process and the condition of the climate was suitable.

The coal plants could never have grown and flourished as they did in the present climate of the north, and our hard wood trees, with their firm foundations in the ground, and their slow, periodical growth, could never, by decaying in the open air, have produced the peculiar and rich combinations we find in the coal beds.

The nature and bearing of these three concurrent factors have been carefully studied out by M. L. Grand' Eury, who has for that purpose spent many years in personal inspection of various mines and their surroundings, and has presented in his "Memoire sur la formation de la houille" Memoir on the formation of coal, Paris, 1882, a complete theory on the subject, including a review of the details of the process as taught by his observation of the phenomena.

The plants of the coal measures, so far as their nature has been revealed to us by their remains, were great ferns, gigantic lycodopiurus, called by the geologists leopidodendions and calamites and asterophyllites, allied to existing equisetaceae, all referable to the class of cryptogams. Besides these was another group, the character of which was long problematical, composed of the sigillarias and stigmarias. It now appears to be established that the stigmarias were a kind of rhizoma, which had the faculty of persisting for a long time under the mud unchanged, growing and multiplying by stolons, but incapable in that condition of producing sexual organs, while under favorable circumstances they formed enormous buds, whence shot up to the height of a hundred or a hundred and fifty feet, the huge leaf-clad stems, whose fossils, marked with the beautiful scars representing the leaf attachments, have been called sigillarias. Gymnosperms were also quite plentiful, of one class of which, the cordaites, M. Grand' Eury has made some happy restorations. He has found their leaves and seeds in considerable abundance at Saint Etienne, and he has observed at the same place visible traces of their carbonized trunks still standing erect and traversing the sandstone strata of some of the quarries.

A peculiar feature of these plants was the extraordinary predominence of the cellular or succulent tissues in them, and the corresponding rarity of the hard or fibro-ligneous parts, which appear reduced to insignificant cylinders. It was certainly not the destiny of these parts to increase with time, after the manner of the wood of our trees; and in examining the mature stems of the ancient plants, we never find any more than an extremely thin ring of real wood. The rest is all pith, and even the bark, except on the outside, frequently presents an open or spongy texture. Such structure is similar to that of the aquatic plants of the present time, which cannot exist at all in the air, and wither as soon as they are taken out of the water. An atmosphere saturated with moisture was therefore essential to their vigor; and in such an atmosphere, according to M. Grand' Eury, they grew continually, without interruption by changes of season, without rest

or alternations, to exhaustions; then to fall to the ground and give place to other similar growths.

So luxuriant a vegetation could only have been produced by the combination of an ultra-tropical heat, with an excessive humidity, under no other changes of season than those distinguished by intervals of relative calm and of torrential rains. At the same time, the superabundance of green plants, which characterized even the trunks of the trees, presupposes a considerable intensity of light; and all the phenomena point to a strong diffused light, the direct rays of the sun being tempered by the interposed veil of vapors, as that under the influence of which these growths were produced.

The third element of the problem, that of the material disposition of the places in which the coal was formed, is the one that has offered the most difficulties.

Two theories have been held on this subject. One is, that the materials were carried by ocean-current or rivers, from considerable distances, to the places of deposit. Naturalists, however, who have applied themselves specially to the study of the carboniferous flora, have not been able to reconcile the orderly arrangement of the fragments, in which the specimens are so delicately posed, mingled without confusion, and often distributed uniformly in collections of leaves of the same species, with the confused drifts, which are the almost invariable results of such a method of transportation. Moreover, in all coal regions, recognizable trunks of calamites, tree-ferns, sigillaries and other types of the carboniferous flora are found in the neighborhood of the coal, vertically crossing the strata of sandstone that accompany and separate the coal beds, in such a manner as to show that they grew over the ground of the whole region, and to indicate that their transformation was dependent upon some special or local phenomenon which may have been quite simple, or at least, natural, and were probably resultant from the physical conditions of the land at that epoch. To other theory, that coal originated in the decomposition of trees and plants that grew on the spot, is sufficient to account for all the phenomena and circumstances, and raises new difficulties.

M. Grand' Eury, in whose theory transportation, but of a different character from that presumed in the first of these two theories, forms an important element, has been enabled, through his investigations at Saint Etienne, to form a clear idea of the nature of coal and the processes to which we owe it, and also to enter into the details of the matter, to go back to the true causes of the processes, and to describe with remarkable precision how they must have taken place.

The land of the carboniferous formations appears, after an intelligent examination of the stratigraphy, to have been frequently covered by the sea, and therefore in its immediate neighborhood. The coal-beds themselves were an essentially terrestrial formation, peculiar to the recently emerged land of the period. In Belgium and England they rest upon a marine deposit, which forms their floor and which reappears in the course of the formation, alternating several times with the strata of land growth.

We learn from this that the sea was retiring from these spots before the extension of the continental area, leaving a broader strip of land after each fitful inundation, and that the carboniferous vegetation was developed on the ground which the marine waters had just abandoned.

This phenomenon aquires great force with its frequent recurrence and repetition in various places.

None of the carboniferous plants, except the stigmarias, whose peculiarities we have noticed, appear to have been especially aquatic, but they could all endure the immediate neighborhood and occasional contact of water without being hurt by it, and could live and grow even when partially inundated.

They grew around the borders and on the slopes of the lagoons with which the shore was studded, the smaller ones thickly matted under the cover of the larger trees, in groups characterized by the predominance of single species, as is shown by the distribution of the fossils. The coal was deposited in the lacustrine beds, at the centre of these forest-covered depressions, and the extent of the deposits is measured by the area of the basins that were fitted to receive them.

One condition was essential, without which no seam of combustible matter could have been formed. It was, that the water flowing over the ground should bring with it and leave in the bottom of the basin, where the carboniferous matter was destined to accumulate, only the remains of plants, to the exclusion of every other form of sediment. This condition may have been more easily realized in the carboniferous epoch than at any other time, because the flora was more abundant and its extension more favored by the climate. It is conceivable also, that after having been once established, it might have been liable to interruption at any time; for a slight oscillation of the ground, a change in the direction of the currents, the washing down of a bluff or the removal of some impediment, may have been enough to furnish an opportunity for the introduction of sand, mud or rock dust into the deposits. We may also affirm as essential that there should be no real affluent coming down to the place of deposit or current running water, for that would bring down mud and leave in the bed some other sediment than one of coal. The flow of water must have been a gentle trickling over the soil, bathing it without washing it, but strong enough to carry along the vegetable matter, which it finally deposited. Whenever the flow became more violent, the formation of coal was interrupted to give place to deposits of shale or sandstone, according to the character of the mineral elements brought down, or if they were in relatively small proportion to the vegetable fragments, of schistore laminæ marked with impressions of plants.

Such formations are of frequent occurrence in the coal measures, in alternation with the seams of coal and the marine deposits left by the overflow of the sea, and this was doubtless their origin. The fossil forests, which have been discovered in the same regions, may be similarly accounted for.

The trees growing around the perimeters of the lagoons would be partially submerged by the overflowing water, and the sections of them buried in its muddy deposit would be left to decay and fossilize in it. The persistent root-stocks of the sigillarias and calamites, unharmed by the flood, would

send up new ærial stems, and most of the other plants, having the power of sending out adventitious roots from their trunks, would be able to live and continue to grow by that means, leaving their old lower parts to die, while they lifted themselves, as it were, bodily up with the ascensional movement of the soil. Several examples of such successive emissions of roots are figured in the "Memoire." M. Grand' Eury has assumed that the concurrence of two principal circumstances, acting coincidently and in combination with each other, contributed essentially to the formation of coal. One was the transportation by water for short distances of all the vegetable matter of a region to be spread out flat and stratified at the bottom of the lagoons destined to receive it. The other was the exposure of the matter, previous to this process, in the open air, to a certain amount of decay, of the nature and effects of which he has made a patient analysis.

From these principles he has deduced a theory which may be summarized thus: The water which served as the vehicle for the vegetable matter, which must have been perfectly clean, because it was free from all mud, strong enough to carry along its drift and plentiful enough to sweep all the points of the wooded region, could not have been any other than rain water shed upon slopes pronounced enough to make it easy for it to run and carry the vegetable residues along with it, yet level enough not to allow the ground to be cut up.

The land over which the water flowed must have been covered with a mass of plants and accumulated fragments abundant enough to furnish much flotsam matter, and matter enough to prevent its eroding the subjacent soil. The water must have been intermittent, else the fallen trunks of trees and the fragments of every kind which lay scattered over the ground would not have had time to undergo the partial decomposition and disaggregation of their tissues which necessarily preceded complete submersion. There must have been, then, if not real seasons, intervals of relative calm, in which the decomposition could have taken place, to be succeeded by times of protracted and extremely violent precipitation. The fact that a transportation and deposition of the parts took place is

attested by the stratified structure of the coal. In both the coal and the schisto-carbonaceous laminæ, all of the fragments, down to the most delicate isolated organs are always, with only the rarest exceptions, spread out flat and cemented one over another, lying together like the leaves of a book.

A close examination of coal and its texture, under the microscope, will show that only water could have taken all the fragments of such different sizes and consistencies and arranged them in this way. The disposition is the same, as is always shown when leaves and fragments of plants, having become thoroughly soaked, sink and form stratifications at the bottom of ponds. In the coal, the elements continue visible, and their arrangement is superposed, laminæ is evident, while the interstices between the planes of junction appear to have been filled up in the course of the formation of the beds. These facts, with the perfect condition of the organization of many of the fragments; their agglomeration in an amorphous pulp; the resultant of the previous maceration of a host of fragments, and the reduction of the whole mass by compression, to half of its primitive thickness—all parts of one and the same phenomenon—point to the action and weight of the bed of water, at the bottom of which the stratification took place. The perfect uniformity which reigned over the formation of coal, has given it generally a schistous structure in thin leaves, disposed in a parallel fashion and fissile in the direction of the plane of deposition. It is also found on attentive examination, to be somewhat varied in constituency, according to the varying character of the elements of which it is composed, and the different stages of freshness and maturity in which they were deposited. One kind, which M. Grand' Eury calls "fusaive," from its resemblance to a stick-charcoal, comes from the decomposition of stems, from which the anatomical structure has disappeared, while they preserve their form. The green parts appear as crystaline laminæ, or scales, or black particles in the amorphous mass. This mass, the result of the maceration of wholly decomposed particles, constitutes the amorphous coal in which, besides "fusaive," we can always discover some remains of vegetable structure, testify-

ing to the common origin of all the coal products. Within these differences of type are innumerable variations, passing from one to another, the existence of which prevents our establishing a clear distinction between the coals most homogenous in appearance, and those which show the multifarious and manifest traces of hardly altered organized elements.

M. Grand' Eury's sketches introduce us to the depths of the carboniferous forests, into regions of dense moisture, at the feet of gentle slopes, where are accumulating in stagnant ponds immense drifts of the remains of constantly active, exuberant and quickly exhausted vegetation.

Masses of this kind may even now be observed in the midst of the virgin forests of hot countries. How much more might we have expected to find them in ancient epochs, when the trees made no wood, but sent up spontaneous, ungainly shoots, sudden growths in green columns, the function of which was as ephemeral as their texture was weak? Most of the carboniferous stems, hollow or filled with pith only, fell by the sheer exaggeration of their growth; the tree-ferns were crowned with fronds of marvelous dimensions; the stems of the segillerias shed their leaves rapidly; and the remains of all these rank growths were incessantly accumulating in a sultry shade on a water-soaked soil. We can conceive the enormous production of humus. Decomposition was accelerated by every rain, and the whole mass was reduced, down to the very bottom, to a black pulp; and this is why, notwithstanding we have such abundant materials, we meet with so many difficulties in reconstructing the types. The fallen trunks seldom remained whole, but swelled and burst. The soft and porous parts gave way first, then the dense and fibrous parts were detached from the cortical mass; that more tenacious and firm spread out and resisted longer than the rest. Nothing remained of the fern stems but the peripheric sheath or the disaggregated interior fibus; of the cordaites, sigillarias and lepidodendraus only the cortical regions. The detached leaves formed other accumulations, and all these heaps, standing as obstructions in different places, were waiting for

the arrival and passage of the water to yield to it innumerable fragments in very unequal degrees of decomposition.

When the great rains came on, the waters filtering in from every side, trickling down on the slopes, gathered here and there in temporary lakes, and finally overcame all the dams of organic matter they met—an immense mass of detritus going down to the lacustrine center. With these old and disorganized residues the rains, which we must imagine to have been torrential, brought down also everything that would yield to their impulsion—tree trunks, leaves, young shoots, and at times, entire plants. It is these remains, so fresh in condition; these leaves so delicate and clearly defined; these organs so whole, which we see in our collections distinguishable in their slightest details and lying spread out like leaves of the great herbarium, of which it is our province to turn the pages. M. Grand' Eury's theory does not [illegible] anything that is discordant, either with [illegible] or with those of more recent periods. It [illegible] marked even now, among the grand, [illegible] nature.

We read in the narratives of the [illegible] cended the great rivers of the interior [illegible] example, how their boats have been [illegible] time by submerged remains and the [illegible] hiding the river on which they were floating. In the face of such pictures, which show us sedges, water-lilies and immense colonies of floating plants under which the river has disappeared, while its eddies, its lagoons and its deep basins are temporarily flooded after having been dry for months, we cannot escape being carried back in mind to the phenomena, doubtlessly not quite parallel, but assuredly of the same order, to which was due the formation of the coals and lignites in ancient epochs. These were certainly not accidental or episodical phenomena, produced by circumstances which, once realized, were never to appear again, but occurred in the course of a series of analagous combinations which may have been frequently repeated, and involve nothing incompatible

with what is going on on the surface of the globe in our own day.

In speaking thus we do not regard Europe, but the interior of tropical countries, and the parts of those lands where water, heat and an exuberant vegetation are combined upon a ground, the configuration of which is agreeable to the material conditions that have been postulated in this sketch.

Partial Developed Coal Property.

The Cumberland Coal and Iron Company owns two hundred and seventy-five acres of the big vein coal. This property has been partially developed, the coal mined out of it being used in the manufacture of iron at the Bowery furnace, being located upon the ground. The deposit of iron that was found upon this property, being exhausted, the furnace has been out of blast for some years, and it is now a habitation for bats and owls, and would take a strong protective tariff to eject them.

The New York Mining Company.

This company's property is located at the northern end of the basin; consists of six hundred acres, more or less, of the big vein, of the same thickness and quality as that found at this end of the basin.

The Thomas Coal Company.

This company has a valuable property located at the northern end of the basin, also consisting of two hundred and eighty acres; one hundred and twenty acres of the big vein. The convenience of these two properties to the Cumberland and Pennsylvania railroad, and their proximity to the state line below Mt. Savage, and also to the Chesapeake and Ohio canal, at Cumberland, materially increased their value as coal property. There is timber enough upon the Thomas' company's mining property suitable for mining purposes, to mine the last ton of coal from out the property.

These properties will at no distant day be developed, as coal can be mined and shipped to market at less cost than any other mine on George's creek.

Natural Gas.

The idea has struck me very forcibly in looking around, in seeing cities, towns and villages in Pennsylvania, on the one side of our basin, and in West Virginia on the other, illuminated with light from the bowels of the earth. I cannot see by what freak of nature, that the city, towns and villages of Allegany county is excluded from this natural light. I am thoroughly convinced that all is wanted, is enterprise and energy on the part of its citizens, to drill a hole down through the crust of old mother earth, below the conglomerate rock, the foundation of our coal measures, somewhere between Cesap-town and the six mile house on the national road, and the horizon will be lighted up by their natural benefactor of the human race. The expense cannot be great to try the experiment at this location.

General Remarks.

As this will be my last report, I would take the privilege to state, that when I entered upon the duties of this office as inspector of mines, it was with the determination to carry out the provisions of the law to the best of my ability.

I found that one of my predecessors had indicted one of the coal corporations for not furnishing timber to the miners, at their working places in the mines. The court decided that all the law required of the coal companies was to keep a sufficient supply of timber at a reasonable distance from the mouth of the mine, when the miner had to come out and make his own selection, and the companies to haul it into their working places; such was the decision of the court of Allegany county. I made an appeal to the companies to furnish the timber to the miner without him coming out to select it, as I thought that was the spirit and intent of the law. To their credit be it said, that every one of them responded to the appeal promptly, and have furnished all timber requisite during my term of office. But I soon found out that it would be impossible for me to give satisfaction to the miners of this region, unless I followed the mandates of their organization instead of the provisions of the law.

But, with all the opposition I have had to contend with, I feel proud to be able to state, as I have done before, that the condition of the mines of Allegany and Garrett counties have improved during my term of office. The great evil is the prejudice that exists amongst the majority of miners, that they look upon their employers as their natural enemies. They seem to inherit this prejudice, and it is almost impossible to convince them otherwise. And this one object I have had always in view during my term of office, to try and impress upon their minds, that their interest was mutual with their employers, and in this age of sharp competition it was to the advantage of both parties to co-operate together for their mutual benefit, for by so doing, with the superiority of our coal, we had nothing to fear from competitors.

Conclusion.

In conclusion, I return my sincere thanks to the superintendents and boss miners of the various coal companies, for the courtesy and respect shown me by them. They have asked no favors, but were always willing to acquiesce in anything reasonable that I might suggest. And I am also under obligations to the conservative element of our miners for their moral support, and it gives me satisfaction to know that I never betrayed one of their confidence.

And for the turbulent class, I have no favors to ask off them, and I despise their scorns.

Having no special recommendations to make in the form of legislation, I have nothing further of general nature to embody in this report, only that I have no desire to remain in an office which debars myself and family from the protection of the civil law, in common with other citizens.

All of which is respectfully submitted.

I remain your obedient servant,

THOMAS BROWN,

Inspector of Mines for Allegany and Garrett Counties

POMPEY SMASH, December 31, 1883.