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BY THE HOUSE OF DELEGATES,

*February 2d, 1882.*

Reported from Committee on Inspections, and 1,500 copies  
ordered to be printed.

By order,

JOSEPH B. SETH,

Chief Clerk.

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# REPORT

—OF—

THOMAS BROWN,

INSPECTOR OF MINES

—FOR—

Allegany and Garrett Counties,

For the Year Ending December 31st, 1881.

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ANNAPOLIS:

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1882.

## REPORT.

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*To his Excellency,*

*William T. Hamilton, Governor of Maryland:*

HON. SIR:—In compliance with the mining law of the State, I have the honor to submit to you, my Second Annual Report as Inspector of Mines for the Counties of Allegany and Garrett.

In my First Annual Report, which was brief, because no appropriation had been made for printing it, I stated that I had inspected every working-place in every mine in the fore-named counties. The condition in which I found them, together with such other information as I thought necessary for an understanding of our great mining industry, I now respectfully submit to you

*The Condition of the Mines.*

I am happy to be able to report, that the condition of the mines in Allegany and Garrett counties, is, if anything, slightly improved. There seems to be no disposition on the part of any of the corporations, to evade or infringe any part of the law.

Upon entering upon the duties of Inspector of Mines, I issued the following circular to the superintendents and weighmasters of the different coal companies in the Counties of Allegany and Garrett:

*To the Superintendents of the Coal Companies of*

*Allegany and Garrett Counties:*

Gentlemen:—Having been commissioned by the Hon. Wm. T. Hamilton, Governor of the State of Maryland, under the law of 1878, Inspector for the Counties of Allegany and Garrett, I respectfully call your attention to the following provisions of the aforesaid law:

1. You are required to provide a sufficient amount of fresh air in the working-places of each miner in your employment, independent of the strong current that is reported to be passing through the main headings of your several mines. That such is the spirit and intent of the law, there can be no doubt in your minds, as intelligent men.

2. You are required by the law to furnish all the timber that is necessary for the safety of the miners, and deliver the same at the working-place of each miner in your employment. ("I am glad to know that this section of the law has been of late generally respected by your several companies. But if there are any companies not complying with this provision, I call upon said companies to obey it at once and thereby save trouble and expense. There is no alternative left me as a qualified officer but to see that its provisions are carried into effect. Non-compliance with this section has caused more discontent in the minds of our miners than any other grievance, and I am determined to ascertain the true meaning of this section.")

3. You are also required by law to provide correct and accurate scales for weighing coal mined by each miner.

4. The law provides, also, that each traveling-way be made safe by having all loose coal and rock overhead timbered and secured against falling upon any of your employes while in the performance of their duty.

In conclusion, let me suggest to you the necessity of requiring your boss-miners to give more attention to the men under their charge. You should require them to visit the working-place of each and every miner daily, for the purpose of ascertaining if he has his timber properly placed to secure his own safety by supporting the ever treacherous slip that is so fatal to the lives of many. We have a striking example of the good effect of this policy in the mines of the George's Creek Coal and Iron Company, where the boss miners are required to give strict attention to the timbering. In a period of twenty-seven years, there has been only four lives lost, which goes to prove that if this suggestion is carried out we can greatly diminish the loss of life in our mines.

Yours, very respectfully,

THOMAS BROWN,

Inspector of Mines for Allegany and Garrett counties.

May 1st, 1880.

To the Weighmasters of the Coal Companies of

*Allegany and Garrett Counties:*

Gentlemen:—Having been appointed and qualified as Mine Inspector of the counties named above, I respectfully call your attention to the following requirements of the law touching the performance of your official duties.

You are required to make oath before a Justice of the Peace of the county wherein the mine for which you weigh, is situated, and deliver a copy of the same to the Mine Inspector,

that you will perform the duties of weighmaster at such mine, with honesty and fidelity; that you will keep a true account of the coal so weighed, and credit to each and every party or parties mining the same, the actual amounts so mined, at the rate of 2,240 pounds per ton.

You are also required to keep a list of the numbers of the mine cars, and the weight of coal in each car, and place said list in some place where the miners interested may inspect it.

I have strong reason to believe that some persons acting as weighmasters in the counties aforesaid, are in the habit of giving up the slate whereon they have credited each miner with his respective number of cars, and weight of coal therein, at the close of each day's work, to some official of the company owning or operating said mine, or mines, before the said weighmasters have made a duplicate list for the inspection of the miners. This is a clear evasion of the spirit and letter of the law, and a palpable violation of one of its most stringent provisions. I therefore notify all weighmasters who have been in the habit of so surrendering their slates, that I will in future hold them responsible under their oaths, for their proper and full compliance with the exactions of both the intent and requirements of the law.

Very respectfully,

THOMAS BROWN,

Inspector of Mines for Allegany and Garrett counties.

*Consolidation Coal Company.*

I inspected the Ocean Mine, the property of the company named above. I penetrated this mine to its farthest extremity, and found that it had tapped the old dip heading of the Hoffman Mine, belonging to the same company. It had been abandoned some time previous on account of water. The water is now drained off, and the coal thus made accessible is now being mined. The vein in this mine is worked up to the slate, thus mining out the whole of the breast coal. I was surprised to find the degree of safety attained by the method of mining practiced in this mine. The miners here seem to be thoroughly acquainted with this method of mining. As they proceed with their excavations, a hole is dug in the rib-side near the top of the vein, for inserting the end of a cross-bar, a good prop being placed under the other end, the slate roof is thus strongly supported by wedges driven over the cross-bar. Those cross-bars are placed at a distance of three feet apart. Making it by the extreme care exercised as safe as any other mode of obtaining security. In drawing back the pillar, a prop is placed under the end of the bar in

serted into the rib as above stated, thus keeping the timber secure to the slate. From what I could see of operations here, I judge that there is as much coal taken out per acre, as at any other mine in the region. The men are liberally supplied with timber, ventilation is good, the air being supplied from the Winters' Shaft, which was formerly used for ventilating the Hoffman Slope and Pompey-Smash Mines, and is undoubtedly the best air shaft in the county. A locomotive engine will be placed in this mine at an early day, there being a good track already laid inside the mine for its use. There can be no impediment to its success, as the air coming from the shaft will supply the miners first, and then carry the smoke and steam to the ventilating furnace. I inspected the weigh scales and found them correct. Returning out of the mine, I found enough of black-damp along the headings to extinguish the lights oozing from old workings. The mine boss promised to have the old brattices reclayed and new ones put up where required.

#### *Hoffman Slope.*

I inspected this mine. The original depth of this slope was 1,200 feet, and is now known as the upper lift. A large number of miners are now employed in drawing back pillars. I found the ventilation in a first-class condition. This slope has recently been extended to a depth of 3,100 feet; this additional length has been divided into two lifts, and is now being opened up upon the double heading principle. This is the most improved principle for securing ventilation known to the science of mining. I inspected the weigh scales, and found them correct.

#### *Pompey-Smash Mine.*

I inspected the Pompey-Smash Mine, which was in former times one of the largest coal producing mines in the region. It is now nearly worked out, only a few miners being employed in drawing stumps from the main-heading. The majority of the miners working in this mine, are working in what is termed by miners, a horse-shoe heading, running up through the old workings of an abandoned mine, for the purpose of working out a few acres of coal which had been left there. The management has a great deal of trouble in getting through those old workings, on account of black-damp, but with an energetic perseverance on the part of the officials, the miners have enjoyed passable air. The coal taken from this mine, is weighed on the same scales as that of the Hoffman Slope.

#### *New Hope Mine.*

There are two openings, a drift and a slope, in this mine. In those mines there are from six to eight feet of a brittle shale on the top of the coal, which requires the miners to be very careful in placing their timbers. There is considerable trouble in ventilating those mines, on account of black-damp oozing from the old workings surrounding it. There is a good ventilating furnace, which is carefully attended to by the gentleman in charge. For securing the best ventilation, every practicable mean is employed. Found the weigh scales at this mine correct.

#### *Old Alleghany Mine.*

I inspected this mine. It has been standing idle for some years, but has now been put in good repair. Found the ventilation good, and weigh scales correct. All the mines of this company are liberally supplied with timber.

The superintendent of the mines of the Consolidation Coal Company, being a thoroughly practical miner, discards the natural mode of ventilation, and has adopted the draft furnace as a means of ventilation in all the mines under his charge, and the result is, that the mines of the Consolidation Company have better ventilation than perhaps any mines of the region. An engine has lately been introduced in the Ocean Mine, belonging to this company.

#### *Eckhart's Slope.*

For the last fourteen years, this mine has been filled with water. While the property was still in the possession of the Cumberland Coal and Iron Company, the late E. H. Tracy, their superintendent, flooded the mine. It has been a problem often considered by mining engineers, how the water was to be drawn from it. The method they invariably recommended to the company was to tunnel the mountain from the opposite side, beginning at the lowest point near the Old Alleghany Mine. This method would have cost an immense sum of money. The present superintendent set it aside, by reporting to his company that he could drain it from the New Hope Mine, on the same company's property. Boreholes in front, and on each side, were driven, and every precaution employed to insure the safety of the men engaged. The superintendent showed his confidence in his plans, by standing beside the men as they tapped the vast sea of water. The success of this undertaking, without a single accident, adds honor to those already gained, by the fifty years experience, which justified the calculations of the superintendent.

Headings are being rapidly driven, to connect this mine with Hoffman Slope. The distance from the one mine to the other is estimated to be 5,000 feet. The lift of coal that can be taken from this mine, embraces the Vale, Winters and Ross farms, and on the north side, a large tract of land which joins the Old Alleghany Mines. A locomotive engine is used to haul the coal to the bottom of the slope. The smoke and steam are thoroughly cleared from the mine by a model ventilating furnace, built for the purpose.

#### *Borden Shaft.*

I inspected the Borden Shaft, owned and operated by the Borden Mining Company. It might almost be called the "Pioneer Coal Company" of our region. It is one of the few of our coal corporations that has not changed hands in the last 30 years, with all the depressions in our coal trade and financial disasters experienced by our coal companies in that period of time. This corporation has withstood them all, having been under the management of a well-known and distinguished citizen of the county since the day of its birth. The depth of shaft, from surface to bottom of *big seam*, is 154 feet.

There are two pumping engines—one of which lifts 83 gallons per stroke, at the rate of 8 strokes per minute, the other, 163 gallons per stroke, at 5 strokes per minute—used for pumping the water out of the mine. Also, an engine for hoisting the coal to the top of the shaft, where the mine-car dumps itself, thus saving the cost of dumpers. This machinery is of first-class order, and is kept in splendid condition. The hoisting engine can hoist 1,000 tons per day, and I observed that it was run by a gentleman with a steady hand and watchful eye. All the other improvements are of the most substantial character.

I noticed, as the miners descended to their work, a man was stationed near the mouth of the shaft to see that no more than 8 persons went upon the cage at one time, that being the number allowed to descend at once, and when all is ready, he sings out to the engineer, "all right!" Thus taking every precaution for the safety of the miner's life. In descending, I found no jars. The machinery seems to work perfectly. In penetrating through the headings of this mine—some of them over a mile in length—I found every old opening bratticed up; trap-doors placed at all necessary points for the purpose of driving the air from one heading to another; and also, two fine overshots for the purpose of carrying the air overhead for the same purpose. The workings of this mine are opened out on the double-heading system—the best mode known to secure good ventilation. I in-

spected every room in this mine, with the exception of a few places in what is known as the "Fast Line Heading," the miners having quit work before I reached it. The ventilation is good, not a sign of "black-damp" to be seen.

There is as good a ventilating furnace in this mine as I know of in the county, and if attended to as well as the two or three days before I visited this mine, black-damp or bad air is a thing of the past, but it must receive attention, as I am informed it is one hundred feet above the level of the downcast shaft, thus decreasing its power in warm weather, but with attention, it is able to do the work designed for it. I have often heard that this mine was about worked out, but upon examination I find such is not the case, as there is a large amount of coal to be mined from this shaft in the future. It stands to day in first-rate condition—second to none in the county. In case of fire, or any mishap to machinery, there is a good horse road, by which the miners can leave the mine safely.

I inspected the old Borden Mine, belonging to the same company. This mine is about worked out, employing only a few miners drawing stumps—found the air not good, owing to the damp weather, and the ventilation being on the natural mode.

I may state here that the Borden Shaft is exempted by law from weighing the miner's coal. It is dug, and the labor of the miner paid for by measurement, which seems to give general satisfaction to the miner, for I have never heard a single complaint.

#### *Big Vein Mine.*

The Big Vein Mine is one of the mines owned and operated by the New Central Coal Company. It is ventilated by what is known as the *natural* mode. In the upper headings the air is good, but in the lower headings it is somewhat stagnant. During my visit it was passable throughout the mine. All the miners employed were engaged drawing pillars in the first heading. The grades are very heavy and it is difficult to get a sufficient quantity of timber to some parts of the mine, but the superintendent faithfully exerts himself to have as generous supply placed within reach of the miner as he can. I tested the weigh scales and found them correct. There is still a large quantity of coal in this mine.

#### *Koontz Mine.*

This mine is opened upon the well-known Koontz property, which is nearly all underlaid with the big seam of coal. It is also owned by the New Central Coal Company. The first

object which attracts the eye of a visitor to this mine, is the large stack of the ventilating furnace. If a small addition were added to its height, then it would be the best ventilating furnace in the George's Creek coal-field. I visited every working-place in the mine and found the air good in every part. The grades are very heavy, and in the upper headings are heavier than in any other mine in the region. Preparations have been made by the superintendent to construct an inclined plane, 1,500 feet in length, to run the coal from the upper heading to the lower. I am also informed that the company contemplate placing a locomotive engine in the lower heading to haul the coal out of the mine. It is astonishing that an engine has not been placed there already, for it could only accrue in advantage to the company, because it would be much more certain and economical than the large amount of horse-power now employed. With the splendid airways and the furnace power at command, there can be no obstacle found from smoke or steam in the mine. The heavy grades are the greatest impediments to economy in the working of this mine. When drawing pillars, all the props, cross-ties and rails that can be secured with safety to the men, are saved for use elsewhere. The vast ramifications of this mine show at a glance the directing mind and skillful hand of the practical miner. The perfect condition of everything about the mine proves the gentleman in charge to have a clear insight of his business in all its details. Timber is supplied to the miners in abundance. The weigh scales are correct.

#### *Midlothian Mine.*

The Midlothian Mine is owned by the New Central Coal Company. The coal that is now taken from it, is mined from an adjoining property, which belongs to a gentleman who resides in Cumberland. A certain royalty of so much per ton is paid to him by the company for this privilege. From the mouth of the mine to the boundary of the property, a distance of 1,700 feet, the grade is very heavy. Here, a cross-heading intersects it, and running along the boundary line, one end of it crops out into daylight, while the other end touches the boundary in an opposite direction. The opening made by the cross-heading serves to admit air for ventilating the mine, and is also a convenient road for conveying timber into the workings. The bottom coal is lifted here, the ventilation is good, and the weigh scales correct. From actual observation, I think the lessor was fortunate that such a man was placed in charge of this mine. If the property were his own, he could not remove more coal from it per acre.

#### *Johnson Mine.*

The Johnson Mine is situated on the opposite side of the George's Creek from the Midlothian Mine; it is also owned by the New Central Coal Company; this mine is also under the charge of Lieutenant James Thompson, who has the charge of the Midlothian Mine. The coal in this mine is all below the water level; all the coal above water level having been taken out through the old Johnson Mine. Hence, to reach the coal, a slope has been driven from the old Johnson workings to the dip, and a heading rapidly driven at right angle to the slope along the line of the adjoining property, thus giving a lift of coal four hundred feet wide. While the heading was being pushed forward, water had to be tapped in two places. This was well done, practically and scientifically, without the slightest accident. The splendid way in which this and other difficult mining operations have been accomplished by the gentleman in charge, proves him to be equal to any other mining engineer in our region. The General Superintendent of the New Central Coal Company, is a gentleman of fine business qualifications, and has a thorough knowledge of the coal business, acquired by years of practical experience.

#### *Blaen Avon Mine.*

I inspected the Blaen Avon Mine, owned by the Blaen Avon Coal Company. This mine is much more extensive than I expected to find it. The ventilation was good, and the miners supplied with timber. Here the bottom coal is lifted in the rooms and pillars, too. I inspected the weigh scales, which were not properly adjusted. There was too much weight allowed for the empty car; I saw the scale adjusted, allowing 1,300 lbs. for the weight of the car, which I think, is a just allowance. There has been a good deal of grumbling by the miners employed, about weight. I inspected the weigh scales several times, and found them correct each time. I asked for a copy of the oath taken by the weigh master, which is all I could ask.

#### *Bowery Furnace Mine.*

I inspected the Bowery Furnace Mine, owned by the Cumberland Coal and Iron Company. I found the ventilation of this mine good. The timber is supplied to the miners. I found the weight allowed for the empty car to be too great, and I saw it adjusted. The coal from this mine is used on the property for the manufacture of iron, but owing to the depression in the iron trade, the furnace is blown out, and a large number of men thrown out of employment. It is to

be hoped, that this stoppage may be only of temporary duration.

#### *Empire Mine.*

This is the only mine in this coal basin where the six foot vein of coal is worked. It is the property of the Piedmont Coal and Iron Company. There are not many miners employed in this mine yet. The weigh scales are correct, and a sufficient supply of timber is furnished to the miners.

There has been much energy displayed by the officials of this company in placing their coal in the market. A strong, local prejudice against it does exist. When cleaned from impurities, it is a better quality of coal than that mined from the Clearfield region, and the central counties of Pennsylvania. We know that this same Pennsylvanian coal is a strong competitor with the coal from our big seam. We may anticipate a prosperous future for our small veins, if they turn out as well as this mine is doing.

#### *The Buck Hill Mine.*

I inspected the Buck Hill Mine, owned by the George's Creek Coal and Iron Company. This mine is opened upon the double-heading principle. Extending from the mouth of the mine to the face of the workings, there are two headings, 3,500 feet long, with a pillar 25 feet thick between them. In one of these headings the empty cars are taken into the mine, and the loaded cars are taken out through the other. At intervals of 500 feet, there are cross-headings to right and left. This mine is ventilated by the mode of natural atmospheric circulation. Though I disapprove of this method of ventilation, still, I am bound to admit, that every device known to the science of ventilation, has been intelligently and effectively applied by the gentleman in charge, to secure the best circulation of air. The air-courses are driven well ahead—all old openings bratticed up—and trap-doors hung at the proper places. When the inside rooms have reached the boundary, the cross-headings, mentioned before, are driven rapidly to their destination. The drawing of the pillars is now begun, while the props are yet in a good wholesome condition. The pillar is now cross-cut and drawn down, till the props indicate pressure from above. The props are undermined and taken out, letting down the top coal, which is then loaded. Props, cross-ties and rails are all saved for use in other parts of the mine. The pillars, near the heading, are drawn in the same way, and as the coal is taken out, the strata above gives way. I was astonished to find the pillars drawn so near to the heading, without any visible crush

upon the ribs. The ribs stand as solid as when the miners cut them. Each pillar is drawn fifty feet ahead of the other. While the inside pillars are being drawn, the outside rooms are being driven. In case of danger, a safe retreat is thus secured for the miner. It would be hard to convince me, that there is more coal, per acre, mined from the big seam, than is taken from this mine. The drainage is perfect. Among the 157 men employed in this mine, I did not hear a murmur or complaint. All seem content.

From the opening of this mine, some ten years ago, until May, 1881, it was under the management of Mr. John Douglas, Jr., who removed in that time over one million tons of coal, with but one fatal accident.

#### *Dug Hill Mine.*

I inspected the Dug Hill Mine, which is also owned by the George's Creek Coal and Iron Company. Here there are really two mines. In one of them a locomotive engine is used for hauling the coal out of the mine. I rode into the mine on the engine and found, not smoke, but a strong current of pure air. The air currents are regulated by a series of trap-doors. As the temperature of the air outside of the mine may affect the natural draught, these trap doors are so arranged that advantage may always be taken of it. There is also a ventilating furnace for the purpose of drawing off the smoke. The arrangements are so perfect that it is impossible for the smoke to stay in the mine, or reach any of the working places. The two mines are connected, and one may go in by the one and out by the other, and not know by the air that a locomotive is used. Where the miners were at work the ventilation was good. The gentleman in charge of the inside work enforces very rigid rules for securing the lives and limbs of his employes. The other portion of this mine—really another mine—is operated by horse-power. It has a furnace for drawing away the black-damp and other impurities. The ventilation is good. Where necessary, there are trap-doors, and old openings are bratticed up.—Every precaution is used to secure the miner from impure air. The impression left on my mind is that the mines of this company are under the eyes of practical, energetic men. The provisions of the law are fully carried out.

The management of the different mines belonging to the George's Creek Coal and Iron Company, have been for over twenty-five years in charge of Mr. John Douglas, Sr., who commenced his mining career as a trap-door boy, in the mines of Scotland, and won his way to his present honorable

position, by a display of capability and energy worthy the emulation of all young men. My predecessor in office having reflected upon Mr. Douglas, in his report, as exhibiting a want of courtesy toward that gentleman in his official capacity, I feel called upon to say that in my official intercourse with Mr. Douglas, I was treated always with the urbanity of a gentleman, and with every consideration due to my official position. It is also due to Mr. Douglas to say, that during his management of the affairs of this company, millions of tons of coal have been removed from its mines with but four fatal accidents, up to July 1, 1881.

*Old Detmold Mine.*

I inspected the Old Detmold Mine, owned by the Maryland Coal Company. On account of black-damp, this mine had been idle for several days before my visit. At the face of the heading where the miners were at work, the lights could not be kept burning because of the black-damp. Only a few men are employed in this mine. All the coal left, is a pillar on each side of the heading. There is no current of air—the pillars being drawn back 1,700 feet, and the roof all down—there is no return for the air. The gentleman in charge professes to ventilate the mine by a furnace located at the back of the mine. This furnace has to draw the damp 1,700 feet over the broken strata. It is rather a novel theory of ventilation.

*The Savage Mine.*

The Savage Mine, owned by the same company, was so full of black-damp, that no miners could work in it. The few men employed in these two mines, are only asked to work when the air is good in them, which is generally during cold weather. If an example of the failure of natural ventilation in the George's Creek coal-field is desired, it may be found in these two mines. The managers contend that it would take more expense to ventilate them than the coal they contain is worth.

*Kingsland Mine.*

I inspected the Kingsland Mine, which belongs to the same company. This is a very extensive mine. The air was passable. I visited every room in the mine, and found them well timbered. A full supply of timber is furnished. One furnace is supposed to draw the damp from the Old Detmold Mine, the Savage Mine and the Kingsland. Though the airways were all in good condition, in my judgement, it is entirely too small for the work it is required to perform. I left the mine by ascending an air-shaft.

*New Detmold Mine.*

The New Detmold Mine is opened upon the property of the same company. It has been idle for some years. This is probably the best laid out and most scientifically planned mine in the George's Creek coal-field. The quiet, unassuming boss, who is in charge, is one of the best theoretical as well as practical miners in the region. This mine has a capacity of 1,200 tons per diem. This gentleman now has charge on the inside of all the mines of the Maryland Coal Company.

*Jackson Mine.*

The American Coal Company has two mines opened upon their Jackson property, at Lonaconing. Although the openings are more than half a mile apart, there is only one vast mine inside. I inspected the mine, and it took me from 8 A. M., to 3 P. M., to visit every working place. In the older opening an incline plane 2,000 feet long, has been constructed. This plane has effected a great saving in horsepower. The air is good, except in a few exceptional places. When the miners find the air bad in these places, they have the choice of moving to places where the air is good. The ventilation of the mine could be greatly improved by the use of trap-doors, and also by bratticing up old openings with boards. By this means the strong current of air passing along the headings might be utilized and conducted to the places where the miners are engaged at work.

As a general rule, there are no cross-cuts in the pillars of the mines of the George's Creek. The ventilation of this mine might be greatly improved were cross-cuts driven through each of the five hundred feet long pillars. Here, when the pillars are drawn, the props are taken out and the top coal let down and loaded. Nearly all the old rails and cross-ties are taken up and removed, with the props recovered, for use in other parts of the mine. There is still a large amount of coal to be mined from this property. Everything about these works seems to go on like clock-work—without a jar or halt. Contentment beams from the begrimed faces of the men employed. The provisions of the law are complied with in every respect.

*Caledonia Mine.*

The Caledonia Mine is also the property of the American Coal Company. It is situated near Barton, and has been idle for several years. However, a large body of coal yet remains to be mined from it.



The superintendent of the mines of this company is a highly popular and well-known citizen of Allegany county, who has lately been honored by the people in a public capacity.

*Pekin Mine.*

The opening upon the Atlantic Coal Company's property at Pekin, is called the 'Pekin Mine.' It afforded me great pleasure to meet with the frank and genial superintendent of this company. He believes in the common sense principles of mining. He said that he employed a well-known practical miner as mining boss. Hence, his aim is not to stuff his head with the wise saws of scientific mining, but to secure dividends to the stockholders, science or no science. If he can remove more coal per acre by common sense methods, he considered himself justified in throwing the science of mining to one side. Proceeding to inspect the mine, he asked me to notify him of anything I might find wrong, and, as a good citizen, he would have it made right at once. Most of the miners employed are engaged in drawing pillars. At the time of my visit, the air was passable. During the season, there has been trouble in some parts of the mine from black-damp. A ventilating furnace would remove this difficulty. The necessary timber is furnished. The weigh scales are correct. The law is obeyed. I left this mine with a strong conviction, that as much coal per acre is taken from it as from any mine in the region. Besides, it is as economically managed as any mine I know of, because it is run upon purely business principles.

The Pittsburg and West Virginia Railroad Company has recently secured the services of this gentleman, at Elk Garden, in which they are to be particularly congratulated.

*Potomac Mine.*

I inspected the Potomac Mine, situated upon the property of the Potomac Coal Company, near Barton. I tested the weigh scales, and found them correct. The miners are well supplied with timber. The air was good, except in the lower heading, which is driven beyond the air-ways, and in two or three rooms. I would suggest as I think a sufficient remedy to the stagnant air found in those places, the driving of cross-cuts to the air-ways. The grades in this mine are very heavy. Considering the difficulties that had to be overcome, the superintendent is worthy of credit for the way he has surmounted them. The mine is in good working order.

*The Maryland Union Coal Company.*

I inspected Hamill Mine No. 2. There are not many

miners employed in this mine, and those employed are drawing pillars. I found the ventilation good.

I inspected Hamill Mine No. 3, I found this mine to be very extensive, and one of the best laid out in the coal-field. Its air-courses are large and roomy, and are located in the proper places, with all the old openings carefully bratticed up. All required to make it a model mine, is a ventilating furnace. It took me six hours to inspect every working-place in this mine. I found the ventilation good, on account of the warm temperature outside of the mine.

I inspected the Phoenix Mine, belonging to the same company. This mine is more extensive than reports led me to expect. In this mine, as well as in Hamill Mine No. 3, the whole height of the vein is mined out in a number of places—measuring nearly 12 feet high. These mines are all well supplied with timber, and the miners satisfied with the weighing of their coal.

The property of this company lies at the southern end of the coal basin, all of which is underlaid by the six-foot vein which has recently been opened, and which can all be mined out above the water line, thus greatly adding to the value of the property. The officials of this company all appear to be gentlemen who thoroughly understand their business.

*Baltimore and Hampshire Coal Company.*

I found Mine No. 1 in first-class order.

Mine No. 2 has but few men employed—principally in drawing pillars. This mine adjoins a tract of land containing the Big Vein, belonging to Senator Davis, of West Virginia, which could be advantageously mined from this opening before the pillars are drawn. I learned that the miners in this mine are not supplied with a sufficient quantity of timber. I called the attention of the superintendent to this fact, and he promised to have it remedied at once.

I inspected the Midland Mine, belonging to the same company. I found a number of men employed in drawing pillars, where the top-coal was down and the slate not propped up. I was astonished to find miners so regardless of their lives, as to be found working in such places. I pointed out their danger to them, and requested them to leave it. The superintendent told me that he had ordered them to leave these places before. If the coal is so valuable that it must be gotten out of such places, let them be timbered, and made safe for the workmen in them. I inspected the weigh scales.

and found them bound on one corner by the T rail of the tram-road connecting with them. I had the rail moved back, and the scales balanced.

I inspected the Millar Mine of the same company. The coal in this mine, situated above the water line, is all mined out. It has a slope 960 feet in length driven below the water line. Up this slope the coal is hoisted by a stationary engine placed inside the mine. In some of the rooms where the miners are at work, I found the props had become decayed and could not be depended on to sustain any strain. I called the attention of the boss miner to this fact especially, because the roof is bad. He promptly gave orders to have the decayed timbers replaced with fresh ones. I inspected the weigh scales and found them correct. All the mines belonging to this company are ventilated by natural ventilation. The air was passably good at the time of my visit, owing to the state of the atmospheric temperature outside.

*Swanton Mine.*

The Swanton Mine, situated near Barton, is the property of S. S. Lee & Son, of Baltimore. Accompanied by the superintendent, I inspected Mine No. 1. The distance from the point where we entered, to the point where the coal outcrops, and we came to daylight in a ravine on the opposite side of the mountain, is nearly a mile. There are only a few men employed in this mine, and in a few weeks it will be finished. The air is good, and timber is supplied in abundance. I asked the superintendent how he expected to ventilate the mine when he drew the pillars and let down the superincumbent strata into the air-way which runs through the mountain? He, an eminently practical miner, stated his plans, and asked my opinion of them. After a discussion of plans, the following was selected as the best: That a square box, constructed of two inch plank, should be laid on the floor on the rib side of the heading; that this box should be large enough for a man to crawl through; that it should extend from a point outside the mouth of the mine, on the rear side of the mountain, to the place where the miners are at work drawing the pillars; and that it should be well covered with refuse to prevent its being broken by the falling roof when the coal has been all taken out. I am happy to bear witness to the efficiency of the plan. During my last visit to the mine a strong current of air was passing through the box after the roof that was above the coal had fallen and filled the air-passages. The expense incurred for plank to make the box was repaid ten-

fold by the increased quantity of coal that the miner—who breathed pure air and worked with a good light—was enabled to mine from the pillars. I feel certain that if a plan like this were pursued in mines in a similar condition, stockholders, who have their money invested in them, would be amply repaid for the outlay.

*Mine No. 2.*

Mine No. 2, on the same property as the one mentioned above, and belonging to the same individuals, is a new mine. It is opened on the double-heading principle, which is considered the best method of mining this kind of coal. I examined this mine and noted that it is worked to its full height, yielding eleven feet of good coal. The air is good and necessary timber supplied.

*Mine No. 3.*

Mine No. 3 is another new mine which has been opened on the same property as the above, into the three-foot vein; it looks remarkably well. The weigh scales for these three mines is situated at the foot of the plane. It has been in use for nearly thirty years, and the figures on the beam are invisible; but the weighmaster supplies figures with chalk. I called the attention of the superintendent to this fact, and urged him to have it replaced with a new one, which I am pleased to say was promptly done.

*Accidents which were not Fatal.*

Of the twenty-two cases of non-fatal accidents reported, fifteen men were injured by "falls of coal," three were injured by "mine cars," one was hurt by a pick in the hands of a fellow workman while at work, and three were injured by cause unreported.

The following is a list of the men injured, the cause when reported, the nature of the injury, and the mines in which they happened.

1. Daniel Collins, injured by a fall of top coal and slate, in the Franklin Mine.
2. Bradley Fagan, crushed by a fall of breast coal, in the Hoffman Slope, of the Consolidation Coal Co.
3. George Goodman, crushed by a fall of breast coal, in Hoffman Slope, of the Consolidation Coal Co.
4. Henry Jones, crushed between the rib and a mine car, in Hoffman Slope, of the Consolidation Coal Co.
5. Peter McKennan, leg broken by a fall of coal, in Hoffman Slope, of the Consolidation Coal Co.
6. Christopher Nichols, leg broken by fall of coal, in Hoffman Slope, of the Consolidation Coal Co.

7. John Creamer, crushed by fall of coal in Pompey-Smash Mine, of the Consolidation Coal Co.

8. William Stapleton, collar-bone broken by a fall of coal, in Hoffman Slope, of the Consolidation Coal Co.

9. George Oart, leg broken in Hoffman Slope, Consolidation Coal Co.

10. George Carter, leg broken in Hoffman Slope, Consolidation Coal Co.

11. Peter Radford, crushed by fall of top coal in the Blaen Avon Mine, of the Blaen Avon Coal Co.

12. Frederick Jones, leg broken in Big Vein Mine, of the New Central Coal Co.

13. James Mooney, leg broken in Big Vein Mine, of the New Central Coal Co.

14. William Muir, pick-hole in head, made by pick in the hand of a workman in Johnson Mine, of the New Central Coal Co.

15. Alexander Nichols, several ribs broken, jaw broken and leg broken, by fall of top coal in Big Vein Mine, of the New Central Coal Co.

16. Samuel Nichols, crushed by a mine car in the Old 'Coney Mine, of the George's Creek Coal and Iron Co.

17. John Ford, collar bone broken by mine cars jumping the track in Old 'Coney Mine, of George's Creek Coal and Iron Co.

18. Alexander Murphy, leg broken by a fall of coal in the Old 'Coney Mine, of the George's Creek Coal and Iron Co.

19. Joseph Graham, injured by fall of top coal in the Old 'Coney Mine, of the George's Creek Coal and Iron Co.

20. Thomas Wilson, leg hurt by a fall of top coal in the Jackson Mine, of the American Coal Co.

21. James Nairn, crushed by fall of top coal in the New Hope Mine, of the Consolidation Coal Co.

22. Bernard Rogers, collar-bone broken in Kingsland Mine, of the Maryland Coal Co.

#### *Accidents—Fatal.*

Daniel Mooney, driver, killed by mine car in Johnson Mine, Jan. 25th, 1881.

Benjamin Bowen, miner, killed by fall of roof coal in Eckhart Slope.

George Rankin, miner, killed by fall of top coal in Hampshire Mine.

James Duckworth, miner, killed by loaded mine-cars in Kingsland Mine, March 15th, 1881.

Archibald Thompson, miner, killed by fall of top coal in New 'Coney Mine, July 16th, 1881.

Charles Bradley, miner, killed by fall of top coal in Blaen Avon Mine, May 10th, 1881.

William Izentrout, driver, killed by mine-cars in Hoffman Slope.

Alexander Gilchrist, miner, killed by fall of top coal in Kingsland Mine, Decr. 10th, 1881.

Inquests were held upon the bodies of all the unfortunate men, except that of Charles Bradley.

The verdicts rendered exonerated the different companies from all blame in the accidents that happened in their mines.

George Rankin left his working place to get some loose coal from the rib, was caught while loading it by a fall of roof coal, which killed him.

The unfortunate man, James Duckworth, was going to his work in the morning, and stepping from the track used for the empty cars being taken into the mine, on to the one used for taking the loaded cars from the mine, when he was run over by a train of loaded cars. The jurors on this case were pressed by me to recommend the amendment of the law, so as to require a traveling-way into the mine for the use of the miners, but they refused to do so.

Archibald Thompson lost his life in the New Coney Mine, by cutting out a prop which was supporting the roof. He did this to make room for an empty car, in direct violation of the rules of the mine. This mine is under the charge of Capt. Douglas, who enforces very strict rules for the safety of the lives and limbs of the men under him. Over one million tons of coal have been shipped from this mine since it was opened ten years ago, and this is only the second fatal accident which has happened in that time.

Benjamin Bowen, who lost his life in the Eckhart Slope, was warned half an hour before he was killed, that the roof in his working place was unsafe, and required to be supported by props. He neglected the order of the overseer, hence was killed by the roof falling upon him.

In the cases of the two drivers, Daniel Mooney and William Izentrout, both were found dead—the one caught between a prop and the mine car, the other lying before the wheels of the car.

I examined the place where Charles Bradley was killed, and found that though plenty of timber was near, yet it was not set up in sufficient quantity, as it ought to have been.

My experience of over forty years in the mines, leads me to the conclusion, that a large percentage of the lives lost in the

mines are lost by the carelessness of the men themselves. In my opinion, there is not that strict discipline enforced in our mines which ought to be. If overseers were held responsible for the lives of the men under their charge, there would soon be a decrease in the number of lives lost. The present system requires every man to look out for himself. Some, through ignorance, and some, through neglect, do not use the precautions they ought to do.

#### *Ventilation.*

Ventilation of mines consists in abstracting impure air from the mines and the introduction of pure air to take its place. To the miner this is an all-important subject in the management and conduct of a mine. On this subject I have frequently expressed my views in the local press, hence they are well-known to the miners of our coal fields.

#### *The Present Mode of Ventilation.*

The method now most generally in use, is what is known as the natural method of ventilation, although the artificial method, which will be noticed further on, is in use in some mines. Common sense would seem to teach us that when the temperature outside the mine is the same as that inside, there can be no natural circulation of air inside or through the mines. Now, as it frequently happens, that there is the same temperature outside and inside, especially during the spring and fall of the year, and in damp and rainy seasons, the natural consequence must be that the air first becomes stagnant, then impure and poisonous inside the mines, and therefore totally unfit for man or beast to breathe. Hence the necessity for some artificial means to keep the air circulating. This may be accomplished at all times by what is known as "Fire Draught or Furnace Ventilation." At the bottom of the up-cast shaft, where the air leaves the mine, a furnace is built and a strong fire kept up to heat and rarify the air.—The heated air seeks the line of least resistance, which is the up-cast shaft. It cannot turn back against the denser air in the air-ways. As the cold air passes over the fire it keeps streaming up the shaft, making room for fresh air to take its place. Like human life, the greater the heat, the greater the hurry, and the sooner will the summons be issued: "Come up higher." Hence I recommend—

I. That Sections eight and eleven of the Mining Law, be amended, so as to secure some mode of artificial ventilation.

Many reasons might be urged for the enactment of such an amendment. Nothing produces dissipation quicker among our miners than bad ventilation. They crave for something

to restore the muscular relaxation and loss of nervous energy which working in a badly ventilated mine produces. The only light which the miner has to light up his subterranean workshop is the glimmer of a small lamp. In the midst of danger he needs a certain light, but in bad ventilation it is uncertain, and sometimes will not burn at all.

Hence, good ventilation will afford greater security to life—will promote the health and good morals of the miners. Surely it is an inalienable right of every man that he breath pure air. It will do more than remunerate mine owners, by enabling the miners to take out more coal per acre.

Again, in some of our mines, I found strong currents of air passing along the heading roads, but very little of it, indeed, found its way to where the men were at work—four and five hundred feet away from the heading. A remedy for this would be found in driving cross-cuts through the pillars, one hundred feet apart. Then, by the use of trap doors at the proper places, good air would always be found at the working-places of the miners. From the great average thickness of our vein of coal, it admits of large air-courses, which can be made, without the extra expense, to overcome the friction found in the smaller veins. Hence, there is no excuse for this state of things, besides, the laborers would be able to do more work, which would accrue to the interest of the stockholders of our coal corporations. Again, I recommend—

II. That Section Fifth, of the mining law be amended, so as to require the superintendents, or persons in charge of the mines of the various coal corporations, to give immediate notice to the coronor, or magistrate acting as such, when a fatal accident has happened in the mine under his charge.

#### *Our Miners.*

There are about two thousand nine hundred miners employed in our coal basin. A large majority of them are industrious and intelligent men. They thoroughly understand the business of mining coal. They are practical miners in every sense of the term. For the protection of their labor, they are well united together and organized into societies. My experience among miners, convinces me that intelligent miners who belong to the Trades Union, are the best and most practical men to employ. They nearly always find some means to settle disputes arising between them and their employers, without resorting to the old, expensive and unsatisfactory method of strikes. The most intelligent and conservative miners do not always take the active part in the

organizations they might do. Hence, the ignorant and hot-headed sometimes make demands that are unreasonable. When these are not complied with, they create troubles affecting not only themselves, but the whole body of the miners, and the community at large suffers. On the other hand, at times, they have just cause for complaint, and are unable to get the grievance removed, except by united action as a body. Thus, strikes occur that might be avoided. If the intelligent and conservative men attended to those cases and laid a plain statement of them before the superior officials of the company, I think they would find redress as far as it could be granted. If such a method of procedure were pursued, we should seldom hear of strikes.

The boss miners of this region are, generally speaking, a class of competent, practical men, who have grown up in the development of the coal trade of this county, and thoroughly understand the character and working of the Big Seam.

There have been many improvements in the method of mining during the past twenty years, and I question very much, if another class of practical miners could be found who would mine out a larger amount of coal per acre.

#### *Labor Troubles.*

There has been no strike this season by any class of men connected with the mining interests in this region. The price of coal in the eastern markets was low during the spring months, but the heavy demand for coal for the fall trade has had a tendency to improve the price. This has kept up the price of labor. Our coal operators deserve great praise for the persevering energy in securing such an amount of business against the strong competition they had to encounter. The prospects of the trade for the next season are as encouraging as they can be at this time of the year.

#### *New Openings Made this Season.*

The Consolidation Coal Company put the Eckhart Slope into operation. This mine will soon take the lead of all our mines, for its daily output of coal will be very large.

The Consolidation Coal Company is constructing another slope near its Ocean Mine. It is intended to reach a lift of coal lower than the lowest of the Hoffman Slope, another mine belonging to the same company. It will be ready to ship coal this spring.

The Borden Mining Company has constructed another opening into their property, adjoining the Old Borden Mine.

S. S. Lee & Son, of Baltimore, have made a mine into the

three-foot vein upon their Swanton property. The coal looks well, and is said to be of excellent quality.

#### *Our Coal Trade.*

We are astonished that the production of coal from our region has not kept pace with the increase of the coal trade. When we consider the time our coal has been developed, and found favor in the eastern market, and also consider the number of seams in our basin, all containing coal of a superior quality, we are at a loss for a really good reason why our production has not kept a ratio with the increase of the trade, or increased so fast as other, though younger soft coal regions, in adjoining States.

The tonnage for 1881, will be considerably in excess of that of 1880. It would have been much larger had the crossing of the George's Creek and Cumberland Railroad over the Baltimore and Ohio Railroad, at Cumberland, been satisfactorily adjusted earlier in the season. If that difficulty had not kept the mines of the American and Maryland Companies idle, they would have, at least, doubled their shipments by the Chesapeake and Ohio Canal. The George's Creek and Cumberland Railroad is now in successful operation, and there is no doubt that in the future the shipments over it to the Canal will be heavy.

Another feeder to that important avenue of transportation, the Chesapeake and Ohio Canal, has been opened up by the West Virginia Central Railroad, which connects with the Baltimore and Ohio Railroad, one and a half miles west of Piedmont. This railroad is completed to the Elk Garden coal field, West Virginia. At this point the same company has a very fine coal property, upon which a model mine has been opened. Old and experienced miners pronounce it the prettiest mine they have ever seen. The coal is fourteen feet thick, with only one slate of about an inch in thickness. The coal is of as good quality as the best of the George's Creek coal. Headings are now being pushed forward, night and day, and preparations are being made for heavy shipments of coal next season by the Chesapeake and Ohio Canal to the seaboard.

#### *Coal Properties Partially Developed, but not Worked.*

The Bowery Furnace Mine, which belongs to the Cumberland Coal and Iron Company, does not ship coal to market. Its entire production is used in their own furnace. The depression in trade, and the low prices for pig-iron, caused the furnace to be extinguished, hence the fine coal property, con-

sisting of three hundred acres of the best quality of the Big Seam, has unworked.

The New York Mining Company has a property located at the northern end of the basin also. It contains six hundred acres, the greater portion of which is underlaid by the big vein of the same thickness and quality as that found at this end of the basin. Though an opening has been made into the coal, yet it has not been developed to any extent.

The Withers Mining Company, now the Thomas, has a valuable coal property, situated in the northern part of the basin. The property consists of two hundred and eighty acres, of which 145 acres contain the Big Seam, of the usual thickness at this end of the basin, viz., eight feet. It is of the same quality of coal as that taken from the Old Allegany Mine, which gives entire satisfaction to consumers. There has been mined and shipped from this property in former years, thirty-eight thousand tons. A new opening has been made upon this property during the past season, and the seam found to be of its full thickness. The convenience of this property to the Cumberland and Pennsylvania Railroad, and its proximity to Cumberland, gives it peculiar advantages, and materially increases its general value as a coal property. The same company also owns fourteen hundred acres of very valuable, undeveloped coal lands in Garrett county.

The Coal Trade Journal gives the following Table of the Coal production of the World:

COUNTRIES.	Square Miles of Coal Area.	Tons, 1870.	Tons, 1878.	Tons, 1879.
Great Britain.....	11,900	110,431,191	132,607,856	134,008,288
United States.....	102,000	32,863,690	49,330,584	59,808,398
Germany.....	1,770	34,003,004	43,841,533	46,953,002
France.....	2,086	13,179,708	16,960,416	17,104,485
Belgium.....	510	13,679,118	14,899,175	15,446,531
Austria.....	1,800	8,356,944	14,500,000	15,447,292
Russia.....	30,000	829,745	2,484,423	3,578,604
Spain.....	3,501	661,927	765,000	775,000
Nova Scotia.....	18,000	625,769	788,000	.....
Australia.....	24,840	868,564	1,575,926	1,750,000
India.....	2,004	500,000	4,000,000	4,000,000
Japan.....	5,000	.....	600,000	750,000
Vancouver's Island.....	390	29,863	228,974	250,000
Chilli, 50,000, Sweden, 90,000, Italy, 220,000, China, 4,000,000.....	.....	.....	.....	.....4,360,000

The following is from the "Coal Fields of America," by Prof. James McFarland.

*The Cumberland Coal Field.*

The Cumberland, or as it is sometimes called, the Frostburg, or George's Creek Coal Field, is situated in Allegany county, Maryland, and occupies the eastern part of the small triangular territory which forms the western extremity of the State. While the Baltimore and Ohio Railroad follows the Potomac River from Cumberland westward, the Cumberland and Pennsylvania Railroad, as it is called, which passes through the coal region, runs from Cumberland northward, and then southwestward after passing through a remarkable gap of Wills' Mountain, a locality which is as interesting to the geologist as it is imposing to the traveler. The width of this gap is estimated at about 500 feet to the base of the mountains—the distance through the mountain being more than a mile—and it forms an excavation of upward of 850 feet in depth. It is the natural outlet for the united waters of Wills' Creek and Jennings' and Braddock's Runs, that empty into the Potomac at Cumberland. The rocky strata that present themselves in this gap are very interesting. On the southeast side of the mountain the summit is reached by a gradual ascent over a course, grayish sandstone, superimposed upon a red sandstone, the grade of the ascent indicating the inclination of the strata at an angle of about 30 degrees. At the summit the strata are horizontal, or nearly so, overlying a precipice of about 300 feet, at the bottom of which is an extensive talus of fallen pieces, reaching to the bottom of the gap. On the northwest side the strata of grayish sandstone are nearly vertical, as if they had been forcibly compressed against the flank of the mountain.

The Frostburg or Cumberland coal basin—the most interesting and important feature in the geology and physical geography of this country—is reached through this gap of Wills' Mountain, first, by the valley of Braddock's Run, by the railroad of the old Cumberland Coal and Iron Company, 16 miles in length, to their mines on Dan's Mountain, in the northeast part of the coal field east of Frostburg, pursuing, for a part of the distance, the route of the National Road or Turapike; or, secondly, by ascending Wills' Creek, to where it received Jennings' Run, where the Cumb. and Penna. Railroad follows its ravine by switch-backs and heavy grades to a summit at Frostburg; and then, after passing a tunnel in that town, which connects Dan's Mountain and Great Savage Mountain, it descends through the valley of George's Creek,

to the Baltimore and Ohio Railroad, at Piedmont, on the Potomac River. The length of this railroad is 34 miles. By both of these routes, on Braddock's Run and Jennings' Run, the predominant rocks observed are encrinital limestones and red sandstones. The coal region can also be reached by the Baltimore and Ohio Railroad route, from Cumberland, along the Potomac to Piedmont, 23 miles, and thence returning by ascending George's Creek.

The situation of the Cumberland coal basin is between Dan's Mountain to the east or southeast, and Savage Mountain to the west or northwest, and the limit of the Big Seam extends within the State of Maryland, in a southwest direction, 20 miles in length, with an average breadth of  $4\frac{1}{2}$  miles, but without covering the whole of this area. There is a transverse ridge, as before stated, nearly as high as the principal mountains just named, upon which Frostburg stands, connecting the two mountains just mentioned, and on which the Old National Road was built. This divides the basin into two unequal parts, and determines two distinct and opposite directions of drainage, and two different routes to market for the coal produced in these different parts. The northern or eastern portion, which is much the smaller, occupying about one-fourth the whole basin in Maryland, is principally drained by Jennings' Run, which takes its rise at Frostburg, and receives as tributaries on the north side, from the Savage Mountain, Cranberry Run, Workman's and Mattingly Runs, and Weller's Branch, and from the Dan Mountain, on the south side of Trotter's Run. These all unite within the basin, and, flowing through a gap between Dan and Piney Mountains, finally empty into Will's Creek, three miles north of Cumberland. The coal mined east of the Frostburg summit descends the railroad to Cumberland. Braddock's Run also takes its rise near Frostburg, and in the northern portion of the coal basin, and, receiving Preston's Run, flows easterly through a gap in Dan's Mountain, and empties likewise into Will's Creek, two miles north of Cumberland. The coal of the Consolidation Coal Company descends their (the old Cumberland Coal and Iron Company's) railroad, before described, by this route to Cumberland.

The southern portion of the basin, forming three-fourths of the whole, is drained by George's Creek, with its numerous tributaries, both from the Dan and Savage Mountains, the principal of which lateral streams, going westward, are Neff's, Elk-Lick, Hill's, Jackson's, and Moore's Runs, that rise in Dan, and Winebrenner's, Wright's, Squirrel Neck, Koontz, Laurel, Bartlett and Mill Runs, that come from

Savage. The whole length of George's Creek is 22 miles, and it empties into the Potomac, at Piedmont, 28 miles above Cumberland, or 206 miles by the Baltimore and Ohio Railroad, west of Baltimore. The coal mined on George's Creek descends the Cumberland and Pennsylvania Railroad to Piedmont, and passes thence by the Baltimore and Ohio Railroad to Baltimore. The great importance of this coal region is a sufficient justification for the details of its various localities. In the coal world, these creeks and runs have the same importance as the famous streets of our large cities have in the commercial world.

The structure of this coal-basin is simple, but very interesting as a geological study. It reminds us of the anthracite basins in its bounding ridges of steeply-inclined strata, but there the resemblance ceases. For, whereas the anthracite basins are canoe-shaped, narrowing and rising at the ends where the mountains are closed up together, squeezing the coal up to a point; on the contrary, at Cumberland the two mountains are parallel throughout, the points of the basin being situated in Pennsylvania and Virginia. The trough being thus left open at the ends, therefore, when the work of denudation began, the waters divided at the Frostburg summit as the continent was elevated, and the great coal-seam was wasted away in both directions. The connecting ridge, extending from Dan to Savage Mountains, retains a full section of the great coal-bed, extending from mountain to mountain. This body of coal is about four miles in width, or in a northeast and southwest direction, and as the coal here must be mined by sinking shafts, requiring hoisting and pumping, comparatively little mining has as yet been done in this portion of the field. The valley of the George's Creek is cut down through the large coal-bed, leaving first two narrow fields, one on each side of the valley, in which the out-crops of the coal-bed become higher and higher on the hillsides as you proceed from Frostburg to Piedmont, lateral streams finally even separating these into smaller detached coal-fields.

As to the internal structure of this basin, if we suppose a transverse section of it be made, it would be found to exhibit a succession of alternating strata, of various thickness, of sandstones, slates, coal, iron-ore, fire-clay, and limestone, disposed in a moderate curve, and filling up the valley between the two prominent ridges designated as Savage and Dan's Mountains. The Frostburg summit is 1,300 feet above Cumberland, and, for some distance on the southwest side,

the coal-strata not having been interfered with by denudation, extend in a trough-like form far underground across the valley from mountain to mountain, but at the extremities of the basin, as before remarked, where the valley is cut down to a great depth, the main seam crops out at some elevation on the sides of the valleys. The surface of the basin, of course, is irregular, being intersected by deep ravines formed by the streams and runs that traverse it. George's Creek, in a distance of 17 miles, and in a longitudinal direction, has scooped out its bed, or rather, some more general and powerful excavating cause has cut down through a mass of rocks 1,250 feet deep, carrying away an immense amount of the coal-field. The same is the case at the Jennings' Run end of the field, while at Braddeek's Run a small portion only has been removed, because, flowing laterally, it soon leaves the coal-basin. Other lacerations of the coal-basin have been produced by the lateral streams.

The Potomac river, too, enters the basin at its southwest extremity, cutting through it diagonally, and carrying off parts of the upper beds of coal, but not affecting the dip or inclination of those that remain, as the same fine, fourteen-foot seam of coal, seen on George's Creek, is found on the West Virginia side, high up on the mountain at the Hampshire and Baltimore Company's mines, above Piedmont, 1,000 feet above the Baltimore and Ohio Railroad, showing that the seam was once continuous. The only consolation for these great losses of parts of the coal-field, is found in the facilities furnished for exploring and mining operations.

There is a very great regularity in this coal basin, as faults or serious dislocations do not occur. The soil is excellent, yielding good crops, and the country is well timbered with oak, pine, locust, and other timber, which are valuable for mining purposes. The appearance of the country is very good, and there is no coal region more inviting to the tourist.

#### *The Coal Bed.*

The seams of this species of coal are always thinner than the anthracite. They are generally found in positions more nearly horizontal and in parallel strata. But the great bed in which the mining is done in the Cumberland coal region is of the extraordinary thickness of 14 feet. Scarcely anywhere in America is there a seam of bituminous coal of this size, extending, as it does, throughout the region, and maintaining its size wherever it occurs. This Big Seam, as it is called, is not only very uniform as to its thickness, but very regular in its form, without faults or breaks, and like the upper



seams in other regions less disturbed, and more easily traced than lower seams usually are. At the mines of the Hampshire and Baltimore Company, may be seen this splendid bed of beautiful and fine coal mined out to nearly its full thickness of fourteen feet, and, in some places in those mines, even fifteen feet and sixteen feet thick, with but one small layer not exceeding an inch or two of slate within two feet of the bottom, but the coal of this mine has been all mined. However, the same fourteen-foot seam of coal is mined, and may be seen on the adjoining property, namely, the Virginia Mine, belonging to the Hon. Henry G. Davis, of West Virginia. A little of the coal is left in overhead as a roof in an arching form, and such is the height that the drivers ride into the mines on horseback, forming a strong contrast to the low and contracted roads in mines in the small seams of bituminous coal. These mines, however, are exceptional in this respect, this being an outlying detached coal field west of the George's Creek or Frostburg Basin, and across and west of the Potomac River. Generally, throughout the region, from seven to nine feet of the coal only is worked, the top and bottom parts being left in on account of the slates and the supposed impurities they contain. Even this is a good thickness of coal, and makes a mine very convenient in its working. The bed of coal is certainly a very fine one, remarkably free from impurities, and everywhere affording a coal of admirable quality, as free from sulphur as any coal in this or any other country, without bony or incombustible matter, and with no slate that is troublesome or expensive to clean. No slate-pickers are employed anywhere in the region, as none of it need get into the coal, except through gross carelessness on the part of the miner—an offence for which, if committed, he is heavily fined.

The greatest disadvantage in this region, is the want of a strong, self-sustaining roof over the coal, which, taken in connection with the great thickness of the seam, and the crumbling soft character of the coal, would make a much thinner seam, with a strong, sound roof, much safer for the miner, and it would produce more coal to the acre.

The following is a portion of Prof. Hodge's report, in regard to the thickness of coal mined in this region, and the system of mining employed.

"It is common to call this the 'Fourteen-Foot Bed,' and in the lower end of the basin it has been found of this thickness, and to some extent has been so worked. But this name gives a very incorrect impression as to the amount of coal actually obtained from any of the mines. At those now worked in

the northern end of the basin, the real thickness of the bed is about eight and a half feet. In the central portion of the basin—although its thickness may reach 12 feet—there is hardly a mine in which it can be said that more than 10 feet of coal is worked to any extent, while the most of them, save only about seven feet six inches. Various reasons are given in explanation of this. In some mines, the slate roof over the coal-bed, when undermined, is apt to fall in blocks or 'slips,' and endanger the lives of the miners. In these mines it is almost a necessity to leave the upper two or three feet of the coal-bed for a safe roof, and remove only the middle and lower portions."

But the roof coal is not the only part left unworked at many of the mines. Throughout the whole coal field the lowest two or three feet of the bed contain one or two seams of slate, commonly two, each half an inch or so thick, and about a foot apart. They run in remarkable uniformity in parallel sheets through the coal of nearly all the mines, and, unless the fragments are carefully sorted out, they damage seriously the character and reputation of the coal in the market. In the destructive rivalry that has existed in the different companies, many have allowed this "bench-coal" to remain unworked, and have been willing to pick out the choicest middle part only, and sacrifice all the rest. But the day is fast approaching when this sacrifice will be regretted.

Thus it is, that in some of the mines, the bed is worked to its full thickness, either throughout or partially; in some, the roof-coal only is left, and then it may be with the expectation of recovering it in part; and, in some, both roof-coal and bench-coal are sacrificed to the extent of full five-twelfths of the whole bed.

The great seam of this coal field is the only one that receives any attention. It mines out in large masses—many of them as large as a man can handle—and at the pit's mouth there is very little fine coal. The coal is beautiful in appearance, of a jet-black and glossy appearance; but these large masses are very friable, and become very much pulverized in the course of transportation and handling. This is in a measure compensated, in burning it for steam purposes, by its melting and crusting over, and when partially coked, this crust can be broken up with a poker, and burnt again like lump coal.

#### *The Other Coal Seams.*

The following section of the upper coal measures of this district was taken by Prof. Philip Tyson, from survey and

actual measurement in 1852. It shows the coal seams above the Great Bed.

Feet above Tide.	No.	Character of Rock.	Thickness.
			Ft. In.
	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
1,950	20.	Iron in Shale.....	27 3
	19.	Shale.....	27 9
	18.	Fine-grain Sandstone.....	3 6
	17.	Shale.....	2 6
	16.	Coal, 2 in. 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.....	} 51 0
	12.	Micaceous.....	
	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 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.	Character of Rock.
1,800.	14 minutes, 0 seconds.	Main coal, H.
	4 seconds.	Bank of iron-ore.
	11 minutes, 8 seconds.	Shale.
	3 minutes, 0 seconds.	Fire-clay.
1,750.	1 minute, 6 seconds.	Limestone.
	15 minutes, 6 seconds.	Shale.
	29 minutes, 0 seconds.	Sandstone, fine grain.
1,700.	27 minutes, 6 seconds.	Shale.
	2 minutes, 6 seconds.	Coal, G.
	4 minutes, 0 seconds.	Shale.
	16 minutes, 8 seconds.	Shale. Ore No. 20 at its top.
	1 minute, 0 seconds.	Shale, ferruginous.
	3 minutes, 9 seconds.	Coal.
	1 minute, 0 seconds.	Shale.
	1 minute, 0 seconds.	Coal.
1,650.	2 minutes, 6 seconds.	Ore, Nos. 17, 18 and 19, in shale.
	3 minutes, 0 seconds.	Ore No. 16, in fire-clay.
	6 seconds.	Shale.
	1 minute, 0 seconds.	Coal.
	7 seconds.	Ore No. 15, in shale.
	2 minutes, 0 seconds.	Ore-ball, in stratum of fire-clay.
	6 seconds.	Shale.
	1 minute, 6 seconds.	Coal.
	2 minutes, 6 seconds.	Shale.
	5 minutes, 6 seconds.	Ores Nos. 13 and 14, in fire-clay.
	1 minute, 6 seconds.	Sandstone.
	6 minutes, 6 seconds.	Ores 12, 11, 10 and 9, in shale.
	6 minutes, 6 seconds.	Shale, with ore-balls Nos. 8 and 7.
	7 seconds.	Ore No. 6.
	4 minutes, 3 seconds.	Shale, with ore No. 5.
	6 seconds.	Coal.
	6 seconds.	Ore No. 4, in shale.
	1 minute, 6 seconds.	Coal.
	2 minutes, 0 seconds.	Shale.
	2 minutes, 3 seconds.	Shale and coal together.
	2 minutes, 2 seconds.	Ore No. 3, in shale.
	2 minutes, 1 second.	Coal.
	6 seconds.	Shale.

Feet Above Tide.	Thickness.	Character of Rock.
1,600.	2 minutes, 8 seconds.	Ore No. 2, in fire-clay.
	4 minutes, 10 seconds.	Ore No. 1, in shale.
	2 minutes, 6 seconds.	Ore in shale.
	1 minute, 6 seconds.	upper black band-ore Undermine in the 3 seconds coal, and all the ore above 4 minutes will come down. If stacked in rows and self-washed for a month, it will yield 40 o-o.
	3 seconds.	Coal.
	2 minutes, 0 seconds.	Shaly sandstone.
	4 minutes, 6 seconds.	Shale.
	2 minutes, 6 seconds.	Coal, B.
	3 minutes, 0 seconds.	Limestone.
	3 minutes, 6 seconds.	Fire-clay.
	8 seconds.	Coal.
	1 minute, 6 seconds.	Shale.
	1 minute, 6 seconds.	Shale ferruginous.
	1 minute, 0 seconds.	Shale.
	1 minute, 3 seconds.	Coal.
	1 minute, 3 seconds.	Shale.
	1 minute, 6 seconds.	Coal.
	1 minute, 6 seconds.	Shale.
	1 minute, 6 seconds.	Coal.
	2 minutes, 8 seconds.	Shale, brown.
	5 minutes, 0 seconds.	Shale, sandy, with balls.
1,550.	8 minutes, 0 seconds.	Shaly sandstone.
	4 minutes, 6 seconds.	Shale.
	1 minute, 6 seconds.	Coal.
	7 minutes, 4 seconds.	Fire-clay.
	5 minutes, 0 seconds.	Shales, ferruginous.
	7 minutes, 0 seconds.	Shale, with balls.
	2 minutes, 0 seconds.	Shale, ferruginous.
	1 minute, 0 seconds.	Shale.
1,500.	39 minutes, 0 seconds.	Sandstone.
	15 minutes, 0 seconds.	Shale.
	3 minutes, 0 seconds.	Ore in fire-clay.
	6 minutes, 0 seconds.	Limestone.
	2 minutes, 0 seconds.	Ore in fire-clay.
1,450.	10 minutes, 0 seconds.	Shale.

Feet Above Tide.	Thickness.	Character of Rock.
1,450.	44 minutes, 0 seconds.	Sandstone.
1,400.	8 seconds.	Coal.
	10 seconds.	Shale.
	2 minutes, 2 seconds.	Limestone.
	23 minutes, 6 seconds.	Sandstone.
	6 minutes, 0 seconds.	Shale.
	6 minutes, 0 seconds.	Hard black band.
	6 minutes, 0 seconds.	Shale, very ferruginous.
	4 minutes, 6 seconds.	Shale.
1,350.	1 minute, 8 seconds.	Coal shaly. } 5', 8"
	1 minute, 0 seconds.	Coal, hard. }
	3 minutes, 0 seconds.	Coal, good. }
	4 minutes, 0 seconds.	Sandy fire-clay.
	6 minutes, 0 seconds.	Ore in Shaly fire-clay.
	6 minutes, 0 seconds.	Limestone.
1,300.	33 minutes, 0 seconds.	Sandstone.
	9 minutes, 6 seconds.	Shale.
1,300.	11 minutes, 0 seconds.	Ore-balls. } Marine-shells. } Balls in Shale. }
	2 seconds.	Coal.
	6 minutes, 0 seconds.	Shale.
	2 minutes, 2 seconds.	Coal.
	14 minutes, 0 seconds.	Shale.
1,250.	4 minutes, 0 seconds.	Coal.
		Shales. } Fire-clay. } Sandstone. } Not explored. }
	25 minutes, 6 seconds.	
	2 minutes, 0 seconds.	Coal.
1,200.	102 minutes, 0 seconds.	Unknown. } Coal-crop, near top. } Sandstone at bottom. }
1,150.		
		Ferruginous shale. }
		Gray shale. }
1,100.	24 minutes, 0 seconds.	Black shale. }
	2 minutes, 0 seconds.	
	6 seconds.	Six-foot coal. }
	3 minutes, 6 seconds.	
	3 minutes, 0 seconds.	Fire-clay. }
	6 minutes, 0 seconds.	Shale with balls of ore. }
	27 minutes, 0 seconds.	Unknown. }

Feet Above Tide.	Thickness.	Character of Rock.
	3 minutes, 0 seconds.	Coal.
1,050.	4 seconds.	Shale.
1,050.	19 minutes, 0 seconds.	Sandstone.
	8 seconds.	Coal.
	20 minutes, 0 seconds.	Shales.
		Fire-clay.
		Shales.
		Fire-clay.
	1 minute, 6 seconds.	Coal.
1,000	10 minutes, 0 seconds.	Fire-clay.
950	92 minutes, 0 seconds.	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.	
	3 minutes, 0 seconds.	Large balls of ore.
900	14 minutes, 6 seconds.	Shale.
	3 seconds.	Shale coal.
	12 minutes, 3 seconds.	Sandstone, thin layers.
	2 minutes, 0 seconds.	Coal.
	2 minutes, 6 seconds.	Shales.
850	42 minutes, 6 seconds.	(Sandstone, etc., not explored.)
	?	?
	27 minutes, 0 seconds.	Shale—Small interval.
	2 minutes, 0 seconds.	Sandstone, thin-bedded.
550	160 minutes, 0 seconds.	Lowest known coal-bed.
		Principally sandstone, but not much explored.
	90 minutes, 0 seconds.	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 1, 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 Gar-

rett 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.

#### *Our Lower Veins.*

The time is fast approaching, when the veins of coal which lie under our Big Seam will have to be developed, for, at the present rate of production, the time which our Big Seam will last is limited. The six-foot vein and the four-foot vein have each been opened in several places in our region. A strong, though unjust prejudice exists against the coal from these veins, which, for the time being, has given it a black eye. For a number of years, I was under the impression, that the coal so successfully worked in the Clearfield Region of Pennsylvania, was the same as that of our lower seams. To satisfy my mind on this subject, I paid a visit to Pennsylvania, and found that the coal of the Clearfield Region, and the Snow-Shoe Region, was the same as the lower seams in our basin, which prejudice has condemned here. Millions of tons of this coal is shipped from our sister State, in fact, it is almost the only coal that completes with our Big Seam coal in the Eastern market. In our State, this same coal is denounced as unfit for use. This alone proves that prejudice prevents the development of our lower veins. Moreover, I assert, that there is no coal shipped from those places in Pennsylvania, named above, equal in quality to the coal mined from the six-foot seam of the Empire Mine, in Garrett county, Maryland. It is a well-established fact, that our seams of coal become thicker and purer as they are found in a southern direction. The coal of the six-foot vein, as it is found at the Empire Mine, is more free from sulphur and other impurities, and makes better lump coal than that shipped from the Pennsylvania regions named.

There is another vein which has been opened on the east side of Dan's Mountain, on the property of Dr. S. P. Smith, of Cumberland. It is equal in quality to the coal of any of the lower seams that have been worked, and if properly worked would make more lump coal.

The unjust prejudice existing against the coal of those veins must soon give way, and in the near future they will be developed and shipped to the fast increasing bituminous coal markets of the East and West.

*Death-Rate.*

The coal shipments during the past two years, as near as it can be ascertained, amounts to 4,398,078 tons.

The number of casualties resulting in instant death in the mines of this region, during the same period, was ten, being in the ratio of one death for every 439,808 tons of coal mined. This ratio of death-rate to the ton mined, is very favorable to the general management of our mines, and it is a question if any mining region in the United States, or in any country in the world, can exhibit so small a per centage of human life lost to the ton of coal mined.

*Conclusion.*

Having embodied in this report the few special recommendations that I have deemed it incumbent upon me to make, in the form of legislation, I have nothing further of a general nature to recommend.

All of which is respectfully submitted.

THOMAS BROWN,  
Inspector of Mines for Allegany  
and Garrett Counties.

*December 31st, 1881.*

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REPORT  
OF THE  
INSPECTOR OF MINES  
FOR 1880.

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# REPORT

OFFICE OF MINE INSPECTOR

*For Allegany and Garrett Counties,*

POMPEY-SMASH, MARYLAND,

December 31st, 1880.

*To his Excellency, Wm. T. Hamilton,*

*Governor of Maryland:*

SIR:—Having had the honor of receiving a commission from you, bearing date of May 3rd, 1880, appointing me Inspector of Mines for the Counties of Allegany and Garrett, in the State of Maryland, I beg leave to report, that I qualified as such officer, by taking the oath required, and entered upon the discharge of my duties on the date above mentioned.

Being aware of the existence of much dissatisfaction among the miners of this region, in regard to the condition of the mines, and the places where they respectively worked, I immediately determined upon making a thorough inspection and examination of every mine and of every working place in the mines in the coal region of Allegany and Garrett counties. To this work I devoted several months of arduous labor, having visited and examined every working place in each and every mine in the two counties; and it affords me much pleasure to inform your Excellency, that I found on the part of the mine owners a disposition to obey both the spirit and intent of the law.

The sections of the law requiring the mine owners to furnish the miners with timber, to be used in the protection of their persons and lives, and providing also for a fair weighing of the coal after it is mined, work well and give general satisfaction, and have eradicated a great deal of discontent from the minds of miners.

I am sorry, however, to state that the section of the law relating to the ventilation of our mines, is deficient in several essential particulars. I am now collecting data upon this subject, which will enable me to suggest some amendments to the law in my next annual report, when the Legislative Body of the State will be about to assemble.

The following Table gives the number of casualties in the Mines, from May 3rd, 1880, to December 31st, 1880.

DATE.	Name of Person.	Name of Mine.	Remarks.
1880			
May 8	Patrick Connelly.	Old Lonaconing.....	Crushed by a mine car.
" 21	Wm. Liddell.....	Blaen Avon.....	Hurt by fall of top coal.
" 27	Chas. Katbaugh...	" " " " " " " " " "	" " " " " " " " " "
June 5	Robt. Dick.....	Big Vein.....	" " " " " " " " " "
" 5	Wm. Wilson.....	Koontz.....	" " " " " " " " " "
" 6	Mungo Walker.....	Big Vein.....	" " " " " " " " " "
" 14	Fallab'm Williams	Borden.....	" " " " " " " " " "
" 18	Chris. Knoepp.....	" Shaft.....	" " " " " " " " " "
July 27	Jno. McGrady.....	Kingsland.....	Crushed between car and prop.
" 27	Jos. Whitehead.....	Koontz Tram-Road.....	Arm broken by mine car.
Aug. 9	Jas. Brolderick....	Koontz Mine.....	Hurt by mine and died of injuries
" 16	Jas. Barber.....	Midlothian.....	" fall of breast & top coal "
" 16	Ernest Horseman.	Jackson.....	Ran over by mine car "
Sept. 2	Wm. Douglas.....	Koontz.....	Kicked by a horse "
Dec. 16	Wm. Close.....	Johnson.....	Lost a leg by mine car.
			Crushed by a fall of breast coal.

The following shows the number of instant deaths from casualties in the mines during the current year, with the verdict of the Jury of Inquisition in each case:

1880, May 27. John Watson, killed in Big Vein Mine. Inquest before C. S. Murphy, Acting Coroner. Thomas Brown, Mine Inspector, being present. Verdict: That deceased, (John Watson,) came to his death, May 27th, 1880, by a fall of roof coal, caused by a loaded car striking and knocking out a prop in the fourth right heading. Big Vein Mine, owned and operated by the New Central Coal Company of Allegany county, Maryland.

1880, July 28. Wm. Cunningham, killed in Phoenix Mine. Inquest before — Fazenbaker, Acting Coroner. Thomas Brown, Mine Inspector, being present. Verdict: That deceased, (Wm. Cunningham,) came to his death in the Phoenix Mine, owned and operated by the Maryland Union Mining Company, on the 28th day of July, 1880, by a fall of breast coal by which his skull was fractured. No blame attached to the officials of the company.

John Watson, the first mentioned victim, was a single man, and left no family.

Wm. Cunningham was married, and left a widow and six children.

#### General Remarks.

The coal mined and shipped from the Maryland region during the current year, will exceed two million (2,000,000) tons in amount, an increase of nearly half a million tons over the preceding year. The year has been a prosperous one for the leading coal companies of the region, and also for the miners employed by them.

There has been no general strike among the miners this season. Some trouble arose at several of the mines among the drivers, and my exertions were used to have the difficulties satisfactorily settled.

There was a strike among the employes of the C. & P. Railroad Company, and also among the boatmen of the C. & O. Canal, which had the effect of curtailing shipments of coal.

The prospect for the coal trade next season seems good; the completion of the new outlet from the coal regions, namely, the George's Creek and Cumberland Railroad, will have a tendency to reduce freight rates, which will enable our coal operators to compete with other soft coal regions of adjoining States. The new outlet will likewise add to the trade of the C. & O. Canal, the litigation pending so long



having been decided by the Court of Appeals, so as to assure a connection between the two lines of transportation.

*Ventilating Furnaces.*

There are only nine furnaces for ventilating purposes in the whole extent of our coal region, the most of the mines being ventilated upon the natural mode. As I consider this subject of the most vital importance in connection with my duties as inspector, I shall enlarge more fully upon it in my next annual report, and offer some suggestions for the consideration of the General Assembly.

*A Good Record for the Consolidation Coal Company.*

This company has mined and shipped, during the current year, over half a million tons of coal, without the loss of a single life.

There being no appropriation, out of which the publication of this report could be paid, I have not deemed it necessary to enter more fully into the details of mining operations in this region; nor have I thought it advisable to burden the report with any suggestions or recommendations concerning the interior regulation, management and ventilation of mines. I am, however, collecting information and data upon these subjects, which are of so great importance to the safety of the persons, and the protection of the lives of our miners, and will lay my deductions before you and the General Assembly, for respectful consideration, in my next report.

All of which is most respectfully submitted.

THOS. BROWN,  
Inspector of Mines for  
Allegany and Garrett Counties.

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## APPENDIX.

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TABLE No. 1.—DETAILS OF PRODUCTION OF 1881.

Statistics of the Cumberland Coal Trade, from its Commencement.—Compiled from Official Sources in the Office of the Cumberland and Pennsylvania R. R. Co., Mt. Savage, Md.

NAME OF COMPANY OR MINE.	1881.							COMPARED WITH 1880.	
	To B. & O. R. R.		To Pa. R. R.		Local.		Total.	Increase.	Decrease.
	Tons.	To C & O Canal.	Tons.	To Pa. R. R.	Tons.	Total.	Tons.	Tons.	
Consolidation Coal Co.	532,732	181,604	10,608	28,956	753,900	185,656	48,837		
New Central Coal Co.	143,832	57,153	98,545	4,088	303,618				
George's Creek Coal and Iron Co.	217,764	37,450		847	256,061				
Maryland Union Coal Co.	173,178				173,078				
Borden Mining Co.	3,053	106,578	44,205	11,612	165,418	19,626			
Maryland Coal Co.	12,807	43,665	63,998	3,207	123,677	19,819			
American Coal Co.	18,981	39,470	61,204	1,850	121,505	6,074			
Potomac Coal Co.	80,806			314	81,120	9,674			
Davis & Bro., (W. Va. Mines)	69,063	14,344			83,063	3,426		3,929	
Hamp. and Bako, Coal Co.	48,479			309	63,132	14,220			
Atlantic & George's Creek C. C. Co.	56,470			3,175	59,645			35,900	
Swanton Mining Co.	42,171			550	42,745	621		6,197	
W. Va. C. & P. R. Y. Co.,	11,256	24,554	14	408	25,295			19,725	
(Empire Mine)					11,256				
Piedmont Coal and Iron Company									
Union Mining Co.	8,453				8,453			6,138	
Cumberland Coal and Iron Co.				3,822	3,822			648	
North Branch Coal Co.								22,940	
Grant Coal and Iron Co.								233	
								67	
	1,419,364	504,818	279,598	59,138	2,261,918	270,372	144,614	144,614	
					Increase.			125,758	

RECAPITULATION.

FROM.	1881.				Total.
	To B. & O. R. R.	To C & O Canal.	To Penn. R. R.	Local.	
Cumberland and Pennsylvania Railroad	1,071,183	270,156	153,501	42,080	1,536,920
Cumberland Branch	259,459	151,526		12,111	423,096
George's Creek & Cumberland R. R.		83,136	125,097	4,947	213,180
West Virginia Mines, Etc.	*88,722				88,722
	1,419,364	504,818	278,598	59,138	2,261,918

\*11,256 tons of this amount were shipped over the W. Va. C. & P. R. Y.



## ERRATA.

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On pages 35, 36, 37 and 38, under the head of "Thickness," instead of "minutes and seconds," should be feet and inches."