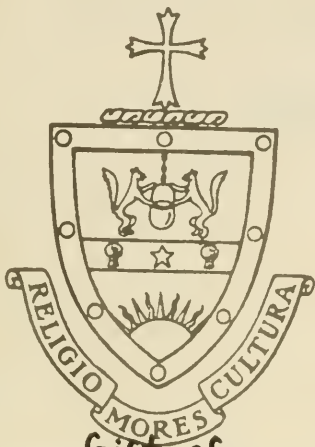




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REPORT

OF THE

BUREAU OF MINES

OF THE

Department of Internal Affairs of
Pennsylvania.

1898.

WM. STANLEY RAY,
STATE PRINTER OF PENNSYLVANIA.
1899.



REPORT

OF THE

BUREAU OF MINES.

COMMUNICATION.

Department of Internal Affairs,
Harrisburg, May 1, 1899.

To His Excellency, William A. Stone, Governor of Pennsylvania:

Sir: In compliance with the requirements of the act of June 2, 1891, and that of May 15, 1893, relative to the Mine Inspectors' Reports of the Anthracite and Bituminous coal regions, I have the honor to present to you for transmission to the General Assembly the report of the Bureau of Mines for the year 1898.

Very respectfully,

JAMES W. LATTA,
Secretary of Internal Affairs.



LETTER OF TRANSMITTAL.

Harrisburg, Pa., March 1, 1899.

Hon. James W. Latta, Secretary of Internal Affairs, Commonwealth
of Pennsylvania.

Sir: In accordance with section 5 of an act establishing a Bureau of Mines in the Department of Internal Affairs, approved July 15, A. D. 1897, I have the honor to transmit the Annual Report of the Bureau of Mines for the year ending December 31, 1898.

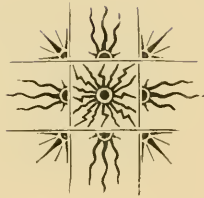
Very respectfully,

ROBERT BROWNLEE,
Chief of Bureau of Mines.



CONTENTS.

Report of the Inspector of the First Anthracite District,	1
Report of the Inspector of the Second Anthracite District,	33
Report of the Inspector of the Third Anthracite District,	67
Report of the Inspector of the Fourth Anthracite District,	99
Report of the Inspector of the Fifth Anthracite District,	129
Report of the Inspector of the Sixth Anthracite District,	173
Report of the Inspector of the Seventh Anthracite District,	207
Report of the Inspector of the Eighth Anthracite District,	227
Report of the Inspector of the First Bituminous District,	269
Report of the Inspector of the Second Bituminous District,	305
Report of the Inspector of the Third Bituminous District,	343
Report of the Inspector of the Fourth Bituminous District,	367
Report of the Inspector of the Fifth Bituminous District,	385
Report of the Inspector of the Sixth Bituminous District,	415
Report of the Inspector of the Seventh Bituminous District,	443
Report of the Inspector of the Eighth Bituminous District,	469
Report of the Inspector of the Ninth Bituminous District,	499
Report of the Inspector of the Tenth Bituminous District,	525



ANNUAL REPORT

OF THE

BUREAU OF MINES.

Since the last report of the Bureau was issued, our country has been making history rapidly. While our soldiers and sailors have brought victory to our arms, the commercial, agricultural, mining and manufacturing industries of the country have been equally successful, inasmuch as the volume of business done has been greater than ever before. Statistics conclusively show that in commercial importance we are between one-fourth and one-third of the entire world. No better test can be found of the amount of commerce done by a nation than the number of tons of freight carried by its railroads. The foreign trade of every nation, consisting only of its surplus products, must be small compared to the business of the nation itself. It is said that the Pennsylvania Railroad carries more freight than that which constitutes all our foreign trade. The steam power of the United States, according to Mr. Mulhall, an eminent statistician, is nearly one third that of the entire world, or between one third and one half that of the balance of the world, being 14,400,000 horse power, as against 50,150,000 for all the world. Nothing more striking or instructive in regard to the value of coal when utilized by an industrial community could be stated. Coal has become one of the essential elements of modern civilization. In fact, the progress of the civilization of a country is now recorded by the amount of coal obtainable and employed by the inhabitants in a given time.

The production of coal in the United States for the 1897 was 198,256,788 tons, while that of the entire world was about 600,000,000 tons, making our production nearly one-third as much as that of the balance of the globe. The coal fields of the United States comprise nearly half of those of the world, being 194,000 square miles, as against 471,800.

In 1897 Pennsylvania produced 107,255,308 tons, or over 53 per cent. of all the coal produced in the United States, and in 1898 that

amount was exceeded by 9,794,923 tons. It is pleasing to note the great increase in the production for the last decade, and encouraging to contemplate the possibility of a still greater production in the future in Pennsylvania of coal, which the nineteenth century calls the arbiter of the fate of nations. Increased production necessitates deeper and more extensive mines, requiring better and more intelligent supervision than ever before, and this is one step in mining progress which, being neither sudden nor conspicuous, escapes general notice, but which is fraught with very important results.

The work of the Bureau has been fairly satisfactory, considering the fact that there were no established precedents by which to be governed, and so far there seems to be no reason to change the system established at the beginning of the year. Each Inspector makes his own record by sending to this office an account of work done each month. He also reports as soon as investigated, the cause and circumstances connected with each accident.

The Reduction in Number of Accidents.

This is the most essential feature connected with mine inspection. It is true that very many of the accidents are due to violations of the mine laws, but it is not inferred or implied that the Mine Inspectors can alone enforce the provisions of the law, neither should they be the sole responsible persons to detect misdemeanors, nor should they be regarded as the only persons to be intrusted with the duty of detecting offenders. The mine boss and the superintendent should be held responsible for the detection and punishment of violations of the mine laws. The fact that the mine boss is freed from responsibility under the law for any accident not directly chargeable to his commission, should not make him lax in enforcing the discipline, and the active oversight which would make a notable reduction in the number who are maimed, burned or crushed. In the spirit of the law, if not in the letter, he is heavily charged with the care of rectifying errors and carrying out the instructions of the Mine Inspectors. Do all mine foremen and mine officials recognize this fact? No. Judging from the Inspector's reports sent to this office, many of the mines are not so well managed as they should be, and this appears to be due to an utter disregard for the law, and the lack of mining knowledge in those who own and superintend them, coupled with a penny wise and pound foolish system that invariably leads to bad development with all its accompanying evils, insufficient ventilation, dirty roads, poor drainage, inability to secure the greatest possible percentage of coal, and failure to furnish at the proper time sufficient supplies for use in the mine, to which the cause of many accidents may be attributed. This is not by any means true of all the mines, but it should not be true of any. It

has been found that at many of the mines there were no instruments with which to measure the air currents, and at many more they were in such bad repair as to be comparatively valueless. As soon as this was brought to notice, it was insisted that instruments be procured, and this has generally been done.

While a large number of the accidents which have been reported during the year have been due to the carelessness of the injured, the records show that many of them could have been avoided if those in authority had exercise the proper care and discipline in and about the mines. As an illustration of this, at a coroner's inquest investigating the cause and circumstances connected with a fatal accident from an explosion of gas, it was shown that coal oil and sometimes black oil were used in safety lamps, notwithstanding that the mine rules are that sperm oil should be used. It was also shown that gas accumulated at the face because the brattice was defective. In answer to a question, it was stated that the men who worked the place were responsible. It is true that it was probably their duty to carry the brattice along as their place advanced, but was it not much more the duty of the mine officials to see that it was done, and done properly, especially when they knew the brattice was defective? Certainly it was. Other cases of a similar nature could be cited. It appears from the reports sent to this office that 609 fatal and 1,623 non-fatal accidents occurred in and about the coal mines of this State during the year 1898. 250, or 41 per cent. of the fatal accidents were attributable to carelessness or violations of the mine laws, by the victims themselves. Of the 1,623 non-fatal accidents, 700, or 43+ per cent. were attributable to carelessness or violation of the mine laws by the injured. Judging from the reports of the causes and circumstances connected with all the accidents, the number attributed to violations of the law is very conservatively stated. Can anyone study these figures and say that the law is all that could be desired? Does it not seem to be time that we should refuse to allow selfishness or sentiment to further warp our judgment? Can we afford to stop at this critical point in the application of improvements? Restrictive measures must be applied upon the miners to stop their own suicidal attempts. If they are guilty of a consummate contempt of danger, the owners cannot be "particeps criminis" in permitting the risk.

An article in the Mining Bulletin which to me appears in the line of improvement, and which undoubtedly will tend to minimize accidents, recommends that specific penalties be inflicted for each offence, which should be in the nature of fines imposed by simple process of law, much as misdemeanors committed on the surface, are within the jurisdiction of a justice of the peace. If instead of the general terms of punishment they may be made specific not

merely for offences that actually result in accidents, but for those that are conducive to accidents, the mine boss or foreman would experience no difficulty in maintaining discipline after a few applications of the rule. Respect for the law is the beginning of civilization, and it is the foundation of all government. Although the better class of men in an enlightened country recognize the obligations of morality and righteousness in their dealings with each other, no nation has ever yet risen so high that the fear of the law was not the corner stone of social order and security. Honest faithful enforcement of law is to-day the supreme necessity for a reduction of the number of accidents in and about the mines. The present law covers the idea mentioned of fining the men for infractions, but the weakness in its clauses lies in the fact that a negligent guilt must be proved and that no accident must have resulted therefrom before punishment is possible. The machinery which must be set in motion is too complex for the numerous cases that might and do arise under the act. All violations, such as interference with or neglect in closing doors, or malicious obstruction of air ways, using naked lights where such are prohibited, should be amenable to a specific punishment, notwithstanding that an accident might not immediately ensue in consequence of this act. The carrying of lucifer matches, playing with signals, riding on cars, withdrawing miss-fire charges, opening boxes of explosives in proximity to a lamp or pipe, and the shortening of fuse or its saturation with oil, are all of them criminal acts which should be specifically provided against and consistently punished, whether or not an accident should ensue. So, too, is the failure to observe orders regarding the proper placing of timber equally amenable to the law. It may seem a hardship to impose a fine for apparently trivial offences, and yet fatal consequences are invited, and it would be an insult to the intelligence of the miners to pretend their ignorance of this fact. If the accidents are due to ignorance, then the offending party should be discharged and the skilled miners will have occasion to rejoice over the betterment of the grade of laborers. The large companies and many of the individual operators are taking advantage of every improvement which conduces to the safety of their workmen, and are anxious to prevent accidents. In some mines a rigid discipline exists and a consistent, persistent vigil is maintained, and this should avert accident; but if the miner refuses to obey the law, he places himself in the same category with the criminal, who is bent on self-destruction, or with one contemplating arson or other illegal acts on the surface, endangering the loss of more lives than his own. It is not intended or implied that such legislation as proposed would infringe upon the liberty of those employed in and about the coal mines, or make their occupation less tolerable. There may be a limitation to

the natural freedom of the individual, but it is not inconsistent with the rights and safety of others, who should be not merely allowed secure enjoyments of the fruits of their labor, but should have guaranteed to them a life without hazard from the wilfulness of the law breaker. This regulation comes fully within the power of the legislator and is no more objectionable than the prohibition of incendiarism or assault, the erection of frame dwellings in cities, etc. Fines imposed upon the violators of the rules will accomplish as wholesome a respect for them underground as on the surface. If the legal machinery were simplified, it would seem that the results would approach those attained in Great Britain. There is no reason why we may not have added to the present law, an amendment enumerating such contraventions as would risk an explosion or in any way threaten danger to the culprit or his mate. Certainly the class of legislation now proposed is no more of an invasion of private rights than was the original law an invasion to property rights, and while the wisdom of such a proposition may be questioned, its success in England speaks in its favor at our hands.

The writer has associated with miners and has been one all of his life. There is nothing about a coal mine, either inside or outside of the mine, that he has not done with his own hands, from being trapper boy to superintendent, and he believes that miners can be compelled to take care of themselves and obey the law, and also believes that with the proper discipline in the mines, they would be as obedient to well known rules as men employed in other vocations. On the other hand, if they are allowed to do about as they please and are under no restraint, they become careless and lose respect for the law, and often in their anxiety to get out a greater quantity of coal, they neglect everything else, even to the extent of risking their lives, which many of them lose on that account.

While the writer believes that specific penalties should be inflicted on miners for contravention of the mine laws, he does not wish it to be understood that mine officials and operators should not also be punished for their contravention. On the contrary, they should, and it is true that the letter of the law reaches the operators for any of their negligent acts and punishes them for violations more readily and with greater ease than it does the miner. It is the bounden duty of all persons connected with mining either directly or indirectly, to use all their efforts in endeavoring to reduce the number of accidents in the coal mines of this State. The law of 1885, imposing educational qualifications upon miners for positions of responsibility about the mines was intended to produce better results, both as to the proper development of the mines and the care of the lives and limbs of those employed in them than had previously existed, and there is no doubt that in a great degree, it has, and I be-

lieve would, to a greater extent if it were not for the fact that the mine foremen are under men who give them their orders and share none of their responsibilities. In times such as the present in the coal business, with ruinous competition, small margins of profit and often no margin at all, men who are not responsible are tempted to do things and take chances in order that they may make a profit, which, if they were held equally responsible with the mine foremen, they would not think of doing, and while there is no doubt that this is done more frequently than it should be, those who do so are the losers in the end. In the report of the Umpire mine disaster, to Governor Hastings, it was said that it should be impossible for any others than those who had passed a satisfactory examination in the science and practice of mining to hold positions as mine managers or superintendents. By some, this expression has not been received with favor, notwithstanding the fact that countries where coal has been mined longer than it has here, have, by experience, recognized the necessity of allowing none but men educated in the science and practice of mining to hold positions as mine managers. This appears to be right, and it is true that the large companies are from necessity employing experienced and practical men to look after their mining interests. A recent writer in the "Mining and Scientific Press" says, "A superintendent should be a practical, experienced man who knows what ought to be fairly expected from every man in the mine's employ, what every bit of labor ought to produce, not in a niggardly, stingy spirit, but with full realization of the fact that anything and everything that costs money should produce money, that there should be no pets nor favorites, nor drones, nor soft jobs, and that every dollar should be spent as though it were his own. He should be able to do anything and everything in or about a mine, and then be careful not to do it, but surround himself with men who can each attend intelligently to his particular duty. Such a man is worth considerable to his employers, and even at a high salary he is a good investment. The greatest mistake a mining company can make is to suppose that because a man is sharp, or a good fellow, or has made a success at something else he can run a mine." One of our most successful superintendents in a recent article written for the American Manufacturer says it is highly desirable that the superintendent should understand coal mining in all its details, not so much for what he may do himself, but in order that he may be able to judge what his subordinates are doing.

Through the several Inspectors of the bituminous mines, inquiries into the methods of mining, haulage, ventilation, drainage, machinery employed, thickness and character of the several coal seams operated, area and exhaustion of coal territory, coal waste, economy of coal production, together with the circumstances attending and

responsibility for mine accidents has been made. The tables and matter relating to accidents apply to all mine accidents in the State. It has been found impossible to take up the subjects referred to in the Anthracite mines, other than that which will be found in the reports of the several Inspectors, relating to machinery.

The system of mining in the Bituminous mines is principally double entry; room and pillar. In some mines the single entry system is still practiced. An effort is made to draw the pillars in all but 54 mines. It is very evident, however, judging from the thickness of the seams and the number of tons secured from an acre, that there is not so much of the coal secured as there should be. This is believed to be due largely to the fact that in certain localities the coal is easy of access and in almost unlimited quantities, thus creating no apparent necessity for any effort to depart from old and crude methods which result in a large portion of the coal being wasted. On the other hand, where the coal is not so easy of access, and requires large investment for development, much more effort is manifested in an endeavor to secure all the coal. Old methods are lost sight of and new systems are devised suitable to the conditions that exist, having in view the securing of all or the greatest possible quantity of the coal. In a visit to the Oliver Mines, in looking over the maps and in conversation with the superintendent, Fred. C. Keighley, it was found that old methods had been ignored and new ones adopted, which resulted in a very material increase in the number of tons secured per acre. Realizing the great necessity for improvement, and having in view the many reasons there are for securing all the coal, and indirectly to stimulate and encourage the timid, Mr. Keighley was asked to write a description of the difference between the old and new methods, and to make some drawings illustrating the same, which are herewith produced.

Mr Robert Brownlee, Chief of Bureau of Mines, Pa.:

Dear Sir: In compliance with your request for me to furnish you with a description of our mining methods, I herewith enclose to you plans of part of the workings of Oliver No. 1 and No. 2 mines, Oliver, Fayette county, Pa.

By inspection of plan you will observe that the object we have been working for, for nearly seven years, was to reach our boundaries as quickly as the circumstances would permit, and in the meantime keep up the output of coal required for 630 coke ovens—nearly 700,000 tons of coal per year, which was no ordinary undertaking. You will further note that the boundaries have already been reached in one large section and the retreat successfully begun. Of course this added to the cost of producing coal, very materially, during the past seven years, and the work of development was more than usually

trying, but I think that all connected and concerned will be amply repaid by the future benefits.

I never had any doubts as to the superiority of the "withdrawing" system, but the difficulty in the past has been to find anyone willing to furnish money and have the patience and sand necessary for such an undertaking, and the Oliver Coke and Furnace Company, now the Oliver and Snyder Steel Company, owners of the mines, should have the credit for it.

As a principle, I have never yet found a man of good judgment and experience that was not in favor of it—it was the time and money involved that stood in the way.

The wastefulness of the advancing system is so well known that I will not here take up the space for going over it, but will at once state what I think is to be gained by working as shown by the plans, viz:

First. The recovery of much more coal per acre.

Second. Less trouble from falls in working places, which we found to be very great under the old system of working.

Third. Less timber required, as none of it will have to stand very long, and not so much needed to begin with.

Fourth. More direct hauling roads with better grades, as the lay of the coal is fully known.

Fifth. Less pumping, as the local dips can be located and the water handled to the best advantage.

Sixth. Very much better ventilation, as the air goes (in our case it will as soon as projected workings are ready), direct to the face and by the shortest route, and airing can be done by regulators very often instead of doors and overcasts.

Seventh. Better results from haulers, as the men are not scattered as under the old system.

Eighth. More perfect surveillance of the men, as they will be more concentrated.

Ninth. All the gases will be left behind, instead of passing through them, as in the present practice—and after we cross the trough, the water will also be left behind.

It will be noticed that our projected workings are all laid out on the butt room scheme, instead of the face workings, as in the present workings. Our reasons for this change are as follows, viz:

First. It makes a drier room, as the working is up the grade.

Second. It makes cheaper hauling, because the up grade is where the least haul is, viz., in the room—putting the trip hauls on the flats; in the face system the trip haul is on the grades.

Third. It makes stronger room pillars, because a butt pillar has its length perpendicular to the strike of the basin, instead of being

parallel to it, as in a face pillar, which, of course, is subject to the side hill thrust down grade on its weakest side.

Fourth. In the long run the butt work is in favor of the miner (though hard on him in its first stage), because in cutting over to draw the pillars the work is all face work, which is much easier. For instance, our butt rooms are laid out on 40 foot centres, with a 10 foot room and a 30 foot pillar. The face rooms are on the same centres, but with a 12 foot face and a 28 foot pillar.

In drawing out the pillar the miner has to cut over about every 25 foot length of pillar drawn back, so it is quite a relief for him to be able to do that work on the face.

In the face room, when the miner comes to draw the pillars, all the cutting over them has to be done on the butts.

In short, the actual butt work, in the butt rooms, is 10 feet in driving up the room, and face work in drawing out the pillar, 30 feet, or 3 to 1 in favor of the miner. The face work would be 12 feet in the face rooms and 28 feet butt work drawing pillar, or 3 to 7 against the miner.

Fifth. The pillar in the butt room is taken out without the use of turns, which are expensive, and necessary in face work when coal is mined on grades.

Sixth. There is less waste of coal by the butt room system than in face rooms on a grade, as the bottom coal is not left on the dip side to keep roads level, which is no insignificant loss on heavy grades.

We are not the introducers of the butt room system, as it is in practice at several other mines, and we do not know who were the originators (there seem to be many aspirants for that honor), but whoever originated deserves much credit.

In conclusion, I wish to remark that we were of necessity compelled to mine considerable coal between the shafts and the present developments.

The ventilation as shown by plan is not the final system, as the work is still incomplete, but will be indicative of the intended system.

Yours very truly,

FRED. E. KEIGHLEY,
Superintendent.

Mr. Keighley says further that he will be greatly disappointed if he does not get fully ten per cent. more coal per acre than is secured by the best work on the advancing system. The advancing system is wrong in principle, yet an extraordinary good roof, light cover and easy grades would enable a careful man to make a showing that would be very hard to excel by any other method. For years, the mines of the Connellsville Coke Region were worked on the advancing system, and up to ten years ago fully 50 per cent. of the area

mined over had been lost forever. Better methods, more knowledge and care under advancing systems have reduced the loss very much of late years, but the very best practice, in all probability, does not give more than 90 per cent. of a yield under the most favorable conditions. With favorable conditions it is believed that practically all the coal can be secured by the system now being put in operation. Credit is due Mr. Keighley or any other man who can devise and put in practice methods whereby two tons of coal can be secured where only one was obtained before. It has been said that the man who makes two blades of grass grow where only one grew before is a public benefactor, so also is the man who can secure from the bowels of the earth two tons of coal where only one was secured before.

Since the above was written an opportunity has been had of personally examining the Oliver and Snyder Steel Company's mines and from observations while there, it is believed that there is no doubt Mr. Keighley will realize all he anticipates. A casual observer can readily see the pronounced advantage the new or "retreating" system has over the old or "advancing" system, in regard to the safety of the workmen, the ventilation and the great difference in the quantity of coal secured. The haulage is by endless rope, and the installation is such that cars can be attached to it at any time and in any place. The cars are fastened to the rope with a specially constructed grip that is easily manipulated. The speed at which the rope travels is such that the attendants have no trouble in attaching and detaching the cars. Everything about the mine is in first class condition, showing that Mr. Keighley fully realizes that what is worth doing is worth doing well, and while this is true in Mr. Keighley's case, the same condition appears to exist pretty generally throughout the coke region. At the time the Oliver mines were visited some of the H. C. Frick Coke Company's mines were also visited and the plants found in first class condition, and all machinery and appliances well constructed.

The reports furnished by the several Inspectors of the bituminous mines during the year show that the coal in 323 mines is owned by the operator, and that in 249 mines it is leased by the operator, and in 41 mines it is partly leased and partly owned. Safety lamps are used in all the districts except the Third and Tenth. There are 288 mines where ventilation is produced by furnaces, 288 by fans, 3 by steam and 34 by natural means. The water is removed from 271 mines by pumps, from 9 by syphon, and from 333 by natural drainage. The method of haulage is by mules in 344 mines, by rope in 231, by steam locomotive in 8, by electricity in 28, by compressed air in 4. Fifty-four mines are reported where no attempt is made to draw the pillars. Twenty-four mines are reported of which there are no maps. At 210 mines the miners are paid by

the long ton and at 403 by the short ton of 2,000 pounds. At 242 mines the coal is screened and at 371 run of mine is shipped. Mining machines are used in every inspection district. The number reported as in use is 902; of these, 629 are driven by compressed air and 273 by electricity. Air is used in 90 mines and electricity in 157. There are reported to be 1,937 men operating mining machines, 9,120 men loading machine mined coal, 54 men running electric motors, and 73 electricians. There are 96 electric dynamos or generators, which are capable of transmitting 8,433 horse power. Three are alternating current and the others direct. Seventy-one have a voltage of 250 and under; the other 25 have from 250 to 500. There are 54 electric locomotives equal to 2,714 horse power, and 4 compressed air locomotives equal to 280 horse power. The number of stationery engines in use outside is 813 and their combined horse power is 70,835. There are 55 stationary engines inside the mines with a horse power of 4,038. There are 74 steam locomotives outside and their combined horse power is 4,021. There are 17 steam locomotives used inside the mines and their combined horse power is 418. There are 553 steam pumps with a combined capacity of 157,871 gallons per minute, 36 electric pumps with a combined capacity of 12,696 gallons per minute, and 223 other pumps with a combined capacity of 37,822 gallons per minute.

The foregoing statistical matter is given just as received from the several Mine Inspectors, and it is presumed to be correct.

The Jeffrey Manufacturing Company, which is extensively engaged in the manufacture of mining machinery, shipped its first mining machine into this State in 1878. These machines were of the "air cutter bar" type, which was the earliest type of machine used for undercutting coal. From that time until 1889 the air cutter bar machine was the only one used in the State of Pennsylvania, undercutting a uniform cut in height and width.

While of late the increase in the use of mining machines in the bituminous mines has been very general, it has not been greater than that in mechanical haulage, by electricity, compressed air or wire rope, all of which have their supporters, and each of which commends itself to certain conditions. While rope haulage has been in use for many years, improvements are still being made which add to its efficiency. The application of electricity and compressed air to mine haulage is of recent date. The first electric locomotive shipped into this State by the Jeffrey Manufacturing Company was furnished and shipped in the latter part of 1894. Since that time they have probably shipped about 50. H. K. Porter and Company, of Pittsburgh, have built and furnished for use in the bituminous mines two compressed air locomotives, 8x14 cylinders, classes B-P. P.; one locomotive, 7x14 cylinders, class B-P. P.; two 9½x14 cylinders,

class C-P. P.; two 9½x14 cylinders, class C-P. P.; and one 8x14 cylinder, class C-P. P. In addition to the above they are now building two for the Penn Gas Coal Company, 8x14 cylinders, class C-P. P. n. This form of underground haulage is conceded to be the only safe system as against danger of causing explosions of mine gas, and by some it is thought to be more reliable and less liable to breakdowns. Those who favor it think it handles the output at a smaller cost than any other form of haulage, be that as it may, there is no question but that the introduction of machinery into the mines is of material benefit to those employed in the mines and to all consumers of coal. Bituminous coal has fallen so in price that we are prone to think it is very cheap. Still it can be mined at a small fraction of the cost of mining anthracite even with the present appliances, but in a number of the mines these are crude and inefficient. There is far more hand work with the pick and shovel than is necessary, and this adds greatly to the cost of mining. The present cost covers the portion of the cost of mining which might be saved by the use of machinery. When modern machinery shall have been generally introduced, the average cost of soft coal will be greatly decreased. Among those engaged in mining are many who are opposed to the introduction of machinery in mines, and who believe it to be to their detriment. Such is not the case, however. The surplus labor set free from time to time by the introduction of labor saving machinery is rendered useful in a higher order of occupations. As fast as the supply of the lower order of wants can be effected by means of machinery, large numbers press forward into vocations which have to deal with inter-communication, the diffusion of science and aesthetic culture and the refinement of taste. Those who labor in this higher field constantly increase in larger proportion than the normal percentage of increase in population—50 per cent. in the last 20 years, according to the data of Commissioner Harris, Chief of Federal Bureau of Education. An investigation made by the Labor Bureau in Washington has brought out some further proof as to the great benefits that are derived from labor saving machinery. The cost of production has been in that way enormously decreased. One man with the aid of machinery can oftentimes do the work which it required ten men to do without machinery. This greatly reduced the price of such machine made articles. Has it injured the workmen? On the contrary, there has been a large increase in the number of persons required for the production of all articles by machinery in order to meet present demands, over the number necessary to meet the demands under the hand labor system. The cheapening of the articles increases the consumption, thereby giving more employment to workmen than before. There never was a more benighted outcry than that of workmen who are falsely led to believe that labor saving machinery injures them.

These are indeed prosperous times in the coal trade, and it is to be hoped that miners and operators will profit by past experience and take advantage of the opportunity that is now offered for building up a steady and profitable business for all interested. One thing is certain, and that is that since the Welsh coal strike, Pennsylvania coal has gained a foothold in foreign markets which will never be lost if the demand can be supplied when wanted. It is the opinion of the Welsh mine owners that the strike among their miners opened up to the United States, foreign markets where heretofore British coal had supremacy, and had it not been for the great Welsh strike America never would have had the opportunity of demonstrating to the foreign consumers the superiority of her coal. This is an object lesson that all may profit by. The prosperity in the coal trade, judging from the production, applies wholly to bituminous coal. The market for anthracite coal has apparently reached its limit. It is true there is an increase in 1898 of 197,821 tons over 1897, but that is in all probability due to the extraordinarily severe weather that prevailed. It appears from the number of days that the mines were in operation during the year, that the mines now opened and number of men employed, are capable of producing very much more coal, which shows that there are more mines opened and more men employed than are necessary to supply the demand. The concentration of mining interests will undoubtedly tend to improve present conditions. It is gratifying to note that while nearly 260,000 tons more coal were produced in the anthracite region than in 1897, 7,137 less men were employed. In the bituminous region 9,573,361 more tons were produced than in 1897 and only 1,369 more people employed. When it is considered that 148.4 was the average number of days the mines in the anthracite region were worked, it can readily be seen that there are more mines in operation and more men employed than are needed to supply the demand for anthracite coal. The average number of days worked, namely 208½, in the bituminous mines, is a better showing than that of the anthracite mines. At the same time it proves that those employed in the bituminous mines are capable of producing very much more coal than they have. Notwithstanding this, these figures show that the earnings of the employes in and about the mines of the State must have been greater than for recent years.

Owing to the great industrial and commercial growth of the Connellsville Coke Region and its importance as a coal producing district of the State, a history of it has been prepared for the report.

THE CONNELLSVILLE COKE REGION.

Geographical Position.

The territory known as the Connellsville Coke Region lies in the counties of Westmoreland and Fayette in the southwestern part of Pennsylvania. Its boundaries reach from a few miles south of the town of Latrobe, in Westmoreland county, to within a short distance north of the famous Mason and Dixon line, in Fayette county, and embrace a deposit of coal geologically known as the "Blairsville trough," which is forty-two miles long and has an average width of three and one-quarter miles, and contains by the maps $136\frac{1}{2}$ square miles or 87,360 acres. An accurate computation of the area, however, has been ascertained from the individual surveys of each tract in the region, which gives the acreage as 87,776. Of this, 27,776 acres have been mined, consequently there is left for future operations 60,000 acres of solid coal.

Geological Features.

In the Annual Report of 1896, Geological Survey of Pennsylvania, Mr. E. V. d'Inwilliers says, "Moreover to Westmoreland county belongs the distinction of furnishing the typical coking gas coals of the United States, and with Fayette county, it annually distributes to far distant points about 75 per cent. of all the coke made in this country." Again, in the same report, he says of Fayette county, "Whether from its almost unrivalled coking coal fields, contained within the Blairville basin, from Jacobs creek, its northern boundary, to Uniontown and Fairchance, without a break, or from its vast and practically untouched gas and steam coal territory held within the Lisbon trough, between the Youghiogheny and Monongahela rivers, this county, or at least its western half, is destined to become a vast supply station from which thousands of tons of high grade fuel wealth are to be distributed far and wide, to meet the wants of distant communities."

This Connellsville seam of coal yields from 8 to 10 feet of workable coal. The coal is clean, almost free from slate and sulphur, remarkably soft, easily mined and uniform in quality and thickness. The purity of this coal and its chemical and physical characteristics make it peculiarly adapted for coking and gives it great value. It is easily mined, and cokes with but little care. It is this ease of mining and coking that makes it possible to put coke from this district



Coking Process

in competition with cokes and fuels in the most distant parts of the United States."

History and Growth.

During the past quarter of a century many of our largest industries have made their most noticeable advancement, yet none has made more rapid strides or been of greater importance and value than the manufacture of coke. The date of the first production of coke is in doubt. By some authorities it is claimed that it was used in the United States some years prior to 1776. Be this as it may, the best authenticated history gives Isaac Meason credit for the first production of coke in the Connellsville region. In 1816 and 1817 he built the first rolling mill erected west of the Allegheny mountains, at Plumsock, Fayette county, and this mill went into operation in September of the latter year. The coke was used in the refinery and was made in Fayette county. In 1836, F. H. Oliphant began the use of coke as a fuel in Fairchance Furnace. From about that year the many smaller furnaces, forges and iron works which used charcoal began to close out, and as nearly as can be determined, that date marks the beginning of the decline or passing of charcoal as a furnace fuel, although its manufacture continued for many years thereafter in the Connellsville region. Some idea of the extent of this industry, which has long since been superseded by the coke industry, may be formed from the following data: In 1837 there were nine blast furnaces, four forges and rolling mills and numerous foundries in this region. The nine furnaces manufactured 500 tons each per annum, or a total of 4,500 tons. It required 90 bushels of charcoal to produce a ton of metal, hence 405,000 bushels were used yearly by these furnaces. In the absence of reliable data it is possible only to approximate the extent of the production of charcoal, and merely to suggest the amount used by the numerous foundries, furnaces and forges, both in and out of the region. However, it must have been quite extensive as the mountain sides, from base to summit, are dotted with the old circular charcoal pits which yet lie as bare and barren almost as the day of their abandonment. Doubtless, when these pits were ablaze, the settlers of the valley were reminded of the camp and bivouac fires of the army of General Braddock which marched along the crest and sides of these same mountains in its disastrous campaign against the French and Indians at Fort Pitt. The burning of charcoal and its use as fuel did not come to an end abruptly, but, like the beginning of the use and production of coke, its decline was slow and fitful. Even yet some charcoal is made and used for special purposes. Not longer than twelve years ago, William Beeson and Robert Hogsett, of Fayette county, now deceased, made and sold to various iron

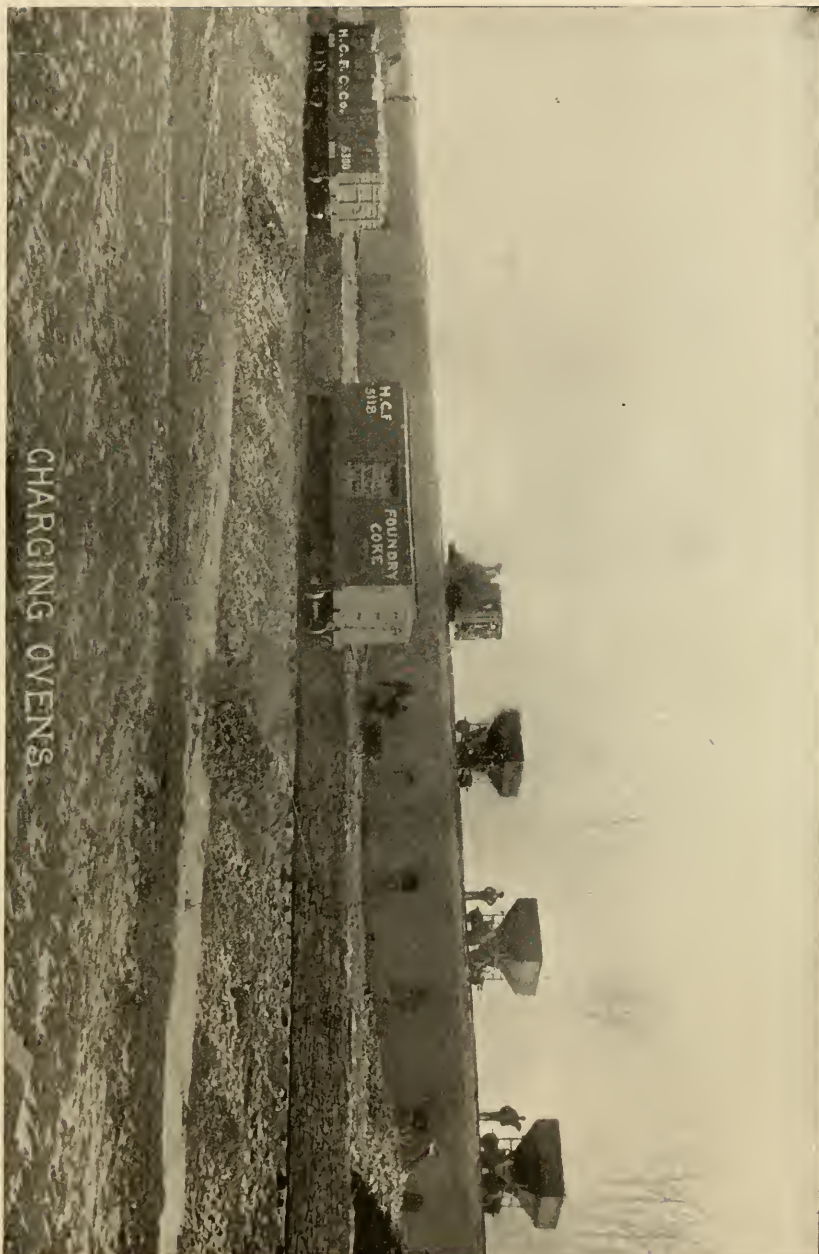
manufacturers of Pittsburgh large quantities of charcoal. It is to this day produced in other sections of the State, but in the Connellsville region its era is ended. There "coke is king."

In 1841 the first coke was made in ovens in this region. "That year Provance McCormick and James Campbell, two carpenters, overhearing an Englishman commenting on the rich deposits of coal near Connellsville, and its fitness for coke, as well as the value of coke for foundry purposes, determined to enter into the business of making coke. Associating with John Taylor, a stone mason who owned a farm on the Youghiogheny river, including a coal mine, they constructed two ovens, and in the spring of 1842 enough coke had been made to fill two boats ninety feet long and holding about 800 bushels. They started down the river on a high stage of water to Cincinnati. On reaching that city they found that coke as a fuel was unknown there, and foundrymen called their cargo "cinders." This was the first coking enterprise in the Connellsville region, but insignificant as it was, the initial step of the coke industry had been taken. These same ovens were rented in 1843 to Mordecai, James and Sample Cochran, who used them in making 24-hour coke. They boated 1,300 bushels to the same city and sold it to one Miles Greenwood, an iron manufacturer who had learned of its value as a furnace fuel. This was the first coke ever taken from the region and sold for money, Campbell, McCormick and Taylor having traded their cargo for an iron grist mill.

In 1851 the trade began to increase and there were 26 coke ovens above Pittsburgh. In 1846 Cochran and Keister built 40 ovens on Hickman's run. In 1860 the Connellsville Gas, Coal and Coke Company built 40 ovens near Connellsville. In 1869, Watt, Taylor & Co. built 40 ovens near Dunbar. These were about all the ovens in the region up to 1871. In 1876 there was a total of 3,576 ovens; in 1880 there were 7,211. These increased to 8,208 in 1881, 9,283 in 1882, and to 10,176 in 1883. From this year up to and including 1886, but few ovens were erected, while some had been abandoned because of the exhaustion of the coal, leaving the total number standing, 10,952. From that date until 1894, the number had increased to 17,834. The number January 1, 1899, was 18,643.

The Beehive Oven—Construction and Cost.

This type of oven varies in size from 10 feet 6 inches in diameter at the base and 7 feet high to crown, in the clear, to 12 feet in diameter and 8 feet high. The material required to construct an oven of these dimensions is 2,500 to 2,600 common bricks, 1,100 to 1,200 lining fire brick, 120 to 125 bottom tile, from 15½ to 22 cubic yards of stone, and top ring, arch blocks and jambs. About 20 special



CHARGING OVENS.

shapes are required of these fine bricks, which for the most part are made in or adjacent to the district. The additional cost of a coke plant consists in the construction of the yard, its retaining walls and the larry track rails which are laid on top of the ovens. This brings the cost of a single oven up to \$300. Exclusive of the Semet-Solvay plant of 50 ovens at Dunbar, the cost of which has not been divulged, the remaining 18,593 ovens in this region represent an investment of \$5,577,900 for their construction alone. The beehive ovens are built in single rows and called bank ovens, and those in double rows are called "block ovens." On block ovens the larry track is laid directly between the trunnel heads of each row of parallel ovens composing the block. On the bank ovens this track is laid in the rear of the trunnel heads of the single row of ovens composing the bank. The larry, or large iron wagon used to charge the ovens with coal, is constructed with a discharge on each side to reach both lines of ovens, and with but one discharge for the single line or bank ovens. These larries run on the tracks above mentioned and are hauled either singly, by mules, or in trains by small locomotives.

Process of Burning Coke in Beehive Ovens.

The process of burning coke is very simple. The coal, on being brought out of the mine is deposited in a large funnel-shaped bin, from whence it is delivered by simple appliances into the larries, which deliver it through the orifices in the top into the ovens. These charges vary from 120 to 165 bushels, and consequently the yield of coke varies from three to five tons per oven.

After the oven has been charged, the coal is evenly distributed over the bottom by means of a long iron rod with a scraper welded on the end, through the door in front, which is 26x30 inches. This is now walled up with brick and plastered with a luting of fine sharp sand or loam to exclude the air. In a short time a pale, blue smoke slowly arises from the now open trunnel head. The smoke gradually grows denser and darker, and in about half an hour a sudden puff, resembling somewhat an explosion of unconfined powder, is heard, which is notice that the coal is ignited. The charge burns from the top down, and the process of burning or "airing" the ovens is regulated by means of small holes made around the arch of the door in the form of a semi-circle. Through these openings the air is admitted, and the smoke and impurities are expelled through the opening in the top of the oven. The oven is "around" when the mass is properly coked. The "drawers" now take charge of the oven, remove the bricks from the door, cool the coke by introducing water into the oven by means of a hose to the end of which

is fastened a three-quarter inch gas pipe; when thoroughly cooled the contents are drawn out of the oven by the same implements used to level the coal, and loaded directly into the freight cars ready for shipment. The oven thus emptied is immediately charged again, and in 48 hours is ready to be drawn once more, and so on indefinitely unless purposely left out of blast. When first fired, the coal is ignited by means of wood, hot coals, etc., in the same way in which a fire is started in a stove. After repeated charging and drawing, the oven becomes hot, and the subsequent charges become ignited by the heat retained in the oven walls. For cooling the coks, pure water is absolutely necessary to insure the purest coke, for if it contains sulphur or other impurities, the coke absorbs them, and becomes injurious to metals manufactured with it.

As the Connellsville coke region is the greatest coke region in the world, so is the H. C. Frick Coke Company the greatest coke producing firm in the world.

This company owns and controls the output of two-thirds of the ovens in the region, and sells three-fourths of the coke that enters the market. The annual capacity of the plants owned and controlled by it reaches the enormous aggregate of 500,000 cars, or about 9,000,000 tons. Its coal supply is entirely commensurate with its immense manufacturing capacity. Out of about 60,000 acres of available Connellsville coal remaining in the region, this company owns about 45,000. Among the first in the field and early impressed with the destiny of the region, it was the policy of the company to enlarge its holdings as fast as possible, and especially its coal land holdings, hence the kingly acreage it has acquired. It is also a matter worthy of mention that this coal lies for the most part in the very heart of the region, in or near what is technically known as the basin, hence the superior quality of the Frick coke, which has a name for excellence in every market.

The history of the H. C. Frick Coke Company is largely a history of the Connellsville region so far at least as progress and development is concerned. The officers and managers of this company from its distinguished founder down, have been uniformly active, energetic and progressive, and to these marked characteristics of management may in a large measure be attributed the company's present commanding position in the coke trade of the region and the country.

The H. C. Frick Coke Company is the oldest and by far the largest company doing business in the Connellsville coke region. Being first to enter the field, it easily acquired possession of the richest coal lands, taking at the same time care to get control of lands through which flowed the purest and most important streams of water. As

the firm was progressive its early advantages were not allowed to lie dormant, but were developed to the fullest fruition.

Henry Clay Frick, the head of this company, was its founder, hence the history of the company and the biography of its founder are inseparably interwoven in the same story. As early as 1871, when a mere youth, Mr. Frick with that foresight which has characterized his whole business career, became convinced that Connellsville coal made the best coke in the world, and that the future of the business was in its pining infancy. For many years he gave his entire attention and time to the development of the region and the extension of his holdings. He builded broad and deep, and he builded well.

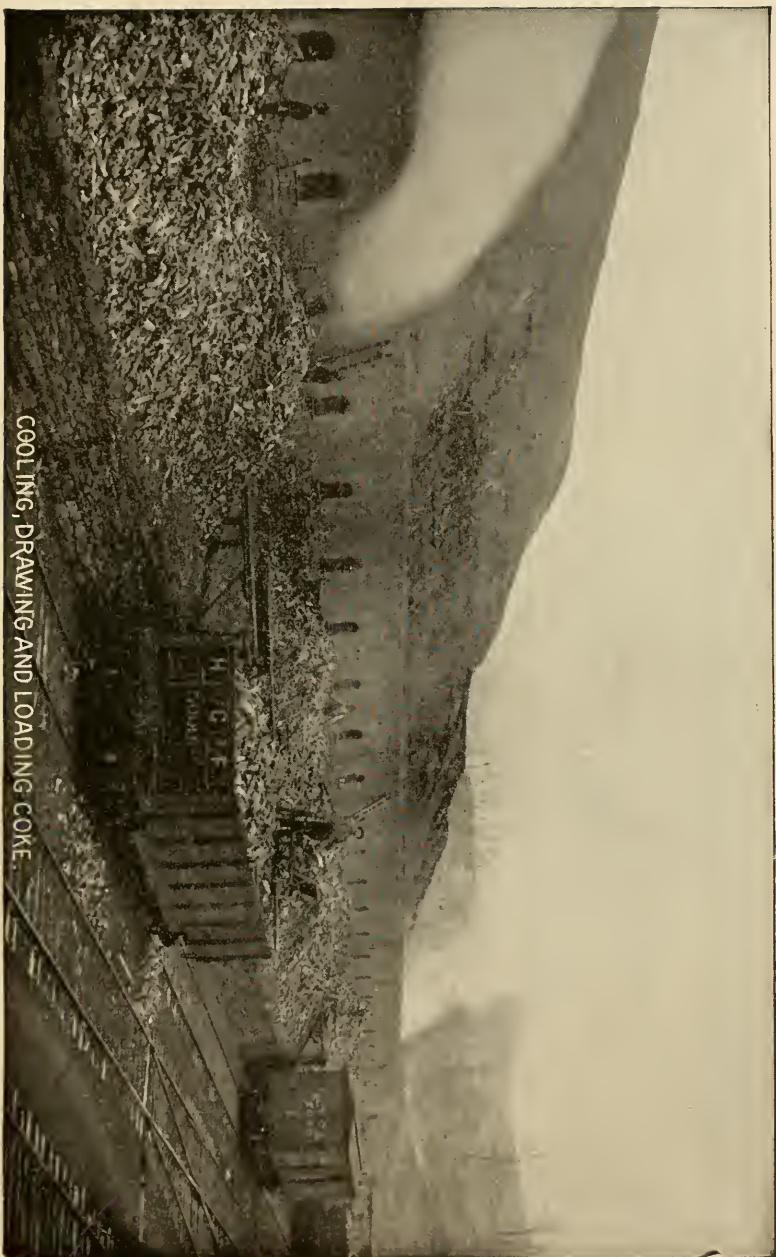
Mr. Frick entered the field without experience and against the advice of older heads, who sneeringly predicted his early downfall. His means were small, but his capital of brains and energy was ample for the great undertaking he then entered upon. The firm of H. C. Frick & Company started in business with 50 ovens and 150 acres of coal. Soon after the firm added 50 ovens and built a new plant of 100 ovens, which was christened Henry Clay. Notwithstanding the crushing business depression lasting from 1873 to 1879, the pushing young firm steadily increased its holdings and enlarged its business until at the period mentioned the company had in operation 1,546 ovens. In 1882 the company was the leading one in Connellsville region. It was then greatly strengthened by the admission into the firm of the Carnegie Bros. & Co., the leading steel manufacturers of the country.

In the following April, the firm was merged into a corporation under the name and style of the H. C. Frick Coke Company with a capital stock of \$2,000,000. Mr. Frick was made the president of the company. One year later, in 1883, the capital was increased to \$3,000,000 and in 1889 to \$5,000,000. The company has steadily grown, constantly buying new plants and increasing its acreage of coal until it has reached the position it now occupies. Its success and much of the development of the Connellsville region is due to the clear business vision and wonderful executive ability of the man whose name it bears.

As the H. C. Frick Coke Company succeeded as a new venture in the Connellsville coke region, so new methods and new features have largely contributed to the success of the firm, and have been constantly introduced and developed in every department of the business, thereby adding to the value of the product, reducing the cost of manufacture and extending its use. One of the most important features is the establishment of plants for the crushing of coke, or the breaking of it into sizes to correspond with anthracite coal, which latter article crushed coke is rapidly superseding. The H. C. Frick Coke Company is the principal producer and shipper of crushed

coke in the Connellsville region, and so extended has this branch of the firm's business now become that the list of customers covers all parts of the country. The firm has three large crushers, which are kept busy supplying the demand at the rate of 50 cars daily. Crushed coke is used for light manufacturing purposes, for blacksmithing, forging, copper smelting and all kindred trades and manufactures. It has also grown rapidly in favor as a substitute for anthracite coal in domestic uses, or even soft coal, and the field in this direction is unlimited. Wherever a new idea has been suggested the H. C. Frick Coke Company has been quick to investigate it, and any advantage to be derived from successful improvements has always been taken. In every decided improvement the firm has been the pioneer. Electricity and compressed air were employed by this progressive corporation promptly upon their introduction. At the Lemont Works, near Uniontown, the company has installed a model air compressor plant. Its purpose is to supply power necessary for the operation of all the pumps and inside haulage engines in Lemont Nos. 1 and 2, which are adjacent mines, and which had been worked so extensively that boiler pressure was no longer effective. Through the introduction of this plant, a saving of at least 50 per cent. in the amount of coal consumed and in the operation of the mine pumps is effected. The plant was erected at a cost of \$25,000; it is one of the most effective and in every detail most complete machines of its kind in the country at the present time, and has been so described in mining and trade journals. The firm was the first to provide on a large scale for an efficient and pure supply of water, which is one of the necessary adjuncts to any coke plant for the production of a clean and valuable output. The company now has five water plants, viz.: The Youghiogheny Water Company's pumping plant at Broad Ford; the Mt. Pleasant at Mt. Pleasant, which also includes the costly pumping plant and immense reservoirs at Bridgeport, and the Southwest Water Company's plant near Connellsville. The latter plant, as well as that at Broad Ford, draws its supply from the rippling waters of the Youghiogheny, a pure mountain stream. The greatest and most important pumping plant is that of the Trotter Water Company at Rhoetruck, located above Connellsville, also on the Youghiogheny, the capacity of which can be increased indefinitely. The aggregate capacity of the different pumping plants is 10,000,000 gallons daily. All of these plants were constructed at a great expense and are so effective that during the long drouth of the summer and fall of 1897 this company had at all times an abundance of water. It can safely be predicted that the Frick company will never be compelled to curtail its production or disappoint its customers on account of a scarcity of the crystal fluid.

The coke industry grew up with the building of the railroads in



COOLING, DRAWING AND LOADING COKE.

the Connellsville coke region. So important was the industry that the operators were not compelled to locate their plants to suit the railroads, but the railroads, eager to get the heavy tonnage, went to the coke plants. Owing, therefore, to the immense output of the H. C. Frick Coke Company, the railroads vied with each other in running lines to the various plants, and thus this company obtained the best shipping facilities in the Connellsville region. Nearly every plant has connections with two or more railroad systems. Superior advantages for transportation are afforded by three of the greatest trunk lines in the United States, viz., the Pennsylvania, Baltimore and Ohio and the Vanderbilt systems. These lines have been instrumental in making the Connellsville region one of the busiest spots on the face of the country. They have also made Allegheny county the iron centre of the world. The productive wealth of the Connellsville region has given to the iron and steel manufacturing enterprises in and about Pittsburgh the great advantage of having a superior fuel at their very doors. It was largely through the efforts of the H. C. Frick Coke Company that Allegheny county is foremost in Pennsylvania, and in the United States in the production of iron and steel. Through the superior furnace and foundry fuel produced by the great Connellsville concern, manufacturers in Allegheny county are making the best iron and steel produced in the world, and they are able to compete in quality and price with the manufacturers of the globe.

Much has been done by this company to open new markets for Connellsville coke. It has been instrumental to a large extent in the development of the varied uses found for this fuel, and the firm has given as many persons employment at profitable wages as any firm doing business in America.

Not only are remunerative wages paid, but every precaution is taken at the plants for the safety and health of employes. The mines in the region owned by the company are models of neatness, and are worked under the personal direction of corps of mining engineers who project the work of the mines with a view to economy and safety of operation and in strict accordance with the laws of the Commonwealth. The larger mines are equipped with electric lights, the stables in which the mules are kept underground are guarded from the dangers of fire and flood, and ventilation and drainage are maintained at a standard far beyond that which is demanded by the mining laws. Such a policy has been found to be profitable, and is an important adjunct to the economical handling of coal. The output of some of the larger plants of the firm is so great as to astonish persons who consider a coal mine a dull underground passageway where men dig and drudge.

Magnitude of this Enterprise.

Of the 18,608 ovens now classed as being in the Connellsville coke region, the product of 3,080 of them is used by furnace companies who own and operate them, and none of their output is sold in the market. The product of 15,528 ovens is therefore left for sale in the open market, and of this quantity the H. C. Frick Coke Company and its allied companies own and market about 78 per cent which is the product of ovens located in the very heart of the Connellsville coal basin. The H. C. Frick Coke Company owns 48 of the 87 coke plants in the region, 45,000 acres of coal land and 15,000 acres of surface land. The plants include 12 fine shafts, 22 slopes and 14 drift mines. For the economical handling of coal 14 air compressors have been installed. Surrounding the coke plant are 60 miles of railroad track, and 30 locomotives are in use for the charging of the ovens. The equipment also includes 108 stationary steam engines; 247 steam boilers; 50 miles of wire rope; 6,000 mine cars; 300 miles of mine track; 800 head of horses and mules for use in the mines and on the ovens and company farms; innumerable fans and water tanks, many miles of pipe lines; electric plants and incidental machinery for drifts, slopes and shafts.

The H. C. Frick Coke Company has erected at Everson extensive car shops for the building and repairing of the firm's individual cars. At present these number 2,500 and are a valuable acquisition to the transportation facilities of the company. In times of car famine the firm's individual cars, used only for the shipment of coke from the region, have been important factors in supplying the demand of customers when their orders could have been filled with less celerity by coke companies not so well equipped with rolling stock or wholly dependent upon the railroads for cars. The car shops employ 75 men, and in addition to the regular repair work have a capacity of turning out two new cars each day. The firm also has extensive machine shops, where forgings of all kinds are made, as well as shapes and finished material for the varied uses of the different plants.

The H. C. Frick Coke Company, when operating all its plants, employs 12,000 men. With few exceptions these employes reside in comfortable houses owned by the company. Most of the houses are surrounded with plots of ground, where gardens abound, and the illustration of these company houses is the strongest evidence that the firm has spared neither pains nor expense to establish pleasant and desirable homes for its workmen. The houses rent from \$2 to \$4 a month. These rents include free coal and free water. It has always been the policy of the firm to employ the most experienced miners, coke drawers and mechanics that can be obtained, and wages

and comforts have been increased from time to time to maintain that standard.

At each of the general offices of the company a laboratory is established, where coal and coke are frequently tested, for the purpose of watching the analyses that the fame and the name of the Frick coke may not grow dim. By this system the standard is preserved, and the uniformity of the product of the firm is constantly recognized by consumers as one of the first reasons for the steady use of the Frick coke, both foundry and furnace.

Frick Foundry Coke.

Recognizing the importance of a special coke particularly adapted for foundry uses, the H. C. Frick Coke Company, at an early date, made a specialty of this branch of the business. Large amounts of money were expended in experiments to maintain a uniform high standard of quality and to bring to the attention of foundrymen generally the advantages of the firm's coke over inferior grades of coke and anthracite coal. Trade in this line has been developed by the firm until it now constitutes a large and important department of the business. It may be said that Frick foundry coke is the cream of the firm's production. This claim has been widely recognized, and the list of consumers in all parts of the country now exceeds 5,000 in number. This coke is selected by workmen of large experience in the manufacture of coke adapted for foundry purposes, thus insuring a uniformity and high grade not otherwise to be obtained. Frick foundry coke is very hard, being made from the cleanest coal burned 72 hours, has "bearing up" qualities of the first rank, is picked in large pieces and its analysis shows it to be especially free from sulphur and all impurities.

The superiority of Frick coke for foundry and melting purposes is almost universally conceded, and careful and intelligent trials have demonstrated the following advantages:

1. Its freedom from sulphur gives clean, solid castings, smooth surface, sharp edges and a minimum per cent. of imperfect castings. The sulphur in coal and inferior coke makes castings hard, brittle and imperfect.
2. A given weight will melt from 30 to 50 per cent. more iron in 20 per cent. less time than the same weight of anthracite coal, will show a large saving in fuel and better castings.
3. It requires much less blast than other fuels on account of its porosity and ability to maintain a heavy burden until entirely consumed.
4. By reason of its melting iron hot and soft, it admits the use of much more scrap than other fuel,

5. It makes the minimum quantity of slag. The furnace does not have to be picked out when coke is used with a little limestone.

6. It does not clinker.

7. It is easy on cupola linings; drops clean, and does not throw sparks.

These qualities have not only brought recognition from a large trade in the United States and Canada, but large consignments have also been sent to Mexico and Europe.

The H. C. Frick Coke Company has not been the only large concern to demonstrate by thorough analyses the superiority of the firm's product. Tests made all over the world have added to the renown of the company's fuel. The C. A. Treat Manufacturing Company, of Hannibal, Mo., manufacturers of car wheels, castings and railroad supplies, gives the following figures from four heats running from 4 to 6½ tons:

Iron Melted.	Coke Used.	Pounds Iron Melted With 1 lb. Coke.
9,800 lbs.	635 lbs.	15 55-127
8,800 lbs.	530 lbs.	16 32-52
10,700 lbs.	610 lbs.	17 25-61
13,100 lbs.	680 lbs.	19 18-26

"We have never been able to obtain the above results with any other brand of coke," says the firm which made the test.

The following is an average analysis of "Frick" coke as given by Prof. McCreath, of the Pennsylvania State Laboratory:

Water at 225 degrees, .....	.030
Volatile matter, .....	.460
Fixed carbon,	89.576
Sulphur, .....	.821
Ash,	9.113

100.000

The H. C. Frick Coke Company also make a specialty of a grade known as "hand picked coke," used by chemical companies for packing acid towers, for filtering purposes, etc. This coke is not forked, but is passed from the ovens to the car by hand, and is therefore delivered to customers in very large pieces.

The Connellsville coke region is the greatest coke region in the world; the H. C. Frick Coke Company is the greatest firm in that region, and this firm owns the largest plant in that region, known as the Standard Works. This plant is by far the most extensive devoted to the manufacture of coke in the United States, if not in the world. It is located near Mt. Pleasant, in the centre of the finest of the Connellsville coking coal belt. There are

in all 905 ovens at the plant, and were these arranged in a single continuous line they would extend a distance of nearly three miles. These works are complete in every detail, and in the plans and location reflect special credit upon their designer. This plant comprises two shafts and one slope. Shaft No. 1 is for ventilation exclusively. It is supplied with a fan 25 feet in diameter with a 9-foot face. This is the largest fan in the Connellsville region. It is operated by a 20x36 inch horizontal engine, connected directly with the shaft of the fan.

The main object in the location of this plant was the reduction in the cost of the manufacture of coke to the minimum. This result has been obtained, and in the operation of the plant a gigantic production of the silver fuel is made annually. Among the important improvements that are installed at this mammoth plant is a patent caging apparatus, which is the invention of the superintendent of the works. The operation consists essentially of two steam rams, placed back of the shaft, and two transfer tracks running on a track across the tippie in the rear of the head frame, which are operated by a steam cylinder. By this device a great saving of time is made and a greater output of coal is obtained. By means of this apparatus there have been handled 3,021 tons of coal in 8½ hours, and since its adoption it has averaged for 275 days 2,143 tons daily. There are installed throughout these works many features which are decided improvements in coking methods, reaching into every department. It is a model coke plant in mining methods, mechanical devices and enlarged and improved production. The plant was reproduced in miniature, with complete operative machinery, coke ovens, company houses and surroundings at the World's Fair at Chicago, and has later been exhibited at the Pittsburgh Exposition.

The officers of the H. C. Frick Coke Company are as follows: Thomas Lynch, president; M. M. Bosworth, secretary; W. C. Magee, vice president; G. B. Bosworth, vice president and treasurer; C. H. Spencer, general agent; O. W. Kennedy, general superintendent. Thomas Lynch, president, has been connected with the firm whose official head he now is, since the laying of the foundations of the giant industry. He rose gradually to his high position by close application to duty in every detail of the concern, using the ability, the scope of which may be measured only by the growth and immensity of the enterprise. Mr. Lynch has been a business man in the truest sense of the work. He has watched the manufacture of coke from the digging down of the coal in the mine to the analysis of the finished fuel in the laboratory of the company. His aim has been to make the best coke on the market, and in a quantity fitted to the quality. The position of the H. C. Frick Coke Company to-day is the best index of his success.

All the other officers of the firm have been chosen for their experience and their adaptability to the offices they fill. The interests of the company have been their interests, and the name and fame of the corporation carries with it an undivided praise for their service.

The general offices of the company are in the Carnegie Building, Pittsburgh, Pa.

February 23, 1898, Mine Inspectors Evans and Knapper called at the office of the Bureau with maps of Mt. Vernon No. 6 mine, the property of the United Colliery Company, together with maps of Ocean No. 2 mine, the property of B. W. Coal Mining Company, for the purpose of advising as to the proper course to pursue in view of the apparent danger to the persons employed in the Mt. Vernon mine, the Ocean No. 2 mine having been abandoned, allowing a large quantity of water to accumulate with sufficient head to break through the barrier pillar, as shown on the mine map. After a careful examination of the mine maps, the action of the Inspectors was endorsed in causing the operation of the mine to be suspended until the danger was removed. This suspension took place January 29, 1898. Nothing more was done until March 24, when the company concluded to pump the water from the Ocean No. 2 mine, the owners of which sold them the entire plant of hoisting engines, boilers, pumps, etc., which were still on the property. After pumping several weeks, materially reducing the head of water, a hole was drilled at a point where the map showed the pillar to be 10 feet thick. The hole was drilled 37 feet 6 inches without cutting through the pillar, showing conclusively that there was something wrong. On April 22 I was called to Philipsburg to consult with the mine superintendent and Inspector regarding the great difference shown by the bore hole, from the map. Mine Inspectors Evans and Hampson were also present, when it was agreed that another hole should be drilled not less than 40 feet (if it did not cut through sooner), and in case the water was tapped, preparation made so that the water could be drawn off at will, and a gauge attached that would show the pressure of the water. The hole was drilled 54 feet and did not cut through the pillar, showing a difference of nearly 50 feet at the point where the hole was drilled. from the mine map, which should be an object lesson of the necessity of both accurately surveying and plotting the workings of a mine. Where this is not done, the possibility of great danger to life can readily be understood, and while no lives have been lost in this case, the persons employed in the mine must have suffered considerable loss. Notwithstanding this, the Mine Inspector would have been derelict in his duty had he done otherwise.

February 28 I was called to Scranton by Mine Inspector Edward Roderick to consult with him regarding violations of the mine law



WORKMENS HOUSES

at the Richmond Colliery, operated by the Elk Hill Coal and Iron Company. On examination it was found that the said company was operating its mine in contravention of article 4, section 1, of the anthracite mine laws, also section 3 of article 4 and section 10 of same article. After being told by the superintendent and fire boss of the colliery that under existing conditions they did not consider the mine safe to work in, and that they had so informed the general manager, who, they said, would not allow the necessary improvements to be made, and having also been informed by the Mine Inspector that he had several times called the attention of the mine officials to the violations of the mine law, together with personal observation of the conditions that maintained at the colliery, the Inspector was advised to legally proceed against the Elk Hill Coal and Iron Company. A notice was therefore given the superintendent and manager that unless they should comply with the instructions of the Inspector and the requirements of the law, the courts would be asked for an injunction restraining them from operating the mine. No heed having been taken, application was made to the common pleas court of Lackawanna county, as authorized by article 15 of the anthracite mine laws.

Owing to the tenacity with which this case was fought in the courts and the undoubted justice of the judge's decision which was so forcibly emphasized by the burning of the fan house afterwards, which showed that had the second opening not been provided, the men in the mine would have been lost, a copy of the bill of complaint is reproduced, together with the defendant's answer and the court's findings in the case in full, also an article from the "Scranton Times," of July 29, 1898, which shows how necessary it is to have an available second opening at all mines, and especially at this one.

Injunction.

The bill of complaint filed in the case was as follows:

"Your orator complains and says:

"First. Your orator, acting in behalf of the Commonwealth, says that he is Mine Inspector for the First anthracite mining district of the State of Pennsylvania and Inspector of Mines therefor, duly appointed, qualified, sworn and acting as provided by law; that as such it is his duty to have supervision over the operation of all the anthracite mines within his district; that the said First district embraces all that portion of the Lackawanna coal field lying north-east of East and West Market streets, in the city of Scranton, and Slocum and Drinker streets, in the borough of Dunmore, including the upper or northern portion of the county of Lackawanna.

"Second. The Elk Hill Coal and Iron Company, the above named

defendant, is a corporation organized under the laws of the State of Pennsylvania for the purpose of mining and preparing for market and selling anthracite coal; that William H. Richmond is its president and treasurer, and Alexander Waddell, superintendent and in charge of its mines; that one of its mines, known as Richmond Number Three is situate in the First ward of the city of Scranton, in said county of Lackawanna, just off of Parker street, and within the first inspection district of the anthracite coal fields, that is to say, in the county of Lackawanna and lying northeast of East and West Market streets, in the city of Scranton; that the same has been in operation for several months last past.

“Third. That it is provided by section 1 of article 4, of the act of Assembly of the Commonwealth of Pennsylvania, approved the second day of June, 1891, entitled ‘An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith,’ as follows:

“Section 1. It shall not be lawful for the owner, operator or superintendent of any mine to employ any person or persons in such mine, or permit any person or persons to be in such mine for the purpose of working therein unless they are in connection with every seam or stratum of coal, and from every lift thereof worked in such mine not less than two openings or outlets separated by a strata of not less than sixty (60) feet in breadth under ground and one hundred and fifty (150) feet in breadth at the surface, at which openings or outlets safe and distinct means of ingress and egress are at all times available for the person or persons employed in the said mine, but it shall not be necessary for the said two openings to belong to the same mine if the persons employed therein have safe, ready and available means of ingress and egress by not less than two openings. This section shall not apply to opening a new mine or to opening any new lift of a mine while being worked for the purpose of making communications between said two outlets so long as not more than twenty persons are employed at any one time in such mine or new lift of a mine, neither shall it apply to any mine or part of a mine in which the second outlet has been rendered unavailable by reason of the final robbing of pillars previous to abandonment so long as not more than twenty persons are employed therein at any one time. The cage or cages, and other means of egress shall at all times be available for the persons employed where there is no second outlet.”

And also by section 3 of said article 4 of said act of Assembly it is provided as follows:

“Section 3. The escapements, shafts or slopes shall be fitted with safe and available appliances by which the persons employed in the mine may readily escape in case an accident occurs, deranging the hoisting machinery at the main outlet.”

And also by section 10 of said article 4 of said act of Assembly it is provided as follows:

"Section 10. Hand rails and efficient safety catches shall be attached to, and a sufficient cover overhead shall be provided on every cage used for lowering or hoisting persons in any shaft."

That, notwithstanding the provisions of the said act of Assembly regulating the manner of operating anthracite coal mines in the said district by the owners, operators and superintendents thereof, said defendant, disregarding the said act of Assembly and its several provisions above set forth, has failed to comply with the same and totally disregards the act of Assembly above referred to, in that, although often requested so to do, defendant has failed to provide for a second opening from the Clark vein to the surface and the reasonable, safe and available appliances connected therewith, to enable the persons employed in the mine to escape in case an accident occurs deranging the hoisting machinery at the main outlet, that is to say, at the second opening so-called, distant some fifteen hundred (1,500) feet from the main shaft; said opening extends to the Clark vein, a total depth of three hundred and thirty (330) feet from the surface and for a distance of one hundred and twenty (120) feet from the Clark vein leading up the said second opening toward the surface, no sufficient buntings are provided, and such as were originally placed in said shaft are unavailable for use and destroyed by the ice and other accumulations thereon. There is no carriage or guides provided for the said second opening; no steam is kept up so as to provide for the operation of the said second opening, and no engineer is maintained at the said second opening, that is to say, said second opening is not only improperly constructed and maintained and without the necessary safe and available appliances for its use, but there is no provision made for the operation of the same at any and all times, and in case of an accident deranging the hoisting machinery at the main outlet. The mines worked in connection with the said Richmond Number Three (3) are very gaseous and dangerous to operate, requiring the utmost care and caution on the part of the men working therein in order to avoid serious accidents, and it is absolutely essential that the second openings to these mines shall be maintained at all times safe and available so as to permit the persons employed in the said mines to escape readily and without delay whatever in case of an accident to the hoisting machinery or to any other fixture or appliance connected with the said main outlet. There is no carriage used in connection with the said second opening, or any pretense of any such provision for hoisting the men from the mines to the surface; the only thing in use at the present time is a bucket. This is in violation particularly, of section 10 of said article 4, as well as of section 3, of said article 4, as above set forth.

Fourth. The said defendant, at the present time, is working Dunmore vein number two (2), lying underneath the said Clark vein and having no connection with the said second opening by means of a connection made with the main outlet; the evident intention of the defendant being to connect Dunmore number two (2) with the Clark vein by a plane driven up to the Clark vein. They are at the present time working twenty men developing the said Dunmore mine for coal and employing the men for the purpose of developing the said Dunmore vein, in violation of said act of Assembly, especially of section 1, article 4, as above set forth; the said Dunmore vein not being worked for the purpose of making communication between the two outlets to the mines as now located, constructed and maintained from the Clark vein to the surface.

Fifth. Your orator has communicated with the officers of the company, warned them as to their violation of the provisions of the act of Assembly herein referred to, asked their compliance with the terms and provisions of the said act of Assembly several times within the past month; all without avail. He has ordered the mine foreman to stop work until the mines were safe and fitted up in accordance with the provisions of the law, and, on the first day of March, 1898, in the forenoon of said day, notified the president and also the superintendent of the defendant, in writing, of his intention to apply for an injunction in respect to the said mine known as Richmond Number Three (3), to prevent the defendant from working the said Richmond Number Three (3) in contravention and violation of the provisions of the act of General Assembly, above set forth. This in accordance with the provisions of article 15 of the said act of Assembly, above referred to.

Sixth. Your orator further sets forth: That the defendant not only has failed to comply with the provisions of the said act of Assembly, as above set forth, but threatens to continue to operate the said mine in defiance of the law; that a continuance of work at the said mine, as it is now maintained, is in the highest degree dangerous to the life and safety of the workmen employed therein; that it is absolutely essential that this mine should stop work until the said second opening shall be equipped properly to enable the persons employed in the mine to readily escape therefrom and until all arrangements can be made to have a suitable engineer stationed at the said second opening at all times while the men are employed in the said mine, and that steam shall be kept up in the boilers at the said second opening at all times while the men are employed in the said mine, and that steam shall be kept up in the boilers at the said second opening continuously, and that a second opening shall be made from Dunmore vein number two (2) to the Clark vein.

Seventh. This bill in equity is filed and an injunction prayed for

under and in pursuance of section 1 of article 15 of the act of the General Assembly of June 2, 1891, above referred to, said section being as follows:

“Section 1. Upon application of the Inspector of Mines of the proper district, acting in behalf of the Commonwealth, any of the courts of law or equity having jurisdiction where the mine or colliery proceeded against is situated, whether any proceedings have or have not been taken, shall prohibit by injunction, or otherwise, the working of any mine, or colliery where any person is employed, or is permitted to be, for the purpose of working in contravention of the provisions of this act, and may award such costs in the matter of the injunction, or other proceedings as the court may think just, but this section shall be without prejudice to any other remedy permitted by law for enforcing the provisions of this act. Written notice of the intention to apply for such injunction in respect to any mine or colliery shall be made to the owner, operator or superintendent of such mine or colliery, not less than twenty-four hours before the application is made.”

“Your orator therefore prays:

“First. That an injunction may be issued from this honorable court, temporary until final hearing, afterwards to be made permanent, enjoining and restraining the Elk Hill Coal and Iron Company, its agents, servants or employes, from working the said mine known as Richmond Number Three (3) and operating the same or any portion thereof, with any men.

“Second. Your orator further prays for such other and further relief as to your honors may seem meet, or the Commonwealth may be entitled to according to the rules and practice of equity.”

The defendant company made the following answer to the foregoing bill of complaint:

“First. We admit the facts alleged in the first and second paragraphs of complainant’s bill, except that the said defendant company has other powers under its charter besides those stated.

“Second. We deny that the defendant company has disregarded the provisions of the act of Assembly quoted in the third paragraph of complainant’s bill, and we deny that we have failed to provide a second opening from the Clark vein to the surface, and the reasonably safe and available appliances connected therewith, but aver that a second opening or outlet from the Clark vein to the surface, in addition to the main shaft, has been maintained for six years last past with reasonably safe and available appliances connected therewith to enable employes to escape at the said second outlet or opening in case of accident to the hoisting machinery at the main shaft or outlet, and no complaint or claim has been made by the Mine Inspector

preceding the relator that the said second outlet as maintained did not comply with the law.

With reference to the allegations as to the buildings in the second opening, we deny that they are insufficient, and aver that during the late cold weather a portion of the buildings were torn away by the ice, but upon the same being discovered steps were taken and are now being carried on to repair the said damage, and during the progress of said repairs a bucket has been provided which provides a safe and available means of egress from the foot of said second opening to the surface as the law requires. We deny that no carriage or guides are provided for the said second opening, but we aver that the law does not require carriages to be operated in shafts sunk for the purpose of furnishing a second outlet or opening for the escape of employes in case of accident, and we aver that the second outlet or opening from the Clark vein to the surface with the bucket as now kept and maintained, which can be operated by a hand windlass or by steam, furnishes the safe and available means of egress required by the law.

"We deny that the law requires the keeping of a separate engineer at the second outlet and keeping up steam in the boilers used to operate the carriage in the said second outlet in case of accident to the hoisting machinery of the main shaft which is the shaft where the employes working in said mine are regularly lowered and hoisted; and we aver that provision is made for the operating of the carriage or bucket to hoist employes in said second outlet in the event of accident.

We aver that in case the said second outlet is required to be used as a means of egress in case of accident, that so far as the said second outlet and the appliances connected therewith are concerned, they furnish and constitute the safe, ready and available means of egress required by law.

"We further deny that the condition of the mine of defendant company is such, by reason of gas, that with the means now and heretofore employed to furnish egress through said second outlet in case of accident, a safe, ready and available means of egress is not furnished as required by law, but aver that on the contrary by reason of the natural ventilation of said mine the air at the bottom of the said second outlet or opening would remain pure and wholesome for thirty days, even though the fan were completely stopped and no artificial ventilation maintained.

"We deny that we have violated sections 3 and 10 or any of the sections of article 4 of the Act of Assembly referred to, as alleged in the said third paragraph of complainant's bill.

"Third. We deny that we are working the Dunmore vein No. 2 in violation of the act of Assembly as alleged in the fourth paragraph

of complainant's bill, and aver that we have strictly complied with section 1, article 4 of the said act cited by complainants, in that while working to provide the required second outlet from the said Dunmore vein No. 2, we have not at any time kept employed more than twenty men in the said lift of said mine, to wit, in Dunmore vein No. 2, during the progress of driving a slope to the Clark vein and furnish a second outlet from Dunmore vein No. 2 by way of said slope and the second outlet from the Clark vein to the surface, in addition to the outlet from both of said veins by way of the main shaft. We deny that either the letter or spirit of the said act of Assembly is violated by employing men to develop the coal in a lift or vein while the work of driving a second outlet is progressing, so long as not more than twenty men are employed in the said lift or vein at one time during the progress of said work.

"Fourth. We admit that we have been, as alleged in the fifth paragraph of plaintiff's bill, notified by the relator that in his opinion we were violating the law, but aver that we informed the said relator that we were advised and believed we were living up to the strict terms of the law, and we so now aver. We admit having received the notice of the application for an injunction so alleged in said fifth paragraph.

"Fifth. We deny wholly the allegations contained in the sixth paragraph of complainant's bill.

"Having fully answered all the material allegations of the plaintiff's bill, the defendants pray to be hence dismissed with their reasonable costs in this behalf most unjustly incurred, and they will ever pray."

The following requests for findings of fact and law by the court were made by the plaintiff and defendant.

Plaintiff's Requests.

"First. That the strata in the mine of the defendant known as Richmond No. 3 is below water level and is reached and mined by shafts; that the main shaft from the surface goes through the rock, the fourteen foot, the Clark and Dunmore No. 1 to the Dunmore vein No. 2; that the distance from the surface to the Clark vein is 360 feet, and that the distance from the Clark vein to the Dunmore No. 2 is 150 feet.

"Second. That the vein known as Dunmore No. 2 is difficult to mine on account of the unusual accumulation of gas in said vein and is worked by flameless powder and protected lamps on account of the unusual quantity of gas, and the stoppage of the fan renders the workings dangerous and impracticable.

"Third. That in said Dunmore vein the main shaft was completed

about one year ago and the gangway from the foot of the said shaft to the foot of the plane, or second opening, in said vein, was completed ten months ago.

"Fourth. That for thirteen months last past, coal has been mined for the market from said Dunmore vein No. 2, chambers have been opened, headings and gangways driven in no way essential or necessary in the prosecution of the work pertaining to the connection between the foot of the main shaft and the second opening, 250 or 275 feet distant therefrom; and that all work necessary to making the said connection was finished and completed when the second opening was started in November, 1897.

"Fifth. That since the second opening was started and the connection between the main shaft and said opening completed, mining has been carried on for the purpose of producing coal for the market and at least twenty men have been employed in said vein from that time for that purpose, and thirty-eight cars a day, averaging one and one-half tons to the car, have been mined and shipped.

"Sixth. That in case of accident cutting off access to the main shaft at Dunmore No. 2, no way of escape for the men from the mine has been provided.

"Seventh. That the usual way in the Lackawanna valley of opening mines by shaft is to sink the main shaft and the second opening at the same time, making connections in the mine as soon as practicable by driving gangway from the one to the other as they reach the vein or strata to be mined.

"Eighth. That from the time the main shaft was sunk to the Dunmore vein, one year ago, according to the undisputed testimony, four months would have been ample time to have driven and completed the second opening to the said vein; and that, according to the testimony, it will take two months from this date to complete the said second opening.

"Ninth. That the second opening from the surface to the Clark vein is a shaft where at one time a cage was furnished propelled by an engine at or near the mouth of the shaft, with boilers attached for generating steam as a motive power; that most of the time no fire was kept under the boilers and no steam in readiness to work the engine; that according to the defendant's own witnesses no fires were under the boilers for a year at a time.

"Ten. That the Mine Inspector, from time to time, notified the defendant to keep the fire under the boilers at all times, which was refused; that, according to the testimony of Mr. Richmond himself, he ordered and directed that no fire should be kept under the boilers and no engineer should be stationed at the engine.

"Eleventh. That some time in the month of December, 1897, the guides and buntings were destroyed for over one hundred feet in

the second opening to the Clark vein, rendering the working of the cage impossible and the bunting and guides had not been replaced on the third day of March, 1898, when this injunction was applied for.

"Twelfth. That the cage, so furnished, was not equipped with hand rails, safety catches or sling chain.

"Thirteenth. That since the month of December, 1897, a bucket has been used at said second opening, which said bucket is about three and one-half feet in depth by four feet in diameter, and has been used from the said month of December, 1897, to the third day of March, for the purpose of hoisting and lowering men, without a guide rope connected therewith, and is the only means whereby the men from the Dunmore vein can escape to the surface in case of accident.

"Fourteenth. That the shaft from the surface to the Clark vein, used as a second opening, is wet and men cannot be hoisted or lowered without becoming wet, unless protected by a hood or some other appropriate protection, which is not now provided.

"Fifteenth. That it requires from one to five hours in order to get up sufficient steam to work the cage at the second opening.

"Sixteenth. In the Lackawanna valley the appliance used at the different second openings to mines by shaft, the cage, under the testimony, is in general use, and, according to the testimony of the Mine Inspector, there is no other mine in his district where a bucket is used for that purpose.

"Seventeenth. Under the testimony, buckets are used for sinking shaft and raising rock and coal in sinking, but are not used for conveying miners and their laborers from the mines to the surface after the mines are opened."

The court is also requested to find as a matter of law:

"First. That it was the duty of the defendant to fit the shaft, used as a second opening from the surface to the Clark vein, with safe and available appliances by which the persons employed in the mine might readily escape in case an accident occurred deranging the hoisting machinery at the main shaft.

"Second. That, by 'a safe appliance,' is meant such an appliance as is in general use by persons or corporations in the mining business in the vicinity, by means of which persons employed in the mines may make their escape.

"Third. A bucket, such as is described in the evidence, is not a safe appliance to be used at the second opening in question, by which persons employed in the mine can readily escape in case an accident occurs deranging the hoisting machinery at the main shaft.

"Fourth. An available appliance is one ready for immediate use, and an appliance which requires one, two or three hours in preparation, before it can be used, is not an available appliance, especially

when human life is at stake. Any other construction of the word 'available' would be contrary to the manifest intention of section 3, article 4 of the act of June 2, 1891.

"Fifth. That it is the duty of the defendant to fit the second opening for the free use of a cage with the necessary buntings and guides, and that a cage should there be used, constructed with the necessary covering, hand rails, safety catches and bridle chain, and that an engineer should be stationed in charge of the engine for working this cage, and that fire should be kept under the boilers sufficient to generate the necessary steam, as the motive power for working the cage at all times.

"Sixth. That it is unlawful to permit any person or persons to be in the Dunmore vein No. 2 for the purpose of working therein, in mining coal for the market, until said vein is connected with the surface by at least two openings or outlets, separated by a strata of not less than 60 feet in breadth under ground and 150 feet in breadth at the surface.

"Seventh. That the provision for working twenty men in the Dunmore vein applies only for such time as work is necessarily conducted for the purpose of making connection between the foot of the main shaft and the foot of the slope or second opening.

"Eighth. That under section 1 of article 4 it is provided that at said 'openings or outlets safe and distinct means of ingress and egress are (must be) at all times available for the person or persons employed in the said mine,' and that such means of ingress and egress, as contemplated in the section, have not been provided by the defendant at the outlet of the second opening from the Clark vein.

"Nine. That the second opening from the surface to the Clark vein is not safe and secure, nor are the appliances there used for the escape of men such as the law requires, nor is there a second opening such as is required by law for the escape of men, in case of accident, from Dunmore vein No. 2 to the Clark vein, and the defendant has no right to operate his mines until the second opening is completed from the Dunmore No. 2 to the Clark vein and made available for the escape of men.

"Ten. That an injunction is the appropriate remedy in this case and should be granted until the second opening from the said Dunmore vein to the Clark vein is completed and until the defendant provides safe and available appliances at the second opening from the Clark vein to the surface, by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the main outlet.

"Eleven. The court is respectfully requested to order and decree that the second opening from the Clark vein to the surface be made safe and secure; that the guides and buntings be thoroughly re-

paired so that the cage can be run with safety; that the cage be repaired and furnished with bridle chain, safety catches and hand rails; and that the defendant company keep steam in the boilers and a person in charge of the engine at the second opening, so that the cage can be made available at all times in case of danger or accident; and that the defendant be restrained from working in the second or Dunmore vein except so far as it is necessary to make proper connection between the foot of the main shaft and the foot of the slope at the second opening, and that no men be employed in said vein for the mining and shipping of coal to market until the second opening is completed between Dunmore vein No. 2 and the Clark vein.

Defendant's Request—Findings of Fact.

“First. At the time of the granting of the preliminary injunction in this case, not more than twenty men were employed in Dunmore No. 2 vein at any one time, and during all the time of the opening of the said vein, work has been progressing toward getting a second outlet from said vein, besides the main shaft of the Richmond mine No. 3.

“Second. When the Dunmore No. 2 vein first began to be opened in February, 1897, it was the intention to obtain a second outlet by driving about 1,500 feet from the main shaft to a point which would connect with the shaft, or outlet sunk from the surface to the Clark vein, which it was proposed to sink from there to the Dunmore No. 2 vein.

“Third. In November, 1897, it having been ascertained that it would take too much time to construct a second opening or outlet from the Dunmore No. 2 vein, as at first proposed, the plan was changed, and in that month work was commenced upon driving a tunnel from the No. 2 vein through the rock and intervening strata up to the Clark vein, to be used in connection with the second outlet or opening from the Clark vein to the surface then opened, as a second outlet or opening from the said No. 2 vein.

“Fourth. The work of driving the tunnel upward from the Clark vein having been found to be difficult and dangerous, after about 130 feet had been driven, in February, 1898, about a week before the preliminary injunction was granted in this case, the work of driving the tunnel was changed and it was being driven downward from the Clark vein to connect with the portion of tunnel already driven about 130 feet upward from the No. 2 vein, so as to connect the No. 2 vein with the second opening from the Clark vein to the surface and furnish, in conjunction therewith, a second outlet besides the main shaft from the said No. 2 vein.

“Fifth. During all the period of the operations in opening up the

Dunmore No. 2 vein since February, 1897, to the present time, the work of driving for a second outlet from the said No. 2 vein, so as to connect by way of the Clark vein with the second opening or shaft to the surface, then already sunk down to the Clark vein, has been continuously progressing with reasonable expedition under all the circumstances.

“Sixth. At the time the preliminary injunction was served in this proceeding no more than twenty men at any one time were employed in the Dunmore No. 2 vein, while the work of driving a second outlet therefrom so as to connect with the second opening or shaft from the Clark vein to the surface, was in progress and it was not the intention of the defendant company to employ more than twenty men at any one time in said No. 2 vein, until a second outlet therefrom was obtained, besides the main shaft.

“Seventh. In conducting the operations of opening the Dunmore No. 2 vein and making a second outlet therefrom the greatest precautions have been taken to insure immunity from accidents, to wit, flameless powder, safety lamps, a supply of water to quench fires, and an iron ladder in the main shaft from the said No. 2 vein up to the Clark vein for use in case an accident should occur to the hoisting machinery in the main shaft, and there has been no accident whatever in the opening of the said No. 2 vein due to the negligence of the defendant.

“Eighth. The second outlet, which it is proposed to use as a means of egress from the Dunmore No. 2 vein to the surface, is by means of a tunnel or slope from the No. 2 vein up to the Clark vein and thence to the surface by way of the Clark vein and a shaft already sunk from the surface down to the Clark vein, and the second outlet as so proposed to be used is separated from the main shaft or outlet by a distance greater than two hundred feet underground and about 1,500 feet at the surface.

“Ninth. The second outlet or opening from the Clark vein to the surface is not used to lower and hoist miners and employes working in the Richmond No. 3 mine, or to take out coal or transport materials, but its sole use and purpose is for getting the employes out of the mine in case an accident should occur to the hoisting machinery in the main shaft, preventing the use of the carriage therein, which is regularly used to lower and hoist the miners and employes, and the coal and waste produced in said mine, as well as materials for use in the workings of said mine.

“Ten. The second outlet or opening from the Clark vein to the surface has only been required to be used at most three times in the past six years to get the employes out of the mine, when they could not be taken out at the main shaft, and upon every such occa-

sion the employes have been gotten out in safety with the appliances in use at said second outlet.

"Eleven. The only veins being worked at the present time in Richmond mine No. 3 are the Clark vein and the Dunmore No. 2 vein.

"Twelve. In case of accident to the hoisting machinery at the main shaft the men at work in the Dunmore No. 2 vein can have agress from the mine, during the time the work is in progress of connecting the said No. 2 vein with the surface by means of the second outlet proposed, by the iron ladder from the said No. 2 vein to the Clark vein and thence to the surface by means of a rope and bucket, during the continuance of the repairs to the carriage and buntings in the second opening from the Clark vein to the surface, or at the completion thereof by means of the carriage, both said bucket and carriage being operated by separate boilers and an engine, and in case of necessity for the use of the said bucket or carriage steam can be gotten up to hoist the same in an hour.

"Thirteen. During the progress of the repairs to the buntings and carriage in the said second outlet or shaft, a hand windlass to raise and lower the bucket has been provided in addition to the steam power used for said purpose.

"Fourteen. It is proposed in place of the bucket, as at present provided in the second outlet or shaft, to repair the buntings and replace the carriage, with safety catches, bridle chains and hand rails, and to keep the boiler and engine in such condition as to generate steam in an hour, so as to hoist and lower such carriage.

"Fifteen. The natural ventilation in said Richmond No. 3 mine is such, that, even when the fan is not running, men could stay at the foot of the second outlet or shaft in the Clark vein for a month with safety, so far as the supply of fresh air is concerned.

"Sixteen. During the past year but 16,000 tons of coal were produced at Richmond mine No. 3 and the total number of men employed in said mine does not exceed twenty-eight.

"Seventeen. The keeping up of steam in the boilers used to hoist and lower the bucket or carriage in the second outlet or shaft from the Clark vein to the surface would necessitate the employment of two additional engineers, one for day shift and one for night shift, besides the other extra expenses connected therewith, would entail an extra expense of from eight to ten dollars per day upon the defendant company, and the not keeping up of steam constantly has not heretofore at the times when said second outlet or shaft has been required to be used, prevented the getting out of the employes safely.

"Eighteen. The employing of no more than twenty men at one time in Dunmore No. 2 vein, part of whom were engaged in open-

ing up the vein and getting out coal and part in driving a second outlet from said vein, has been sanctioned during the past year by the Mine Inspector, and this is the common custom and interpretation of the law throughout the anthracite regions in opening a new vein, until the second outlet has been completed.

“Nineteen. No more than eight men are usually employed or can be reasonably employed at one time, solely in driving a second outlet or opening from a vein.

B. Findings of Law.

“First. The second opening or shaft from the Clark vein to the surface as maintained heretofore in Richmond mine No. 3, except during the time of the temporary stoppage of the same by ice during the past winter furnishes an outlet, in addition to the main shaft whereby persons employed in the Clark vein of said Richmond mine No. 3 have had and may have a safe and available means of egress in case of accident to the hoisting machinery in the main shaft.

“Two. The maintenance of iron ladders, with platforms every fifteen or twenty feet, in the second outlet or opening from the surface to the Clark vein, such as the defendant company maintained formerly from the surface to the 14-foot vein in said outlet, and such as defendant expresses a willingness to maintain, if in the opinion of the court the other appliances such as they now propose to maintain in said second outlet are not in compliance with the law, will furnish such a means of egress from the Clark vein to the surface in case of accident to the hoisting machinery in the main shaft, as is required by law.

“Third. The employment of not more than twenty men at any one time in opening and taking out coal from Dunmore No. 2 vein in said mine, while the work of making a second outlet or opening from the said No. 2 vein, besides the main shaft is being prosecuted with due diligence, is in progress, is not a violation of section 1, article 4, of the act of June 2, 1891, entitled ‘An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, etc.’

“Fourth. The evidence showing that the second outlet or shaft from the Clark vein to the surface is only required to be used at very infrequent intervals when an accident occurs to the hoisting machinery in the main shaft, and the evidence further showing that such an occasion has happened at the most only three times during the past six years, and the evidence also showing that there is natural ventilation at the foot of said second outlet or shaft, and that arrangements are made so that steam can be gotten up in an hour to operate the carriage or bucket in said second outlet, and there being not more

than twenty-eight men employed in the said Richmond mine No. 3, the keeping up of steam constantly in the said boilers and a separate engineer are not required in order to furnish the safe and available means of egress to employes in said mine in case of accident to the hoisting machinery in the main shaft."

Willard, Warren & Knapp, for plaintiff.

W. J. Hand, Ira H. Burns, for defendant.

GUNSTER, J., March 28, 1898. The bill of complaint in this case is preferred in the name of the Commonwealth upon the relation of Edward Roderick, who is Inspector of Mines of the First Inspection district of the anthracite coal mines. The defendants are the owners and operators of an anthracite coal mine or colliery known as Richmond No. 3, in the First ward of the City of Scranton, Lackawanna county, in said district. The mine in question employs more than ten persons. The bill charges in effect that the defendants, in disregard of different provisions of the act of June 2, 1891, P. L. 176, entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania and for the protection and preservation of property connected therewith," are, first, operating the mines without fitting the second opening or outlet from the Clark vein to the surface with safe and available appliances by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the outlet, and, second, working Dunmore vein No. 2, which lies beneath the Clark vein, and employing men therein, in mining coal for the market, without two openings or outlets from said Dunmore vein, and which said men are not engaged for the purpose of making communication between the two outlets.

The case is admittedly of considerable importance. It appears from the testimony that the coal strata of defendant's mine are below water level and are reached and mined by shafts. The main shaft from the surface goes through the rock, the Fourteen-foot vein, the Clark vein, the Dunmore vein No. 1 to the Dunmore vein No. 2. The distance from the surface to the Clark vein is 360 feet and the distance from the Clark vein to the Dunmore vein No. 2 is 150 feet. The second shaft or opening is about 1,600 feet from the main shaft and is sunk through the same strata down to the Clark vein through which the two shafts are connected. There is as yet no second opening from the Clark vein to the Dunmore vein No. 2. The bill charges that the defendants have failed to fit the shaft which constitutes the second opening from the Clark vein to the surface with reasonably safe and available appliances by which persons employed in the mine may readily escape, in case an accident occurs deranging the hoisting machinery at the main outlet; that no sufficient buntons are provided, and that such as were originally placed in said

shaft had been destroyed by ice, etc., and are unavailable for use; that no carriages or guides are provided for said opening; that no steam is kept up for the operation of said shaft, and that no engineer is kept there, and that the only appliance for use there at the present time for means of ingress and egress is a bucket.

In answer the defendants allege that for six years last past the second opening in question has been fitted with reasonably safe and available appliances. They deny that no carriage or guides are provided, but say that during the late cold weather a portion of the buntons were torn away by ice but that upon this being discovered steps were taken to repair the damage, and that during the progress of such repairs a bucket had been provided, which provides a safe and available means of egress. They contend that the law does not require carriages in shafts sunk for second openings or outlets, or that it requires the keeping of a second engineer and the keeping up of steam in the boilers all the time; and that the second opening as now kept and maintained and which they contend can be operated by hand windlass or by steam, furnishes a safe and available means of egress as required by law.

The provisions of the act of 1891 which are relied upon by the relator as being specially applicable to this branch of the case are contained in sections 1, 3 and 10 of article 4 of said act. They are as follows:

“Section 1. It shall not be lawful for the owner, operator or superintendent of any mine to employ any person or persons in such mine or permit any person or persons to be in such mine for the purpose of working therein, unless they are in connection with every seam or stratum of coal; and from every lift thereof, worked in such mine, not less than two openings or outlets separated by a strata of not less than sixty (60) feet in breadth underground, and one hundred and fifty (150) feet in breadth at the surface, at which openings or outlets safe and distinct means of ingress and egress are at all times available for the person or persons employed in said mine, but it shall not be necessary for the said two openings to belong to the same mine if the persons employed therein have safe, ready and available means of ingress and egress by not less than two openings. This section shall not apply to opening a new mine or to opening any new lift of a mine, while being worked for the purpose of making communication between two said outlets, so long as not more than twenty persons are employed at any one time in such mine or new lift of a mine, neither shall it apply to any mine or part of a mine in which the second outlet has been rendered available by reason of the final robbing of pillars previous to abandonment so long as not more than twenty persons are employed therein at any one time. The cage or cages and other means of egress shall, at all

times, be available for the persons employed where there is no second outlet.

"Section 3. The escapements, shafts or slopes shall be fitted with safe and available appliances by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the main outlets.

"Section 10. Hand rails and efficient safety catches shall be attached to, and a sufficient cover overhead shall be provided on every cage used for lowering or hoisting persons in any shaft."

I fail to find any provision in the act which expressly requires that the appliance by which persons employed in a mine may escape shall be a carriage or cage, or that a second engineer shall be kept at the opening, or that steam shall be kept up in the boilers there all the time. But it hardly requires a second reading of section 3 quoted to show that at the shaft or opening now under consideration it is the duty of the defendants, in case they operate their mine, to fit the shaft, if it is not already so fitted, with appliances by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the main outlet, and that such appliances shall be safe and available. The question to be determined is whether or not the defendants have fitted the shaft in question with such appliances. When the second opening was begun and sunk as far as the Big vein it was fitted with platforms and iron ladders. It was originally the intention of the defendant company to sink the shaft to Dunmore vein No. 2 and connect it through that vein with the main shaft. When the Big vein was reached, as already said, the shaft was fitted with platforms and iron ladders. When the work of sinking to the Clark vein was begun the platforms and ladders were removed, as they interfered with the work of sinking. For some time after the Clark vein was reached the only appliance for escape was a bucket, such as is ordinarily used in sinking shafts. Some time in 1897 the shaft was fitted with a carriage or cage which was, or rather could be, operated by means of an engine and boiler. The guides for this appliance, however, appear to have been of a flimsy character; they were easily deflected and permitted the carriage or cage to become disengaged. The carriage itself never had any handrails or safety catches attached to it, nor was the appliance ever furnished with a bridle chain.

These defects were frequently called to the attention of Mr. W. H. Richmond, the president and general superintendent of the company but instead of remedying them, he instructed those under him not to do so. There was an engine and boiler there, but Mr. Richmond instructed the men not to build any fire or to get up steam, and, for months at a time, there was no steam there at all. The evidence shows that it will take from one to five hours to get up steam. On one occasion, when an

accident happened at the main shaft and it became necessary to take the men out through the second opening, it took at least five hours to get up steam and then with the assistance of sinkers, men accustomed to the work of sinking shafts and operating buckets, the men in the mine, wet and chilled to the marrow, were brought to the surface in a bucket. The main shaft from the Clark vein to Dunmore vein No. 2, had not been furnished with ladders, and the men working in it were rescued one at a time by being tied to a rope and raised up bodily to the Clark vein. During the late cold weather the ice was permitted to accumulate in the shaft to such an extent that it broke and destroyed the guides and the buntons and the carriage could not be operated at all. It was removed and set aside. The shaft was to some extent repaired and cleaned out and in lieu of the carriage there was substituted a hand windlass and a bucket such as are used in the ordinary work of sinking shafts. The bucket had no guides.

I am asked to find that these appliances are safe and available for ready escape. I cannot do so. At the hearing I permitted a number of witnesses experienced in mining to express their opinion as to the safety of the bucket as an appliance for escape. The overwhelming weight of this testimony is against the defendant's contention. But entirely aside from the opinions of these witnesses I am of the opinion that it is not such an appliance as should be supplied for this opening. The uncontradicted testimony in the case shows that every mine in the district where the second opening consists of a shaft, the shaft is fitted with a carriage or cage as an appliance for escape. The shaft under consideration is 340 feet deep. The bucket in question is about three feet in diameter and three feet in depth and is capable of holding four men. It is without a guide and has no protector overhead. The evidence further shows that when being raised or lowered the bucket is apt to swing from side to side and to strike the sides and timbers of the shaft. Few men are accustomed to travel in such a contrivance up and down a shaft 340 feet deep and it does not require the opinion of an expert to say that for the ordinary miner it is not safe. It may be available, and in case of emergency it would certainly be better than nothing. The evidence further shows that its legitimate use is in the sinking of shafts, when it is operated by experienced men, and that it is not used at any other mine in the district for the purpose contemplated here. It is true its use here is contemplated only in case of emergency, but, as already stated, at all the other mines in the district the appliance used to meet the same kind of emergency is a cage.

This brings us to the consideration of the other alleged violations of the mining law. On this branch of the case there are no disputed facts. As has already been said, it was originally the intention of

the defendant company to sink the shaft of the second opening to Dunmore vein No. 2 and connect it through that vein with the main shaft. When they reached Dunmore vein No. 2 by the main shaft, they began driving an opening towards the contemplated foot of the second shaft and progressed some 800 feet. Some time in November, 1897, the idea of sinking the second opening shaft to the Dunmore vein No. 2 and driving the opening to it through that vein was abandoned, and work was begun some 255 feet from the foot of the main shaft to drive a slope from that point up to a point in the Clark vein about 205 feet from the shaft. Men experienced in the business testified before me that with ordinary diligence this slope could have been finished within three or four months from its commencement. The slope was driven about 130 feet when the work from that direction had to be abandoned on account of the gas. Dunmore vein No. 2 is very gaseous, so much so that it has been found necessary by the men working therein to use the Clanny safety lamp and flameless powder, and to have water convenient for the extinguishment of fire. When Dunmore vein No. 1 was reached in driving the slope upward the gas accumulated so rapidly and the ventilation was so bad that work from that side of the slope was abandoned. For some time prior to the beginning of work on this slope and while work was being done thereon, the defendants employed men in the Dunmore vein, who were not engaged in the work of making communication between the two outlets, but who were engaged in opening new chambers and in mining coal for the market from chambers which had already been opened in said vein. When the upward work in the slope was abandoned, there were some fifteen chambers in the vein being worked or ready for work and coal was mined therefrom for the market at the rate of 38 cars of one and a half tons each, every 24 hours; and these mining operations were being carried on and had been carried on in said vein for more than a year before the present bill of complaint was filed. At the time of the accident already referred to, the shaft from the Clark vein to Dunmore vein No. 2 was not fitted with ladders or any other appliance for escape, and men had to be raised one by one a distance of 150 feet by means of a rope. After the accident the shaft was fitted with iron ladders. The Mine inspector, Mr. Roderick, made many complaints to Mr. Richmond, the general superintendent of the defendant company, and to the foreman under him, of these flagrant violations of the mine law. He frequently ordered repairs to the shaft, directed fires to be built under the boilers so as to have steam available, and on several occasions he ordered the men out of the mine because of its dangerous condition. He insisted upon the repairs to the appliance of the second opening from the Clark vein to the surface, and upon the completion of the second opening from Dunmore vein No. 2 to Clark vein, and upon the cessa-

tion of mining in the Dunmore vein No. 2 until said second opening therefrom was completed. Aside from fitting the main shaft from the Clark vein to the Dunmore vein No. 2 with ladders, no attention appears to have been paid to his suggestions, until a few days before this bill was filed, when work looking to the completion of the slope already started from Dunmore vein No. 2 was commenced by driving down from the Clark vein. At the time the preliminary injunction was served there were five men engaged in driving this slope from the Clark vein and sixteen men were engaged in mining coal from the open chambers of Dunmore vein No. 2.

The defendants contend that so long as they do not employ more than twenty men in mining coal in the Dunmore vein No. 2, and while they are engaged in driving the slope or second opening to said vein, they are complying with the letter as well as the spirit of the law. They assert that such has been the general and uniform construction of section 1, article 4, of the act of 1891. I know of no such construction. Haddock vs. Commonwealth, 103 Pa. 243, relied upon by the defendants, does not sustain their contention. In that case it appears that the first and third seams of the mine in which men were employed in mining coal for the market, had second openings and that in the fifth seam of the mine a number not exceeding twenty were engaged in working a gangway or gangways to connect with the second opening which had not yet been completed in said seam. The plaintiffs sought to restrain the defendants from mining coal in the first and third seams until the opening of gangway in the fifth seam had been completed. But the Supreme Court held that so long as not more than twenty persons were employed in the fifth seam in working a gangway towards the second opening the court had not power to interfere with the work in the other seams which admittedly had proper openings. On the other hand in Commonwealth ex rel. Williams vs. Bonnell, et al., 8 Phila. 534, it was expressly decided that the proviso of the third section of the act of 1870 does not authorize the production of coal for market under the pretext of making another opening through coal. I cannot do better than quote the language of the learned judge (Harding) who wrote the opinion in the case:

“If we omit then in the proviso all that is cumulative, and does not refer to other specific matters, and read only that relating to a second opening through the coal,—the terms openings and outlets are clearly synonymous—the language of the proviso will be thus: ‘This section shall not apply to any working for the purpose of making a communication between two or more outlets, so long as not more than twenty persons are employed at any one time in the said working.’ Adopting this as the correct interpretation of the statute, the inquiry is still extended as to how the ‘twenty persons’ shall

be permitted to work. We are aware that there exists a difference of opinion on this subject, as well among lawyers as laymen; and that in many instances in this coal region, operators, while keeping within the limit of 'twenty persons' in working through coal for a second outlet, have, in accordance with their own construction of the law, worked sometimes fifteen or eighteen persons in cutting coal for market, while only five, oftener only two, have been employed in driving for the second outlet.

"Though we do not assume positively that herein lies the explanation why so many mines or collieries in the region are yet without a second outlet, still such an explanation is not at all unreasonable, and must stand for what it is worth. At all events, such working, if indeed it is still carried on, had better cease at once. It is without even the merit of shrewdness for its authors. On the contrary, it can be regarded as little better than a stupid attempt at dodging the law; and the earlier, perhaps, a lesson in the pains and penalties of the act is learned therefor, the better it will be for everybody.

"As we have shown before, this working with no more than twenty men for a 'second opening through coal,' constituted the only condition under which certain mines or collieries, otherwise closed up by the provisions of the statute, could be worked at all. It cannot be claimed, however, that this permissive work can be carried on with any other view, or for any other purpose than that mentioned in the act. Cutting coal for market, therefore, whether with one man or twenty men, except in so far as it is a necessary incident of driving on through a seam or stratum towards a second outlet, is not only not a declared purpose of the statute, but on the contrary, it is in direct and absolute contravention of the expressed terms thereof."

This opinion was followed a year later by Commonwealth ex rel. Williams vs. The Wilkes-Barre Coal Co., 29 Leg. Int. 213, in which the views above quoted were re-expressed with emphasis, and it was decided that "Where in connection with a mine or colliery a shaft has been sunk to or a slope driven in a seam or stratum of coal which is in communication with a second outlet at the point where the mining is carried on and a field of coal has there been exhausted, yet if from that point a slope be continued on, following the pitch of the seam or stratum down several hundred feet and at the bottom thereof extensive mining be carried on in the same and there is no second outlet communicating therewith separated from such slope by natural strata of at least 150 feet in breadth, the mine or colliery is within the legislative inhibition, and an injunction will be granted to restrain the owners, lessees or occupiers thereof from thus working the same."

These cases referred to arose under the act of 1870, the great forerunner of the mining laws of this Commonwealth. This act was not perfect—few acts of Assembly are. As was said by Mr. Justice Dean in *Waters vs. Wolf*, 162 Pa. 167, "The pioneer who lays out the first path through the forest has difficulties to contend with not always considered by those who come after him. They look over the cleared ground, see swamps and elevations which could have been avoided while he saw no other way than to cut through or climb over them. He had but little to guide him but the end to be reached, but they have the knowledge gained from his mistakes which experience alone now demonstrates to have been mistakes."

The exemption from the inhibition of the act of 1870 is contained in the proviso to the third section of that act, and is as follows: "This section shall not apply to opening a new coal mine or colliery nor to any work for the purpose of making a communication between two or more shafts, slopes or outlets, so long as not more than twenty persons are employed at any one time in the said new mine or working."

The exemption from the inhibition of section 1, article 4, of the act of 1891, is as follows: "This section shall not apply to opening a new mine or to opening any new lift of a mine, while being worked for the purpose of making communication between said two outlets, so long as not more than twenty persons are employed at any one time in such mine or new lift of a mine, neither shall it apply to any mine or part of a mine in which the second outlet has been rendered unavailable by reason of the final robbing of pillars previous to abandonment, so long as not more than twenty persons are employed therein at any one time."

This, as well as other parts of the act of 1891, are no doubt an improvement on the act of 1870. It is to be observed that while the act of 1870 exempted but two classes of cases, the act of 1891 exempts three. The first two are substantially those exempted by the act of 1870. The language of the act is very plain, and it is difficult to conceive how any misunderstanding could arise under it as to what is exempt from this general inhibition. Words might obscure but could hardly make the matter clearer than is expressed by the letter of the statute itself. It simply provides that the inhibition against the employment of persons in the mine does not apply (1) to the opening of a new mine or (2) to the opening of any new lift of a mine while being worked for the purpose of making communications between the two outlets so long as not more than twenty persons are employed at any one time in such mine or new lift of a mine; or (3) to any mine or part of a mine in which the second outlet has been rendered unavailable by reason of the final robbing of the

pillars previous to abandonment, so long as not more than twenty persons are employed therein at any one time.

In their contention the defendants not only overlook but utterly ignore the fact that the Richmond No. 3 is not a new mine, but one which has been opened and operated for a number of years; that they were not opening any new lift of said mine but that the lift in question has been opened for months; that the main shaft has been sunk to Dunmore vein No. 2, and that said vein has been opened and operated and coal mined for the market therefrom for more than thirteen months, and that the operations now proposed to be carried on by them in said vein have nothing whatever to do with work done for the purpose of making communication between two outlets. Under article 15 of the act of 1891, we are required to prohibit by injunction or otherwise the working of any mine or colliery in which any person is employed or is permitted to be for the purpose of working in contravention of the provisions of this act. The employment of persons by the defendants in Dunmore vein No. 2, before the slope or the connection between the two openings is completed, for the purpose of working therein and mining coal therefrom for the market, is clearly in contravention of the provisions of the act of 1891 already quoted, and there is nothing for us to do but to enforce the law.

It is contended that if these views be enforced the operation of the defendants' mine will become unprofitable. The answer to this contention is that the statute in question was enacted to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania and for the protection and preservation of property connected therewith. As was said by Judge Dana in *Commonwealth ex rel. Blewitt, Inspector of Mines, vs. Tompkins, I Luz. Leg. Reg. 341*, "The application and enforcement of the law in a case where from circumstances beyond the operator's control, compliance with its provisions is rendered impossible, may work hardship, but when the question is brought to a practical issue, is capital or human life to be sacrificed, can the answer be doubtful?"

In the present case the enforcement of a compliance with the law will no doubt make the defendants' mine less profitable, but it will make it also correspondingly more safe. The question of profit is not a factor in the case; the question of safety is; and unless the defendants carry on their operations in such a manner and with such appliances as the law directs, they must not mine at all.

A number of requests for finds of fact and conclusions of law were submitted by counsel for the respective parties. These requests will be filed herewith.

I find as requested in the plaintiff's seventeen requests for findings of fact. Of the plaintiff's requests for conclusions of law, the first, third, fourth, sixth, seventh, eighth and tenth are affirmed. The

second and fifth are affirmed with the qualification that the appliances mentioned are not the only ones which may be termed safe. If the defendants can devise some other safe and available appliance for ready escape they ought to be permitted to do so.

The ninth request is affirmed with the qualification that the word "mines" is limited to mining in Dunmore vein No. 2; as soon as the shaft is made safe the defendants ought to be permitted to carry on their mining operations elsewhere and especially to drive the slope into Dunmore No. 2.

As to the eleventh request I decline to make the order requested. The law does not authorize us to direct these things to be done although it does authorize the court to restrain the defendant from working their mine in contravention of the provisions of the act of 1891, and that of course will be done.

I find as requested in the second, third, sixth, eighth, ninth, eleventh, twelfth, thirteenth, fifteenth and sixteenth requests for findings of fact submitted by the defendant. I find as requested in the first request for fact with some qualification. Some time intervened between the abandonment of the effort to drive the slope upward from Dunmore vein No. 2, and the beginning of work driving said slope downward through the Clark vein. The evidence is indefinite as to the length of this period. I find as requested in the fourth request for fact with the qualification attached to the affirmance of the first. I find as requested in the seventh request with the qualification that the shaft to Dunmore vein No. 2 was not fitted with ladders until after the accident mentioned.

I find as requested in the tenth request with the qualification that instead of having been gotten out "in safety" the employes were safe after they were gotten out.

I decline to find as requested in the fourteenth request. The proposition embodied therein, however, ought to be carried into effect at once.

I find as requested in the seventeenth request with the qualification that one of the three accidents which have occurred at the mine within six years that it took at least five hours to get up steam.

I find as requested in the nineteenth request in so far as the facts therein stated are applicable to the size of the opening, and the manner in which it is being driven in the present case.

I decline to find as requested in the fifth and eighteenth requests.

I decline to find as requested in the defendant's four requests for conclusions of law, and in answer to the fourth request desire to add that I do not see my way clear to so find at the present time. There is undoubtedly evidence tending to show that the natural ventilation of this mine outside of the Dunmore vein is good, but under the modified injunction the defendants are permitted to go on with the

work of driving the slope into that vein from the Clark vein. The uncontradicted evidence shows that this is accompanied by unusual heavy blasting which tends to disarrange the brattices and doors of the mine and break down the walls. This is an element of danger which may not exist when the slope is finished but which must be considered now.

Now, March 28, 1898, the rule is made absolute and the injunction heretofore granted as modified under and in pursuance with the agreement between the parties is continued until otherwise ordered.

Commonwealth ex rel. vs. Elk Hill Coal and Iron Company.

Common Pleas of Lackawanna County, No. 5, March Term, 1898, in Equity.

Mining Law—Second Opening—Safety Appliance—Act of 2d June, 1891, Construed.

While article 4, section 1 of the act of June 2, 1891, does not expressly require that the appliance by which persons employed in a mine may escape, shall be a carriage or cage, or that a second engineer shall be kept at the second opening or that steam shall be kept up in the boilers at said opening all the time, it does provide that the second shaft shall be fitted with appliances by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the main outlet and that such appliances shall be safe and available.

A, engaged in operating a mine with a second opening or shaft, 1,500 feet distant from the main shaft, of a depth of 340 feet, fitted the same with a bucket about three feet in diameter, three feet deep and capable of holding four men. It had no protector overhead and was without a guide. When being raised or lowered it would swing from side to side and strike the sides and timbers of the shaft; Held, That this was not such an appliance as complied with the requirements of sections 3 and 10 of the act of June 2, 1891.

Section 1, article 4 of the act of 1891, does not authorize the employment of twenty persons for the production of coal for market under the pretext of making another opening. It simply provides that the inhibition against the employment of persons in the mine does not apply: (1) To the opening of a new mine; (2) To the opening of any new lift of a mine, while being worked for the purpose of making communications between the outlets so long as not more than twenty persons are employed at any one time, in such mine or new lift of a mine; (3) To any mine or part of a mine, in which

the second outlet has been rendered unavailable by reason of the final robbing of the pillars, previous to abandonment, so long as not more than twenty persons are employed therein at any one time, and the working of any mine in which any person is employed or permitted to be for the purpose of working in contravention of these provisions, will be prohibited by injunction or otherwise.

NARROW ESCAPE AT RICHMOND MINE.

A Second Opening Saves the Miner's Lives Yesterday.

The fire at the Richmond No. 3 shaft of the Elk Hill Coal and Iron Company yesterday afternoon, exclusive mention of which was made in the extra edition of last evening's Times, did not prove to be as serious as was at first expected, owing to the prompt action of those who were engaged in looking after the welfare of the seemingly entombed miners.

The men all made their escape through the new second opening, which is 1,800 feet from the main shaft. The fire originated from a locomotive spark which ignited the fan house. In less than half an hour the place was reduced to ashes and went tumbling down the shaft. Smoke filled the gangways and only for the prompt notification which the miners received they would all have been suffocated before they could have escaped through the second opening. The engine house quickly succumbed to the flames and the only portion of the structure saved was the framework around the opening of the shaft. The North End fire department quickly responded to the alarm, but the combined hose of the three companies was not enough to reach the nearest hydrant. By the time the fire companies were ready both structures were a mass of burning ruins. Some of the men in charge refused to permit Chief Hickey to turn a stream of water on the embers, and as the fire had eaten up all it could except the bunting and beams around the shaft, the chief was not particularly anxious to ignore the command, but when Mr. Rodrick came he found the shaft so full of gas that it was up within a foot of the surface. A spark from the embers could fly into the opening and there would be an upheaval which would bring great destruction. There was a crowd around the mouth of the shaft that numbered from 100 to 200 persons. Nothing could save the

majority of them if the gas ever exploded, and it needed only a spark of any kind to do it. Consequently Chief Hickey was notified to come up again. The chief got permission to use some extra hose. He took 500 feet from the Centurys, 150 from the Crystals, 350 from the Niagaras and 400 from the Libertys, and brought the Centurys up with their wagon in order not to deprive the North End of protection in case of fire. At 11 o'clock he had the last spark quenched.

As soon as the fire broke out Foreman McCutcheon went into the mines and claims he had but little difficulty in getting the men together. The mules balked when the smoke came down the shaft and they had to be left to their fate. After the men were rescued, Foreman McCutcheon and his assistant, M. Eckersley, went down the second opening to make an examination. They could not enter the Clark vein on account of gas. The fan and air passages will have to be rebuilt before another attempt can be made to enter the workings.

The men inside when the fire broke out were John Donnelly, of Oak street, a brattice man; John Dougherty, of Marvine street, a miner; Dennis Gallagher and John Bibbes, miners; James Hawley, a driver boy and 18 Polish laborers whose names could not be ascertained. All except two were in the bottom vein. They didn't have a minute to spare.

Indirectly all of them owe their lives to Mine Inspector Roderick. At his instance the mines were closed down last winter because there was not a second opening from the bottom vein, as required by law. The main shaft is situated in the angle formed by the Lackawanna river and the Ontario and Western Railroad, a few hundred feet north of Parker street. Its depth is 505 feet. Mr. Roderick had to go to court about it. By his attorneys, Willard, Warren & Knapp, he applied for an injunction to restrain operations until a second opening had been driven to the bottom vein, and also that the company be required to keep steam up at the second opening always when men were in the shaft. Attorney W. J. Hand appeared for W. H. Richmond, president of the company and the largest stockholder in it. Judge Gunster granted an injunction as prayed for by Mr. Roderick and the mine suspended operations. The company proceeded then to complete the opening between the Clarke and Dunmore veins. A slope was driven to connect them. On June 16th last Mr. Richmond's attorney petitioned court to dissolve the injunction on the ground that the second opening had been completed.

The persistent effort of Mine Inspector Roderick a few months ago is the only thing that saved the lives of the miners yesterday, who, to say the least, had a narrow escape.

March 15. Called by Mine Inspector Charles Connor to Uniontown, Fayette county, to consult with him regarding a fire in the

Ferguson mine, operated by the Dunbar Coal Company. On the morning of the 16th, accompanied by Inspectors Connor, Adams, Blick, Ross and Callaghan, I went into the mine and made an examination. We found that an effort was being made to subdue the fire by excluding as far as possible, all air from it, presuming that the gases evolved from the fire would ultimately extinguish it, and while from the conditions that obtained this seemed a very proper course to pursue, it was at the same time fraught with danger to the persons employed in the mine, from the fact that the fire was in a gob of large area in which explosive gas had lately been detected. In view of the possible danger of an explosion and the consequent loss of human life, it was deemed proper to ask the mine officials to take from the mine all persons other than those needed to remove the danger, which they very promptly did. After a period of 30 days, no explosion having occurred and the danger apparently having been removed, the usual operations of the mine were resumed.

May 10. Called to Pittston by Inspector Hugh McDonald to advise with and assist him in an investigation as to the cause and circumstances connected with a cave in the old workings of the Hallstead mine at Duryea, operated by the Delaware, Lackawanna and Western Company, wherein David Emanuel and Thomas Williams were entombed. On the same day attended the inquest as to the cause of the death of James Monahan, Stephen Jenkins and John Titus. These men were engaged in putting slides or guides in the Hallstead shaft on the evening of the 5th of May. A stick of timber 8x8 had been placed high in the tower, from which a block and tackle were suspended for the purpose of lowering the guides to the workmen in the shaft. One guide had been lowered and put in position, when the second guide was drawn into the shaft. From some unknown cause the chain that was wrapped around the stick of timber in the shaft, on which the blocks were hooked, slipped from the stick, precipitating guide tackle, scaffold (in the shaft) and men to the bottom of the shaft, a distance of about 300 feet, killing the three men instantly. It appeared from the evidence that no blame could be attached to anyone, unless it may have been the deceased James Monahan, who put the chain around the timber and failed to properly secure it. Regarding in the cave in the abandoned workings of the Hallstead mine, judging from the evidence of the parties in direct charge, a copy of which is on file in this office, every possible effort was made to recover Emanuel and Williams alive or their bodies. It also shows that the mine officials expected this portion of the mine to cave, or at least gradually subside. And while, perhaps as a rule, the loss of life from this cause is not great, it is a serious menace and is surely detrimental to surface property and

prompts the inquiry, cannot something be done to avoid it. This is a matter worthy of careful consideration and investigation. It has been demonstrated that where the conditions are favorable, flushing culm into the mines prevents caves of large area, and at the same time permits the securing of a much greater percentage of the coal.

On May 16, was called to Pottsville to consult with Inspector John Maguire regarding the illegal and unsafe condition of the Marion colliery. Repeated efforts having been made by the Inspector to induce the officials of the colliery to comply with the plain provisions of the law, and no attention having been given to his request, it was deemed prudent to advise the Inspector to apply to the court for an injunction restraining the Marion Coal Company from further operating their mine until the law was complied with and the mine placed in a safe condition. The evidence in the case was heard before Richard H. Koch, A. L. J., on June 20, 21 and 22, and he granted the injunction. A full account of the proceedings, also of an arbitration case with the same company appears in the report of John Maguire, Inspector of the Eighth Anthracite district.

On September 24 I received from Governor Hastings a telegram which read as follows: "I desire that you immediately visit scene of mine disaster, Umpire coal mine, Brownsville, Pa., and make thorough and complete investigation and advise me thereon. Please acknowledge."

On October 5, after making a full and complete investigation, assisted by Mine Inspectors Louttit, Blick, Connor and Callaghan, I made the following report:

Governor Daniel H. Hastings, Harrisburg, Pa.:

Dear Sir: Referring to your telegram of the 24th instant advising me of the accident whereby eight men lost their lives in the Umpire mine, situated on the Monongahela river near Brownsville, and requesting me to proceed at once to the scene of accident, investigate same and make a full report, agreeable with your request, I hereby submit the following as the result of my investigation:

I left here on the first train west arriving at Monongahela City on Sunday forenoon. On Monday morning I went to Brownsville and before entering the mine I made an inspection of the fan, which was located some two miles from the mouth of the mine. When I arrived there I found everything locked up and no one in attendance, although the fan was in motion though running very slowly. In a short time a man came and unlocked the door. I found that steam was generated at the bottom of the shaft, 144 feet from the surface; that the fan was operated in a sort of hit or miss fashion, and under the immediate care of a thirteen year old boy; that the fireman at the bottom of the shaft, aside from his duty to keep up suf-

ficient steam to operate the pumps and fan, had to attend to certain valves, some of which were located as much as three-quarters of a mile from the boiler, and that during his absence the steam often ran down to a point insufficient to properly operate the fan. In this connection I learned also that the Mine Inspector, some time previous to the explosion, had posted up, in accordance with legal requirements, a notice stating at what hours the fan should start and stop. Notwithstanding this notice, the superintendent, John Simpson, gave orders for the fan to be in operation two hours less each day than stipulated by the Inspector, and on several occasions the men were allowed to remain in the mine when the fan was not in motion for hours at a time. On my visit to the fan, I heard that it had been stopped on Saturday, the 24th, at 4 P. M., and had not been started again until Monday, the 26th, about 11.30 A. M., notwithstanding the large quantity of gas in the mine. In the afternoon I made an inspection of the mine, especially that portion where the accident occurred, known as entry No. 10. Everything remained just as it was after the explosion. I found gas in room No. 10 about 30 feet in from the entry, and gas in every room up to 22, which was the last room on the entry. Judging from the condition of the mine, the explosion was of small magnitude, as little damage was done to the mine, showing beyond question that only a small portion of the accumulated gas exploded. This theory is further sustained by the evidence of those who examined the bodies, stating that some of the bodies were not burned at all, and they did not think that the apparent injuries to those who were burned were sufficient to cause death, showing that death resulted from the deadly afterdamp.

On Tuesday, the 26th, the continued inquest of the coroner was resumed. In view of the fact that no record of the evidence previously given had been kept, the coroner had the witnesses re-examined, when stenographic notes were taken of all the evidence. After a careful inquiry into the cause and circumstances connected with the accident, the jury rendered the following verdict:

Brownsville, September 28, 1898. We find that John Bennett came to his death by an explosion of gas in entry No. 10 of the Umpire mine, on Friday, the twenty-third of September, between the hours of seven and nine A. M., and our verdict is that had the proper mine officials, whose duty it was to remove the danger that was known by them to exist, properly fulfilled their duty, the accident would not have happened, and this is our finding.

This verdict applies to all the others. I agree with the jury that the mine officials were to blame for the accident. The superintendent knew there was gas in the mine. The mine foreman knew also of the danger, the fire boss so reported it to him, but in their zeal to get out more coal, they allowed the men to work in a dangerous place, resulting in the accident as above stated.

The superintendent stated that while he had been for twelve years financially interested in coal mines, he knew nothing of their management. At the same time, he signed the mine foreman's record book without examining it, directed the operation of the fan, controlled the operation of the mine, hired the mine foreman, and allowed him to take charge without even showing him the mine map. This is only one of many cases where the superintendent directs the operation of the mine, gives orders and shares none of the responsibilities. I am sorry to say that this maintains to a greater degree than it should. There are men who invest their money in mines and who, from a somewhat limited acquaintance with the present condition of the industry, imagine the management of a mine is an occupation which anyone without former experience in the business of mining is capable of managing. No greater mistake can be made than the appointment of a man as mine manager simply because he may be a good accountant, a relative, or a warm personal friend. It should be impossible for any others than those who had passed a satisfactory examination in the science and practice of mining, to hold positions as mine managers. This would be better for the miner, the operator and the State. It should be remembered that the health and safety of the miner, the cost of production to the operator and the saving of the coal, adding to the wealth of the State can only be looked after successfully by men familiar with the principles of the sciences connected with mining, and who have acquired the ability to apply those principles by practical experience. I do not consider the method of mining at the Umpire mine the best for the safety of the employes, nor is it the best that could be adopted for securing the greatest portion of the coal. Wide rooms are driven and narrow pillars are left. The rooms cave in and the roof breaks off at the pillar, the pillars sustaining the strata immediately above them, the result of which is that large cavities are left in the caved rooms in which large quantities of gas accumulate, which is always a menace to the lives of those employed in the mine. And again, by this method nearly one-third of the coal is left in the mine, whereas, if it were all removed it would allow the superincumbent strata to all break down, and in many cases allow the gas to escape to the surface.

I will have a copy of the evidence taken at the coroner's inquest, which I attended, and when it is received, should you desire any further information in this connection, I will be pleased to furnish it.

Trusting this so far will meet with your approval, I have the honor to be,

Your most obedient servant,

ROBERT BROWNLEE,
Chief of Bureau of Mines.

There is now on file in this office a transcript of the evidence, made from the stenographer's notes taken at the inquest. Immediately after the coroner's inquest, Mine Foreman James Broderick, Fire Boss Henry Farrer and Superintendent John Simpson were arrested and taken before a justice of the peace, when Superintendent Simpson gave bail in \$600, Mine Foreman James Broderick \$900, and Fire Boss Henry Farrer \$300, for their appearance at court. At the March term, 1899, before the grand jury of Fayette county, the said James Broderick and Henry Farrer pleaded nol contendere, substantially the same as guilty, and on the March 21, Mr. Simpson took substantially the same as guilty, and on March 21, Mr. Simpson entered the same plea.

The charges against Mr. Simpson are specifically "ordering and directing, permitting and allowing the engineer, or those in charge of the ventilating fan, to stop the fan contrary to the terms of the written permission of the Mine Inspector of the district; for counter-signing the record book of the mine foreman of the mine without reading and examining the matter entered in the book."

The first count was nol prossed and in the second, a motion to amend indictment with order to file motion in arrest of judgment filed.

Owing to the many inquiries for maps showing the location of the coal mines of the State, together with the necessity of showing the position and area of each inspection district, maps of the several districts have been made and inserted in the report of each inspector. The colored lines bound each district; the number on the maps show the location of each colliery and the corresponding numbers in table 1 gives the names of the colliery, by whom operated, in what county located, the name of superintendent, his post office address and the name of the railroad to mine.

Reports of the Anthracite Miners' Examining Boards Received at this Office.

Plymouth, Pa., January 30, 1899.

Report of the Miners' Examining Board for the Fourth district for the year ending 1898.

Districts.	Certificates.	Price.	Amount received.
Wilkes-Barre,	77	\$1 00	\$77 00
Plymouth,	103	1 00	103 00
Nanticoke,	114	1 00	114 00
Total,	294		\$294 00

Expenses of Board.

Wilkes-Barre, 12 meetings, 3 men, at \$9.00,	\$108 00
Plymouth, 12 meetings, 3 men, at \$9.00,	108 00
Nanticoke, 12 meetings, 3 men, at \$9.00,	108 00
294 certificates, at one-half cent,	1 47
Nanticoke Board, dinner and car fare for three men,	18 00
	\$343 47
Total receipts,	294 00
	\$49 97

E. J. DOWLING,
Secretary of Board.

Nationality.	Number passed examination.	Number failed.	Number citizens.	Number not citizens.	Number registered.
Americans,	36	.....	36	.....	10
English,	20	.....	12	8	6
Irish,	7	.....	6	1	3
Welsh,	22	.....	16	6	9
Germans,	26	.....	20	6	4
Russian Poles,	143	20	71	69	12
Hungarians,	9	6	5	4	6
Austrians,	28	1	17	11	14
Italians,	3	.....	1	2	.....
Total,	294	27	187	107	64

E. J. DOWLING,
Secretary of Board.

Shenandoah, Pa.

We, the undersigned sub-committee of the Miner's Examining Board of the Sixth district of the anthracite coal mines of Pennsylvania, submit the following as our report for the year ending July 31, 1898:

Applicants,	253
Certificates issued,	212
Duplicates issued,	20
Refused,	21
	253
Total issued,	232

Expenses.

Rent, light and heat, 12 sessions,	\$36 00
Rent, light and heat, 5 extra,	15 00
Printing,	12 00
Books, stationery and postage,	15 00
Sign and painting,	3 00
Office furniture,	9 00
	\$90 00
	\$90 00

(Signed.)

JOHN McCUTCHEON,
WM. SAGER,
OSCAR BETTERIDGE,
Secretary.

Robert Brownlee, Esq.:

Dear Sir: When I stated 232 certificates issued, that means that the receipts are that many dollars, so the receipts for the year are \$232.00.

The duplicates mean, if a miner stands an examination and receives a certificate and should lose it or it be destroyed in any manner, and he moves to another colliery, he must produce a certificate and he must obtain another, that is, a duplicate. Hoping this will be satisfactory, I remain,

Yours truly,
O. BETTERIDGE.

Shenandoah, Pa.

Wm. Penn Shaft P. O.,
August 6, 1898.

Mr. Brownlee, Chief of Bureau of Mines:

Sir: We have the honor of presenting our annual report as Examiners for Miners' Certificates, for the Sixth Anthracite district, for the year ending July 31, 1898.

Total number of persons examined,	130
Total number of certificates granted,	126
Total number of certificates refused,	3
Number refused for trying to beat the Board out of price of certificate,	1
Disbursement of money was as follows:	
Room rent,	\$10 00
Car fare,	2 40

Twelve days' wages to 3 examiners, at \$3 per day for each,	108 00
Balance in treasury,	5 60
	<hr/>
Total,	\$126 00
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Respectfully submitted,
 THOMAS MORGAN,
 President.
 EDWARD I. BURKE,
 Treasurer.
 DAVID D. WILLIAMS,
 Secretary of Sub-Committee.

Mt. Carmel, July 30, 1898.

To Chief of the Bureau of Mines:

Sir: In accordance with section 4 of an act to protect the lives and limbs of miners from the dangers resulting from incompetent miners working in the anthracite coal mines of this Commonwealth, etc., I hereby respectfully submit the report of sub-board (comprising Shamokin, Trevorton and Lykens Valley), of the Seventh Anthracite district for the year ending July 31, 1898:

Total number of certificates issued, including duplicates,	214
Registered,	10
Total number of applicants rejected,	29

Certificates issued as follows:

Americans,	127
Prussian Poles,	10
Austrians,	26
English,	14
Germans,	6
Russian Poles,	16
Irish,	3
Welsh,	7
Scotch,	1
French,	1
Bohemians,	1
Italians,	2

Total,	214
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Rejected:

Prussian Poles,	6
Austrians,	15

Germans,	1
Russian Poles,	6
Bohemians,	1

Total,	29
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Financial Statement.

Two hundred and two certificates,	\$202 00
Duplicates and registry,	6 00
Registry,	2 50

Total,	\$210 50
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Expenses.

Salaries for 17 meetings,	\$163 00
Car fare,	7 50
Carriage hire,	17 00
Rent,	15 50
Printing,	6 00
Stationery,	1 50

Total,	\$210 50
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JOHN T. REARDON,
Secretary.

The above are the only Miners' Examining Boards that have reported.

Fatal Accidents per each 1,000 Employes in and about the Anthracite Mines,
and tons of Coal Mined per each Fatal Accident from 1878 to 1898 Inclusive.

Years.	Employes.	Fatal accidents.	Fatal accidents per 1,000 employes.	Number of tons mined.	Number of tons mined for each fatal accident.
1870	35,600	211	5.929	12,653,575	59,970
1871	37,488	210	5.601	13,868,087	66,338
1872	44,745	166	3.709	13,899,976	83,734
1873	48,199	224	4.647	18,751,358	83,711
1874	53,402	231	4.325	17,794,857	77,034
1875	69,966	238	3.401	20,895,220	87,795
1876	70,474	228	3.235	19,611,071	86,013
1877	66,842	194	2.902	22,077,869	113,803
1878	63,964	187	2.923	18,661,577	99,794
1879	68,847	262	3.805	27,711,250	105,708
1880	73,373	202	2.753	24,843,476	132,987
1881	76,031	273	3.591	30,210,018	110,659
1882	83,242	293	3.520	30,867,301	105,349
1883	91,411	323	3.533	33,290,608	104,336
1884	101,078	332	3.284	32,561,390	98,076
1885	100,534	356	3.541	33,520,941	94,160
1886	103,034	279	2.707	34,064,543	122,095
1887	106,574	316	2.965	37,137,251	117,522
1888	117,290	364	3.103	41,638,426	114,391
1889	119,007	384	3.226	30,015,835	101,604
1890	109,166	378	3.463	40,080,355	106,033
1891	123,345	427	3.463	44,320,967	103,796
1892	129,797	396	3.051	45,738,373	115,500
1893	138,002	445	3.224	47,179,503	108,021
1894	139,655	439	3.144	45,506,179	103,659
1895	143,610	422	2.939	51,207,000	121,344
1896	149,670	502	3.354	48,074,320	95,766
1897	149,557	424	2.836	46,947,354	110,725
1898	142,420	411	2.886	47,145,174	114,708

Fatal Accidents per each 1,000 Employes in and about the Bituminous Mines,
and tons of Coal Mined per each Fatal Accident from 1878 to 1898 Inclusive.

Years.	Employes	Fatal accidents.	Fatal accidents per 1,000 employes.	Number of tons mined.	Number of tons mined for each fatal accident.
1878*	25,493	43	1.687	18,862,208	438,656
1879*	26,328	60	2.278	14,279,244	237,987
1880*	32,964	48	1.456	17,169,448	357,697
1881*	35,189	49	1.392	17,509,642	357,339
1882*	44,793	94	2.098	25,663,283	273,014
1883*	35,049	54	1.541	15,908,261	294,597
1884	39,994	105	2.625	20,553,090	195,743
1885	44,145	72	1.630	24,030,919	333,763
1886	51,846	81	1.562	28,607,173	353,175
1887	57,774	103	1.783	33,902,020	329,146
1888	61,564	89	1.445	35,832,285	360,138
1889	55,600	105	1.888	34,625,449	329,766
1890	66,851	116	2.183	40,740,521	379,045
1891	74,166	236	3.182	41,831,456	177,252
1892	78,784	193	1.688	46,225,552	347,560
1893	79,834	131	1.640	43,422,498	331,469
1894	86,177	124	1.441	39,800,210	324,194
1895	84,904	155	1.825	51,813,112	334,278
1896	83,796	179	2.136	50,273,656	280,858
1897	86,483	149	1.723	54,674,272	366,941
1898	87,802	198	2.255	64,247,635	323,483

*The returns not complete.

PRODUCTION of coal and coke in tons, number of employes, number of fatal and non-fatal accidents.

Districts.	Coal.					Coke.				
	1888.	1897.	1896.	1895.	1894.	1898.	1897.	1896.	1895.	1894.
Anthracite.										
First,	6,515,750	6,249,823	6,217,447	6,510,817	5,007,321	.....	.....	.....	.....	.....
Second,	5,446,150	5,985,630	5,895,069	6,189,485	5,674,539	.....	.....	.....	.....	.....
Third,	5,064,267	5,815,823	5,714,924	6,213,884	5,541,952	.....	.....	.....	.....	.....
Fourth,	7,806,271.12	7,457,418	8,015,852	8,065,589	7,162,961	.....	.....	.....	.....	.....
Fifth,	5,555,850.17	5,487,550	5,872,427	6,500,966	6,132,627	.....	.....	.....	.....	.....
Sixth,	6,313,163	6,475,330	6,624,510	7,164,898	6,340,651	.....	.....	.....	.....	.....
Seventh,	5,074,834	5,108,948	5,534,649	6,184,542	5,404,823	.....	.....	.....	.....	.....
Eighth,	4,158,051	4,306,222	4,239,347	3,925,013	3,331,315	.....	.....	.....	.....	.....
Total,	*47,143,175.9	46,947,954	48,074,339	50,847,104	45,506,179	.....	.....	.....	.....	.....
Bituminous.										
First,	8,99,331	6,459,300	6,617,001	5,539,951	5,282,181	.....	.....	.....	.....	.....
Second,	9,820,673	9,123,717	7,364,771	9,128,781	6,424,633	.....	.....	.....	.....	.....
Third,	3,761,085	3,400,302	3,243,851	3,254,947	2,641,120	.....	.....	.....	.....	.....
Fourth,	7,516,944	6,501,943	5,762,765	5,294,351	4,246,586	.....	.....	.....	.....	.....
Fifth,	7,754,835	6,501,545	4,779,410	6,423,812	3,908,318	.....	.....	.....	.....	.....
Sixth,	7,161,333	5,591,611	4,722,873	4,406,750	2,911,088	.....	.....	.....	.....	.....
Seventh,	5,942,567	5,000,375	5,624,825	4,613,508	2,438,875	.....	.....	.....	.....	.....
Eighth,	3,352,840	3,748,138	2,809,472	4,719,932	3,454,078	.....	.....	.....	.....	.....
Ninth,	6,625,738	5,074,285	5,210,992	5,662,813	4,699,811	.....	.....	.....	.....	.....
Tenth,	3,401,251	3,264,976	2,857,066	2,708,271	1,852,539	.....	.....	.....	.....	.....
Total,	64,247,635	54,674,272	50,273,656	51,813,112	39,800,210	10,171,920	8,533,191	6,613,180	8,922,329	5,729,244
Grand total,	†117,059,231	107,255,303	98,347,986	102,660,216	85,306,389	10,171,920	8,533,191	6,613,180	8,922,329	5,729,244

*Net tons, 52,802,586.
†Net tons.

PRODUCTION of coal and coke in tons, number of employes, number of fatal and non-fatal accidents—Continued.

Districts.	Number of Employes.					Fatal Accidents.					Non-fatal Accidents.				
	1898.	1897.	1896.	1895.	1894.	1898.	1897.	1896.	1895.	1894.	1898.	1897.	1896.	1895.	1894.
Anthracite.															
First.....	17,890	18,086	17,004	16,272	16,011	51	53	51	39	47	196	125	124	121	98
Second.....	15,725	16,528	16,253	16,256	15,627	31	31	30	34	41	154	115	101	102	141
Third.....	18,668	17,996	15,577	17,413	16,955	85	62	108	68	51	201	145	209	167	148
Fourth.....	23,377	25,650	26,059	24,669	22,764	75	60	73	71	71	278	269	225	221	229
Fifth.....	14,649	17,119	17,568	18,467	18,361	52	52	42	52	58	72	114	91	102	95
Sixth.....	20,159	21,056	20,979	19,810	20,109	54	73	67	59	78	72	73	99	52	94
Seventh.....	19,557	19,670	20,195	19,339	19,121	46	46	76	59	78	112	119	106	114	76
Eighth.....	12,965	13,492	13,335	11,306	10,734	37	37	46	35	29	119	112	140	106	49
Total.....	142,420	149,557	149,670	143,605	139,965	411	424	502	420	439	1,124	1,106	1,163	1,075	919
Bituminous.															
First.....	9,729	10,665	10,977	11,086	11,175	42	22	44	25	25	109	89	123	66	101
Second.....	12,501	12,272	11,040	11,135	12,148	39	51	26	32	18	66	52	31	55	39
Third.....	6,538	6,131	5,964	6,211	6,734	3	10	3	7	9	22	24	17	23	32
Fourth.....	3,961	3,851	3,538	3,378	3,636	15	15	28	13	13	45	32	48	32	29
Fifth.....	10,483	8,966	8,070	7,683	6,944	22	25	18	18	13	63	70	48	72	47
Sixth.....	9,656	9,933	10,564	9,838	9,844	26	22	22	18	13	30	20	16	19	17
Seventh.....	5,812	6,283	7,197	8,071	8,160	7	7	6	13	13	22	22	36	41	55
Eighth.....	8,152	8,509	8,273	8,557	9,279	28	19	19	19	11	26	33	34	40	40
Ninth.....	5,653	5,493	5,389	5,048	5,247	11	11	7	4	2	27	18	18	25	17
Tenth.....	87,802	86,453	83,796	84,904	86,177	198	149	179	155	124	468	426	346	419	357
Total.....	230,222	236,040	233,460	228,500	225,872	603	573	681	575	563	1,592	1,532	1,567	1,494	1,276

TABLE showing production of anthracite coal, and number of employes in and about the mines by counties.

Counties.	Tons of Coal.					Number of Employes.				
	1888.	1887.	1886.	1885.	1884.	1886.	1887.	1886.	1885.	1884.
Carbon,	1,043,663	1,327,235	1,488,550	1,577,146	1,589,395	2,986	4,748	4,153	4,382	5,391
Columbia,	569,175	481,453	443,330	493,042	510,337	2,436	1,909	2,074	1,756	2,011
Dauphin,	667,460	662,842	702,335	712,856	699,607	2,174	2,072	1,988	1,983	2,082
Lackawanna,	11,588,801	11,946,871	11,638,479	11,859,382	11,170,382	32,422	33,892	32,711	30,367	29,629
Luzerne,	18,185,338	17,744,869	17,964,900	19,143,101	17,243,328	52,817	55,138	56,717	53,678	52,774
Northumberland,	3,519,305	3,774,697	4,117,569	4,573,144	3,883,069	13,333	15,063	14,687	15,592	13,870
Schuylkill,	11,980,700	10,871,943	11,024,772	11,452,388	9,983,092	34,298	35,463	35,687	32,292	31,686
Sullivan,	147,333	164,046	211,421	11,452,388	.....	34,298	35,463	35,687	32,292	31,686
Susquehanna,	423,139	476,488	474,637	840,904	.....	1,193	1,234	1,186	2,191	1,012
Wayne, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	47,145,174	46,947,254	48,074,330	50,847,104	45,506,179	141,721	149,557	149,070	143,605	139,685

TABLE showing quantity of coal shipped by rail, used for steam and heat, sold to local trade and used by employes, number days worked, kegs powder and pounds of dynamite used, horses and mules in use, steam boilers, number pumps, capacity in gallons, steam engines of all classes, horse power, electric dynamos, voltage, number electric locomotives, air compressors, air locomotives in use in and about anthracite coal mines.

Districts.	Railroad shipments of coal in tons.	Quantity of coal used for steam and heat.	Sold to local trade and used by employes.	Average number of days worked.	Number of kegs of powder used.	Number of pounds of dynamite used.	Number of horses and mules in use.	Number of steam boilers.	Number of pumps of all classes.	Capacity in gallons per minute.	Number of steam engines of all classes.	Total horse power.	Number of electric dynamos.	Their voltage.	Number of electric locomotives.	Number of air compressors.	Number of air locomotives.
First,	5,600,322	446,118	69,330	153.3	215,590	149,574	1,845	506	227	76,539	331	26,990	14	1,820	13	6	3
Second,	5,537,943	273,622	123,414	133.6	304,983	198,063	1,890	621	254	199,511	658	24,474	5	1,539	3	19	1
Third,	5,517,943	283,622	123,414	141.4	194,952	55,783	3,211	536	353	199,511	482	47,886	6	1,510	3	19	1
Fourth,	6,916,903.14	728,844	223,529.18	143.27	194,952	55,783	1,687	1,139	339	123,217	482	30,645	9	3,336	3	20	2
Fifth,	4,779,327.16	728,844.10	112,458.11	157.3	99,759	1,031,844	1,803	1,072	389	296,600	524	28,862	1	1,107	2	14	1
Sixth,	5,607,569	815,350	90,296	150	132,752	352,876	2,125	940	286	235,420	465	28,862	1	1,107	2	21	2
Seventh,	4,331,093	634,052	109,689	147	115,119	419,901	2,015	730	280	168,506	343	32,891	4	659	5	7	1
Eighth,	3,539,314	479,143	89,194	159.7	63,689	519,460	1,294	53.6	245	86,433	337	35,483	1	1,107	12	12	1
Total.	41,800,392.10	4,383,426.10	1,012,596.9	148.4	1,226,804	3,025,015	15,910	6,137	2,406	1,094,360	3,442	284,070	44	10,508	24	99	10

TABLE showing production of bituminous coal and coke, and number of employes in and about the mines by counties.

Counties.	Tons of Coal.				
	1898.	1897.	1896.	1895.	1894.
Allegheny.....	9,073,404	7,122,227	7,858,114	7,146,689	6,415,611
Armstrong.....	843,485	519,343	568,777	619,174	577,928
Beaver.....	255,395	323,480	236,587	267,863	135,752
Bedford.....	293,063	317,535	319,575	430,804	288,753
Blair.....	22,508	41,588	281,237	351,299	269,211
Bradford.....	167,221	227,439	52,467	57,711	25,474
Butler.....	6,564,959	5,571,721	223,015	220,895	134,334
Camberia.....	.....	.....	4,899,048	4,461,629	3,005,261
Cameron.....	568,128	406,452	445,268	303,813	174,548
Centre.....	266,176	581,736	364,782	428,675	401,088
Clearfield.....	4,885,780	5,392,472	4,889,733	5,442,269	4,186,310
Clinton.....	166,226	157,388	134,668	94,662	100,000
Columbia.....	873,448	799,069	602,423	602,423	515,070
Elk.....	13,090,756	10,112,944	8,562,571	10,124,541	6,634,133
Fayette.....	286,020	558,676	333,035	289,002	187,070
Greene.....	312,323	532,050	393,092	406,578	384,884
Huntingdon.....	6,068,090	5,392,050	4,717,363	4,598,774	3,467,481
Indiana.....	106,020	106,506	198,666	227,590	135,411
Jefferson.....	18,118	91,735	82,730	83,830	80,160
Lawrence.....	29,633	47,022	56,989	38,207	19,844
Lycoming.....	340,582	426,302	502,317	502,945	297,662
McKean.....	.....	.....	.....	.....	.....
Mercer.....	1,720,652	1,166,327	621,680	521,945	434,188
Mitchell.....	917,026	925,893	800,658	781,814	684,627
Monroe.....	4,061,480	3,761,224	4,306,518	3,410,694	3,373,778
Washington.....	11,475,891	10,127,965	8,566,705	10,325,245	7,739,080
Westmoreland.....	64,247,635	54,674,272	50,273,656	51,813,112	39,800,210
Total.....	.....	.....	.....	.....	.....

TABLE showing production of bituminous coal and coke, and number of employes in and about the mines by counties—Continued.

Counties.	Tons of Coke.					Number of Employes.				
	1898.	1897.	1896.	1895.	1894.	1898.	1897.	1896.	1895.	1894.
Allegheny,	525	4,500	250	5,000	6,000	14,052	14,395	14,732	15,022	15,345
Armstrong, .....	.....	.....	.....	.....	.....	1,527	971	1,100	1,139	1,204
Beaver, .....	.....	.....	.....	.....	80	411	417	608	592	455
Bedford,	39,708	.....	.....	40,420	6,016	915	803	831	863	845
Blair,	30,680	36,904	.....	28,700	8,200	566	516	523	788	707
Bradford, .....	.....	263,474	165,435	142,047	42,747	76	127	115	109	90
Butler, .....	.....	.....	.....	.....	.....	426	590	500	489	461
Cambridge,	265,282	.....	.....	.....	.....	9,254	8,918	8,237	7,219	7,048
Cameron, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Centre, .....	.....	.....	.....	.....	.....	946	661	773	682	647
Clearfield, .....	.....	.....	.....	.....	.....	575	1,185	828	842	1,021
Clinton,	173,108	191,040	157,756	119,830	45,574	7,947	9,016	8,989	9,416	9,733
Elk, .....	.....	.....	.....	.....	.....	1,06	1,246	1,531	1,083	1,091
Fayette, .....	.....	.....	.....	.....	8,937	.....	.....	.....	.....	.....
Greene,	5,660,209	4,851,918	3,692,307	5,339,887	3,426,731	14,563	13,802	12,270	13,387	12,566
Huntingdon, .....	.....	.....	.....	.....	.....	490	593	701	630	689
Indiana,	15,712	16,330	22,798	7,172	5,250	696	675	800	707	760
Jefferson,	619,731	445,013	407,865	276,578	219,655	7,278	6,039	5,972	6,166	6,342
Lawrence, .....	.....	.....	.....	.....	.....	500	558	424	503	494
Lycoming, .....	.....	.....	.....	.....	.....	193	190	166	164	166
McKean, .....	.....	.....	.....	.....	.....	70	95	94	86	42
Mercer, .....	.....	.....	.....	.....	.....	938	1,058	1,022	1,118	1,137
Monroe, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Monterey, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Netastota, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northampton, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northumberland, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Westmoreland,	3,351,325	2,723,636	2,073,271	2,936,908	1,937,128	14,519	14,270	13,383	14,203	14,570
Total,	10,171,920	8,533,291	6,613,180	8,922,329	5,729,244	87,802	86,483	83,790	84,604	86,177

TABLE showing quantity of coal shipped by rail and river, used for steam and heat sold to local trade and used by employes, number days worked, kegs powder and pounds of dynamite used, horses and mules in use, steam boilers, mine locomotives and coke ovens in use in bituminous region.

Districts.	Railroad and water shipments of coal, in tons.	Quantity of coal, in tons, used for steam and heat.	Sold to local trade and used by employes.	Average number of days worked.	Number kegs of powder used.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number mine locomotives.	Number coke ovens.
First,	8,826,696	57,412	25,231	211½	23,005	1,690	670	168	10	.....
Second,	5,005,376	167,057	105,250	240	559	5,979	1,095	259	8	7,646
Third,	3,519,444	65,420	16,868	191½	25,462	7,380	506	81	2	262
Fourth,	5,965,879	96,382	40,958	229½	46,154	30,995	932	132	25	1,519
Fifth,	1,923,274	133,235	73,086	238	15,065	11,379	890	201	18	8,120
Sixth,	6,351,954	82,621	23,179	215	38,017	43,219	820	137	28	1,661
Seventh,	3,546,276	230,388	64,923	186	13,003	1,056	644	161	18	158
Eighth,	3,238,379	49,341	14,860	219¾	23,017	7,229	574	92	11	106
Ninth,	1,444,441	29,441	11,860	214	16,175	12,629	572	171	9	4,567
Tenth,	2,941,621	29,163	14,382	182¾	20,233	19,800	910	83	2	968
Total,	47,075,813	991,590	424,862	208½	221,050	141,336	6,330	1,485	131	23,997

TABLE showing average thickness of coal seam, average number of tons secured per acre, character of coal, acres worked out and to be worked from present opening in each inspection district in the bituminous coal region.

Districts.	Average thickness of coal seam.	Average number of tons secured per acre.	Character of Coal.	Acres worked out from present openings.	Acres to be worked.
First	6' 4"	8,751	Steam,	15,506	38,613
Second	7' 1"	8,085	Coking, steam and gas,	6,663	33,631
Third	4' 1"	4,468	Steam,	13,945	22,591
Fourth	4' -	4,104	Steam and coking,	6,236	26,359
Fifth	7' 6"	5,428	Steam and coking,	9,136	51,912
Sixth	3' 9"	3,332	Steam, .....	.....	.....
Seventh	5' 4"	5,502	Steam, .....	.....	.....
Eighth	4' -	3,564	Steam,	10,773	13,261
Ninth	7' -	8,211	Steam and coking,	5,757	13,361
Tenth	4' 6"	3,670	Steam and coking, .....	.....	.....

The data regarding the acres worked out and to be worked out was received from the First, Seventh and Eighth districts in such form that it could not be tabulated.

TABLE showing causes of accidents, number attributable to each cause, and total number of fatal and non-fatal accidents in and about the anthracite collieries during the year 1898, together with number of wives left widows, and number of children left fatherless.

Cause of Accident.	1st District.		2d District.		3d District.		4th District.	
	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.
	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.
Explosions of gas and dust,	1	2	4	14	5	36	16	86
Explosions of powder blasts, etc.,	34	14	4	22	8	17	7	25
Falls of roof, slate, coal, etc.,	6	61	19	56	35	66	33	80
Crushed by mine cars, machinery, etc.,	8	27	2	36	5	42	7	53
Rolling down shafts and slopes,	1	3	2	4	2	0	1	1
Falling down shafts and slopes,	1	6	2	11	2	4	2	1
Kicked by mules,	1	7	3	4	2	14	2	18
Miscellaneous causes,	45	115	27	143	17	184	71	263
Total,	31	177	16	39	103	47	158	15
Number of wives left widows,	17	48	16	102	39	103	47	158
Number of children left fatherless,	17	48	16	102	39	103	47	158

*Nine of the miscellaneous fatal accidents occurred by some cars having been pushed (See Report Third district) down a shaft upon a cage that the men were in.

Table showing causes of accidents, number attributable to each cause, and total number of fatal, and non-fatal accidents in and about the anthracite collieries during the year 1898, together with number of wives left widows, and number of children left fatherless—Continued.

Cause of Accident.	5th District.				6th District.				7th District.				8th District.			
	Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.	
	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.
Explosions of gas and dust,	1	2	2	16	8	5	13	7	1	3	10	24	3	10	3	10
Explosions of powder blasts, etc.,	16	58	25	22	21	23	12	9	9	23	9	23	9	23	9	23
Falls of roof, slate, coal, etc.,	4	7	6	4	5	10	17	3	5	10	10	2	11	13	1	13
Crushing cars, machinery, etc., .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Burns, explosions, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Falling down shafts and slopes, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Falling from shafts, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kicked by mules,	3	1	1	6	2	7	8	1	1	3	3	2	5	2	5	16
Miscellaneous causes, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	24	8	57	15	47	7	55	17	46	4	74	13	33	4	90	29
Number of wives left widows,	18	.....	.....	.....	23	.....	.....	.....	27	.....	.....	.....	25	.....	.....	.....
Number of children left fatherless,	50	.....	.....	.....	80	.....	.....	.....	86	.....	.....	.....	94	.....	.....	.....

TABLE showing the nationality of persons fatally and non-fatally injured in and about the anthracite collieries during the year 1898, as reported to the Bureau of Mines by Inspectors.

Nationality.	1st District.		2d District.		3d District.		4th District.		5th District.		6th District.		7th District.		8th District.		Total.	
	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.
Americans,	9	21	2	25	12	34	8	35	4	19	8	16	17	46	13	49	73	245
Austrians,	3	3	1	4	4	15	3	9	2	4	1	3	2	3	2	4	27	9
English,	4	13	5	11	4	15	4	20	1	2	1	3	2	6	2	5	31	75
German,	2	5	1	2	6	15	4	14	4	13	3	3	2	2	2	11	22	63
Hungarians,	2	4	1	3	13	6	4	13	6	18	3	4	3	7	2	13	38	104
Irish,	1	21	9	41	6	26	12	21	9	8	11	11	3	7	5	19	57	181
Italians,	1	6	4	9	3	11	2	9	1	2	1	5	3	4	4	3	13	38
Polish,	17	30	4	21	30	63	21	91	4	12	25	27	10	11	3	12	114	267
Russians,	3	1	2	2	2	3	3	14	1	1	1	1	6	2	2	6	12	20
Scotch,	2	2	2	2	2	1	1	2	1	1	1	1	2	1	1	1	6	4
Swedes,	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	4
Slavish,	4	7	1	1	1	1	1	19	1	4	3	4	3	2	3	12	7	27
Welsh,	3	13	6	33	9	17	19	53	1	4	3	4	3	2	3	12	47	138
Greeks,	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4
Total,	51	126	31	154	85	201	75	278	32	72	54	72	50	87	37	119	473	1,388

TABLE showing causes of accidents, number attributable to each cause and the total number of fatal and non-fatal accidents in and about the bituminous collieries during the year 1898, together with the number of wives left widows and number of children left fatherless.

Cause of Accident.	1st District.		2d District.		3d District.		4th District.		5th District.		6th District.	
	Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.	
	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.
Explosion of gas and dust,	9	4	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Explosion of powder blasts, etc., ..	2	2	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Falls of roof, slate, coal, etc., ..	28	74	39	16	3	16	11	17	8	29	13	.....
Crushed by mine cars, machinery, etc., .....	.....	19	4	9	2	13	3	.....	4	2	1	1
Falling down shafts and slopes, ..	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kicked by mules,	2	4	1	*3	.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous causes,	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	41	105	5	28	2	4	3	22	16	2	26	2
Number of wives left widows,	25	.....	.....	11	.....	.....	.....	.....	.....	.....	.....	.....
Number of children left fatherless, ..	72	.....	.....	37	.....	.....	.....	.....	.....	.....	.....	.....

TABLE showing causes of accidents, number attributable to each cause and the total number of fatal and non-fatal accidents in and about the bituminous collieries during the year 1898, together with the number of wives left widows and number of children left fatherless—Continued.

Cause of Accident.	6th District.		7th District.		8th District.		9th District.		10th District.		Total.	
	Non-fatal.		Fatal.		Non-fatal.		Fatal.		Non-fatal.		Fatal.	
	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.	Inside.	Outside.
Explosion of gas and dust,	3	4	2	1	4	1	1	1	1	1	12	7
Explosion of powder blasts, etc.,	12	15	15	46	11	23	15	1	8	15	5	21
Falls of roof, slate, coal, etc.,	9	1	6	17	6	4	8	3	3	5	31	8
Crushed by mine cars, machinery, etc.,	1	1	1	1	1	1	1	1	1	1	1	1
Falling down shafts and slopes,	1	1	1	1	1	1	1	1	1	1	1	1
Kicked by mules,	25	5	23	3	7	28	26	1	11	2	10	2
Miscellaneous causes,	14	29	14	65	4	11	24	23	6	23	190	10
Total,	114	29	14	65	4	11	24	23	6	23	190	10
Number of wives left widows,	14	29	14	65	4	11	24	23	6	23	190	10
Number of children left fatherless,	14	29	14	65	4	11	24	23	6	23	190	10

*These three men were suffocated by smoke from a mine fire.

†Two of these men were killed by electric shocks.

TABLE showing the nationality of persons fatally and non-fatally injured in and about the bituminous collieries during the year 1898, as reported to the Bureau of Mines by Inspectors.

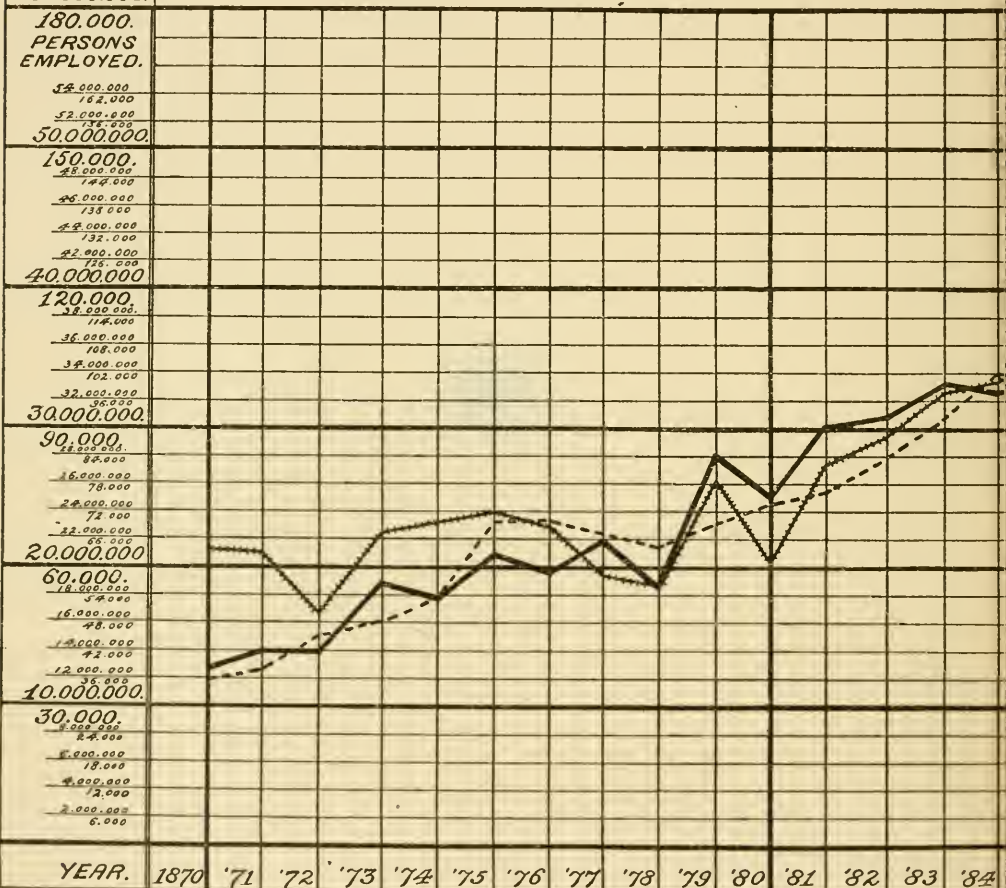
Nationality.	1st District.		2d District.		3d District.		4th District.		5th District.		6th District.		7th District.		8th District.		9th District.		10th District.		Total.	
	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.
Americans,	14	30	8	21	2	14	3	3	5	4	9	3	10	3	3	5	6	5	3	3	51	109
Austrians,	4	1	3	5	1	1	1	2	2	1	1	4	3	3	2	4	1	4	2	2	12	15
English,	9	11	.....	1	.....	.....	1	1	1	.....	1	2	5	5	2	3	3	3	2	1	25	30
French, .....	.....	.....	.....	1	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	.....
German, .....	.....	5	1	6	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hungarians,	2	10	2	3	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Irish,	2	3	3	6	.....	3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Italians,	1	6	3	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Polish,	2	11	6	7	.....	.....	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Russians,	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scandinavians, .....	.....	.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Swedes,	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Swiss,	6	19	2	7	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Slavish, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Welsh, .....	.....	6	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	42	110	30	66	3	22	15	28	14	.....	23	30	66	26	7	22	28	26	11	27	199	397

*The nationality of persons non-fatally injured in Fifth district was not reported by the Inspector.



DIAGRAM, SHOWING THE NUMBER OF PERSONS EMPLOYED, NUMBER ACCIDENTS IN THE ANTHRACITE COAL MINES OF PENNSY

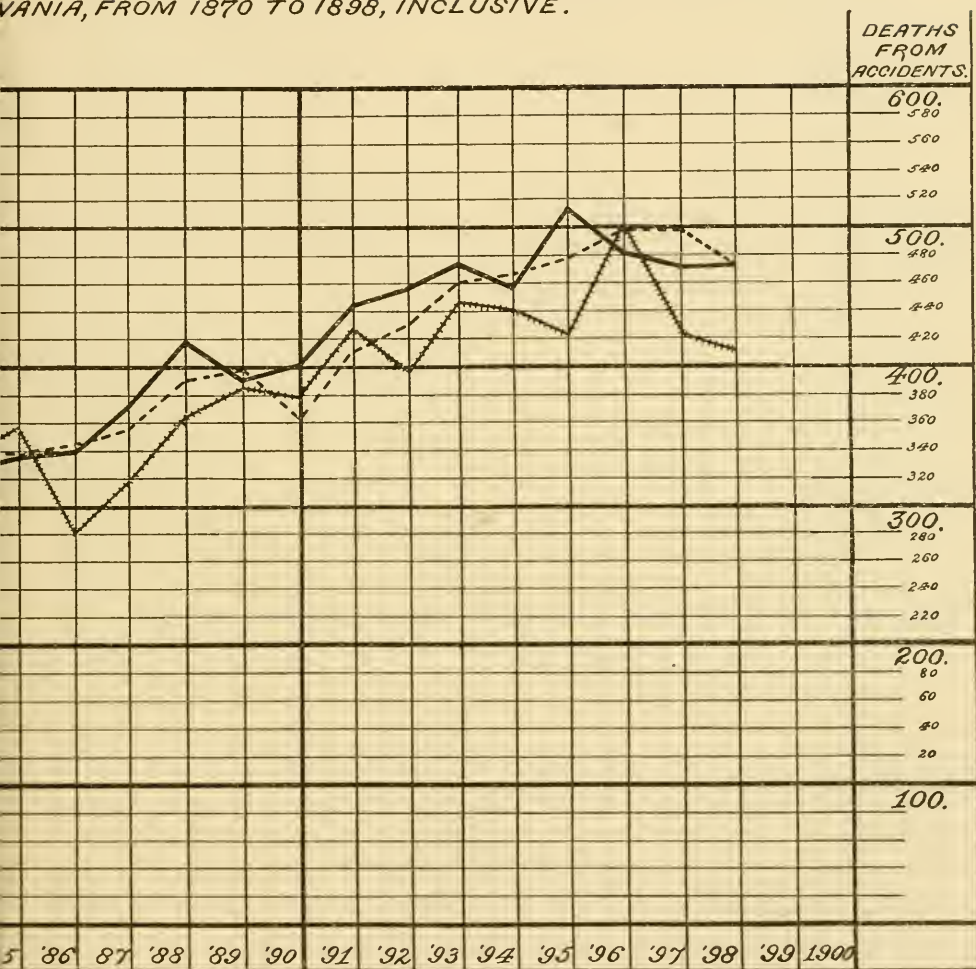
PRODUCTION
IN GROSS TONS
60,000,000.



----- PERSONS EMPLOYED.
(TO BE READ FROM LEFT HAND SIDE.)

(TO BE

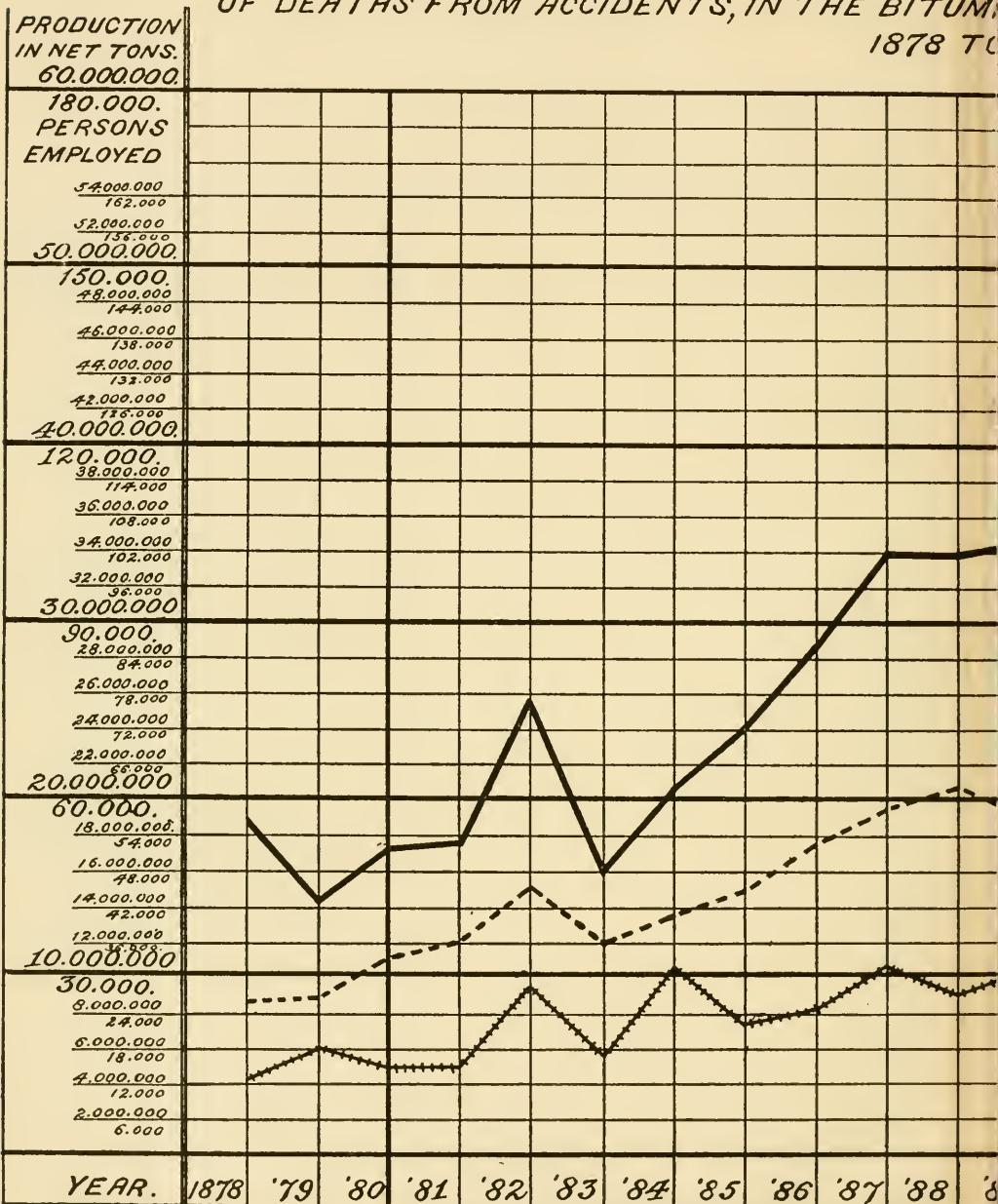
GROSS TONS MINED, AND THE NUMBER OF DEATHS FROM
 PENNSYLVANIA, FROM 1870 TO 1898, INCLUSIVE.



— PRODUCTION.
 (TO BE READ FROM LEFT HAND SIDE.)

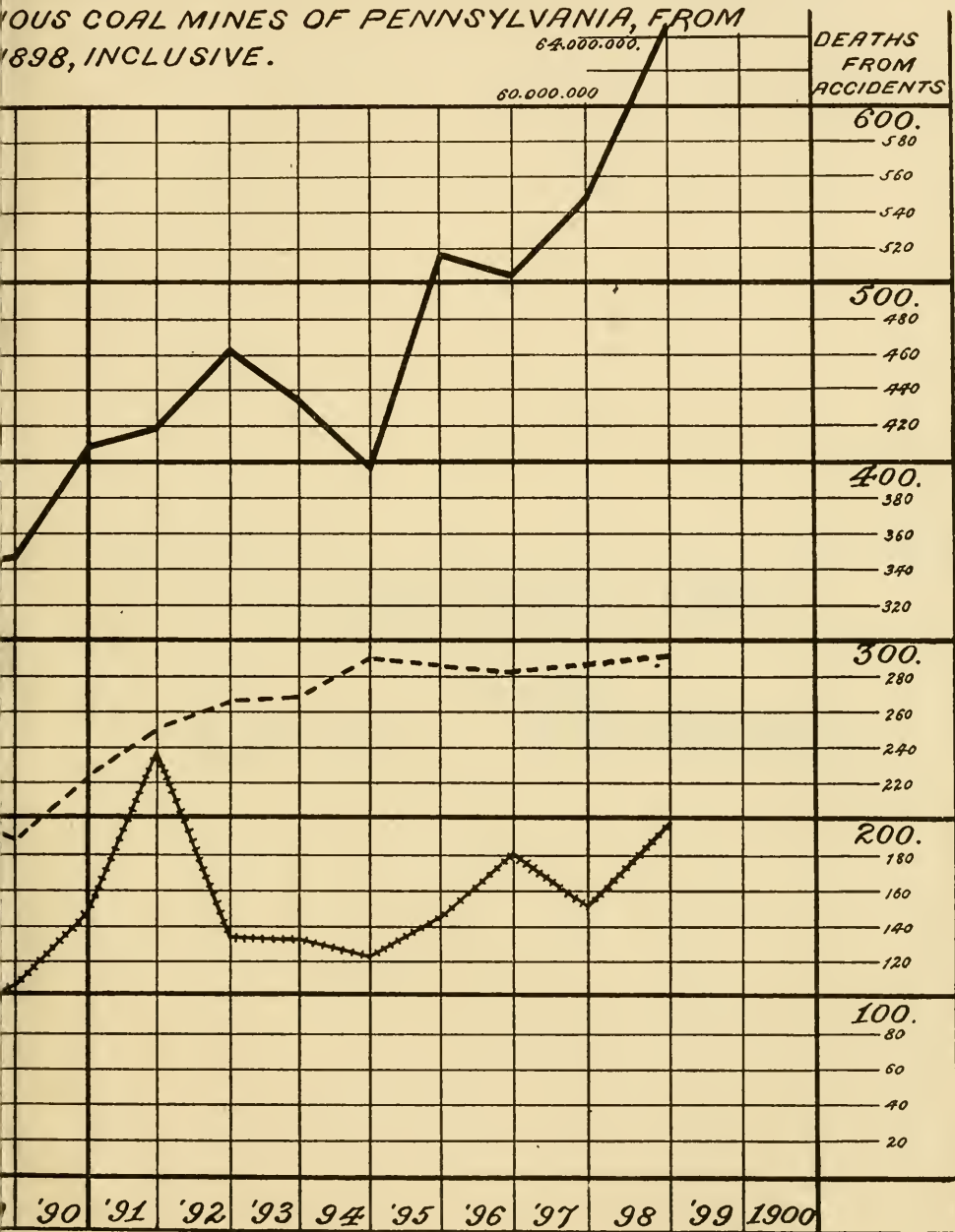
- - - - - DEATHS FROM ACCIDENTS.
 (TO BE READ FROM RIGHT HAND SIDE.)

DIAGRAM, SHOWING THE NUMBER OF PERSONS EMPLOYED
OF DEATHS FROM ACCIDENTS, IN THE BITUMINOUS COAL INDUSTRY, 1878 TO 1888



----- PERSONS EMPLOYED. (TO BE READ FROM LEFT HAND SIDE.)
 _____ DEATHS FROM ACCIDENTS. (TO BE READ FROM RIGHT HAND SIDE.)

NUMBER OF NET TONS MINED, AND THE NUMBER OF DEATHS FROM ACCIDENTS IN COAL MINES OF PENNSYLVANIA, FROM 1898, INCLUSIVE.



— PRODUCTION.
(LEFT HAND SIDE.)

..... DEATHS FROM ACCIDENTS.
(TO BE READ FROM RIGHT HAND SIDE.)

LAWS RELATING
TO
COAL MINING.



LAWS RELATING TO COAL MINING.

AN ACT

To protect miners in the bituminous coal region of the Commonwealth.

Section 1. Be it enacted, &c., That after the period of three months from the passage of this act, any miner employed by an individual, firm or corporation for the purpose of mining coal shall be entitled to receive from his employer, and failing to receive then to collect, by due process of law, at such rates as may have been agreed upon between the employer and the employed, full and exact wages accruing to him for the mining of all sizes of merchantable coal so mined by him, whether the same shall exist in the form of nut or lump coal; and in the adjudication of such wages seventy-six pounds shall be deemed one bushel, and two thousand pounds net, shall be deemed one ton of coal: Provided, That nothing contained in this act shall be construed to prevent operators and miners contracting for any method of measuring and screening the coal mined by such miners, as they may contract for.

Section 2. That at every bituminous coal mine in this Commonwealth, where coal is mined by measurement, all cars, filled by miners or their laborers, shall be uniform in capacity at each mine; no unbranded car or cars shall enter the mine for a longer period than three months, without being branded by the mine inspector of the district, wherein the mine is situated; and any owner or owners, or their agents, violating the provisions of this section, shall be subject to a fine of not less than one dollar per car for each and every day as long as the car is not in conformity with this act, and the mine inspector of the district, where the mine is located, on receiving notice from the check-master or any five miners working in the mine, that a car or cars are not properly branded, or not uniform in capacity according to law, are used in the mine where he or they are employed, then inside of three days from the date of receiving said notice, it shall be his duty to enforce the provisions of this section, under penalty of ten dollars for each and every day he permits such car or cars to enter the mine: Provided, That nothing contained in this section shall be construed or applied to those mines which do not use more than ten cars.

Section 3. That at every bituminous coal mine in this Commonwealth, where coal is mined by weight or measure, the miners or a majority of those present at a meeting called for that purpose, shall have the right to employ a competent person as check-weighman, or check-measurer as the case may require, who shall be permitted at all times to be present at the weighing or measurement of coal, also have power to weigh or measure the same, and during the regular working hours to have the privilege to balance and examine the scales, or measure the cars: Provided, That all such balancing or examination of scales shall only be done in such way, and in such time, as in no way to interfere with the regular working of the mines. And he shall not be considered a trespasser during working hours while attending to the interests of his employers. And in no manner shall he be interfered with or intimidated by any person, agent, owner or miner. And any person violating these provisions shall be held and deemed guilty of a misdemeanor, and upon conviction thereof, he shall be punished by a fine of not less than twenty dollars, and not exceeding one hundred dollars, or imprisonment at the discretion of the court. It shall be a further duty of check-weighman or check-measurer to credit each miner with all merchantable coal mined by him, on a proper sheet or book to be kept by him for that purpose. When differences arise between the check-weighman or check-measurer and the agent or owners of the mine, as to the uniformity, capacity or correctness of scales or cars used, the same shall be referred to the mine inspector of the district where the mine is located, whose duty it shall be to regulate the same at once, and in the event of said scales or cars proving to be correct, then the party or parties applying for the testing thereof to bear all costs and expenses thereof; but if not correct then the owner or owners of said mine to pay the cost and charges of making said examination: Provided further, That should any weighman or weighmen, agent or check-measurer, whether employed by operators or miners, knowingly or willfully adopt or take more or less pounds for a bushel or ton than is provided for in the first section of this act, or willfully neglect the balancing or examining of the scales or cars, or knowingly and willfully weigh coal with an incorrect scale, he shall be guilty of a misdemeanor, and upon conviction thereof, shall be imprisoned in the county jail for three months.

Section 4. All acts or parts of acts inconsistent with this act are hereby repealed.

Approved—The 1st day of June, A. D. 1883.

ROBT. E. PATTISON.

AN ACT

To provide payment to the miner for all clean coal mined by him.

Section 1. Be it enacted, &c., That from and after the passage of this act all individuals, firms and corporations engaged in mining coal in this Commonwealth, who, instead of dumping all the cars that come from the mine into a breaker or chutes, shall switch out one or more of the cars for the purpose of examining them, and determining the actual amount of slate or refuse, by removing said slate or refuse from the car, and who shall, after so doing, willfully neglect to allow the miner in full for all clean coal left after the refuse, dirt or slate is taken out, at the same rate paid at the mine for clean coal less the actual expense of removing said slate or refuse, he shall be deemed guilty of a misdemeanor.

Section 2. That any individual, firm or corporation as aforesaid, violating the provisions of this act, upon suit being brought and conviction had, shall be sentenced by the court to pay a fine of not more than one hundred dollars, and to make restitution by paying to the miner the amount to which, under this act, he would be entitled for the coal mined by him, and for which he was not paid.

Approved—The 13th day of June, A. D. 1883.

ROBT. E. PATTON

AN ACT

To provide for the recovery of the bodies of workmen enclosed, buried or entombed in coal mines.

Section 1. Be it enacted, &c., That whenever any workman or workmen shall heretofore have been, or shall hereafter be enclosed, entombed or buried in any coal mine in this Commonwealth, it shall be the duty of the court, sitting in equity, in the county wherein such workman or workmen are enclosed, entombed or buried, upon the petition of any of the relatives of those enclosed, entombed or buried, to make an order of court for the petitioner to take testimony in order that the court may ascertain whether such workman or workmen, or the body or bodies of such workman or workmen, can be recovered or taken out of said mine.

If, after full hearing, it shall appear to the court that such undertaking is feasible or practicable, said court may forthwith issue a peremptory mandamus to the owner or owners, lessee or lessees, operator or operators of such coal company, to forthwith proceed to work for and recover and take out the body or bodies of such work-

man or workmen, and said court shall have full authority to enforce such peremptory mandamus in the manner already provided for the enforcement of such process.

Approved—The 9th day of May, A. D. 1889.

JAMES A. BEAVER.

AN ACT

To provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania and for the protection and preservation of property connected therewith.

ARTICLE I.

Section 1. Be it enacted, &c., That this act shall apply to every anthracite coal mine or colliery in the Commonwealth, provided the said mine or colliery employs more than ten (10) persons.

ARTICLE II.

Inspectors and Inspection Districts.

Section 1. The counties of Susquehanna, Wayne, Luzerne, Lackawanna, Carbon, Schuylkill, Northumberland, Columbia, Lebanon and Dauphin, or so much of them as may be included under the provisions of this act, shall be divided into eight (8) inspection districts as follows:

Section 2. First. All that portion of the Lackawanna coal field lying northeast of East and West Market streets in the city of Scranton, and of Slocum and Drinker streets in the borough of Dunmore, including the coal fields of Susquehanna and Wayne counties.

Second. That portion of the Lackawanna coal field in Lackawanna county lying southwest of East and West Market streets in the city of Scranton, and west of Slocum and Drinker streets in the borough of Dunmore.

Third. That portion of the Wyoming coal fields situated in Luzerne county, east of and including Plains and Kingston townships.

Fourth. The remaining portion of the Wyoming coal field west of Plains and Kingston townships, including the city of Wilkes-Barre and the boroughs of Kingston and Edwardsville.

Fifth. That part of Luzerne county lying south of the Wyoming coal field together with Carbon county.

Sixth. That part of the Schuylkill coal field in Schuylkill county lying north of the Broad Mountain and east of a meridian line through the centre of the borough of Girardville.

Seventh. That part of the Schuylkill coal field in Schuylkill county lying north of the Broad Mountain and west of a meridian line through

the centre of the borough of Girardville, together with Columbia, Northumberland and Dauphin counties.

Eighth. All that part of the Schuylkill coal field in Schuylkill county lying south of the Mahanoy Valley, and the county of Lebanon.

Section 3. In order to fill any vacancy that may occur in the office of Inspector of Mines by reason of expiration of term, resignation, removal for cause or from any other reason whatever, the judges of the court of Lackawanna county shall appoint an examining board for the counties of Susquehanna, Wayne and Lackawanna, and the judges of the court of Luzerne county shall appoint an examining board for the counties of Sullivan, Carbon and Luzerne, and the judges of Schuylkill county shall appoint an examining board for the counties of Schuylkill, Northumberland, Lebanon, Columbia and Dauphin.

Section 4. The said Board of Examiners shall be composed of three reputable coal miners in actual practice and two reputable mining engineers, all of whom shall be appointed at the first term of court in each year, to hold their places during the year. Any vacancies that may occur in the Board of Examiners shall be filled by the court as they occur. The said Board of Examiners shall be permitted to engage the services of a clerk, and they, together with the clerk, shall each receive the sum of five dollars per day for every day they are actually engaged in the discharge of their duties under this appointment, and mileage at the rate of six cents per mile from their home to the place of meeting and return by the nearest practicable railway route.

Section 5. Whenever candidates for the office of inspector are to be examined, the said examiner shall give public notice of the fact in not more than five papers published in the inspection district and at least two weeks before the meeting, specifying the time and place where such meeting shall be held. The said examiners shall be sworn to a faithful discharge of their duties, and four of them shall agree in their recommendation of all candidates to the Governor who have answered ninety per centum of the questions; the names of the applicants, the questions asked and answered thereto shall be sent to the Secretary of the Commonwealth, and published in at least two local papers, daily or weekly, and shall recommend only such applicants as they find qualified for the office.

Should the Board of Examiners not be able to agree in their selection and recommendation of a candidate, the judges of the court of common pleas shall dissolve the said board and appoint a new board of like qualifications and powers.

Upon the recommendation of the Board of Examiners as aforesaid, the Governor shall appoint such person or persons to fill the office

of inspector of mines under this act, and shall issue to him a commission for the term of five years, subject, however, to removal for neglect of duty or malfeasance in office as hereinafter provided for.

Section 6. The person so appointed must be a citizen of Pennsylvania and shall have attained the age of thirty years. He must have a knowledge of the different systems of working coal mines, and he must produce satisfactory evidence to the Board of Examiners of having had at least five (5) years' practical experience in anthracite coal mines of Pennsylvania. He must have had experience in coal mines where noxious and explosive gases are evolved.

Before entering upon the duties of his office he shall take an oath or affirmation before an officer properly qualified to administer the same, that he will perform his duties with fidelity and impartiality; which oath or affirmation shall be filed in the office of the prothonotary of the county. He shall also provide himself with the most modern instruments and appliances for carrying out the intentions of this act.

Section 7. The salary of each of the said inspectors shall be three thousand dollars per annum, which salary, together with the expense incurred in carrying into effect the provisions of this act, shall be paid by the State Treasurer out of the Treasury of the Commonwealth upon the warrant of the Auditor General.

Section 8. In case the inspector becomes incapacitated to perform the duties of his office, for a longer period than two weeks, it shall be the duty of the judges of the court of common pleas to deputize some competent person recommended by the Board of Examiners to fill the office of inspector until the said inspector shall be able to fulfill the duties of his office and the person so appointed shall be paid in the same manner as is provided for the Inspector of Mines.

Section 9. Each of the said inspectors shall reside in the district for which he is appointed, and shall give his whole time and attention to the duties of the office. He shall examine all the collieries in his district as often as his duties will permit or as often as the exigencies of the case or the condition of the mines require it; see that every necessary precaution is taken to secure the safety of the workmen and that the provisions of this act are observed and obeyed; attend every inquest held by the coroner, or his deputy, upon the bodies of persons killed in or about the collieries in his district; visit the scene of the accident for the purpose of making an examination into the particulars of the same whenever loss of life or serious personal injury occurs as elsewhere herein provided for, and make an annual report of his proceedings to the Secretary of Internal Affairs of the Commonwealth at the close of every year, enumerating all the accidents in and about the collieries of his district, marking in tabular form those accidents causing death or serious personal injury,

the condition of the workings of the said mines with regard to the safety of the workmen therein and the ventilation thereof, and the result of his labors generally shall be fully set forth.

Section 10. The Board of Examiners, each for its respective district as hereinbefore provided for, in order to divide more equitably among the several mine inspectors the labor to be performed and the territory to be covered by them in the performance of the duties of the office, may, at any time when they shall deem it desirable or necessary, readjust the several districts by the creation of new boundary lines, thereby adding to or taking from, as the case may be, the districts as at present bounded and described, if the court having jurisdiction approve the same.

And in case it shall be deemed desirable or necessary to readjust any contiguous district, comprised by more than one judicial district, by the creation of new boundary lines, then in such case the examining boards of the territory affected or requiring such adjustment, shall, in joint session, make such change or readjustment as they shall jointly agree upon, if the nearest court having jurisdiction to the territory affected to whom the said joint examining boards shall submit the matter, shall approve the same.

Section 11. The mine inspector shall have the right, and it is hereby made his duty to enter, inspect and examine any mine or colliery in his district and the workings and machinery belonging thereto, at all reasonable times, either by day or night, but not so as to impede or obstruct the working of the colliery, and shall have power to take one or more of his fellow inspectors into or around any mine or colliery in the district for which he is appointed, for the purpose of consultation or examination.

He shall also have the right and it is hereby made his duty, to make inquiry into the condition of such mine or colliery workings, machinery, ventilation, drainage, method of lighting or using lights and into all matters and things connected with or relating to, as well as to make suggestions providing for the health and safety of persons employed in or about the same, and especially to make inquiry whether the provisions of this act have been complied with.

The owner, operator or superintendent of such mine or colliery is hereby required to furnish the means necessary for such entry, inspection, examination, inquiry and exit.

The inspector shall make a record of the visit, noting the time and material circumstances of the inspection.

Section 12. No person who shall act or practice as a land agent or as the manager or agent of any coal mine or colliery, who is pecuniarily interested in operating any coal mine or colliery in his district, shall, at the same time, hold the office of inspector of mines under this act.

Section 13. Whenever a petition signed by fifteen or more reputable coal operators or miners, or both, setting forth that any inspector of mines neglects his duties, or is incompetent, or is guilty of malfeasance in office, it shall be the duty of the court of common pleas of the proper county to issue a citation in the name of the Commonwealth to the said inspector to appear at not less than five days' notice, on a day fixed, before said court and the court shall then proceed to inquire into and investigate the allegations of the petitioners. If the court find that said inspector is neglectful of his duties or that he is incompetent to perform the duties of the office, for any cause that existed previous to his appointment or that has arisen since his appointment, or that he is guilty of malfeasance in office, the court shall certify the same to the Governor of the Commonwealth, who shall declare the office of inspector for the district vacant and proceed, in compliance with the provisions of this act, to appoint a properly qualified person to fill the office.

The cost of said investigation shall be borne by the removed inspector; but if the allegations in the petition are not sustained the costs shall be paid by the petitioners.

Section 14. The maps and plans of the mines and the records thereof, together with all the papers relating thereto, shall be kept by the inspector, properly arranged and preserved, in a convenient place in the district for which each inspector has been appointed, and shall be transferred by him with any other property of the Commonwealth that may be in his possession, to his successor in office.

Section 15. The persons who, at the time this act goes into effect, are acting as inspectors of mines under the acts hereby repealed shall continue to act in the same manner as if they had been appointed under this act, and until the term for which they were appointed has expired.

ARTICLE III.

Surveys, Maps and Plans.

Section 1. The owner, operator or superintendent of every coal mine or colliery shall make, or cause to be made, an accurate map or plan of the workings or excavations of such coal mine or colliery, on a scale of one hundred feet to the inch, which map or plan shall exhibit the workings or excavations in each and every seam of coal and the tunnels and passages connecting with such workings or excavations. It shall state in degrees the general inclination of the strata with any material deflection therein in said workings or excavations, and shall also state the tidal elevations of the bottom of each and every shaft, slope, tunnel and gangway, and of any other point in the mine or on the surface where such elevation shall be deemed necessary by the inspector. The map or plan shall show the number of the last survey station and date of each survey on the

gangways or the most advanced workings. It shall also accurately show the boundary lines of the lands of the said coal mine or colliery and the proximity of the workings thereto, and in case any mine contains any water dammed up in any part thereof, it shall be the duty of the owner, operator or superintendent to cause the true location of the said dam to be accurately marked on said map or plan, together with the tidal elevation, inclination of strata and area of said workings containing water, and whenever any workings or excavations is approaching the workings where such dam or water is contained or situated, the owner, operator or superintendent shall notify the inspector of the same without delay.

A true copy of which map or plan the said owner, operator or superintendent shall deposit with the inspector of mines for the district in which the said coal mine or colliery is situated, showing the workings of each seam, if so desired by the inspector, on a separate sheet of tracing muslin. One copy of the said map or plan shall be kept at the colliery.

Section 2. The said owner, operator or superintendent shall, as often as once in every six months place, or cause to be placed, on the said Inspector's map or plan of said coal mine or colliery, the plan of the extensions made in such coal mine or colliery during the preceding six months. The said extensions shall be placed on the inspector's map and the map returned to the inspector within two months from the date of the last survey.

Section 3. When any coal mine or colliery is worked out preparatory to being abandoned, or when any lift thereof is about to be abandoned, the owner, operator or superintendent of such coal mine or colliery shall have the maps or plans thereof extended to include all excavations, as far as practicable, and such portions thereof as have been worked to the boundary lines of adjoining properties; or any part or parts of the workings of which is intended to be allowed to fill with water, must be surveyed in duplicate and such surveys must practically agree, and certified copies be filed with the inspector of the district in which the mines are situated.

Section 4. Whenever the owner, operator or superintendent of any coal mine or colliery shall neglect or refuse, or from any cause not satisfactory to the inspector, shall fail, for a period of three months, to furnish to the inspector the map or plan of said colliery or of the extensions thereto, as provided for in this act, the inspector is hereby authorized to cause an accurate map or plan of such coal mine or colliery to be made at the expense of the owner thereof, which cost shall be recoverable from said owner as other debts are by law recoverable.

Section 5. If the inspector finds or has reason to believe, that any map or plan of any coal mine or colliery, furnished under the provisions of this act, is materially inaccurate, it shall be his duty to make

application to the court of common pleas of the county in which such colliery is situate for an order to have an accurate map or plan of said colliery prepared, and if such survey shall prove that the map furnished was materially inaccurate or imperfect, such owner, operator or superintendent shall be liable for the expense incurred in making the same.

Section 6. If it shall be found that the map or plan furnished by the owner, operator or superintendent was not materially inaccurate or imperfect, the Commonwealth shall be held liable for the expense incurred in making such test survey.

Section 7. If it shall be shown that the said owner, operator or superintendent has knowingly or designedly caused or allowed such map or plan, when furnished, to be incorrect or false, such owner, operator or superintendent thus offending, shall be guilty of a misdemeanor and upon conviction thereof, shall be punished by a fine not exceeding five hundred dollars or imprisonment not exceeding three months, at the discretion of the court.

Section 8. The maps or plans of the several coal mines or collieries in each district and which are placed in the custody of the inspector, shall be the property of the Commonwealth, and shall remain in the care of the inspector of the district in which the said collieries are situated to be transferred by him to his successor in office; and in no case shall a copy of the same be made without the consent of the owner, operator or superintendent.

Section 9. The inspector's map or plan of any particular colliery shall be open for inspection, in the presence of the inspector, to any miner or miners of that colliery, whenever said miner or miners shall have cause to fear that his or their working place or places is becoming dangerous, by reason of its proximity to other workings which may be supposed to contain water or dangerous gases. Said map shall also be open to the inspection and examination of any citizen interested, during business hours.

Section 10. It shall be obligatory on the owners of adjoining coal properties to leave, or cause to be left, a pillar of coal in each seam or vein of coal worked by them, along the line of adjoining property, of such width, that taken in connection with the pillar to be left by the adjoining property owner, will be a sufficient barrier for the safety of the employes of either mine in case the other should be abandoned and allowed to fill with water; such width of pillar to be determined by the engineers of the adjoining property owners together with the inspector of the district in which the mine is situated, and the surveys of the face of the workings along such pillar shall be made in duplicate and must practically agree. A copy of such duplicate surveys, certified to, must be filed with the owners of the adjoining properties and with the inspector of the district in which the mine or property is situated.

ARTICLE IV.

Shafts, Slopes, Openings and Outlets.

Section 1. It shall not be lawful for the owner, operator or superintendent of any mine to employ any person or persons in such mine or permit any person or persons to be in such mine for the purpose of working therein, unless they are in connection with every seam or stratum of coal; and from every lift thereof, worked in such mine, not less than two openings or outlets, separated by a strata of not less than sixty (60) feet in breadth underground, and one hundred and fifty (150) feet in breadth at the surface, at which openings or outlets safe and distinct means of ingress and egress are at all times available for the person or persons employed in the said mine, but it shall not be necessary for the said two openings to belong to the same mine if the persons employed therein have safe, ready and available means of ingress and egress by not less than two openings. This section shall not apply to opening a new mine or to opening any new lift of a mine while being worked for the purpose of making communication between said two outlets, so long as not more than twenty persons are employed at any one time in such mine or new lift of a mine; neither shall it apply to any mine or part of a mine in which the second outlet has been rendered unavailable by reason of the final robbing of pillars previous to abandonment, so long as not more than twenty persons are employed therein at any one time. The cage or cages and other means of egress shall, at all times, be available for the persons employed where there is no second outlet.

Section 2. The owner, operator or superintendent of any mine to which there is only one shaft, slope or outlet may petition the court of common pleas in and for the county in which such mine is situated, which said court is hereby empowered to act in the premises, setting forth that, in consequence of intervening lands between the working of his mine and the most practicable point, or the only practicable point, as the case may be, at which to make or bring to the surface from the working of his mine, he is unable to make an additional shaft, slope or outlet in accordance with the requirements of this act, whereupon the court may make an order of reference and appoint three disinterested persons, residents of the county, viewers, one or more of whom shall be a practical mining engineer, all of whom, after being sworn to a faithful discharge of their duties, shall view and examine the premises and determine as to whether the owner shall have the privilege of making an additional outlet through or upon any intervening lands, as the case may require, and report in writing to the court, which report shall be entered and filed of record. If the finding of the viewers, or any two of them, is in favor of the owner of such coal mine or colliery,

he may make an additional shaft, slope or outlet under, through or upon intervening lands, as may be determined upon and provided for by the award. If the finding of the viewers is against the owner, or if no award be made by reason of any default or neglect on the part of the owner, he shall be bound to comply with the provisions of this act in the same manner as if this section had not been enacted. In case the said owner, operator or superintendent desires to, and claims that he ought to make an additional opening under, through or upon any adjoining or intervening lands, to meet the requirements of this act, for the ingress and egress of the men employed in his or their mine, he or they shall make a statement of the facts in the petition, with a survey, setting forth the point of commencement and the point of termination of the proposed outlet which he or they, their engineers, agents or employes may enter upon said intervening lands and survey and mark, as he or they shall find it proper to adopt for such additional outlet, doing as little damage as possible to the property explored; and the viewers shall state in their report what damage will be sustained by the owner or owners of the intervening lands by the opening, constructing and using of the outlet, and if the report is not appealed from, it shall be confirmed or rejected by said court as to right and justice shall appertain, and any further and all proceedings in relation thereto shall be in conformity with like proceedings as in the case of a lateral railroad across or under intervening lands, under the act in relation to lateral railroads, approved the fifth day of May, Anno Domini one thousand eight hundred and thirty-two, and the supplements thereto, so far as the provisions of the same are applicable hereto; and the notices to the owner of intervening lands, of the intention to apply for the privilege of making an outlet and meeting of the viewers shall be given, and the costs of the case shall be paid as provided in the said act of fifth day of May, Anno Domini one thousand eight hundred and thirty-two, and the supplements thereto.

Section 3. The escapements, shafts or slopes shall be fitted with safe and available appliances by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the main outlets.

Section 4. In slopes where the angle of inclination is fifteen degrees or less there must be provided a separate traveling way, which shall be maintained in a safe condition for travel and kept free from steam and dangerous gases.

Section 5. No inflammable structure, other than a frame to sustain pulleys or sheaves, shall be erected over the entrance of any opening connecting the surface with the underground workings of any mine, and no "breaker" or other inflammable structure for the preparation or storage of coal shall be erected nearer than two hun-

dred (200) feet to any such opening, but this act shall not be construed to prohibit the erection of a fan drift for the purpose of ventilation, or of a trestle for the transportation of cars from any slope to such breaker or structure, neither shall it apply to any shaft or slope until the work of development and shipment of coal has commenced: Provided, That this section shall not apply to breakers that are now erected.

Section 6. The top of each shaft and also of each slope, if dangerous, or any intermediate lift thereof, shall be securely fenced off by railing or by vertical or flat gates.

Section 7. Every abandoned slope, shaft, air-hole and drift shall be properly fenced around or across its entrance.

Section 8. All underground entrances to any places not in actual course of working or extension shall be properly fenced across the whole width of such entrances, so as to prevent persons from inadvertently entering the same.

Section 9. The owner, operator or superintendent of any coal mine or colliery which is worked by shaft or slope, shall provide and maintain a suitable appliance by or through which conversation can be held by and between persons at the bottom and at the top of the shaft or slope, and also an efficient means of signaling from the bottom of such shaft or slope to the engineer in charge of the hoisting engine.

Section 10. Hand rails and efficient safety catches shall be attached to, and a sufficient cover overhead shall be provided on every cage used for lowering or hoisting persons in any shaft.

Section 11. Wherever practicable, every cage or gun-boat used for lowering or hoisting persons in any slope, shall be provided with a proper protector, so constructed that persons, while on such cage or gun-boat, shall not be struck by anything which may fall or roll down said slope.

Section 12. The main link of the chain connecting the rope to the cage, gun-boat or car in any shaft or slope, shall be made of the best quality of iron; bridle chains made of the same quality of iron shall be attached to the main link, rope or rope socket from the cross-head of the cage or gun-boat when persons are being lowered or hoisted thereon.

Section 13. The ropes, safety catches, links and chains shall be carefully examined every day they are used, by a competent person delegated for that purpose and any defects therein found, by which life or limb may be endangered, shall be immediately remedied.

Section 14. An efficient brake shall be attached to every drum that is used for lowering or raising persons or material in any mine.

Section 15. Flanges or horns of sufficient dimensions to prevent the rope from slipping off the said drum shall be provided and properly attached to the drum, and all machines used for lowering or

hoisting persons in mines shall be provided with an indicator to show the position of the cage, car or gun-boat in the shaft or slope.

Section 16. Over all shafts which are being sunk or shall hereafter be sunk, a safe and substantial structure shall be erected to sustain the sheaves or pulleys, at a height of not less than twenty (20) feet above the tipping-place, and the top of such shaft shall be arranged in such manner that no material can fall into the shaft while the bucket is being emptied.

Section 17. The said structure shall be erected as soon as a substantial foundation is obtained, and in no case shall a shaft be sunk to a depth of more than fifty (50) feet without such structure.

Section 18. If provision is made to land the bucket upon truck, the said truck shall be constructed in such manner that material cannot fall into the shaft.

Section 19. All rock and coal from shafts as they are being sunk, shall not be raised except in a bucket or on a cage, and such bucket or cage must be connected to the rope or chain by a safety hook, clevis or other safe attachment.

Section 20. Such shafts shall be provided with guides and guide attachments applied in such manner as to prevent the bucket from swinging while descending or ascending therein, and such guides and guide attachments shall be maintained at a distance of not more than seventy-five (75) feet from the bottom of such shaft, until its sinking shall have been completed, but this section shall not apply to shafts one hundred (100) feet or less in depth.

Section 21. Where the strata are not safe every shaft shall be securely cased, lined or otherwise made secure.

Section 22. The following rules shall be observed, as far as practicable, in every shaft to which this act applies.

First. After each and every blast the chargeman must see that all loose material is swept down from the timbers before the workmen descend to their work.

Second. After a suspension of work, and also after firing a blast in a shaft where explosive gases are evolved, the person in charge must have the said shaft examined and tested with a safety lamp before the workmen are allowed to descend.

Third. Not more than four persons shall be lowered or hoisted in any shaft on a bucket at the same time, and no person shall ride on a loaded bucket.

Fourth. Whenever persons are employed on platforms in shafts the person in charge must see that the said platforms are properly and safely constructed.

Fifth. While shafts are being sunk all blasts therein must be exploded by an electric battery.

Sixth. Every person who fails to comply with or who violates the provisions of this article shall be guilty of an offense against this act.

ARTICLE V.

Boilers and Connections, Machinery, &c.

Section 1. All boilers used for generating steam in and about mines and collieries shall be kept in good order, and the owner, operator or superintendent shall have them examined and inspected by a qualified person as often as once in six months, and oftener if needed. The result of such examination, under oath, shall be certified in writing to the inspector for the district within thirty (30) days thereafter.

Section 2. It shall not be lawful to place any boiler or boilers, for the purpose of generating steam, under nor nearer than one hundred (100) feet to any coal breaker or other structure in which persons are employed in the preparation of coal: Provided, That this section shall not apply to boilers or breakers already erected.

Section 3. Each nest of boilers shall be provided with a safety valve of sufficient area for the steam to escape and with weights or springs properly adjusted.

Section 4. Every boiler house shall be provided with a steam gauge properly connected with the boilers, to indicate the steam pressure, and another steam gauge shall be attached to the steam pipe in the engine house and placed in such position that the engineer or fireman can readily examine them and see what pressure is carried. Such steam gauges shall be kept in good order, tested and adjusted as often as once in every six months and their condition reported to the inspector in the same manner as the report of boiler inspection.

Section 5. All machinery used in or about the mines and collieries, and especially in breakers, such as engines, rollers, wheels, screens, shafting and belting shall be protected by covering or railing so as to prevent persons from inadvertently walking against or falling upon the same. The sides of stairs, trestles and dangerous plank walks in and around the collieries shall be provided with hand and guard railing to prevent persons from falling over their sides. This section shall not forbid the temporary removal of a fence, guard rail or covering for the purpose of repairs or other operations, if proper precautions are used, and the fence, guard rail or covering is replaced immediately thereafter.

Section 6. A sober and competent person, not under eighteen (18) years of age, shall be engaged to run the breaker engine and he shall attend to said engine while the machinery is in motion.

Section 7. A signal apparatus shall be established at important points in every breaker so that in case of an accident the engineer can be promptly notified to stop the machinery.

Section 8. No person under fifteen (15) years of age shall be appointed to oil the machinery, and no person shall oil dangerous parts of such machinery while it is in motion.

Section 9. No person shall play with, loiter around or interfere with any machinery in or about any mine or colliery.

Section 10. Failure to comply with the provisions of this article shall be deemed an offense against this act.

ARTICLE VI.

Wash Houses.

Section 1. It shall be the duty of the owner, operator or superintendent of each mine or colliery, at the request in writing of twenty or more men employed in any of the mines, to provide a suitable building, not an engine or boiler house, which shall be convenient to the principal entrance of such mine, for the use of the persons employed therein for the purpose of washing themselves and changing their clothes when entering the mine and returning therefrom. The said building shall be maintained in good order, be properly lighted and heated, and supplied with pure cold and warm water, and shall be provided with facilities for persons to wash. If any person or persons shall neglect or fail to comply with the provisions of this article, or maliciously injure or destroy, or cause to be injured or destroyed, the said building, or any part thereof, or any of the appliances or fittings used for supplying light, heat and water therein, or doing any act tending to the injury or destruction thereof, he or they shall be deemed guilty of an offense against this act.

ARTICLE VII.

Ambulances and Stretchers.

Section 1. The owner, operator or superintendent of every mine or colliery, except as hereinafter provided, shall provide and keep at such mine or colliery an ambulance and also at least two (2) stretchers, for the purpose of conveying to their places of abode, any person or persons who may be injured while in the discharge of his or their work at such mine or colliery.

Section 2. The said ambulance shall be constructed upon good, substantial and easy springs. It shall be covered and closed and shall have windows on the sides or ends. It shall be of sufficient size to convey at least two (2) injured persons with two (2) attendants at one time, and shall be provided with spring mattresses or other comfortable bedding to be placed on roller frames, together with sufficient covering and protection and convenient movement of the injured. It shall also be provided with seats for the attendants. The stretchers shall be constructed of such material and in such manner as to afford the greatest ease and comfort in the carriage of the injured person.

Section 3. Whenever any person or persons employed in or about a mine or colliery shall receive such injury by accident or otherwise, while so employed, as would render him or them unable to walk to

his or their place of abode, the owner, operator or superintendent of such mine or colliery shall immediately cause such person or persons to be removed to his or their place of abode or to an hospital as the case may require.

Section 4. It is provided, however, that the owner, operator or superintendent of any mine or colliery shall be excepted from the requirements of an ambulance, as aforesaid, if the places of abode of all the workmen at such mine or colliery be within a radius of a half mile from the principal entrance to such mine.

Section 5. It is provided further, that where two or more mines or collieries are located within one mile of each other, or the ambulance is located within one mile of each colliery, but one ambulance, as aforesaid, shall be required, if the said mines or collieries have ready and quick means of communication, one with the other, by telegraph or telephone.

Section 6. An ambulance, as aforesaid, shall not be required at any mine or colliery at which less than twenty (20) persons are employed.

Section 7. In case the distance from any mine or colliery to the place of abode of the person injured, is such as to permit his conveyance to his home or to an hospital more quickly and conveniently by railway, such mode of conveyance shall be permitted, but in such case the conveyance must be under cover and the comfort of the injured person must be provided for.

ARTICLE VIII.

Certified Mine Foremen.

Section 1. It shall not be lawful, neither shall it be permitted, for any person or persons to act as mine foreman or assistant mine foreman, of any coal mines or colliery, unless they are registered as a holder of a certificate of qualification or service under this act.

Section 2. Certificates of qualification to mine foremen and assistant mine foremen shall be granted by the Secretary of Internal Affairs to every applicant who may be reported by the examiners, as hereinafter provided, as having passed a satisfactory examination and as having given satisfactory evidence of at least five years' practical experience as a miner, and of good conduct, capability and sobriety.

The certificate shall be in manner and form as shall be prescribed by the Secretary of Internal Affairs, and a record of all certificates issued shall be kept in his department.

Section 3. For the purpose of examination of candidates for such certificates, a board of examiners shall be appointed in each of the inspection districts provided for by this act. The said board shall consist of the district inspector of mines, two (2) practical miners and one owner, operator or superintendent of a mine. The said inspector shall act ex-officio, and the said engineer and owner, operator

or superintendent shall be appointed in like manner and at the same time as the boards of examiners for candidates for mine inspectorship under this act are now appointed. The said board shall act as such for the period of one year from the date of their appointment. Meetings of the board may be held at any time, and they may make such rules and conduct such examinations as in their judgment may seem proper for the purpose of such examinations. The said board shall report their action to the Secretary of Internal Affairs, and at least three (3) of the members thereof shall certify to the qualification of each candidate who has passed such examination. The traveling expenses of the members of such board to and from their place of meeting, together with the sum of five dollars per day each to the said two (2) practical miners and owner, operator or superintendent, members of each board, for each day they are actually engaged therein, not exceeding ten (10) days in all, during the year, shall be paid by the Commonwealth on an order of the Auditor General drawn on the State Treasurer upon the certificate of the mine inspector, member of such board.

Section 4. Certificates of qualification to mine foreman and assistant mine foreman shall be granted by the Secretary of Internal Affairs to every applicant who may be reported by the examiners, as heretofore provided, as having passed a satisfactory examination and as having given satisfactory evidence of at least five (5) years' practical experience as a miner, and of good conduct, capability and sobriety. The certificate shall be in manner and form as shall be prescribed by the Secretary of Internal Affairs, and a record of all certificates issued shall be kept in the department. Certificates of qualification and certificate of service shall contain the full name, age and place of birth of the applicant, as also the length and nature of his previous service in or about the mines.

Section 5. Before certificate as aforesaid shall be granted applicants for same shall pay to the Secretary of Internal Affairs the following fee, namely:

For examination, one dollar; for registration of certificate, one dollar, for certificate, one dollar. All fees so received shall be covered into the treasury of the Commonwealth.

Section 6. No mines shall be operated for a longer period than thirty days without the supervision of a mine foreman. In case any mine is worked a longer period than thirty (30) days without such certified mine foreman, the owner, operator or superintendent thereof shall be subject to a penalty of twenty dollars per day for each day over the said thirty (30) days during which the said mine is operated.

Section 7. In case of the loss or destruction of a certificate the Secretary of Internal Affairs may supply a copy thereof to the person losing the same upon the payment of the sum of fifty (50) cents: Pro-

vided, It shall be shown to the satisfaction of the Secretary that the loss has actually occurred.

Section 8. If any person or persons shall forge or counterfeit a certificate or knowingly make or cause to be made any false statement in any certificate under this act, or in any official copy of the same, or shall urge others to do so, or shall utter or use any such forged or false certificate, or unofficial copy thereof, or shall make, give, utter, produce or make use of any false declaration, representation or statement in any such certificate or copy thereof, or any document containing the same, he or they shall be guilty of a misdemeanor, and upon conviction thereof, shall be fined two hundred dollars, or imprisoned for a term not exceeding one (1) year, or both, at the discretion of the court trying the case.

Section 9. And no person shall be permitted to act as fire boss in any coal mine or colliery, except he has had five (5) years' practical experience in mines as a miner, three (3) of which he shall have as a miner wherein noxious and explosive gases are evolved, and the said fire boss shall certify to the same before entering upon his duties, before an alderman, justice of the peace or other person authorized to administer oaths, and a copy of said deposition shall be filed with the district inspector of mines wherein said person is employed.

ARTICLE IX.

Employment of Boys and Females.

Section 1. No boy under the age of fourteen (14) years, and no woman or girl of any age, shall be employed or permitted to be in any mine for the purpose of employment therein. Nor shall a boy under the age of twelve years or a woman or girl of any age, be employed or permitted to be in or about the outside structures or workings of a colliery for the purpose of employment, but it is provided, however, that this prohibition shall not affect the employment of a boy or female of suitable age in an office or in the performance of clerical work at a colliery.

Section 2. When an employer is in doubt as to the age of any boy or youth applying for employment in or about a mine or colliery, he shall demand and receive proof of the said lawful employment age of such boy or youth, by certificate from the parent or guardian, before said boy or youth shall be employed.

Section 3. If any person or persons contravene or fail to comply with the provisions of this act in respect to the employment of boys, young male persons or females, or if he or they shall connive with or permit others to contravene or fail to comply with said provisions, or if a parent or guardian of a boy or young male person make or give a false certificate of the age of such boy or young male person, or knowingly do or perform any other act for the purpose of secur-

ing employment for a boy or young male person under the lawful employment age and in contravention of the provisions of this act, he or they shall be guilty of an offense against this act.

ARTICLE X.

Ventilation.

Section 1. The owner, operator or superintendent of every mine shall provide and maintain a constant and adequate supply of pure air for the same, as hereinafter provided.

Section 2. It shall not be lawful to use a furnace for the purpose of ventilating any mine wherein explosive gases are generated.

Section 3. The minimum quantity of air thus produced, shall not be less than two hundred (200) cubic feet per minute for each and every person employed in any mine, and as much more as the circumstances may require.

Section 4. The ventilating currents shall be conducted and circulated to and along the face of each and every working place throughout the entire mine, in sufficient quantities to dilute, render harmless and sweep away smoke and noxious or dangerous gases, to such an extent that all working places and traveling roads shall be in a safe and fit state to work and travel therein.

Section 5. All worked out or abandoned parts of a mine in operation, so far as practicable, shall be kept free of dangerous bodies of gases or water, and if found impracticable to keep the entire mine free from an accumulation of gases or water, the mine inspector must be immediately notified.

Section 6. Every mine employing more than seventy-five (75) persons must be divided into two or more districts. Each district shall be provided with a separate split of pure air and the ventilation shall be so arranged, that not more than seventy-five persons shall be employed at the same time in any one current or split of air.

The inlet and return air passages for any particular district must be separated by a pillar of coal or stone, if the thickness and dip of the vein will permit, except where it is necessary to cut through said dividing pillar for the purposes of ventilation, traffic or drainage.

Section 7. All air passages shall be of sufficient area to allow the free passage of not less than two hundred (200) cubic feet of air per minute for every person working therein; and in no case, in mines generating explosive gases, shall the velocity exceed four hundred and fifty (450) lineal feet per minute, in any opening through which the air currents pass, if gauze safety lamps are used, except in the main inlet or outlet air ways.

Section 8. All cross-cuts connecting the main inlet and outlet air passages of every district, when it becomes necessary to close them permanently, shall be substantially closed with brick or other

suitable building material, laid in mortar or cement whenever practicable, but in no case shall said air stoppings be constructed of plank except for temporary purposes.

Section 9. All doors used in assisting or in any way affecting the ventilation shall be so hung and adjusted that they will close automatically.

Section 10. All main doors shall have an attendant whose constant duty it shall be to open them for transportation and travel and prevent them from standing open longer than is necessary for persons or cars to pass through.

Section 11. All main doors shall be so placed that when one door is open, another, which has the same effect upon the same current, shall be and remain closed and thus prevent any temporary stoppage of the air current.

Section 12. An extra main door shall be so placed and kept standing open, so as to be out of reach of accident, and so fixed that it can be at once closed in the event of an accident to the doors in use.

Section 13. The frame work of such main doors shall be substantially secured in stone or brick, laid in mortar or cement unless otherwise permitted in writing by the inspector.

Section 14. All permanent air bridges shall be substantially built of such material and such strength as the circumstances may require.

Section 15. The quantities of air in circulation shall be ascertained with an anemometer or other efficient instrument; such measurements shall be made by the inside foreman or his assistant once a week at the inlet and outlet airways, also at or near the face of each gangway and at the nearest cross-heading to the face of each gangway and at the nearest cross-heading to the face of the inside and outside chamber or breast where men are employed, and the headings shall not be driven more than sixty (60) feet from the face of each chamber or breast and shall be entered in the colliery report book.

Section 16. A report of these air measurements shall be sent to the inspector before the twelfth day of each month, for the preceding month, together with a statement of the number of persons employed in each district.

Section 17. All ventilators used at mines shall be provided with recording instruments by which the speed of the ventilators or the ventilating pressure shall be registered for each hour, and such data shall be preserved at the colliery for future reference, for a period of three months.

Section 18. Any person or persons who shall neglect or fail to comply with the provisions of this article, or who shall make any false report in regard to air measurements, shall be guilty of an offense against this act.

ARTICLE XI.

Props and Timbers.

Section 1. It shall be the duty of the owner, operator, superintendent or mine foreman of every mine to furnish to the miners all props, ties, rails and timbers necessary for the safe mining of coal and for the protection of the lives of the workmen. Such props, ties, rails and timbers shall be suitably prepared and shall be delivered to the workmen as near to their working places as they can be conveyed in ordinary mine cars, free of charge.

Section 2. Every workman in want of props, ties, rails or timbers shall notify the mine foreman or his assistant of the fact at least one day in advance, giving the length of the props or timber required; and in case of danger from loose roof or sides, he shall not continue to cut or load coal until the said props and timber have been properly furnished and the place made secure.

Section 3. A failure to comply with the provisions of this article shall be deemed an offense against this act, and shall be taken to be negligence per se on the part of the owner, operator, superintendent or mine foreman, as the case may be, of such mine, in action for the recovery of damages for accidents resulting from the insufficient propping of such mine, through failure to furnish the necessary props or timbers.

ARTICLE XII.

General Rules.

The following general rules shall be observed in every mine to which this act applies:

Rule 1. The owner, operator or superintendent of a mine or colliery shall use every precaution to ensure the safety of the workmen in all cases, whether provided for in this act or not, and he shall place the underground workings thereof, and all that is related to the same, under the charge and daily supervision of a competent person who shall be called "mine foreman."

Rule 2. Whenever a mine foreman cannot personally carry out the provisions of this act so far as they pertain to him, the owner, operator or superintendent shall authorize him to employ a sufficient number of competent persons to act as his assistants, who shall be subject to his orders.

Rule 3. The mine foreman shall have charge of all matters pertaining to ventilation, and the speed of the ventilators shall be particularly under his charge and direction; and any superintendent who shall cause the mine foreman to disregard the provisions of this act shall be amenable in the same manner as the mine foreman.

Rule 4. All accessible parts of an abandoned portion of a mine in which explosive gases have been found, shall be carefully examined

by the mine foreman or his assistants at least once a week, and all danger found existing therein shall be immediately removed. A report of said examination shall be recorded in a book kept at the colliery for that purpose and signed by the person making the same.

Rule 5. In mines generating explosive gases, the mine foreman or his assistant shall make a careful examination every morning of all working places and traveling roads and all other places which might endanger the safety of the workmen, before the workmen shall enter the mine, and such examination shall be made with a safety lamp within three (3) hours at most, before time for commencing work, and a workman shall not enter the mine or his working place until the said mine or part thereof and working place are reported to be safe. Every report shall be recorded without delay in a book which shall be kept at the colliery for the purpose and shall be signed by the person making the examination.

Rule 6. The person who makes said examination shall establish proof of the same by marking plainly the date thereof at the face of each working place and all other places examined.

Rule 7. A station or stations shall be established at the entrance to each mine or different parts of each mine, as the case may require, and a workman shall not pass beyond any such station until the mine or part of the mine beyond the same has been inspected and reported to be safe. It shall be the duty of the fire boss to remain at the danger station until relieved by some person authorized by himself or the mine foreman, who shall stand guard until said mine or part of mine shall be reported safe, and he shall not let any person pass without permission from the fire boss.

Rule 8. If at any time it is found by the person for the time being in charge of the mine or any part thereof, that by reason of noxious gases prevailing in such mine or such part thereof, or of any cause whatever the mine or the said part is dangerous, every precaution shall be used to ensure the safety of the workmen; and every workman, except such persons as may be required to remove the danger, shall be withdrawn from the mine, or such part thereof as is so found dangerous, until the said mine or said part thereof is examined by a competent person and reported by him to be safe.

Rule 9. In every working approaching any place where there is likely to be accumulation of explosive gases, or in any working in which danger is imminent from explosive gases, no light or fire other than a locked safety lamp shall be allowed or used. Whenever safety lamps are required in any mine they shall be the property of the owner of said mine, and a competent person, who shall be appointed for the purpose, shall examine every safety lamp immediately before it is taken into the workings for use, and ascertain it to be clean, safe and securely locked, and safety lamps shall not be used until they

have been so examined and found safe, clean and securely locked, unless permission be first given by the mine foreman to have the lamps used unlocked.

Rule 10. No one, except a duly authorized person, shall have in his possession a key or any other contrivance for the purpose of unlocking any safety lamp in any mine where locked lamps are used. No lucifer matches or any other apparatus for striking light shall be taken into said mine or parts thereof.

Rule 11. No blast shall be fired in any mine where locked safety lamps are used except by permission of the mine foreman or his assistants, and before a blast is fired, the person in charge must examine the place and adjoining places and satisfy himself that it is safe to fire such blast before such permission is given.

Rule 12. The mine foreman or his assistant shall visit and examine every working place in the mine at least once every alternate day, while the men of such place are or should be at work, and shall direct that each and every working place is properly secured by props or timber, and that safety in all respects is assured by directing that all loose coal or rock shall be pulled down or secured, and that no person shall be permitted to work in an unsafe place unless it be for the purpose of making it secure.

Rule 13. The mine foreman, or some other competent person or persons to be designated by him, shall examine at least once every day all slopes, shafts, main roads, traveling ways, signal apparatus, pulleys and timbering and see that they are in safe and efficient working condition.

Rule 14. Any person having charge of a working place in any mine shall keep the roof and sides thereof properly secured by timber or otherwise so as to prevent such roof and sides from falling, and he shall not do any work or permit any work to be done under loose or dangerous material except for the purpose of securing the same.

Rule 15. Whenever a place is likely to contain a dangerous accumulation of water, the working approaching such place shall not exceed twelve (12) feet in width, and there shall be constantly kept, at a distance of not less than twenty (20) feet in advance, at least one (1) bore hole near the center of the working and sufficient flank bore holes on each side.

Rule 16. No person shall ride upon or against any loaded ear, cage or gun-boat in any shaft, slope or plane in or about a mine or colliery.

Rule 17. Not more than ten (10) persons shall be hoisted or lowered at any one time in any shaft or slope, and whenever five persons shall arrive at the bottom of any shaft or slope in which persons are regularly hoisted or lowered they shall be furnished with an empty ear or cage and be hoisted, except however, in mines where there is

provided a traveling way having an average pitch of fifteen (15) degrees or less and not more than one thousand (1,000) feet in length. This, however, shall not prohibit the hoisting or lowering of twenty (20) persons at one time on slopes where two (2) or more loaded cars are regularly hoisted: Provided, That not less than thirty (30) workmen working therein, make such request in writing, to the inspector of the district, and if, in his judgment, the hoisting appliances in every respect are of sufficient strength, he may comply with the request of the workmen.

Provided, That in any coal mine or colliery where the hoisting appliances are not of sufficient strength to hoist or lower the number of persons named, he shall have the power to reduce the number of persons to be hoisted or lowered.

Rule 18. An engineer placed in charge of an engine whereby persons are hoisted or lowered in any mine, shall be a sober and competent person of not less than twenty-one (21) years of age.

Rule 19. Every engineer shall work his engine slowly and with great care when any person is being lowered or hoisted in a shaft or slope and no one shall interfere with or intimidate him while in the discharge of his duties.

Rule 20. An engineer who has charge of the hoisting machinery by which persons are lowered or hoisted in a mine, shall be in constant attendance for that purpose during the whole time any person or persons are below ground, and he shall not allow any person or persons, except such as may be deputed by the owner, operator or superintendent, to handle or meddle with the engine under his charge or any part of its machinery.

Rule 21. When any person is about to descend or ascend a shaft or slope, the headman or footman, as the case may be, shall inform the engineer by signal or otherwise of the fact, and the engineer shall return a signal before moving or starting the engine. In the absence of a headman or footman the person or persons about to descend or ascend shall give and receive the signals in the same manner.

Rule 22. The owner, operator or superintendent of a colliery shall place a competent person to be called "outside foreman," in charge of the breaker and the outside work of such colliery and who shall direct, and as far as practicable, see that the provisions of this act are complied with in respect to the breaker, outside machinery, ropes, cages and all other things pertaining to the outside work, unless otherwise provided for in this act.

Rule 23. In all coal breakers where the coal dust is so dense as to be injurious to the health of persons employed therein, the owner, operator or superintendent of said breaker shall, upon the request of the inspector, immediately adopt measures for the removal of the dust, as far as practicable.

Rule 24. Any miner or other workman who shall discover anything wrong with the ventilating current or with the condition of the roof, side, timber or roadway, or with any other part of the mine in general, such as would lead him to suspect danger to himself or his fellow workmen or to the property of his employer, shall immediately report the same to the mine foreman or other person, for the time being in charge of that portion of the mine.

Rule 25. Any person or persons who shall knowingly or wilfully damage, or without proper authority, remove or render useless any fencing, means of signaling, apparatus, instrument or machine, or shall throw open or obstruct any airway, or open a ventilating door and not have the same closed, or enter a place in or about a mine against caution, or carry fire, open lights or matches in places where safety lamps are used, or handle without proper authority, or disturb any machinery or cars, or do any other act or thing whereby the lives or health of persons or the security of the property in or about a mine or colliery are endangered, shall be guilty of an offense against this act.

Rule 26. Gunpowder or any other explosive shall not be stored in a mine, and a workman shall not have at any time in any one place, more than one keg or box containing twenty-five (25) pounds, unless more is necessary for a person to accomplish one day's work.

Rule 27. Every person who has gunpowder or other explosive in a mine, shall keep it in a wooden or metallic box securely locked, and such box shall be kept at least ten (10) feet from the tracks in all cases where room at such a distance is available.

Rule 28. Whenever a workman shall open a box containing explosive or while in any manner handling the same, he shall first place his lamp not less than five (5) feet from such explosive and in such a position that the air current cannot convey sparks to it, and a workman shall not approach nearer than five (5) feet to an open box containing powder, with a lamp, lighted pipe or any other thing containing fire.

Rule 29. When high explosives other than gunpowder are used in any mine, the manner of storing, keeping, moving, charging and firing or in any manner using such explosives, shall be in accordance with special rules as furnished by the manufacturers of the same. The said rules shall be endorsed with his or their official signature and shall be approved by the owner, operator or superintendent of the mine in which such explosives are used.

Rule 30. In charging holes for blasting in slate or rock in any mine, no iron or steel-pointed needle shall be used, and a tight cartridge shall not be rammed into a hole in coal, slate or rock with an iron or steel tamping bar, unless the end of the tamping bar is tipped with at least six (6) inches of copper or other soft metal,

Rule 31. A charge of powder or any other explosive in slate or rock which has missed fire shall not be withdrawn or the hole re-opened.

Rule 32. A miner or other person who is about to explode a blast by the use of patent or other squibs or matches, shall not shorten the match, nor saturate it with mineral oil, nor turn it down when placed in the hole, nor ignite it except at its extreme end, nor do anything tending to shorten the time the match will burn.

Rule 33. When a workman is about to fire a blast he shall be careful to notify all persons who may be in danger therefrom, and shall give sufficient alarm before and after igniting the match so that any person or persons who may be approaching shall be warned of the danger.

Rule 34. Before commencing work and also after the firing of every blast, the miner working a breast or any other place in a mine, shall enter such breast or place to examine and ascertain its condition, and his laborer or assistant shall not go to the face or such breast or place until the miner has examined the same and found it to be safe.

Rule 35. No person shall be employed to blast coal or rock unless the mine foreman is satisfied that such person is qualified, by experience and judgment, to perform the work with ordinary safety.

Rule 36. A person who is not a practical miner shall not charge or fire a blast in the absence of an experienced miner, unless he has given satisfactory evidence of his ability to do so with safety, and has obtained permission from the mine foreman or person in charge.

Rule 37. An accumulation of gas in mines shall not be removed by brushing where it is practicable to remove it by brattice.

Rule 38. When gases ignited by blast or otherwise, the person igniting the same shall immediately extinguish it, if possible, and notify the mine foreman or his assistant of the fact, and workmen must see that no gas blowers are left burning upon leaving their working places.

Rule 39. Every fireman in charge of a boiler or boilers for the generation of steam, shall keep a constant watch of the same. He shall see that the steam pressure does not at any time exceed the limit allowed by the outside foreman or superintendent. He shall frequently try the safety valve, and shall not increase the weight on the same. He shall maintain a proper depth of water in each boiler, and if anything should happen to prevent this, he shall report the same without delay to the foreman, for the time being in charge, and take such other action as may under the particular circumstances be necessary for the protection of life and preservation of property.

Rule 40. At every shaft or slope in which provision is made in this act for lowering and hoisting persons, a headman and footman

shall be designated by the superintendent or foreman to be at their proper places from the time that persons begin to descend, until all the persons who may be at the bottom of said shaft or slope when quitting work shall be hoisted. Such headman and footman shall personally attend to the signals and see that the provisions of this act, in respect to lowering and hoisting persons in shafts or slopes, shall be complied with.

Rule 41. No person, except the man giving the signal, shall jump on a car, cage or gunboat after the signal to start has been given, and if any person should enter a car, cage or gunboat in excess of the lawful number the headman or footman shall notify him of the fact and request him to get off, which request must be immediately complied with. Any violation of this rule must be reported promptly to the mine foreman.

Rule 42. An empty trip shall be hoisted in any shaft or slope where the engine has been standing idle for an hour or more, before men are hoisted or lowered in said shafts or slopes, and no person or persons shall ascend any shaft or slope when working on the night turn, until one trip shall first be hoisted therein.

Rule 43. Every passage-way used by persons in any mines and also used for transportation of coal or other material, shall be made of sufficient width to permit persons to pass moving cars with safety, but if found impracticable to make any passage-way of sufficient width, then holes of ample dimensions, and not more than one hundred and fifty (150) feet apart, shall be made on one side of said passage-way. The said passage-way and safety holes shall be kept free from obstructions and shall be well drained; the roof and sides of the same shall be made secure.

Rule 44. When locomotives are used in any mine their speed shall not exceed six (6) miles per hour, and an efficient alarm shall be provided and attached to the front end of every train of cars pushed by a locomotive in any mine or part of a mine.

Rule 45. Locomotives propelled by steam, if using fire, shall not be used in any passage-way which is also used as an in-take air-way to any mine or part of a mine where persons are employed, unless there be a sufficient quantity of air circulating therein to maintain a healthy atmosphere.

Rule 46. No person shall couple or uncouple loaded or empty cars while the same are in motion: Provided however, That this shall not apply to the top or bottom men of slopes, planes or shafts.

Rule 47. When cars are run on gravity roads by breaks or sprags, the runner shall only ride on the rear end of the last car, and when said cars are run by sprags, a space of not less than two (2) feet from the body of the car shall be made on one or both sides of the track wherever it may be necessary for the runner to pass along the side

of the moving car or cars, and said space or passage-way shall always be kept free from obstructions.

Rule 48. No miner or laborer shall run cars out of any breast or chamber or on any gravity road unless he is a suitable person, employed by the mine foreman for that particular work; and no person shall be employed by any mine foreman to perform such work, under the age of sixteen (16) years.

Rule 49. Safety holes shall be made at the bottom of all slopes and planes and be kept free from obstruction to enable the footman to escape readily in case of danger.

Rule 50. Safety blocks or some other device for the purpose of preventing cars from falling into a shaft or running away on a slope or plane, shall be placed at or near the head of every shaft, slope or plane, and said safety blocks or other device must be maintained in good working order.

Rule 51. No person shall travel on any gravity train while cars are being hoisted or lowered thereon. Whenever ten (10) persons arrive at the bottom or top of any plane on which it is necessary for men to travel, traffic thereon shall be suspended for a period of time long enough to permit them to reach the top or bottom of said plane.

Rule 52. No mine cars shall be used in any mine unless the bumpers are of sufficient length and width to keep the bodies of said cars separated by not less than twelve (12) inches when the cars stand on a straight level road and the bumpers touch each other.

Rule 53. It shall be the duty of the owner, operator or superintendent of any or all coal breakers, to have them properly heated in order to prevent injury to the health of persons employed therein.

Rule 54. For the purpose of making known the rules and the provisions of this act to all persons employed in or about such mine or colliery to which this act applies, an abstract of the act and rules shall be posted up in legible characters in some conspicuous place or places at or near the mine or colliery, where they may be conveniently read by the persons employed, and so often as the same becomes obliterated or destroyed the owner, operator or superintendent shall cause them to be renewed with all reasonable dispatch. Any person who pulls down, injures or defaces such abstract of the act or rules when posted up in pursuance to the provisions of this act, shall be guilty of an offense against this act.

Rule 55. No person or persons working in any coal mine or colliery shall cut any props or timbers while the same are in position to support the roof or sides. When it becomes necessary to remove any of the said props or timbers for the purpose of mining coal that may be supported by the same, to dislodge any of the said props or timbers, it must be done by blasting.

Rule 56. It shall not be lawful for any mine foreman or superintendent of any mine or colliery to employ any person who is not com-

petent to understand the regulations of any mine evolving explosive gases: Provided, That this rule will not apply to a section of mine, free from the said explosive gases.

Rule 57. Any superintendent or mine foreman who prevents the footman from giving an empty car or cage to the number of men designated in a former rule, shall, upon information by any person engaged in the mines, given the mine inspector, be fined the sum of fifty dollars for each offense.

Rule 58. Every person who fails to comply with any of the foregoing rules or any of the provisions of this article, shall be guilty of an offense against this act.

ARTICLE XIII.

Inquests.

Section 1. Whenever loss of life to a miner or other employe occurs in or about a mine or colliery, notice thereof shall be given promptly to the inspector of mines for the district in which the accident occurred, by the mine foreman or outside foreman or other person having immediate charge of the work at the time of the accident; and when death results from personal injury such notice shall be given promptly after the knowledge of death comes to the said foreman or person in charge.

Section 2. Whenever loss of life occurs or whenever the lives of persons employed in a mine or at a colliery are in danger from any accident, the inspector of mines shall visit the scene of the accident as soon as possible thereafter and offer such suggestions, as in his judgment shall be necessary, to protect the lives and secure the safety of the persons employed. In case of death from such accident, and after examination he finds it necessary that a coroner's inquest shall be held, he shall notify the coroner to hold such inquest without delay, and if no such inquest be held by the coroner within twenty-four (24) hours after such notice, the inspector shall institute a further and fuller examination of such accident, and for this purpose he shall have power to compel the attendance of witnesses at such examination and to administer oaths and affirmations to persons testifying thereat. The inspector shall make a record of all such investigations and accidents, which record shall be preserved in his office. The costs of such investigation shall be paid by the county in which the accident occurred in like manner as costs of inquests held by coroners or justices of the peace are now paid.

Section 3. An inquest held by the coroner upon the body of a person killed by explosion or other accident, shall be adjourned by the coroner if the inspector of mines be not present to watch the proceedings, and the coroner in such case shall notify the inspector, in

writing, of such adjourned inquest, and the time and place of holding the same, at least three (3) days previous thereto.

Section 4. Due notice of an intended inquest to be held by the coroner, shall be given by the coroner to the inspector, and at any such inquest the inspector shall have the right to examine witnesses.

Section 5. If, at any inquest held over the body or bodies of persons whose death was caused by an accident in or about a mine or colliery, the inspector be not present, and it is shown by the evidence given at the inquest that the accident was caused by neglect or by any defect in or about the mine or colliery, which in the judgment of the jury, requires a remedy, the coroner shall send notice in writing to said inspector of such neglect or default.

Section 6. No person who is interested personally, nor a person employed in the mine or at a colliery in or at which loss of life has occurred by accident, shall be qualified to serve on a jury empaneled on the inquest, and a constable or other officer shall not summons such a person so qualified as juror, but the coroner shall empanel a majority of the jury from miners who are qualified to judge of the nature of the accident; every person who fails to comply with the provisions of this article shall be guilty of an offense against this act.

ARTICLE XIV.

Returns, Notices, Et Cetera.

Section 1. Notices of death or serious injuries resulting from accidents in or about mines or collieries, shall be made to the inspector of mines, in writing, and shall specify the name, age and occupation of the person killed or injured, and also the nature and character of the accident and of the injury caused thereby.

Section 2. The owner, operator or superintendent of a mine or colliery, shall, without delay, give notice to the inspector of the district in which said mine or colliery is situated in any or all of the following cases:

First. Where any working is commenced for the purpose of opening a new slope or mine to which this act applies.

Second. Where any mine is abandoned or the workings thereof discontinued.

Third. Where the working of any mine is recommenced after any abandonment or discontinuance for a period exceeding three months.

Fourth. Where any new coal breaker is completed and work commenced therein for the purpose of preparing coal for market.

Fifth. Where the pillars of a mine are to be removed or robbed.

Sixth. Where a squeeze or crush or any other cause or change may seem to affect the safety of persons employed in any mine, or where fire occurs or a dangerous body of gas is found in any mine.

Section 3. On or before the first day of February in each year, the owner, operator or superintendent of every mine or colliery, shall send to the inspector of the district, a correct report specifying with respect to the year ending December thirty-first, previously, the name of the operator and officials of the mine, with his postoffice address; the quantity of coal mined, the amount of powder or other explosives consumed; the number of persons employed above and below ground in or about such colliery, classifying the persons so employed. The report shall be in such form as may be from time to time prescribed by the inspectors of the district. Blank forms for said reports shall be furnished by the Commonwealth.

ARTICLE XV.

Injunctions.

Section 1. Upon application of the inspector of mines of the proper district, acting in behalf of the Commonwealth, any of the courts of law or equity having jurisdiction where the mine or colliery proceeded against is situated, whether any proceedings have or have not been taken, shall prohibit, by injunction or otherwise, the working of any mine or colliery in which any person is employed or is permitted to be for the purpose of working in contravention of the provisions of this act, and may award such costs in the matter of the injunctions or other proceedings as the court may think just; but this section shall be without prejudice to any other remedy permitted by law for enforcing the provisions of this act. Written notice of the intention to apply for such injunction in respect to any mine or colliery, shall be made to the owner, operator or superintendent of such mine or colliery not less than twenty-four (24) hours before the application is made.

ARTICLE XVI.

Arbitration.

Section 1. Whenever an inspector finds any mine or colliery or part thereof, or any matter, thing or practice connected with such mine, which in any respect thereof is not covered by or provided against by any provisions of this act or by any rule, to be dangerous or defective, or in his judgment tends to bodily injury to a person, he shall give notice thereof in writing to the owner, operator or superintendent of such mine or colliery, stating in such notice the particular matter or defect requiring remedy and may demand that the same be remedied; but the owner, operator or superintendent of said mine or colliery shall have the right to refer the demand of the inspector to a board of arbitration, and the matter shall then be arbitrated within forty-eight (48) hours of the time such complaint or demand is made. And the party against whom the award is given shall pay

all cost attending the case. The said board of arbitration shall be composed of three (3) persons, one of whom shall be chosen by the inspector, one by the said owner, operator or superintendent and a third by the two thus selected, and the decision of a majority of such board shall be final and binding in the matter.

ARTICLE XVII.

Penalties.

Section 1. Any judge of the court of quarter sessions of the peace of the county in which the mine or colliery, at which the offense, act or omission as hereinafter stated has occurred, is situated, is hereby authorized and required, upon the presentation to him of the affidavit of any citizen of the Commonwealth setting forth that the owner, operator or superintendent, or any other person employed in or about such mine or colliery had been negligently guilty of an offense against the provisions of this act, whereby a dangerous accident had resulted or might have resulted to any person or persons employed in such mine or colliery, to issue a warrant to the sheriff of said county directing him to cause such person or persons to be arrested and brought before said judge, who shall hear and determine the guilt or innocence of the person or persons so charged; and if convicted he or they shall be sentenced to pay a fine not exceeding five hundred dollars, in all cases not otherwise provided for in this act, or an imprisonment in the county jail for a period not exceeding three (3) months, or both, at the discretion of the court: Provided, That any defendant may waive trial before a judge as herein provided and at any time, at or before the time of such trial, demand a trial by a jury in the court of quarter sessions, in which case he may enter into a recognizance before said judge with such surety or sureties and in such sum as said judge may approve, conditioned for his appearance at the next court of quarter sessions to answer the charge against him and abide the orders of the court in the premises, meanwhile to be of good behavior and keep the peace, or in default of such recognizance to be committed to the county jail to await such trial.

Section 2. If any person shall feel himself aggrieved by such conviction and sentence before a judge as aforesaid, he may appeal therefrom subject to the following conditions, namely: The appellant shall, within seven days after the decree has been made, give notice to the prosecutor of his intention to appeal, and within the same time enter into a recognizance, with such surety or sureties and in such sum as shall be approved by said judge, conditioned to appear and try such appeal before the next court of quarter sessions of the peace and to abide the judgment of the court thereon and to pay

all such costs and penalties as may be there awarded, and upon the compliance with such conditions the judge shall release the appellant from custody pending the appeal.

Section 3. Nothing in this act shall prevent any person from being indicted or liable under any other act, to any higher penalty or punishment than is herein provided, and if the court before whom any such proceeding is had shall be of the opinion that proceedings ought to be taken against such persons under any other act, or otherwise, he may adjourn the case to enable such proceedings to be taken.

Section 4. All offenses under this act are declared to be misdemeanors and in default of payment of any penalty or cost by the party or parties sentenced to pay the same, he or they may be imprisoned for a period not exceeding three (3) months and not less than thirty (30) days.

Section 5. For any violation of duty by the mine inspector prescribed by this act, he shall be deemed guilty of a misdemeanor, and upon conviction, be sentenced to pay a fine of not more than three hundred dollars or be imprisoned for a period not exceeding three months, or either, or both, at the discretion of the court.

Section 6. All fines imposed under this act shall be paid into the county treasury for the use of the county.

Section 7. No conviction or acquittal under this act, in any complaint, shall be received in evidence upon the trial of any action for damages arising from the negligence of any owner, operator or superintendent or employe in any mine or colliery.

Section 8. That for any injury to person or property occasioned by any violation of this act or any failure to comply with its provisions by any owner, operator, superintendent, mine foreman or fire boss of any coal mine or colliery, a right of action shall accrue to the party injured against said owner or operator for any direct damages he may have sustained thereby; and in case of loss of life by reason of such neglect or failure aforesaid, a right of action shall accrue to the widow and lineal heirs of the person whose life shall be lost, for like recovery of damages for the injury they shall have sustained.

ARTICLE XVIII.

Definition of Terms.

In this act, unless the context otherwise requires, the term "coal mine or colliery" includes every operation and work, both underground and above ground, used or to be used for the purpose of mining and preparing coal.

The term "workings" includes all the excavated parts of a mine, those abandoned as well as the places actually at work.

The term "mine" includes all underground workings and excavations and shafts, tunnels and other ways and openings; also all such

shafts, slopes, tunnels and other openings in course of being sunk or driven, together with all roads, appliances, machinery and materials connected with the same below the surface.

The term "shaft" means a vertical opening through the strata and which is or may be used for the purpose of ventilation or drainage or for hoisting men or material in connection with the mining of coal.

The term "slope" means any inclined way or opening used for the same purpose as a shaft.

The term "breaker" means the structure containing the machinery used for the preparation of coal.

The term "owners" and "operators" means any person or body corporate who is the immediate proprietor or lessee or occupier of any coal mine or colliery or any part thereof. The term "owner" does not include a person or body corporate who merely receives a royalty, rent or fine from a coal mine or colliery or part thereof, or is merely the proprietor of the mine subject to any lease, grant or license for the working or operating thereof, or is merely the owner of the soil and not interested in the minerals of the mine or any part thereof. But any "contractor" for the working of a mine or colliery or any part or district thereof, shall be subject to this act as an operator or owner, in like manner as if he were the owner.

The term "superintendent" means the person who shall have, on behalf of the owner, general supervision of one or more mines or collieries.

ARTICLE XIX.

All laws or parts of laws inconsistent or in conflict with the provisions of this act are hereby repealed.

Approved—The 2d day of June, A. D. 1891.

ROBT. E. PATTISON.

AN ACT

Relating to bituminous coal mines and providing for the lives, health, safety and welfare of persons employed therein.

ARTICLE I.

Survey—Maps and Plans.

Section 1. Be it enacted, &c., That the operator or superintendent of every bituminous coal mine shall make, or cause to be made by a competent mining engineer or surveyor, an accurate map or plan of such coal mine, not smaller than on a scale of two hundred feet to an inch, which map shall show as follows:

First. All measurements of said mine in feet or decimal parts thereof.

Second. All the openings, excavations, shafts, tunnels, slopes, planes, main-entries, cross-entries, rooms, et cetera, in proper numerical order in each opened strata of coal in said mine.

Third. By darts or arrows made thereon by a pen or pencil the direction of air currents in said mine.

Fourth. An accurate delineation of the boundary lines between said coal mine and all adjoining mines or coal lands, whether owned or operated by the same operator or other operator, and the relation and proximity of the workings of said mine to every other adjoining mine or coal lands.

Fifth. The elevation above mean tide at Sandy Hook of all tunnels, and entries, and of the face of working places adjacent to boundary lines at points not exceeding three hundred feet apart.

Sixth. The bearings and lengths of each tunnel or entry, and of the boundary or property lines. The said map or plan, or a true copy thereof, shall be kept in the general mine office by the said operator or superintendent for use of the mine inspectors and for the inspection of any person or persons working in said mine whenever said person or persons shall have cause to fear that any working place is becoming dangerous by reason of its proximity to other workings that may contain water or dangerous gas.

Section 2. At least once in every six months, or oftener if necessary, the operator or superintendent of each mine shall cause to be shown accurately on the map or plan said coal mine, all the excavations made therein during the time elapsing since such excavations were last shown upon said map or plan; and all parts of said mine which were worked out or abandoned during said elapsed period of time shall be clearly indicated by colorings on said map or plan, and whenever any of the workings or excavations of said coal mine have been driven to their destination, a correct measurement of all such workings or excavations shall be made promptly and recorded in a survey book prior to the removal of the pillars or any part of the same from such workings or excavations.

Section 3. The operator or superintendent of every coal mine shall, within six months after the passage of this act, furnish the mine inspector of the district in which said mine is located with a correct copy on tracing muslin or sun print, of the map or plan of said mine hereinbefore provided for. And the inspector of the district shall, at the end of each year or twice a year if he requires it, forward said map or plan to the proper person at any particular mine, whose duty it shall be to place or cause to be placed on said map or plan all extensions and worked out or abandoned parts of the mine during the preceding six or twelve months, as the case may be, and return the

same to the mine inspector within thirty days from the time of receiving it. The copies of the maps or plans of the several coal mines of each district as hereinbefore required to be furnished to the mine inspector shall remain in the care of the inspector of the district in which the said mines are situated, as official records, to be transferred by him to his successor in office; but it is provided that in no case shall any copy of the same be made without the consent of the operator or his agent.

Section 4. If any superintendent or operator of mines shall neglect or fail to furnish to the mine inspector any copies of maps or plans as hereinbefore required by this act, or if the mine inspector shall believe that any map or plan of any coal mine made or furnished in pursuance of the provisions of this act is materially inaccurate or imperfect, then, in either case, the mine inspector is hereby authorized to cause a correct survey and map or plan of said coal mine to be made at the expense of the operator thereof, the cost of which shall be recoverable from said operator as other debts are recoverable by law: Provided, however, That if the map or plan which may be claimed by the mine inspector to be inaccurate shall prove to be correct, then the Commonwealth shall be liable for the expense incurred by the mine inspector in causing to be made said test survey and map, and the cost thereof, ascertained by the Auditor General by proper vouchers and satisfactory proof, shall be paid by the State Treasurer upon warrants which the said Auditor General is hereby directed to draw for the same.

ARTICLE II.

Section 1. It shall not be lawful for the operator, superintendent or mine foreman of any bituminous coal mine to employ more than twenty persons within said coal mine, or permit more than twenty persons to be employed therein at any one time unless they are in communication with at least two available openings to the surface from each seam or stratum of coal worked in such mine, exclusive of the furnace upcast shaft or slope: But provided, That in any mine operated by shaft or slope and ventilated by a fan, if the air shaft shall be divided into two compartments, one of them may be used for an air-way and the other for the purpose of egress and ingress from and into said mine by the persons therein employed and the same shall be considered a compliance with the provisions of this section hereinbefore set forth. And there shall be cut out or around the side of every hoisting shaft, or driven through the solid strata at the bottom thereof, a traveling way not less than five feet high and three feet wide to enable persons to pass the shaft in going from one side of it to the other without passing over or under the cage or other hoisting apparatus.

Section 2. The shaft or outlet, other than the main shaft or outlet shall be separated from the main outlet and from the furnace shaft by natural strata at all points by a distance of not less than one hundred and fifty feet (except in all mines opened prior to June thirtieth, one thousand eight hundred and eighty-five, where such distances may be less, if in the judgment of the mine inspector one hundred and fifty feet is impracticable). If the mine be worked by drift, two openings exclusive of the furnace upcast shaft and not less than thirty feet apart, shall be required (except in drift mines opened prior to June thirtieth, one thousand eight hundred and eighty-five, where the mine inspector of the district shall deem the same impracticable). Where the two openings shall not have been provided as required hereinbefore by this act, the mine inspector shall cause the second to be made without delay; and in no case shall furnace ventilation be used where there is only one opening into the mine.

Section 3. Unless the mine inspector shall deem it impracticable, all mines shall have at least two entries or other passage ways, one of which shall lead from the main entrance and the other from the opening into the body of the mine, and said two passageways shall be kept well drained and in a safe condition for persons to travel therein, throughout their whole length so as to obtain, in cases of emergency, a second way for egress from the workings. No part of said workings shall at any time be driven more than three hundred feet in advance of the aforesaid passageways, except entries, airways or other narrow work, but should an opening to the surface be provided from the interior of the mine, the passageways aforesaid may be made and maintained therefrom into the working part of the mine, and this shall be deemed sufficient compliance with the provisions of this act relative thereto; said two passageways shall be separated by pillars of coal or other strata of sufficient strength and width.

Section 4. Where necessary to secure access to the two passageways required in section three of article two of this act in any slope mine where the coal seam inclines and has workings on both sides of said slope, there shall be provided an overcast for the use of persons working therein, the dimensions of which shall not be less than four feet wide and five feet high. Said overcast shall connect the workings on both sides of said slope and the intervening strata between the slope and the overcast shall be of sufficient strength and thickness at all points for its purpose: Provided, That if said overcast be substantially constructed of masonry or other incombustible material it shall be deemed sufficient.

Section 5. When the opening or outlet, other than the main opening, is made and does not exceed seventy-five feet in vertical depth, it shall be set apart exclusively for the purpose of ingress to or egress from the mine by any person or persons employed therein it shall be

kept in a safe and available condition and free from steam and dangerous gases, and all other obstructions, and if such opening is a shaft it shall be fitted with safe and convenient stairs with steps of an average tread of ten inches and nine inches rise, not less than two feet wide and to not exceed an angle of sixty degrees descent with landings of not less than eighteen inches wide and four feet long, at easy and convenient distances: Provided, That the requirements of this section shall not be applicable to stairways in use prior to June thirtieth, one thousand eight hundred and eighty-five, when in the judgment of the mine inspector, they are sufficiently safe and convenient. And water coming from the surface or out of the strata in the shaft shall be conducted away by rings, casing or otherwise and be prevented from falling upon persons who are ascending or descending the stairway of the shaft.

Section 6. Where any mine is operated by a shaft which exceeds seventy-five feet in vertical depth, the persons employed in said mine shall be lowered into and raised from said mine by means of machinery, and in any such mine the shaft, other than the main shaft, shall be supplied with safe and suitable machinery for hoisting and lowering persons, or with safe and convenient stairs for use in cases of emergency by persons employed in said mine: Provided, That any mine operated by two shafts, and where safe and suitable machinery is provided at both shafts for hoisting coal or persons, shall have sufficiently complied with the requirements of this section.

Section 7. At any mine, where one of the two openings required hereinbefore is a slope and is used as a traveling way, it shall not have a greater angle of descent than twenty degrees and may be of any depth.

Section 8. The machinery used for lowering or raising the employes into or out of the mine and the stairs used for ingress or egress, shall be kept in a safe condition, and inspected once each twenty-four hours by a competent person employed for that purpose. And such machinery and the method of its inspection shall be approved by the mine inspector of the district in which the mine is situated.

ARTICLE III.

Hoisting Machinery, Safety Catches, Signaling Apparatus, Et Cetera.

Section 1. The operator or superintendent shall provide and maintain, from the top to bottom of every shaft where persons are raised or lowered, a metal tube suitably adapted to the free passage of sound through which conversation may be held between persons at the top and bottom of said shaft, and also a means of signaling from the top to the bottom thereof, and shall provide every cage or gear carriage used for hoisting or lowering persons with a sufficient over-

head covering to protect those persons when using the same, and shall provide also for each said cage or carriage a safety catch approved by the mine inspector. And the said operator or superintendent shall see that flanges, with a clearance of not less than four inches, when the whole of the rope is wound on the drum, are attached to the sides of the drum of every machine that is used for lowering and hoisting persons in and out of the mine, and also that adequate brakes are attached to the drum. At all shafts safety gates, to be approved by the mine inspector of the district shall be so placed as to prevent persons from falling into the shaft.

Section 2. The main coupling chain attached to the socket of the wire rope shall be made of the best quality of iron and shall be tested by weights or otherwise to the satisfaction of the mine inspector of the district where the mine is located, and bridle chains shall be attached to the main hoisting rope above the socket, from the top cross-piece of the carriage or cage, so that no single chain shall be used for lowering or hoisting persons into or out of the mines.

Section 3. No greater number of persons shall be lowered or hoisted at any one time than may be permitted by the mine inspector of the district, and notice of the number so allowed to be lowered or hoisted at any one time shall be kept posted up by the operator or superintendent in conspicuous places at the top and bottom of the shaft, and the aforesaid notice shall be signed by the mine inspector of the district.

Section 4. All machinery about mines from which any accident would be liable to occur shall be properly fenced off by suitable guard railing.

ARTICLE IV.

Section 1. The operator or superintendent of every bituminous coal mine, whether shaft, slope or drift, shall provide and hereafter maintain ample means of ventilation for the circulation of air through the main-entries, cross-entries and all other working places to an extent that will dilute, carry off and render harmless the noxious or dangerous gases, generated in the mine, affording not less than one hundred cubic feet per minute for each and every person employed therein; but in a mine where fire damp has been detected the minimum shall be one hundred and fifty cubic feet per minute for each person employed therein, and as much more in either case as one or more of the mine inspectors may deem requisite.

Section 2. After May thirtieth, one thousand eight hundred and ninety-four, not more than sixty-five persons shall be permitted to work in the same air current: Provided, That a larger number, not exceeding one hundred, may be allowed by the mine inspector where.

in his judgment, it is impracticable to comply with the foregoing requirement; and mines where more than ten persons are employed, shall be provided with a fan, furnace or other artificial means to produce the ventilation, and all stoppings between main intake and return air-ways hereinafter built or replaced shall be substantially built with suitable material, which shall be approved by the inspector of the district.

Section 3. All ventilating fans shall be kept in operation continuously night and day, unless operations are indefinitely suspended, except written permission is given by the mine inspector of the district to stop the same, and the said written permission shall state the particular hours the said fan may not be in operation, and the mine inspector shall have power to withdraw or modify such permission as he may deem best, but in all cases the fan shall be started two hours before the time to begin work. When the fan may be stopped by permission of the mine inspector a notice printed in the various languages used by persons employed in the mine, stating at what hour or hours the fan will be stopped, shall be posted by the mine foreman in a conspicuous place at the entrance or entrances to the mine.

Said printed notices shall be furnished by the mine inspector and the cost thereof borne by the State: Provided, That should it at any time become necessary to stop the fan on account of accident or needed repairs to any part of the machinery connected therewith, or by reason of any other unavoidable cause, it shall then be the duty of the mine foreman or any other officials in charge, after first having provided, as far as possible for the safety of the persons employed in the mine, to order said fan to be stopped so as to make the necessary repairs or to remove any other difficulty that may have been the cause of its stoppage. And all ventilating furnaces in mines shall, for two hours before the appointed time to begin work and during working hours, be properly attended by a person employed for that purpose. In mines generating fire-damp in sufficient quantities to be detected by ordinary safety lamps, all main air bridges or overcasts made after the passage of this act shall be built of masonry or other incombustible material of ample strength or be driven through the solid strata.

In all mines the doors used in guiding and directing the ventilation of the mine shall be so hung and adjusted that they will close themselves, or be supplied with spring or pulleys so that they cannot be left standing open, and an attendant shall be employed at all principal doors through which cars are hauled, for the purpose of opening and closing said doors when trips of cars are passing to and from the workings, unless an improved self-acting door is used, which principal doors shall be determined by the mine inspector or

mine foreman. A hole for shelter shall be provided at each door so as to protect said attendant from being run over by the cars while attending to his duties, and persons employed for this purpose shall at all times remain at their post of duty during working hours: Provided, That the same person may attend two doors where the distance between them is not more than one hundred feet. On every inclined plane or road in any mine where haulage is done by machinery and where a door is used, an extra door shall be provided to be used in case of necessity.

ARTICLE V.

Safety Lamps, Fire Bosses, Et Cetera.

Section 1. All mines generating fire-damp shall be kept free of standing gas in all working places and roadways. No accumulation of explosive gas shall be allowed to exist in the worked out or abandoned parts of any mine when it is practicable to remove it, and the entrance or entrances to said worked out and abandoned places shall be properly fenced off, and cautionary notices shall be posted upon said fencing to warn persons of danger.

Section 2. In all mines wherein explosive gas has been generated within the period of six months next preceding the passage of this act, and also in all mines where fire-damp shall be generated, after the passage of this act, in sufficient quantities to be detected by the ordinary safety lamp, every working place without exception and all road ways shall be carefully examined immediately before each shift by competent person or persons appointed by the superintendent and mine foreman for that purpose. The person or persons making such examination shall have received a fire boss certificate of competency required by this act, and shall use no light other than that enclosed in a safety lamp while making said examination. In all cases said examination shall be begun within three hours prior to the appointed time of each shift commencing to work, and it shall be the duty of the said fire boss at each examination to leave at the face and side of every place so examined, evidence of his presence. And he shall also, at each examination, inspect the entrance or entrances to the worked out or abandoned parts which are adjacent to the roadways and working places of the mine where fire-damp is likely to accumulate, and where danger is found to exist he shall place a danger signal at the entrances to such places, which shall be sufficient warning for persons not to enter said place.

Section 3. In any place that is being driven towards or in dangerous proximity to an abandoned mine or part of a mine suspected of containing inflammable gases, or which may be inundated with water, bore holes shall be kept not less than twelve feet in advance of the face, and on the sides of such working places, said side holes

to be drilled diagonally not more than eight feet apart, and any place driven to tap water or gas shall not be more than ten feet wide, and no water or gas from an abandoned mine or part of a mine and no bore holes from the surface, shall be tapped until the employes, except those engaged at such work, are out of the mine, and such work to be done under the immediate instruction of the mine foreman.

Section 4. The fire boss shall at each entrance to the mine or in the main intake air-way near to the mine entrance, prepare a permanent station with the proper danger signal designated by suitable letters and colors placed thereon, and it shall not be lawful for any person or persons, except the mine officials in cases of necessity, and such other persons as may be designated by them, to pass beyond said danger station until the mine has been examined by the fire boss as aforesaid and the same, or certain parts thereof, reported by him to be safe, and in all mines where operations are temporarily suspended the superintendent and mine foreman shall see that a danger signal be placed at the mine entrance or entrances, which shall be a sufficient warning to persons not to enter the mine, and if the ordinary circulation of air through the mine be stopped each entrance to said mine shall be securely fenced off and a danger signal shall be displayed upon said fence and any workman or other person, (except those persons hereinbefore provided for,) passing by any danger signal into the mine before it has been examined and reported to be safe as aforesaid, shall be deemed guilty of a misdemeanor and it shall be the duty of the fire boss, mine foreman, superintendent or any employe to forthwith notify the mine inspector, who shall enter proceedings against such person or persons as provided for in section two of article twenty-one of this act.

Section 5. All entries, tunnels, air ways, traveling ways and other working places of a mine where explosive gas is being generated in such quantities as can be detected by the ordinary safety lamp, and pillar workings and other working places in any mine where a sudden inflow of said explosive gas is likely to be encountered, (by reason of the subsidence of the overlying strata or from any other causes), shall be worked exclusively with locked safety lamps. The use of open lights is also prohibited in all working places, roadways or other parts of the mine through which fire-damp might be carried in the air current in dangerous quantities. In all mines or parts of mines worked with locked safety lamps the use of electric wires and electric currents is positively prohibited, unless said wires and machinery and all other mechanical devices attached thereto and connected therewith are constructed and protected in such a manner as to secure freedom from the emission of sparks or flame therefrom into the atmosphere of the mine.

Section 6. After January first, one thousand eight hundred and ninety-four, the use of the common Davy safety lamp for general work on any bituminous coal mine is hereby prohibited, neither shall the Clanny lamp be so used unless its gauze is thoroughly protected by a metallic shield, but this act does not prohibit the use of the Davy and Clanny lamps by the mine officials for the purpose of examining the workings for gas.

Section 7. All safety lamps used for examining mines or for working therein shall be the property of the operator, and shall be in the care of the mine foreman, his assistant or fire boss, or other competent person, who shall clean, fill, trim, examine and deliver the same, locked, in a safe condition to the men when entering the mine before each shift, and shall receive the same from the men at the end of each shift, for which service a charge not exceeding cost of labor and material may be made by the operator. A sufficient number of safety lamps, but not less than twenty-five per centum of those in use, shall be kept at each mine where gas has at any time been generated in sufficient quantities to be detected by an ordinary safety lamp, for use in case of emergency. It shall be the duty of every person who knows his safety lamp to be injured or defective, to promptly report such fact to the party authorized herein to receive and care for said lamps, and it shall be the duty of that party to promptly report such fact to the mine foreman.

ARTICLE VI.

Mine Foreman and His Duties.

Section 1. In order to better secure the proper ventilation of the bituminous coal mines and promote the health and safety of the persons employed therein, the operator or superintendent shall employ a competent and practical inside overseer for each and every mine, to be called mine foreman; said mine foreman shall have passed an examination and obtained a certificate of competency or of service as required by this act and shall be a citizen of the United States and an experienced coal miner, and said mine foreman shall devote the whole of his time to his duties at the mine when in operation, or in case of his necessary absence, an assistant, chosen by him and shall keep a careful watch over the ventilating apparatus, and the air ways, traveling ways, pump and pump timbers and drainage, and shall often instruct, and as far as possible, see that as the miners advance their excavations all dangerous coal, slate and rock overhead are taken down or carefully secured against falling therein, or on the traveling and hauling ways, and that sufficient props, caps and timbers of suitable size are sent into the mine when required, and all props shall be cut square at both ends, and as near as prac-

licable to a proper length for the places where they are to be used, and such props, caps and timbers shall be delivered in the working places of the mine.

Section 2. Every workman in want of props or timbers and cap pieces shall notify the mine foreman or his assistant of the fact at least one day in advance, giving the length and number of props or timbers and cap pieces required, but in cases of emergency the timbers may be ordered immediately upon the discovery of any danger. (The place and manner of leaving the orders for the timber shall be designated and specified in the rules of the mine.) And if, from any cause, the timbers cannot be supplied when required, he shall instruct the persons to vacate all said working places until supplied with the timber needed, and shall see that all water be drained or hauled out of all working places before the miner enters and as far as practicable kept dry while the miner is at work.

Section 3. It shall be the duty of the mine foreman to see that proper cut-throughs are made in all the room pillars at such distances apart as in the judgment of the mine inspector may be deemed requisite, not more than thirty-five nor less than sixteen yards each, for the purpose of ventilation, and the ventilation shall be conducted through said cut-through into rooms by means of check doors made of canvas or other suitable material, placed on the entries, or in other suitable places, and he shall not permit any room to be opened in advance of the ventilating current. Should the mine inspector discover any room, entry, air-way or other working places being driven in advance of the air current contrary to the requirements of this section, he shall order the workmen working in such places to cease work at once until the law is complied with.

Section 4. In all hauling roads, on which hauling is done by animal power, and whereon men have to pass to and from their work, holes for shelter, which shall be kept clear of obstruction, shall be made at least every thirty yards and be kept whitewashed, but shelter holes shall not be required in entries from which rooms are driven at regular intervals not exceeding fifty feet, where there is a space four feet between the wagon and rib, it shall be deemed sufficient for shelter. On all hauling roads whereon hauling is done by machinery, and all gravity or inclined planes inside mines upon which the persons employed in the mine must travel on foot to and from their work, such shelter holes shall be cut not less than two feet six inches into the strata and not more than fifteen yards apart, unless there is a space of at least six feet from the side of the car to the side of the roadway, which space shall be deemed sufficient for shelter: Provided, That this requirement shall not apply to any parts of mines which parts were opened prior to the passage of this act if deemed impracticable by the mine inspector.

Section 5. The mine foreman shall measure the air current at least once a week at the inlet and outlet and at or near the faces of the entries, and shall keep a record of such measurements. An anemometer shall be provided for this purpose by the operator of the mine. It shall be the further duty of the mine foreman to require the workmen to use locked safety lamps when and where required by this act.

Section 6. The mine foreman shall give prompt attention to the removal of all dangers reported to him by the fire boss or any other person working in the mine, and in mines where a fire boss is not employed, the said mine foreman or his assistant shall visit and examine every working place therein at least once every alternate day while the miners of such place are or should be at work, and shall direct that each and every working place be properly secured by props or timbers, and that no person shall be directed or permitted to work in an unsafe place unless it be for the purpose of making it safe: Provided, That if the owner or operator of any mine employing a fire boss shall require the mine foreman to examine every working place every alternate day, then it shall be the duty of the mine foreman to do so.

Section 7. When the mine foreman is unable personally to carry out all the requirements of this act as pertaining to his duties, he shall employ a competent person or persons, not objectionable to the operator, to act as his assistant or assistants, who shall act under his instructions, and in all mines where fire-damp is generated the said assistant or assistants shall possess a certificate of competency as mine foreman or fire boss.

Section 8. A suitable record book, with printed head lines, prepared by and approved by the mine inspector, the same to be provided at the expense of the Commonwealth, shall be kept at each mine generating explosive gases, and immediately after each examination of the mine made by the fire boss or fire bosses, a record of the same shall be entered in said book, signed by the person or persons making such examinations, which shall clearly state the nature and location of any danger which he or they may have discovered, and the fire boss or fire bosses shall immediately report such danger and the location of the same to the mine foreman, whose duty it shall be to remove the danger, or to cause the same to be done forthwith as far as practicable, and the mine foreman shall also each day countersign all reports entered by the fire boss or fire bosses. At all mines the mine foreman shall enter in a book provided as above by the mine inspector, a report of the condition of the mine, signed by himself, which shall clearly state any danger that may have come under his observation during the day, and shall also state whether he has a proper supply of material on hand for the safe working of the mine, and whether all requirements of the law are strictly com-

plied with. He shall, once each week, enter or cause to be entered, plainly, with ink, in said book, a true record of all air measurements required by this act, and such books shall at all times, be kept at the mine office for examination by the mine inspector of the district and any other person working in the mines.

ARTICLE VII.

Timber and Other Mine Supplies, Et Cetera.

Section 1. It shall be the duty of the superintendent, on behalf and at the expense of the operator to keep on hand at the mines at all times, a full supply of all materials and supplies required to preserve the health and safety of the employes as ordered by the mine foreman and required by this act. He shall at least once a week, examine and countersign—(which countersignature of the superintendent shall be held, under this act to have no further bearing than the evidence of the fact that the mine superintendent has read the matter entered on the book)—all reports entered in the mine record book, and if he finds that the law is being violated in any particular, he shall order the mine foreman to comply with its provisions forthwith. If from any cause he cannot procure the necessary supplies or materials as aforesaid, he shall notify the mine foreman, whose duty it shall be to withdraw the men from the mine or part of mine until such supplies or materials are received.

Section 2. The superintendent of the mine shall not obstruct the mine foreman or other officials in their fulfillment of any of the duties required by this act. At mines where superintendents are not employed, the duties that are herein prescribed for the superintendent shall devolve upon the mine foreman.

ARTICLE VIII.

Steam Boilers, Stables, Regulations for the Use of Oil, Powder, Et Cetera.

Section 1. After the passage of this act it shall be unlawful to place a main or principal ventilating fan shed inside of any bituminous coal mine wherein explosive gas has been detected or in which the air current is contaminated with coal dust. No stationery steam boiler shall be placed in any bituminous coal mine, unless said steam boiler be placed within fifty feet from the bottom of an up-cast shaft, which shaft shall not be less than twenty-five square feet in area, and after May thirtieth, one thousand eight hundred and ninety-five, no stationary steam boiler shall be permitted to remain in any bituminous coal mine, only as aforesaid.

Section 2. It shall not be lawful after the passage of this act to provide any horse or mule stables inside of bituminous coal mines, unless said stables are excavated in the solid strata or coal seams, and

no wood or other combustible material shall be used excessively in the construction of said stables, unless surrounded by or incased by some incombustible material. The air current used for ventilating said stable shall not be intermixed with the air current used for ventilating the working parts of the mine, but shall be conveyed directly to the return air current, and no open light shall be permitted to be used in any stable in any mine.

Section 3. No hay or straw shall be taken into any mine, unless pressed and made up into compact bales, and all hay or straw taken into the mines as aforesaid, shall be stored in a storehouse excavated in the solid strata or built in masonry for that purpose. After January first, one thousand eight hundred and ninety-four, no horse or mule stable or storehouse, only as aforesaid, shall be permitted in any bituminous coal mine.

Section 4. No explosive oil shall be used or taken into bituminous coal mines for lighting purposes, and oil shall not be stored or taken into the mines in quantities exceeding five gallons. The oiling or greasing of cars inside of the mines is strictly forbidden unless the place where said oil or grease is used is thoroughly cleaned at least once every day to prevent the accumulation of waste oil or grease on the roads or in the drains at that point. Not more than one barrel of lubricating oil shall be permitted in the mine at any one time. Only a pure animal or pure cotton-seed oil or oils, that shall be as free from smoke as pure animal or pure cotton-seed oil, shall be used for illuminating purposes in any bituminous mine. Any person found knowingly using explosive or impure oil, contrary to this section, shall be prosecuted as provided for in section two of article twenty-one of this act.

Section 5. No powder or high explosive shall be stored in any mine, and no more of either article shall be taken into the mine at any one time than is required in any one shift, unless the quantity be less than five pounds, and in all working places where locked safety lamps are used blasting shall only be done by the consent and in the presence of the mine foreman, his assistant or fire boss, or any competent party designated by the mine foreman for that purpose; whenever the mine inspector discovers that the air in any mine is becoming vitiated by the unnecessary blasting of the coal, he shall have the power to regulate the use of the same and to designate at what hour of the day blasting may be permitted.

ARTICLE IX.

Opening for Drainage, Et Cetera, on Other Lands.

Section 1. If any person, firm or corporation is or shall hereafter be seized in his or their own right of coal lands, or shall hold such lands under lease and shall have opened or shall desire to open a

coal mine on said land, and it shall not be practicable to drain or ventilate such mines or to comply with the requirements of this act as to ways of ingress and egress or traveling ways by means of openings on lands owned or held under lease by him, them or it, and the same can be done by means of openings on adjacent lands, he, they or it may apply by petition to the court of quarter sessions of the proper county, after ten days' notice to the owner or owners, their agents or attorney, setting forth the facts under oath or affirmation particularly describing the place or places where such opening or openings can be made, and the pillars of coal or other material necessary for the support of such passageway and such right of way to any public road as may be needed in connection with such opening, and that he or they cannot agree with the owner or owners of the land as to the amount to be paid for the privilege of making such opening or openings, whereupon the said court shall appoint three disinterested and competent citizens of the county to view the ground designated and lay out from the point or points mentioned in such petition, a passage or passages not more than eighty feet area by either drift, shaft or slope, or by a combination of any of said methods by any practicable and convenient route to the coal of such person, firm or corporation, preferring in all cases an opening through the coal strata where the same is practicable. The said viewers shall, at the same time, assess the damages to be paid by the petitioner or petitioners to the owner or owners of such lands for the coal and other valuable material to be removed in the excavation and construction of said passage, also for such coal or other valuable material necessary to support the said passage, as well as for a right of way not exceeding fifteen feet in width from any such opening to any public road, to enable persons to gain entrance to the mine through such opening or to provide therefrom, upon the surface, a water course of suitable dimensions to a natural stream to enable the operator to discharge the water from said mine if such right of way shall be desired by the petitioner or petitioners, which damages shall be fully paid before such opening is made. The proceedings shall be recorded in the road docket of the proper county, and the pay of viewers shall be the same as in road cases; if exceptions be filed they shall be disposed of by the court as speedily as possible, and both parties to have the right to take depositions as in road cases. If, however, the petitioner desires to make such openings or roads or waterways before the final disposition of such exceptions, he shall have the right to do so by giving bond, to be approved by the court securing the damages as provided by law in the case of lateral railroads.

Section 2. It shall be compulsory upon the part of the mine owner or operator to exercise the powers granted by the provisions of the

last preceding section for the procuring of a right of way on the surface from the opening of a coal mine to a public road or public roads, upon the request in writing of fifty miners employed in the mine or mines of such owner or operator: Provided however, That with such request satisfactory security be deposited with the mine owner or operator by said petitioners, being coal miners, to fully and sufficiently pay all costs, damages and expenses caused by such proceedings and in paying for such right of way.

Section 3. In any mine or mines, or parts thereof, wherein water may have been allowed to accumulate in large and dangerous quantities, putting in danger the adjoining or adjacent mines and the lives of the miners working therein, and when such can be tapped and set free and flow by its own gravity to any point of drainage, it shall be lawful for any operator or person having mines so endangered, with the approval of the inspector of the district, to proceed and remove the said danger by driving a drift or drifts protected by bore holes as provided by this act, and in removing said danger it shall be lawful to drive across property lines if needful.

And it shall be unlawful for any person to dam or in any way obstruct the flow of any water from said mine or parts thereof, when so set free on any part of its passage to point of drainage.

Section 4. No operator shall be permitted to mine coal within fifty feet of any abandoned mine containing a dangerous accumulation of water, until said danger has been removed by driving a passage way so as to tap and drain off said water as provided for in this act: Provided, That the thickness of the barrier pillars shall be greater and shall be in proportion of one foot of pillar thickness to each one and one-quarter foot of waterhead if, in the judgment of the engineer of the property and that of the district mine inspector, it is necessary for the safety of the persons working in the mine.

Section 5. All operators of bituminous coal mines shall keep posted in a conspicuous place at their mines the general and special rules embodied in and made part of this act, defining the duties of all persons employed in or about said mine, which said rules shall be printed in the English language, and shall also be printed in such other language or languages as are used by any ten persons working therein. It shall be the duty of the mine inspector to furnish to the operator printed copies of such rules and such translations thereof as are required by this section, and to certify their correctness over his signature. The cost thereof shall be borne by the State.

ARTICLE X.

Inspectors, Examining Boards, Et Cetera.

Section 1. The board of examiners appointed to examine candidates for the office of mine inspectors under the provisions of the act

to which this is a supplement, shall exercise all the powers granted, and perform all the duties required by this supplementary act, and at the expiration of their term of office, and every four years thereafter, the Governor shall appoint, as hereinafter provided, during the month of January, two mining engineers of good repute and three other persons, who shall have passed successful examinations qualifying them to act as mine inspectors or mine foremen in mines generating fire-damp, who shall be citizens of this Commonwealth and shall have attained the age of thirty years and shall have had at least five years of practical experience in the bituminous mines of Pennsylvania, and who shall not be serving at that time in any official capacity at mines, which five persons shall constitute a board of examiners whose duty it shall be to inquire into the character and qualification of candidates for the office of inspector of mines under the provisions of this act.

Section 2. The examining board, so constituted shall meet on the first Tuesday of March following their appointment, in the city of Pittsburgh, to examine applicants for the office of mine inspector: Provided, however, The examining board shall meet two weeks previous to the aforesaid time for the purpose of preparing questions, et cetera, and when called together by the Governor on extra occasions at such time and place as he may designate, and after being duly organized and having taken and subscribed before any officer authorized to administer the same the following oath, namely, "We, the undersigned, do solemnly swear (or affirm) that we will perform the duties of examiners of applicants for the appointment as inspectors of bituminous coal mines to the best of our abilities, and that in recommending or rejecting said applicant, we will be governed by the evidence of the qualifications to fill the position under the law creating the same, and not by any consideration of political or personal favor; and that we will certify all whom we may find qualified according to the true intent and meaning of the act and none others."

Section 3. The general examination shall be in writing and the manuscript and other papers of all applicants, together with the tally sheets and the solution of each question as given by the examining board, shall be filed with the Secretary of Internal Affairs as public documents, but each applicant shall undergo an oral examination pertaining to explosive gases and safety lamps, and the examining board shall certify to the Governor the names of all such applicants which they shall find competent to fill this office under the provisions of this act, which names, with the certificates and their percentages and the oaths of the examiners, shall be mailed to the Secretary of the Commonwealth and be filed in his office. No person shall be certified as competent whose percentage shall be less

than ninety per centum, and such certificate shall be valid only when signed by four of the members of the examining board.

Section 4. The qualification of candidates for said office of inspectors of mines to be inquired into and certified by said examiners, shall be as follows, namely: They shall be citizens of Pennsylvania, of temperate habits, of good repute as men of personal integrity, and shall have attained the age of thirty years, and shall have had at least five years of practical experience in working of or in the workings of the bituminous mines of Pennsylvania immediately preceding their examination, and shall have had practical experience with fire-damp inside the mines of this country, and upon examination shall give evidence of such theoretical as well as practical knowledge and general intelligence respecting mines and mining and the working and ventilation thereof, and all noxious mine gases, and will satisfy the examiners of their capability and fitness for the duties imposed upon inspectors of mines by the provisions of this act. And the examining board shall immediately after the examination, furnish to each person who came before it to be examined, a copy of all questions whether oral or written, which were given at the examination on printed slips of paper and to be marked solved, right, imperfect or wrong, as the case may be, together with a certificate of competency to each candidate who shall have made at least ninety per centum.

Section 5. The board of examiners may, also at their meeting, or when at any time called by the Governor together for an extra meeting, divide the bituminous coal regions of the State into inspection districts, no district to contain less than sixty nor more than eighty mines, and as nearly as possible equalizing the labor to be performed by each inspector, and at any subsequent calling of the board of examiners this division may be revised as experience may prove to be advisable.

Section 6. The board of examiners shall each receive ten dollars per day for each day actually employed, and all necessary expenses, to be paid out of the State Treasury. Upon the filing of the certificate of the examining board in the office of the Secretary of the Commonwealth, the Governor shall, from the names so certified, commission one person to be inspector of mines for each district as fixed by the examiners in pursuance of this supplementary act, whose commission shall be for a full term of four years from the fifteenth day of May following: Always provided however, The highest candidate or candidates in percentage shall have priority to be commissioned for a full term or unexpired term before those candidates of lower percentage, and in case of a tie percentage the oldest candidate shall be commissioned.

Section 7. As often as vacancies occur in said office of inspectors of mines, the Governor shall commission for the unexpired term

from the names on file, the highest percentage in the office of the Secretary of the Commonwealth, until the number shall be exhausted, and whenever this may occur, the Governor shall cause the aforesaid board of examiners to meet, and they shall examine persons who may present themselves for the vacant office of mine inspector as herein provided, and the board of examiners shall certify to the Governor all persons who shall have made ninety per centum in said examination, one of whom to be commissioned by him according to the provisions of this act for the office of mine inspector for the unexpired term, and any vacancy that may occur in the examining board shall be filled by the Governor of this Commonwealth.

Section 8. Each inspector of mines shall receive for his services an annual salary of three thousand dollars and actual traveling expenses, to be paid quarterly by the State Treasurer upon warrant of the Auditor General, and each mine inspector shall keep an office in the district for which he is commissioned and he shall be permitted to keep said office at his place of residence: Provided, A suitable apartment or room be set off for that purpose. Each mine inspector is hereby authorized to procure such instruments, chemical tests and stationery and to incur such expenses of communication from time to time, as may be necessary to the proper discharge of his duties under this act at the cost of the State, which shall be paid by the State Treasurer upon accounts duly certified by him and audited by the proper department of the State.

Section 9. All instruments, plans, books, memoranda, notes and other material pertaining to the office shall be the property of the State, and shall be delivered to their successors in office. In addition to the expenses now allowed by law to the mine inspectors in enforcing the several provisions of this act, they shall be allowed all necessary expenses by them incurred in enforcing the several provisions of said law in the respective courts of the Commonwealth, the same to be paid by the State Treasurer on warrants drawn by the Auditor General after auditing the same; all such accounts presented by the mine inspector to the Auditor General shall be itemized and first approved by the court before which the proceedings were instituted.

Section 10. Each mine inspector of bituminous coal mines shall, before entering upon the discharge of his duties, give bond in the sum of five thousand dollars, with sureties to be approved by the president judge of the district in which he resides, conditional for the faithful discharge of his duties, and take an oath or affirmation to discharge his duties impartially and with fidelity to the best of his knowledge and ability. But no person who shall act as manager or agent of any coal mine, or as mining engineer or is interested in operating any coal mine, shall, at the same time act as mine inspector of coal mines under this act.

Section 11. Each inspector of bituminous coal mines shall devote the whole of his time to the duties of his office. It shall be his duty to examine each mine in his district as often as possible, but a longer period of time than three months shall not elapse between said examination, to see that all the provisions of this act are observed and strictly carried out, and he shall make a record of all examinations of mines, showing the condition in which he finds them, especially with reference to ventilation and drainage, the number of persons employed in each mine, the extent to which the law is obeyed and progress made in the improvement of mines, the number of serious accidents and the nature thereof, the number of deaths resulting from injuries received in or about the mines with the cause of such accident or death, which record completed to the thirty-first day of December of each and every year, shall, on or before the fifteenth day of March following, be filed in the office of the Secretary of Internal Affairs, to be by him recorded and included in the annual report of his department.

Section 12. It shall be the duty of the mine inspector on examination of any mine, to make out a written, or partly written and partly printed report of the condition in which he finds such mine and post the same in the office of the mine or other conspicuous place. The said report shall give the date of the visit, the number of cubic feet of air in circulation and where measured, and that he has measured the air at the cut through one or more rooms in each heading or entry, and such other information as he shall deem necessary, and the said report shall remain posted in the office or conspicuous place for one year and may be examined by any person employed in or about the mine.

Section 13. In case the inspector becomes incapacitated to perform the duties of his office or receives a leave of absence from the same from the Governor, it shall be the duty of the judge of the court of common pleas of his district to appoint, upon said mine inspector's application or that five miners or five operators of said inspector's district, some competent person, recommended by the board of examiners to fill the office of inspector until the said inspector shall be able to resume the duties of his office, and the person so appointed shall be paid in the same manner as is hereinbefore provided for the inspector of mines.

ARTICLE XI.

Inspectors' Powers, Et Cetera.

Section 1. That the mine inspectors may be enabled to perform the duties herein imposed upon them, they shall have the right at all times to enter any bituminous coal mine to make examinations or obtain information, and upon the discovery of any violation of this act, they shall institute proceedings against the person or persons at

fault under the provisions of section two of article twenty-one of this act. In case, however, where, in the judgment of the mine inspector of the district, any mine or part of mine is in such dangerous condition as to jeopardize life or health, he shall at once notify two of the mine inspectors of the other districts, whereupon they shall at once proceed to the mine where the danger exists and examine into the matter, and if, after full investigation thereof, they shall agree in the opinion that there is immediate danger, they shall instruct the superintendent of the mine in writing to remove such condition forthwith, and in case said superintendent shall fail to do so, then they shall apply, in the name of the Commonwealth, to the court of common pleas of the county, or in case the court shall not be in session, to a judge of the said court in chambers in which the mine may be located for an injunction to suspend all work in and about said mine, whereupon said court or judge shall at once proceed to hear, and determine speedily the same, and if the cause appear to be sufficient after hearing the parties and their evidences, as in like cases, shall issue its writ to restrain the working of said mine until all cause of danger is removed, and the cost of said proceedings shall be borne by the owner, lessee or agent of the mine: Provided, That if said court shall find the cause not sufficient, then the case shall be dismissed and the costs shall be borne by the county wherein said mine is located.

ARTICLE XII.

Inquests, Et Cetera.

Section 1. Whenever, by reason of any explosion or other accidents in any bituminous coal mine or the machinery connected therewith, loss of life or serious personal injury shall occur, it shall be the duty of the person having charge of such mine to give notice thereof forthwith to the mine inspector of the district and also to the coroner of the county, if any person is killed.

Section 2. If the coroner shall determine to hold an inquest, he shall notify the mine inspector of the district of time and place of holding the same, who shall offer such testimony as he may deem necessary to thoroughly inform the said inquest of the cause of the death, and the said mine inspector shall have authority at any time to appear before such coroner and jury and question or cross-question any witness, and in choosing a jury for the purpose of holding such inquest it shall be the duty of the coroner to empanel a jury, no one of which shall be directly or indirectly interested.

Section 3. It shall be the duty of the mine inspector, upon being notified of any fatal accident as herein provided, to immediately repair to the scene of the accident and make such suggestions as may appear necessary to secure the safety of any persons who may be en-

dangered, and if the results of the accident do not require an investigation by the coroner the said mine inspector shall proceed to investigate and ascertain the cause of the accident and make a record thereof, which he shall file as provided for, and to enable him to make the investigation he shall have power to compel the attendance of persons to testify, and to administer oaths or affirmations, and if it is found upon investigation that the accident is due to the violation of any provisions of this act by any person, other than those who may be deceased, the mine inspector may institute proceedings against such person or persons as provided for in section two of article twenty-one of this act.

Section 4. The cost of such investigation shall be paid by the county in which the accident occurred in the same manner as costs of inquests held by coroners or justices of the peace are paid.

ARTICLE XIII.

Neglect or Incompetence of Inspectors.

Section 1. The court of common pleas in any county or district, upon a petition signed by not less than fifteen reputable citizens, who shall be miners or operators of mines, and with the affidavit of one or more of said petitioners attached setting forth that any inspector of mines neglects his duties or is incompetent, or that he is guilty of a malfeasance in office, shall issue a citation in the name of the Commonwealth to the said mine inspector to appear on not less than fifteen days' notice, upon a day fixed, before said court, at which time the court shall proceed to inquire into and investigate the allegations of the said petitioners.

Section 2. If the court find that the said mine inspector is neglectful of his duties or incompetent to perform the duties of his office or that he is guilty of malfeasance in office, the court shall certify the same to the Governor, who shall declare the office of said mine inspector vacant and proceed in compliance with the provisions of this act to supply the vacancy; and the costs of said investigation shall, if the charges are sustained, be imposed upon the mine inspector, but if the charges are not sustained, they shall be imposed upon the petitioners.

ARTICLE XIV.

Discretionary Powers of Inspectors, Arbitration, Et Cetera.

Section 1. The mine inspectors shall exercise a sound discretion in the enforcement of the provisions of this act, and if the operator, owner, miners, superintendent, mine foreman or other persons employed in or about the mine as aforesaid shall not be satisfied with any decision the mine inspector may arrive at in the discharge of his duties under this act, which said decision shall be in writing signed

by the mine inspector, the said owner, operator, superintendent, mine foreman or other person specified above shall either promptly comply therewith or within seven days from date thereof appeal from such decision to the court of quarter sessions of the county wherein the mine is located, and said court shall speedily determine the question involved in said decision and appeal and the decision of said court shall be binding and conclusive.

Section 2. The court or the judge of said court in chambers may in its discretion, appoint three practical, reputable, competent and disinterested persons whose duty it shall be, under instructions of the said court, to forthwith examine such mine or other cause of complaint and report under oath, the facts as they exist or may have been, together with their opinions thereon within thirty days after their appointment. The report of said board shall become absolute unless exceptions thereto shall be filed within ten days after the notice of the filing thereof by the owner, operator, mine superintendent, mine foreman, mine inspector and other persons, as aforesaid, and if exceptions are filed the court shall at once hear and determine the same and the decision shall be final and conclusive.

Section 3. If the court shall finally sustain the decision of the mine inspector, then the appellant shall pay all costs of such proceedings, and if the court shall not sustain the decision of the mine inspector then such costs shall be paid by the county: Provided, That no appeal from any decision made by any mine inspector which can be immediately complied with shall work as a supersedeas to such decisions during the pendency of such appeal, but all decisions shall be in force until reversed or modified by the proper court.

ARTICLE XV.

Examinations of Mine Foremen and Fire Bosses.

Section 1. On the petition of the mine inspector the court of common pleas in any county in said district shall appoint an examining board of three persons, consisting of a mine inspector, a miner and an operator or superintendent, which said miner shall have received a certificate of competency as mine foreman in mines generating explosive gases, and the members of said examining board shall be citizens of this Commonwealth, and the persons so appointed shall after being duly organized take and subscribe before an officer authorized to administer the same, the following oath, namely: "We, the undersigned, do solemnly swear (or affirm) that we will perform the duties of examiners of applicants for the position of mine foremen and fire bosses of bituminous coal mines to the best of our abilities, and that in certifying or rejecting said applicants we will be governed by the evidence of the qualifications to fill the position

under the law creating the same and not by any consideration of personal favor; that we will certify all whom we may find qualified and none others."

Section 2. The examining board shall examine any person applying thereto as to his competency and qualifications to discharge the duties of mine foreman or fire boss.

Applicants for mine foreman or fire boss certificates shall be at least twenty-three years of age, and shall have had at least five years' practical experience, after fifteen years of age, as miners, superintendent at or inside of the bituminous mines of Pennsylvania and shall be citizens of this Commonwealth and men of good moral character and of known temperate habits.

The said board shall be empowered to grant certificates of competency of two grades, namely: certificates of first grade, to persons who have had experience in mines generating explosive gases and who shall have the necessary qualifications to fulfil the duties of mine foreman in such mines; and certificates of second grade, to persons who give satisfactory evidence of their ability to act as mine foreman in mines not generating explosive gases.

Section 3. The said board of examiners shall meet at the call of the mine inspector and shall grant certificates to all persons whose examination shall disclose their fitness for the duties of mine foreman as above classified, or fire boss, and such certificates shall be sufficient evidence of the holder's competency for the duties of said position so far as relates to the purposes of this act: Provided, That all persons holding certificates of competency granted under the provisions of the act to which this is a supplement shall continue to act under this act: And provided further, That any person acting as mine foreman upon a certificate of service under the act to which this is a supplement may continue to act in the same capacity at any mine where the general conditions affecting the health and safety of the persons employed do not differ materially from those at the mine in which he was acting when said certificate was granted: Provided, however, That if such a mine foreman leaves his present employer and secures employment elsewhere at any mine where in the judgment of the mine inspector of the district the conditions affecting the health and safety of the persons employed do differ materially from those at the mine at which he was employed when his certificate was granted, it shall then be the duty of the mine inspector of the district in which he has secured employment to serve written protest against such mine foreman's employment to the operator of said mine.

Section 4. The examining board shall hold their office for a period of four years from the date from their appointment and shall receive five dollars per day for each day necessarily employed and mileage

at the rate of three cents per mile for each mile necessarily traveled, and all other necessary expenses connected with the examination shall be paid by the Commonwealth. Each applicant before being examined shall pay the examining board the sum of one dollar, and one dollar additional for each certificate granted, which shall be for the use of the Commonwealth. The foregoing examination shall be held annually in each inspection district.

ARTICLE XVI.

Suspension of Certificates of Mine Foreman and Fire Bosses.

Section 1. No person shall act as fire boss in any bituminous coal mines, unless granted a certificate of competency by any one of the several examining boards. All applicants applying to any of the examining boards for fire boss certificates shall undergo an oral examination in the presence of explosive gas, and such certificate shall only be granted to men of good moral character and of known temperate habits, and it shall be unlawful for any operator or superintendent to employ any person as fire boss who has not obtained such certificate of competency as required by this act.

Section 2. If the mine foreman or fire boss shall neglect his duties or has incapacitated himself by drunkenness, or has been incapacitated by any other cause for the proper performance of said duties, and the same shall be brought to the knowledge of the operator or superintendent it shall be the duty of such operator or superintendent to discharge such delinquent at once and notify the inspector of the district of such action, whereupon it shall be the duty of said inspector to inform the court of common pleas of the county who shall issue a citation in the name of the Commonwealth to the said operator, superintendent, mine foreman or fire boss to appear at not less than fifteen days' notice upon a day fixed before said court, at which time the court shall proceed to inquire into and investigate the allegations. If the court finds that the allegations are true, it shall notify the examining board of such finding and instruct the said board to withdraw the certificate of such delinquent during any period of time that said court may deem sufficient, and at the expiration of such time he shall be entitled to a re-examination.

ARTICLE XVII.

Employment of Boys and Females.

Section 1. No boy under the age of twelve years, or any woman or girl of any age, shall be employed or permitted to be in the workings of any bituminous coal mine for the purpose of employment, or for any other purpose; and no boy under the age of sixteen shall be permitted to mine or load coal in any room, entry or other working place, unless in company with a person over sixteen years of age. If

the mine inspector or mine foreman has reason to doubt the fact of any particular boy being as old as this act requires for the service which said boy is performing at any mine, it shall be the duty of said mine inspector or mine foreman to report the fact to the superintendent, giving the name of said boy, and the said superintendent shall at once discharge the said boy.

ARTICLE XVIII.

Stretchers.

Section 1. It shall be the duty of operators or superintendents to keep at the mouth of the drift, shaft, or slope, or at such other place about the mine as shall be designated by the mine inspector, a stretcher properly constructed, and a woolen and a waterproof blanket in good condition for use in carrying away any person who may be injured at the mine: Provided, That where more than two hundred persons are employed two stretchers and two woolen and two waterproof blankets shall be kept. And in mines generating fire-damp a sufficient quantity of linseed or olive oil, bandages and linen shall be kept in store at the mines for use in emergencies, and bandages shall be kept at all mines.

ARTICLE XIX.

Annual Reports.

Section 1. On or before the twenty-fifth day of January in each year the operator or superintendent of every bituminous coal mine shall send to the mine inspector of the district in which said mine is located a correct report, specifying with respect to the year ending the thirty-first day of December preceding, the name of the operator and officers of the mine and the quantity of coal mined. The report shall be in such form and give such information regarding said mines as may be from time to time required and prescribed by the mine inspector of the district. Blank forms for such reports shall be furnished by the Commonwealth.

ARTICLE XX.

Additional Duties of Mine Foreman.

Section 1. Rule 1. The mine foreman shall attend personally to his duties in the mine and carry out all the instructions set forth in this act and see that the regulations prescribed for each class of workmen under his charge are carried out in the strictest manner possible, and see that any deviation from or infringements of any of them are promptly adjusted.

Rule 2. He shall cause all stoppings along the airways to be properly built.

Rule 3. He shall see that the entries at such places where road grades necessitate sprags or brakes to be applied or removed shall have a clear level width of not less than two and one-half feet, between the side of car and the rib to allow the driver to pass his trip safely and keep clear of the cars there.

Rule 4. He shall direct that all miners undermine the coal properly before blasting it and that blasting shall be done at only such hours as he shall direct and shall order the miners to set sprags under the coal, when necessary for safety while undermining at distances not exceeding seven feet apart, and he shall not allow the improper drawing of pillars.

Rule 5. In mines where fire damp is generated when the furnace fire has been put out it shall not be relighted, except in his presence, or that of his assistant under his instructions.

Rule 6. In case of accident to a ventilating fan or its machinery, or the fan itself, whereby the ventilation of the mine would be seriously interrupted, it shall be his duty to order the men to immediately withdraw from the mine and not allow their return to their work until the ventilation has been restored and the mine has been thoroughly examined by him or his assistant and reported to be safe.

Rule 7. He shall see that all dangerous places are properly fenced off and proper danger signal boards so hung on such fencing, that they may be plainly seen; he shall also travel all air roads and examine all the accessible openings to old workings as often as is necessary to insure their safety.

Rule 8. He shall provide a book or sheet to be put in some convenient place, or places, upon which shall be made a place for the numbers used by the miners with space sufficient to each number, so that the miners can write plainly the quantity of props, their approximate length and the number of caps and other timbers which they require, together with the date of the order. Said book or sheets shall be preserved for thirty days from their date.

Duties of Fire Boss.

Rule 9. He shall enter the mine before the men have entered it, and before proceeding to examine the same, he shall see that the air current is traveling in its proper course, and if all seems right, he shall proceed to examine the workings.

Rule 10. He shall not allow any person, except those duly authorized to enter or remain in any part of the mine through which a dangerous accumulation of gas is being passed in the ventilating current from any other part of the mine.

Rule 11. He shall frequently examine the edge and accessible parts of new falls and old gobs and air courses, and he shall report at once any violation of this act to the mine foreman.

Duties of Miners.

Rule 12. He shall examine his working place before beginning work and take down all dangerous slate, or otherwise make it safe by properly timbering the same before commencing to dig or load coal, and in mines where fire bosses are employed, he shall examine his place to see whether the fire boss has left the proper marks indicating his examination thereof, and he shall at all times be very careful to keep his working place in a safe condition during working hours.

Rule 13. Should he at any time find his place becoming dangerous either from gas or roof, or from any unusual condition which may have arisen, he shall at once cease working, and inform the mine foreman or his assistant of such danger, and before leaving such place he shall place some plain warning at the entrance thereto to warn others from entering into the danger.

Rule 14. It shall be the duty of every miner to mine his coal properly and to set sprags under the coal while undermining to secure it from falling and, after each blast, he shall exercise great care in examining the roof and coal and shall secure them safely before beginning work.

Rule 15. When places are liable to generate sudden volumes of fire damp, or where locked safety lamps are used, no miner shall be allowed to fire shots except under the supervision and with the consent of the mine foreman, or his assistant, or other competent person designated by the mine foreman for that purpose.

Duties of Drivers.

Rule 16. When a driver has occasion to leave his trip he must be careful to see that it is left, when possible, in a safe place, secure from cars or other dangers, or from endangering drivers of trip following.

Rule 17. The driver must take great care while taking his trips down grades to have the brakes or sprags so adjusted that he can keep the cars under control and prevent them from running onto himself or others.

Rule 18. He shall not leave any cars standing where they may materially obstruct the ventilating current, except in case of accident to the trip.

Duties of Trip Riders or Runners.

Rule 19. He shall exercise great care in seeing that all hitchings are safe for use and see that all the trip is coupled before starting, and should he at any time see any material defect in the rope, link or chain, he shall immediately remedy such defect or, if unable to do so, he shall detain the trip and report the matter to the mine foreman.

Duties of Engineer.

Rule 20. It shall be the duty of the engineer to keep a careful watch over his engine and all machinery under his charge and see that the boilers are properly supplied with water, cleaned and inspected at proper intervals, and that the steam pressure does not exceed at any time the limit allowed by the superintendent.

Rule 21. He shall make himself acquainted with the signal codes provided for in this act.

Rule 22. He shall not allow any unauthorized person to enter the engine house, neither shall he allow any person to handle or run the engine, without the permission of the superintendent.

Rule 23. When workmen are being raised or lowered he shall take special precautions to keep the engine well under control.

Rule 24. The locomotive engineer must keep a sharp lookout ahead of his engine and sound the whistle or alarm bell frequently when coming near the partings or landings; he must not exceed the speed allowed by the mine foreman or superintendent. He must not allow any person except his attendants, to ride on the engine or on the full cars.

Duties of Firemen.

Rule 25. Every fireman and other person in charge of a boiler or boilers for the generation of steam shall keep a careful watch of the same; he shall see that the steam pressure does not at any time exceed the limit allowed by the superintendent; he shall frequently try the safety-valve and shall not increase the weight on the same; he shall maintain a proper depth of water in each boiler, and if anything should happen to prevent this, he shall report the same without delay to the superintendent, or other person designated by the superintendent, and take such other action as may, under the particular circumstances, be necessary for the protection of life and the preservation of property.

Duties of Fan Engineer.

Rule 26. The engineer in charge of any ventilating fan must keep it running at such speed as the mine foreman directs in writing. In case of accident to the boiler or fan machinery, not requiring the immediate withdrawal of the men from the mine by reason of serious interruption of the ventilation, he shall invariably notify the mine foreman. If ordinary repairs of the fan or machinery becomes necessary, he must give timely notice to the mine foreman and await his instructions before stopping it. He shall also examine at the beginning of each shift all the fan bearings, stays and other parts, and see that they are kept in proper working order. Should it become impossible to run the fan or necessary to stop it to prevent

destruction, he shall then at once stop it and notify the mine foreman immediately and give immediate warning to persons in the mine.

Duties of Furnacemen.

Rule 27. The furnace man must attend to his duties with regularity, and in case he should be likely to be off work for any reason whatever, he must give timely notice to the mine foreman.

Rule 28. The furnace man must at all times keep a clear, brisk fire and the fire must not be smothered with coal or slack during working hours, nor shall he allow ashes to accumulate excessively on or under the bars, or in the approaches to the furnace, and ashes shall be cooled before being removed.

Rule 29. The furnace man must promptly obey the instructions of the mine foreman.

SHAFTS AND SLOPES.

Duties of Hookers-On.

Rule 30. The hookers-on at the bottom of any slope shall be very careful to see that the cars are properly coupled to a rope or chain and that the safety-catch or other device is properly attached to the car before giving the signal to the engineer.

Duties of Cagers.

Rule 31. The eager at the bottom of any shaft shall not attempt to withdraw the car until the cage comes to rest, and when putting the full car on the cage he must be very careful to see that the springs or catches are properly adjusted so as to keep the car in its proper place before giving the signal to the engineer.

Rule 32. At every shaft or slope mine in which provision is made in this act for lowering and hoisting persons, a headman and footman shall be designated by the superintendent or mine foreman, who shall be at their proper places from the time that persons begin to descend until all the persons who may be at the bottom of said shaft or slope, when quitting work, shall be hoisted; such headman and footman shall personally attend to the signals and see that the provisions of this act in respect to lowering or hoisting persons in shafts or slopes shall be complied with.

Rule 33. He shall not allow any tools to be placed on the same cage with men or boys, nor on either cage when persons are being hoisted out of the mine, or being lowered into the mine, except when for the purpose of repairing the shaft or machinery therein. The men shall place their tools in cars provided for that purpose which car, or cars, shall be hoisted or lowered before and after the men have been hoisted or lowered. And he shall immediately inform the mine foreman of any violation of this rule.

Rule 34. He shall also see that no driver, or other person, ascends the shaft with any horse or mule, unless the said horse or mule is secured in a suitable box, or safely penned, and only the driver in charge of said horse or mule shall accompany it in any case.

Duties of Top Man.

Rule 35. The top man of any slope, or incline plane, shall be very careful to close the safety block, or other device, as soon as the cars have reached the landing so as to prevent any loose or runaway cars from descending the slope, or incline plane, and in no case shall such safety block, or other device, be withdrawn until the cars are coupled to the rope or chain and the proper signal given. He shall carefully inspect daily all the machinery in and about the check house, and the rope used for lowering the coal and promptly report any defect discovered to the superintendent, and shall use great care in attaching securely the wagons or cars to the rope and carefully lower the same down the incline. He shall ring the alarm bell in case of accident, and when necessary immediately set free to act, the drop logs or safety switch.

Rule 36. The top man of any shaft shall see that the springs or keeps for the cage to rest upon are kept in good working order, and when taking the full car off he must be careful that no coal or other material is allowed to fall down the shaft.

Rule 37. He shall be at his proper place from the time that persons begin to descend until all the persons who may be at the bottom of said shaft or slope when quitting work shall be hoisted. Such headman and footman shall personally attend to the signals, and see that the provisions of this act in respect to lowering and hoisting persons in shafts or slopes shall be complied with.

Rule 38. He shall not allow any tools to be placed on the same cage with men or boys, nor on either cage when persons are being lowered into the mine, except when for the purpose of repairing the shaft or the machinery therein. The men shall place their tools in cars provided for that purpose, which car or cars shall be lowered before and after the men have been lowered.

Rule 39. He shall also see that no driver, or other person, descends the shaft with any horse or mule, unless the said horse or mule is secured in a suitable box or safely penned, and only the driver in charge of said horse or mule shall accompany it in any case.

General Rules.

Rule 40. If any person shall receive any injury in or about the mine and the same shall come within the knowledge of the mine foreman, and if he shall be of the opinion that the injured person

requires medical or surgical treatment, he shall see that said injured person receives the same, and in case of inability of such injured person to pay therefor the same shall be borne by the county. The mine foreman shall report monthly to the mine inspector of the district on blanks furnished by said inspector for that purpose, all accidents resulting in personal injury.

Rule 41. No unauthorized person shall enter the mine without permission from the superintendent or mine foreman.

Rule 42. No person in a state of intoxication shall be allowed to go into or loiter about the mine.

Rule 43. All employes shall inform the mine foreman or his assistant of the unsafe condition of any working place, hauling roads or traveling ways, or of damage to doors, brattices or stoppings, or of obstructions in the air passages when known to them.

Rule 44. No person shall be employed to blast coal, rock or slate, unless the mine foreman is satisfied that such a person is qualified by experience to perform the work with ordinary care.

Rule 45. The mine superintendent or mine foreman shall cause to be constructed safety blocks or some other device for the purpose of preventing cars from falling into the shaft, or running away on slopes or incline planes; and safety switches, drop logs or other device shall be used on all slopes and incline planes; and said safety blocks, safety switches or other device must be maintained in good working order.

Rule 46. Every workman employed in the mine shall examine his working place before commencing work, and after any stoppage of work during the shift he shall repeat such examination.

Rule 47. No person shall be allowed to travel on foot to or from his work on any incline plane, dilly or locomotive roads, when other good roads are provided for that purpose.

Rule 48. Any employe or other person who shall wilfully deface, pull down or destroy any notice board, danger signal, general or special rules or mining laws, shall be prosecuted as provided for in section two, article twenty-one of this act.

Rule 49. No powder or high explosive shall be taken into the mine in greater quantities than required for use in one shift, unless such quantity be less than five pounds, and all powder shall be carried into the mine in metallic canisters.

Rule 50. Powder in quantities exceeding twenty-five pounds, or other explosives in quantities exceeding ten pounds, shall not be stored in any tipple or any weighing office, nor where workmen have business to visit, and no naked lights shall be used while weighing and giving out powder.

Rule 51. All persons except those duly authorized, are forbidden to meddle or tamper in any way with any electric or signal wires in or about the mines.

Rule 52. No greater number of persons shall be hoisted or lowered at any one time in any shaft than is permitted by the mine inspector, and whenever said number of persons shall arrive at the bottom of the shaft in which persons are regularly hoisted or lowered, they shall be furnished with an empty cage and be hoisted, and in cases of emergency a less number shall be promptly hoisted. Any person or persons crowding or pushing to get on or off the cages shall be deemed guilty of a misdemeanor.

Rule 53. Each workman, when engaged shall have his attention directed to the general and special rules by the person employing him.

Rule 54. Workmen and all other persons are expressly forbidden to commit any nuisance or throw into, deposit, or leave coals or dirt, stones or other rubbish in the air way or road so as to interfere with, pollute, or hinder the air passing into and through the mine.

Rule 55. No one, except a person duly authorized by the mine foreman, shall have in his possession a key or other instrument for the purpose of unlocking any safety-lamp in any mine where locked safety lamps are used.

Rule 56. Every abandoned slope, shaft, air hole or drift shall be properly fenced around or across its entrance.

Rule 57. No safety lamps shall be entrusted to any person for use in mines until he has given satisfactory evidence to the mine foreman that he understands the proper use thereof and danger of tampering with the same.

Rule 58. No person shall ride upon or against any loaded car or cage in any shaft or slope in or about any bituminous coal mine; no person other than the trip runner shall be permitted to ride on empty trips on any slope, inclined plane or dilly road, when the speed of the cars exceeds six miles per hour. The transportation of tools in and out of the mines shall be under the direction of the mine foreman.

Rule 59. No persons other than the drivers or trip runners shall be permitted to ride on the full cars.

Rule 60. In mines where coal dust has accumulated to a dangerous extent, care shall be exercised to prevent said dust from floating in the atmosphere by sprinkling it with water, or otherwise, as far as practicable.

Rule 61. In cutting of clay veins, spars or faults in entries, or other narrow workings going into the solid coal in mines where explosive gases are generated in dangerous quantities, a bore hole shall be kept not less than three feet in advance of the face of the work, or an advance of any shot hole drilled for a blast to be fired therein.

Rule 62. The engineer placed in charge of an engine whereby persons are hoisted out of or lowered into any mine shall be a sober competent person, and not less than twenty-one years of age.

Rule 63. When a workman is about to fire a blast he shall be careful to notify all persons who might be endangered thereby, and shall give sufficient alarm so that any person or persons approaching shall be warned of the danger.

Rule 64. In every shaft or slope where persons are hoisted or lowered by machinery, as provided by this act, a topman and cager shall be appointed by the superintendent or mine foreman.

Rule 65. Whenever a workman shall open a box containing powder or other explosives, or while in any manner handling the same, he shall first place his lamp not less than five feet from such explosive and in such a position that the air current cannot convey sparks to it, and he shall not smoke while handling explosives.

Rule 66. An accumulation of gas in mines shall not be removed by brushing.

Rule 67. When gas is ignited by blast or otherwise, the person having charge of the place where the said gas is ignited, shall immediately extinguish it if possible, and if unable to do so shall immediately notify the mine foreman or his assistants of the fact. Workmen must see that no gas blowers are left burning upon leaving their working places.

Rule 68. All ventilating fans used at mines shall be provided with recording instruments by which the number of revolutions or the effective ventilating pressure of the fan shall be registered and the registration with its date for each and every day shall be kept in the office of the mine for future reference for one year from its date.

Rule 69. Where the clothing or wearing apparel of employes becomes wet by reason of working in wet places in the mines, it shall be the duty of the operator or superintendent of each mine, at the request in writing of the mine inspector, who shall make such request upon the petition of any five miners of any one mine in the district working in the aforesaid wet places, to provide a suitable building which shall be convenient to the principal entrances of such mine for the use of the persons employed in wet places therein for the purpose of washing themselves and changing their clothes when entering the mine and returning therefrom. The said building shall be maintained in good order and be properly lighted and heated and shall be provided with facilities for persons to wash. If any person or persons shall neglect or fail to comply with the provisions of this article or maliciously injure or destroy, or cause to be injured or destroyed, the said building or any part thereof, or any of the appliances or fittings used for supplying light and heat therein, or doing any act tending to the injury or destruction thereof, he or they shall be deemed guilty of an offense against this act.

Rule 70. In all shafts and slopes where persons, coal or other materials are hoisted by machinery the following code of signals shall be used:

One rap or whistle to hoist coal or other material.

One rap or whistle to stop cage or car when in motion.

Two raps or whistles to lower cage or car.

Three raps or whistles when persons are to be hoisted, and for engineer to signal back ready when persons are to be hoisted, after which persons shall get on the cage or car, then one rap shall be given to hoist.

Four raps or whistles, to turn on steam to the pumps.

But a variation from the above code of signals may be used by permission of the mine inspector: Provided, That in any such case such changed code shall be printed and posted.

Rule 71. No person or persons shall go into any old shaft or abandoned part of the mine or into any other place which is not in actual course of working without permission from the mine foreman, nor shall they travel to and from their work except by the traveling way assigned for that purpose.

Rule 72. No steam pipes through which high pressure steam is conveyed for the purpose of driving pumps or other machinery, shall be permitted on traveling or haulage ways, unless they are encased in asbestos, or some other suitable non-conducting material, or are so placed that the radiation of heat into the atmosphere of the mine will be prevented as far as possible.

Rule 73. Where a locomotive is used for the purpose of hauling coal out of a mine, the tunnel or tunnels through which the locomotive passes shall be properly ventilated and kept free as far as practicable of noxious gases, and a ventilating apparatus shall be provided by the operator to produce such ventilation when deemed necessary and practicable to do so by the mine inspector.

Rule 74. No inexperienced person shall be employed to mine out pillars unless in company with one or more experienced miners, and by their consent.

ARTICLE XXI.

Penalties.

Section 1. Any person or persons whomsoever, who shall intentionally or carelessly injure any shaft, safety lamp, instrument, air-course or brattice, or obstruct or throw open air ways, or take matches for any purpose, or pipes or other smokers' articles beyond any station inside of which locked safety lamps are used, or injure any part of the machinery, or open a door in the mine and not close it again immediately or open any door which opening is forbidden, or disobey any order given in carrying out the provisions of this act, or do any other act whatsoever whereby the lives or the health of persons or the security of the miners or the machinery is endangered, shall be deemed guilty of a misdemeanor and may be punished in a manner provided for in this article,

Section 2. The neglect or refusal to perform the duties required to be performed by any section of this act by the parties therein required to perform them, or the violation of any of the provisions or requirements hereof, shall be deemed a misdemeanor and shall upon conviction thereof in the court of quarter sessions of the county wherein the misdemeanor was committed, be punishable by a fine not exceeding five hundred dollars or imprisonment in the county jail for a period not exceeding six months, or both, at the discretion of the court.

Section 3. That for any injury to person or property occasioned by any violation of this act, or any failure to comply with its provisions by any owner, operator or superintendent of any coal mine or colliery, a right of action shall accrue to the party injured against said owner or operator for any direct damages he may have sustained thereby, and in case of loss of life by reason of such neglect or failure aforesaid, a right of action shall accrue to the widow and lineal heirs of the person whose life shall be lost for like recovery of damages for the injury they shall have sustained.

ARTICLE XXII.

Definition.

Section 1. Coal Mine. In this act the term "coal mine" includes the shafts, slopes, adits, drifts or inclined planes connected with excavations penetrating coal stratum or strata, which excavations are ventilated by one general air current or divisions thereof and connected by one general system of mine railroads over which coal may be delivered to one or more common points outside the mine, when such is operated by one operator.

Excavations and Workings. The term "excavations and workings" includes all the excavated parts of a mine, those abandoned as well as the places actually being worked, also all underground workings and shafts, tunnels and other ways and openings, all such shafts, slopes, tunnels and other openings in the course of being sunk or driven, together with all roads, appliances, machinery and material connected with the same below the surface.

Shaft. The term "shaft" means a vertical opening through the strata, and which is or may be used for the purpose of ventilation or drainage or for hoisting men or material or both in connection with the mining of coal.

Slope. The term "slope" means an incline way or opening used for the same purpose as a shaft.

Operator. The term "operator" means any firm, corporation or individual operating any coal mine or part thereof.

Superintendent. The term "superintendent" means the person who shall have, on behalf of the operator, immediate supervision of one or more mines.

Bituminous Mines. The term "bituminous" coal mines shall include all coal mines in the State not now included in the anthracite boundaries.

The provisions of this act shall not apply to any mine employing less than ten persons in any one period of twenty-four hours.

ARTICLE XXIII.

Section 1. That all acts or parts of acts inconsistent herewith be and the same are hereby repealed.

Approved—The 15th day of May, A. D. 1893.

ROBT. E. PATTISON.

AN ACT

Equalizing and fixing the compensation and mileage of the members of the several boards appointed under the provisions of the act approved June second, one thousand eight hundred and ninety-one, to examine candidates for appointment as Inspectors, foremen and fire bosses, respectively, in the anthracite coal mines, and providing for the employment and compensation and mileage of a clerk to each of said boards.

Section 1. Be it enacted, &c., That from and after the passage of this act the members of the several boards appointed under the provisions of the act approved June second, one thousand eight hundred and ninety-one, to examine candidates for appointment respectively as inspectors and foremen of anthracite coal mines, shall receive in lieu of all compensation, mileage, expenses, emoluments or allowances heretofore paid them, as follows: Six dollars per day for each day during which the said members shall be actually in attendance on the sessions of the board, and mileage at the rate of five cents for each mile actually traveled going from the home of the member to the place of meeting of the board and returning from said place to his said home by the shortest practicable railway route: Provided, That mileage shall be paid but once for each continuous session of the board, and by a continuous session shall be meant a session during the course of which no adjournment for a longer period than forty-eight hours shall take place.

Section 2. Each of the boards enumerated or described in the first section of this act shall be and the same is hereby authorized to employ a clerk, whose compensation and mileage shall be the same as that of a member of the board. So much of section four of the act

of June second, one thousand eight hundred and ninety-one, as authorizes the boards of examiners of candidates for inspectors of anthracite coal mines to engage the services of a clerk is hereby repealed, and all clerks hereafter appointed by the several boards hereinbefore mentioned shall be appointed under the provisions of this act.

Section 3. The members of the said boards shall, on the final adjournment of each session of their respective boards, submit to the Auditor General sworn statements approved by the president or chairman of their respective boards, setting forth the number of days during which each member shall have been actually in attendance on the sessions of the board of which he is a member during said session, as well as the distance from the home of the member to the place of meeting of his board as aforesaid, by the nearest practicable railway route, and the number of miles actually traveled by him; and the clerks of said boards shall submit like statements, and the Auditor General shall, upon the receipt of such sworn statements draw his warrant upon the State Treasurer in favor of each of such members and clerks for such sums as shall appear to be properly due each.

Section 4. All acts and parts of acts or supplements thereto in conflict herewith are hereby repealed.

Approved—The 26th day of June, A. D. 1895.

DANIEL H. HASTINGS.

AN ACT

For the better protection of employes in and about the coal mines by preventing mine superintendent, mine foremen and assistants from receiving or soliciting any sums of money or other valuable consideration from men while in their employ, and providing a penalty for violation of the same.

Section 1. Be it enacted, &c., That on and after the passage of this act any mine superintendent, mine foreman or assistant foreman, or any other person or persons who shall receive or solicit any sum of money or other valuable consideration, from any of his or their employes for the purpose of continuing in his or their employ, shall be guilty of a misdemeanor, and upon conviction shall be subject to a fine not less than fifty dollars, nor more than three hundred dollars, and undergo an imprisonment of not less than six months, or both, at the discretion of the court.

Section 2. All acts or parts of acts inconsistent herewith be and the same are hereby repealed.

Approved—The 15th day of June, A. D. 1897.

DANIEL H. HASTINGS.

AN ACT

Establishing a Bureau of Mines in the Department of Internal Affairs of Pennsylvania, defining its purposes and authority, providing for the appointment of a chief of said bureau and assistants, and fixing their salaries and expenses.

Section 1. Be it enacted, &c., That there is hereby established in the Department of Internal Affairs of Pennsylvania a bureau to be known as the Bureau of Mines, which shall be charged with the supervision of the execution of the mining laws of this Commonwealth, and the care and publication of the annual reports of the inspectors of coal mines.

Section 2. The chief officer of the bureau shall be denominated Chief of the Bureau of Mines, and shall be appointed by the Governor, by and with the advice and consent of the Senate, within thirty days after the final passage of this act, and every four years thereafter, who shall be commissioned by the Governor to serve a term of four years from the date of his appointment, and until his successor is duly qualified, and shall receive an annual salary of three thousand dollars and traveling expenses; and in case of a vacancy in the office of Chief of said Bureau, by reason of death, resignation or otherwise, the Governor shall appoint a qualified person to fill such vacancy for the unexpired balance of the term.

Section 3. The Chief of the Bureau of Mines shall be a competent person having had at least ten years practical experience in the working and ventilation of coal mines of this State, and a practical and scientific knowledge of all noxious and dangerous gases found in such mines. The said Chief of the Bureau of Mines so appointed shall, before entering upon the duties of his office, take and subscribe to the oath of office prescribed by the Constitution, the same to be filed in the office of the Secretary of the Commonwealth, and give to the Commonwealth a bond in the penal sum of ten thousand dollars, with surety to be approved by the Governor and Secretary of Internal Affairs, conditioned for the faithful discharge of the duties of his office.

Section 4. It shall be the duty of the Chief of the Bureau to devote the whole of his time to the duties of his office, and to see that the mining laws of this State are faithfully executed; and for this

purpose he is hereby invested with the same power and authority as the mine inspectors to enter, inspect and examine any mine or colliery within the State, and the works and machinery connected therewith, and to give such aid and instruction to the mine inspectors from time to time as he may deem best calculated to protect the health and promote the safety of all persons employed in and about the mines, and the said Chief of the Bureau of Mines shall have the power to suspend any mine inspector for any neglect of duty, but such suspended mine inspector shall have the right to appeal to the Secretary of Internal Affairs, who shall be empowered to approve of such suspension or restore such suspended mine inspector to duty, after investigating the causes which led to such suspension. Should the Chief of the Bureau of Mines receive information by petition, signed by ten or more miners, or one or more operators, setting forth that any of the mine inspectors are neglectful of their duty, or are incompetent to perform the duties of their office, or are guilty of malfeasance in office, he shall at once investigate the matter, and if he shall be satisfied that the charge or charges are well founded, he shall then petition the court of common pleas, or the judge in chambers, in any county within or partly within the inspection district of the said mine inspector; which court, upon receipt of said petition and a report of the character of the charges and testimony produced, shall at once issue a citation in the name of the Commonwealth to the said inspector, to appear on not less than fifteen days' notice, on a fixed day before said court, at which time the court shall proceed to inquire into the allegations of the petitioners, and may require the attendance of such witnesses on the subpoena issued and served by the proper officer or officers, as the judge of the court and the Chief of said Bureau may deem necessary in the case; the inspector under investigation shall also have similar power and authority to compel the attendance of witnesses in his behalf. If the court shall find by said investigation that the said mine inspector is guilty of neglecting his official duties, or is incompetent to perform the duties of his office, or is guilty of malfeasance in office, the said court shall certify the same to the Governor, who shall declare the office vacant, and shall proceed to supply the vacancy as provided for by the mining laws of this State. The cost of said investigation shall, if the charges are sustained, be imposed upon the mine inspector, but if the charges are not sustained the cost shall be paid out of the State Treasury, upon voucher or vouchers duly certified as to correctness by the judge or proper officer of the court where such proceedings are held. To enable the said Chief of the Bureau of Mines to conduct more effectually his examinations and investigations of the charges and complaints which may be made by petitioners against any of the mine inspectors as

herein provided, he shall have power to administer oaths and take affidavits and depositions in form and manner provided by law: Provided however, That nothing in this section shall be construed as to repeal section thirteen of article two of the act of Assembly approved the second day of June, Anno Domini one thousand eight hundred and ninety-one, entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith," and also articles thirteen and fourteen of an act of Assembly approved the fifteenth day of May, Anno Domini one thousand eight hundred and ninety-three, entitled "An act relating to bituminous coal mines, and providing for the lives, health, safety and welfare of persons employed therein."

Section 5. It shall be the duty of the Chief of the Bureau of Mines to take charge of and preserve in his office the annual reports of the mine inspectors, and transmit a copy of them, together with such other statistical data compiled therefrom and other matter relating to the work of the Bureau as may be of public interest, properly addressed to the Secretary of Internal Affairs for transmission to the Governor and the General Assembly of this Commonwealth, on or before the first day of March in each year. It shall also be the duty of the Chief of the Bureau of Mines to see that said reports, or copy of them, are placed in the hands of the Public Printer for publication at the same date; the same to be published under direction of the Secretary of Internal Affairs as other reports of his Department are now required by law to be published, and in order that the Chief of said Bureau may be able to prepare, compile and transmit his annual report to the Secretary of Internal Affairs within the time herein specified, the mine inspectors are hereby required to deliver their annual reports to the Secretary of Internal Affairs on or before the fifteenth day of February in each year. In addition to the annual reports herein required of the mine inspectors, the said mine inspectors shall furnish the Chief of the Bureau of Mines, monthly and also such special reports or information on any subject regarding mine accidents or other matters pertaining to mining interests, or the safety of persons employed in mines as he at any time may require or may deem necessary in the proper and lawful discharge of his official duties. The Chief of the Bureau of Mines shall also establish as far as may be practicable a uniform style and size of blanks for the annual, monthly and special reports of the mine inspectors, and prescribe the form and character of subject matter to be embraced in the text and the tabulated statements of their reports. The Chief of the Bureau of Mines is hereby authorized to make such examinations and investigations as may enable him to report upon the various systems of

coal mining practiced in the State, method of mining, ventilation, machinery employed, structure and character of the several coal seams operated, and of the associated strata, the circumstances and responsibility of mine accidents, economy of coal production, coal waste, area and exhaustion of coal territory, and such other matters as may pertain to the general welfare of coal miners and others connected with coal mining, and the interests of coal mine owners and operators in this Commonwealth.

Section 6. The Chief of the Bureau of Mines shall keep in his office a journal or record of all examinations made and work done under his administration, and copies of all official communications, and is hereby authorized to procure such books, instruments and chemical or other tests as may be found necessary to the proper discharge of his duties under this act, at the expense of the State. All instruments, plans, books and records pertaining to the office shall be the property of the State, and shall be delivered to his successor in office.

Section 7. The Chief of the Bureau of Mines shall at all times be accountable to the Secretary of Internal Affairs for the faithful discharge of the duties imposed upon him by law, and the administration of his office and the rules and regulations pertaining to said Bureau shall be subject to the approval of the Secretary of Internal Affairs, who is hereby empowered to appoint an assistant to the Chief of the Bureau, at a salary of fourteen hundred dollars per annum, and a messenger at a salary of three hundred dollars per annum: And provided further, That the salaries of the Chief of the Bureau of Mines, his assistant and the messenger, shall be paid out of the State Treasury in the manner as other employes of the Department of Internal Affairs are now paid. Provided, That the Chief of said Bureau of Mines may be removed or suspended at any time by the Secretary of Internal Affairs, when in the opinion of said Secretary there has been a neglect of duty or a failure to comply with the law, or the instructions of the Secretary of Internal Affairs.

Section 8. No person who is acting as a land agent, or as manager, viewer or agent of any mine or colliery, or who is interested in operating any mine or colliery, shall at the same time serve as Chief of the Bureau of Mines under the provisions of this act.

Section 9. That the mine inspectors of each district of this State shall, within six months after the final passage and approval of this act, deposit in the Bureau of Mines an accurate map or plan of such coal mine, which may be on tracing muslin or sun print, drawn to a prescribed scale; which map or plan shall show the actual location of all openings, excavations, shafts, tunnels, slopes, planes, main

headings, cross headings, and rooms or working places in each strata operated; pump, fans or other ventilation apparatus, the entire course and direction of air currents, the relation and proximity of the workings of such coal mines to all other adjoining mines or coal lands, and the relative elevation of all tunnels and headings, and of the face of working places near to or approaching boundary lines or adjacent mines; and on or before the close of each calendar year transmit to the Chief of the Bureau of Mines a supplemental map or plan showing all excavations, changes and additions made in such mine during the year, drawn to the scale as the first mentioned map or plan. All such maps or plans to be and remain in the Bureau of Mines as a part of the records of that office.

Section 10. All acts or parts of acts inconsistent with this act be and the same are hereby repealed.

Approved—The 15th day of July, A. D. 1897.

DANIEL H. HASTINGS.

AN ACT

Requiring the weighing of bituminous coal before screening, and providing a penalty for the violation thereof.

Section 1. Be it enacted, &c., That it shall be unlawful for any mine owner, lessee or operator of any bituminous coal mine in this Commonwealth, employing miners at bushel or ton rates, or other quantity, to pass the output of coal mined by said miners over any screen or other device which shall take any part from the weight, value or quantity thereof, before the same shall have been weighed and duly credited to the employe sending the same to the surface and accounted for at the legal rate of weight fixed by laws of this Commonwealth.

Section 2. Any owner, lessee or operator of any bituminous coal mine, violating the provisions of this act, shall be deemed guilty of a misdemeanor, and shall, upon conviction, for each and every such offense be punished by a fine of not less than one hundred (\$100) dollars nor more than five hundred (\$500) dollars, or by imprisonment in the county jail for a period not to exceed ninety days, or by both such fine and imprisonment, at the discretion of the court; proceedings to be instituted in any court of competent jurisdiction.

Section 3. All acts or parts of acts inconsistent herewith be and the same are hereby repealed.

Approved—The 15th day of July, A. D. 1897.

DANIEL H. HASTINGS.

AN ACT

To protect the lives and limbs of miners from the dangers resulting from incompetent miners working in the anthracite coal mines of this Commonwealth, and to provide for the examination of persons seeking employment as miners in the anthracite region, and to prevent the employment of incompetent persons as miners in anthracite coal mines, and providing penalties for a violation of the same.

Section 1. Be it enacted, &c., That hereafter no person whomsoever shall be employed or engaged in the anthracite coal region of this Commonwealth, as a miner in any anthracite coal mine, without having obtained a certificate of competency and qualification so to do from the "Miners' Examining Board" of the proper district, and having been duly registered as herein provided.

Section 2. That there shall be established in each of the eight inspection districts in the anthracite coal region, a board to be styled the "Miners' Examining Board" of thedistrict, to consist of nine miners who shall be appointed in the same manner as the boards to examine mine inspectors are now appointed from among the most skillful miners actually engaged in said business in their respective districts, and who must have had five years' practical experience in the same. The said persons so appointed shall each serve for a term of two years from the date on which their appointment takes effect, and they shall be appointed upon or before the expiration of the term of the present members of the "Miners' Examining Board," and they shall be and constitute the "Miners' Examining Board" for their respective districts, and shall hold the office for the term for which they were appointed, or until their successors are duly appointed and qualified, and shall receive as compensation for their services three dollars per day for each day actually engaged in this service, and all legitimate and necessary expenses incurred in attending the meetings of said board under the provisions of this act, and no part of the salary of said board or expenses thereof shall be paid out of the State Treasury.

Each of said boards shall organize by electing one of their members president, and one member as secretary, and by dividing them

selves in to three sub-committees for the more convenient discharge of their duties, each of said committees shall have all powers hereinafter conferred upon the board; and whenever in this act the words "Examining Board" are used, they shall be taken to include any of the committees thereof.

Every member of said board shall, within ten days of their appointment or being apprised of the same, take and subscribe an oath or affirmation before a properly qualified officer of the county in which they reside, that they will faithfully and impartially discharge the duties of their office.

Any vacancies occurring in said board shall be filled in the manner hereinbefore provided from among such only as are eligible for original appointment.

Section 3. Each of said examining boards shall designate some convenient place within their districts for the meeting of the several committees thereof, and of which due notice shall be given by advertisement in two or more newspapers of the proper county, and so divided as to reach as nearly as practicable all the mining districts therein; but in no case shall such meeting be held in a building where any intoxicating liquors are sold.

Each of said committee shall open at the designated place of meeting a book of registration, in which shall be registered the name and address of each and every person duly qualified under this act to be employed as a miner in an anthracite coal mine. And it shall be the duty of all persons employed as miners to be properly registered, and in case of a removal from the district in which a miner is registered, it shall be his duty to be registered in the district to which he removes.

Application for registration only may be sent by mail to the board, after being properly attested before any person authorized to administer an oath or affirmation in the county in which the applicant resides. The form of application shall be subject to such regulation as may be prescribed by the boards, but in no case shall any applicant be put to any unnecessary expense in order to secure registration.

Section 4. Each applicant for examination and registration and for the certificate hereinafter provided, shall pay a fee of one dollar to the said board, and a fee of twenty-five cents shall be charged for registering any person who shall have been examined and registered by any other board, and the amount derived from this source shall be held by said boards and applied to the expenses and salaries herein provided and such as may arise under the provisions of this act; and the said boards shall report annually, to the court of common pleas of their respective counties and the Bureau of Mines and Mining all moneys received and disbursed under the provisions of

this act, together with the number of miners examined and registered under this act and the number who failed to pass the required examination.

Section 5. That it shall be the duty of each of the said boards to meet once every month and not oftener, and said meeting shall be public, and if necessary, the meeting shall be continued to cover whatever portion may be required of a period of three days in succession, and examine under oath all persons who shall desire to be employed as miners in their respective districts; and said board shall grant such persons as may be qualified, certificates of competency or qualification which shall entitle the holder thereof to be employed as and to do the work of miners as may be expressed in said certificate, and such certificates shall be good and sufficient evidence of registration and competency under this act; and the holder thereof shall be entitled to be registered without an examination in any other of the anthracite districts upon the payment of the fee herein provided.

All persons applying for a certificate of competency, or to entitle them to be employed as miners, must produce satisfactory evidence of having had not less than two years practical experience as a miner, or as a mine laborer in the mines of this Commonwealth, and in no case shall an applicant be deemed competent unless he appear in person before the said board and answer intelligently and correctly at least twelve questions in the English language pertaining to the requirements of a practical miner, and be perfectly identified under oath, as a mine laborer by at least one practical miner holding miners' certificates. The said board shall keep an accurate record of the proceedings of all its meetings, and in said record shall show a correct detailed account of the examination of each applicant, with the questions asked and their answer, and at each of its meetings the board shall keep said record open for public inspection. Any miner's certificate granted under the provisions of this act, and the hereinafter mentioned act approved the ninth day of May, Anno Domini one thousand eight hundred and eighty-nine, shall not be transferable to any person or persons whatsoever, and any transfer of the same shall be deemed a violation of this act. Certificates shall be issued only at meetings of said board, and said certificates shall not be legal unless then and there signed in person by at least three members of said board.

Section 6. That no person shall hereafter engage as a miner in any anthracite coal mine without having obtained such certificate as aforesaid. And no person shall employ any person as a miner who does not hold such certificate as aforesaid, and no mine foreman or superintendent shall permit or suffer any person to be employed

under him, or in the mines under his charge and supervision as a miner, who does not hold such certificates. Any person or persons who shall violate or fail to comply with the provisions of this act, shall be guilty of a misdemeanor, and on conviction thereof shall be sentenced to pay a fine not less than one hundred dollars and not to exceed five hundred dollars, or shall undergo imprisonment for a term not less than thirty days and not to exceed six months, or either, or both, at the discretion of the court.

Section 7. The persons who are now serving as members of the Miners' Examining Board as created by the act approved the ninth day of May, Anno Domini one thousand eight hundred and eighty-nine, entitled "An act to provide for the examination of miners in the anthracite region of this Commonwealth, and to prevent the employment of incompetent persons as miners in anthracite coal mines," shall continue under the provisions of this act to serve as members of the "Miners' Examining Board" until the terms for which they were appointed under the provisions of the said act approved the ninth day of May, Anno Domini one thousand eight hundred and eighty-nine, shall have expired, and in the performance of the duties of their office they shall be subject to the provisions and requirements of this act.

Section 8. Nothing in this act shall be construed to in any way, excepting as herein provided, effect miners' certificates which have been lawfully issued under the provisions of the herein mentioned act, approved the ninth day of May, Anno Domini one thousand eight hundred and eighty-nine.

Section 9. It shall be the duty of the several Miners' Examining Boards to investigate all complaints or charges of non compliance or violation of the provisions of this act, and to prosecute all persons so offending; and upon their failure so to do, then it shall become the duty of the district attorney of the county wherein the complaints or charges are made to investigate the same and prosecute all persons so offending, and it shall at all times be the duty of the district attorney to prosecute such members of the Miners' Examining Board as have failed to perform their duty under the provisions of this act; but nothing herein contained shall prevent any citizen, a resident of this Commonwealth, from prosecuting any person or persons violating this act, with power to employ private counsel to assist in the prosecution of the same; upon conviction of any member of the Miners' Examining Board for any violation of this act, in addition to the penalties herein provided, his office shall be declared vacant, and he shall be deemed ineligible to act as a member of the said board.

Section 10. For the purposes of this act the members of the said "Miners' Board" shall have power to administer oaths.

Section 11. All acts or parts of acts inconsistent herewith are hereby repealed.

Approved—The 15th day of July, A. D. 1897.

DANIEL H. HASTINGS.

AN ACT

To amend the tenth section of article ten of an act, entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith," approved the second day of June, Anno Domini one thousand eight hundred and ninety-one, providing that self-acting doors are used.

Section 1. Be it enacted, &c., That the tenth section of article ten of an act, entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith," approved the second day of June, Anno Domini one thousand eight hundred and ninety-one, which reads as follows:

"All main doors shall have an attendant whose constant duty it shall be to open them for transportation and travel and prevent them from standing open longer than is necessary for persons or cars to pass through," be and the same is hereby amended to read as follows:

All main doors shall have an attendant, whose constant duty it shall be to open them for transportation and travel and prevent them from standing open longer than is necessary for persons or cars to pass through, unless a self-acting door is used which is approved by the inspector of the district.

Approved—The 20th day of April, A. D. 1899.

WILLIAM A. STONE.

AN ACT

To amend section four of article eight of an act, entitled "An act relating to bituminous coal mines and providing for the lives, health, safety and welfare of persons employed therein," approved the fifteenth day of May, Anno Domini one thousand eight hundred and ninety-three permitting the use of mineral oils in bituminous mines when used in approved safety lamps.

Section 1. Be it enacted, &c., That section four of article eight of an act, entitled "An act relating to bituminous coal mines and providing for the lives, health, safety and welfare of persons employed

therein," approved the fifteenth day of May, Anno Domini one thousand eight hundred and ninety-three, which reads as follows:

"Section 4. No explosive oil shall be used or taken into bituminous coal mines for lighting purposes and oil shall not be stored or taken into the mines in quantities exceeding five gallons. The oiling or greasing of cars inside of the mines is strictly forbidden unless the place where said oil or grease is used is thoroughly cleaned at least once every day to prevent the accumulation of waste oil or grease on the roads or in the drains at that point. Not more than one barrel of lubricating oil shall be permitted in the mine at any one time. Only a pure animal or pure cotton-seed oil or oils that shall be as free from smoke as pure animal or pure cotton-seed oil shall be used for illuminating purposes in any bituminous mine. Any person found knowingly using explosive or impure oil contrary to this section shall be prosecuted as provided for in section two of article twenty-one of this act," be and the same is hereby amended to read as follows:

Section 4. No explosive oil shall be used or taken into bituminous coal mines for lighting purposes except when used in approved safety lamps and oil shall not be stored or taken into the mines in quantities exceeding five gallons. The oiling or greasing of cars inside of the mines is strictly forbidden unless the place where said oil or grease is used is thoroughly cleaned at least once every day to prevent the accumulation of waste oil or grease on the roads or in the drains at that point. Not more than one barrel of lubricating oil shall be permitted in the mine at any one time. Only a pure animal oil or pure cotton-seed oil or oils that shall be as free from smoke as pure animal or pure cotton-seed oil shall be used for illuminating purposes in any bituminous mine. Any person found knowingly using explosive or impure oil contrary to this section shall be prosecuted as provided for in section two of article twenty-one of this act.

Approved—The 28th day of April, A. D. 1899.

WILLIAM A. STONE.



ANTHRACITE MINE DISTRICTS.



First Anthracite District.

(LACKAWANNA AND SUSQUEHANNA COUNTIES.)

Scranton, Pa., Feb. 16, 1899.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor of herewith presenting my annual report as Inspector of Mines for the First anthracite district for the year ending December 31, 1898.

The total quantity of coal produced was 6,515,790 tons, which is an increase of 265,957 tons over the production of the preceding year.

There were 51 fatal accidents and 126 non-fatal ones.

Thirty wives were made widows and 77 children fatherless by these fatalities.

Each accident was reported and fully described to the Chief of the Bureau of Mines shortly after its occurrence, and suitable comments made thereon whenever necessary.

There were 127,760 tons of coal produced per each fatal accident. It may be truthfully said, however, of the quantity reported as "total production," that it represents the actual quantity of prepared coal, and not the total production in its unprepared condition as it comes from the mines, for from very reliable information obtained from outside foremen and superintendents, it is learned that at least thirty per cent. of what comes from the mine to the breaker as coal goes to the culm bank as waste.

Hence, the amount reported as "total production" actually represents but seventy per cent. of what was produced by the miners, and the thirty per cent. of waste added to the reported tonnage would increase it from 6,515,790 tons to 9,308,270 tons, as the real output of the mines.

Then, instead of 127,760, there was 182,515 tons of coal produced by the miners for every life that was lost.

This, in all fairness, should be taken into consideration, for there is just as much risk attached to mining what goes to waste on the culm bank as there is in mining what is finally prepared and sent to market.

The average number of days worked was 153.3, against 165.1 in 1897.

The total number of persons employed was 17,890.

Of the 51 killed, 15 were miners and 25 were laborers. Three drivers, 2 runners, 4 slate pickers, 1 door tender and a timberman complete the sorrowful list. Thirty were killed by falls of rock and 4 by falls of coal. Not one of these accidents, however, occurred on the main or traveling roads of the mines, but every one happened close to or at the faces of gangways or breasts, and in no case was more than one killed at the same time or by the same accident. Several of these occurred while the miners were barring down loose pieces of rock and coal. Others happened while the men were either engaged in securing the roof with new timbers, or replacing old ones that had been discharged by shots fired at the face a few minutes previously.

Fatal falls of "top coal" occurred while old and experienced miners were barring or in other words "working" out the bottom bench.

Of the 126 non-fatal accidents, 63 were caused by falls of rock and coal, making 97 of the 177 due to this cause alone.

Nine lost their lives and 31 were injured by cars inside.

There were 215,590 kegs of powder, of 25 pounds each, and 149,874 pounds of dynamite used during the year, and but one life was lost in the consumption of this great quantity of explosives, and this was through sheer recklessness on the part of one of the most experienced miners, who made the fatal mistake of trying to force a charge of powder to the back of a hole with a drill. Four were injured by premature blasts, and two slightly burned by explosions of powder caused by sparks flying from lamps. The remaining seven fatalities are due to various causes in and about the mines. The 177 casualties are attributed to 20 different causes, as will be seen by reference to table E.

Among those killed and injured were representatives of fourteen nationalities, showing that a very cosmopolitan population works in the mines of this locality.

An application was made to the court of Lackawanna county for an injunction to restrain the Elk Hill Coal and Iron Company from working the Dunmore vein of Richmond No. 3 shaft in contravention of sections 1, 3 and 10 of article 4 of the mine law of June 2, 1891, which was granted on March 3, and the mine subsequently closed down until the escape way was completed, which was about the middle of June.

A full report of the proceedings of the case, together with the court's opinion, was duly made to Chief of Bureau of Mines, hence a repetition here would be superfluous.

On the 28th of July the engine and fan house at Richmond No. 3 were entirely destroyed by fire, and the 23 persons then working in No. 2, Dunmore vein were obliged to make their escape through the

second opening, which had been but recently completed. As the only other way of escape was cut off by the fire at the head of the main shaft.

The Riverside Coal Company's breaker of 1,000 tons a day capacity was destroyed by fire on May 11, since which time a new one has been erected on the site of the old one.

The Delaware and Hudson Canal Company has built a new breaker of 2,000 tons a day capacity at Olyphant. A new coal washery has also been erected by the same company, and a new air shaft has been sunk for the Morvine and Dickown shafts, and a 20-ton air locomotive has been installed at Leggett's creek.

Compressed air coal drills have been introduced by the Elk Hill Coal and Iron Company at Richmond No. 3.

The tail rope system of haulage has been adopted by the Delaware, Lackawanna and Western Railroad Company at Storrs No. 1 with good results.

Many other improvements have been made by other companies for facilitating and increasing the output of coal.

The ventilating facilities are ample throughout the district, and on the whole the air currents are well conducted to the faces of all working places.

Culm is being successfully flushed into the old workings of Grassy Island and Eddy Creek by the Delaware and Hudson Canal Company. Also by the Mt. Jessup Coal Company into their slope workings.

Considerable "pillar robbing" has been done during the year by several companies, but the number of accidents attending this critical work has been remarkably few.

The Russel B., formerly the Old Buffalo mine, was abandoned in August.

The general condition of the collieries is good, and I am pleased to say that the provisions of the mine law are being very generally observed by those in charge of the mines.

The report contains the usual statistical tables, together with a brief description of each accident, but in view of the fact that a monthly narrative report of the daily performance of my duties has been made to the Chief of the Bureau of Mines, containing suggestions and recommendations from time to time as the circumstances required, the report is not as lengthy as heretofore.

Respectfully submitted,

EDWARD RODERICK,

Inspector First Anthracite District.

The annual examination of applicants for mine foreman and assistant mine foreman certificates of qualification, was held at Carbondale on July 12 and 13 by the Board of Examiners, consisting of

Edward Roderick, Inspector, Chas. P. Ford, superintendent, James E. Morrison and Joseph T. Roberts, miners, and Lewis H. John, clerk.

Six applicants entered for mine foremen certificates, three of whom passed, viz: Alonzo D. Richards, Peckville; John Reese Olyphant, and Horace Heller, Winton.

Thirteen were recommended for assistant foreman certificates, viz: David McElry, Alban Evans, Chas. W. Williams, and George R. Mason, Olyphant; William Golightly, John J. Morgan, Michael McGuire, Chas. Hainsworth, William Davison, and Geo. W. Bowan, Scranton; Martin F. Brennan, W. Patten and Patrick F. Tigne, Carbondale.

TABLE A.—Showing the Production of Coal, the Number of Persons Employed by each Company during the Year 1898, and the Average Number of Tons Produced per Employee.*

Names of Companies.	Number of tons of coal produced.	Number of employees.
Delaware and Hudson Canal Company,	2,305,102	5,873
Hillside Coal and Iron Company,	688,855	2,131
Pennsylvania Coal Company,	357,400	845
Edgerton Coal Company,	140,363	390
North West Coal Company,	214,478	416
Elk Hill Coal and Iron Company,	143,123	392
Mt. Jessup Coal Company,	95,399	308
Moosic Mountain Coal Company,	103,032	227
Delaware, Lackawanna and Western Railroad Company, ..	519,217	1,142
Forest Mining Company,	233,639	662
Pancast Coal Company,	238,683	641
Lackawanna Coal Company,	193,646	681
New York and Scranton Coal Company,	175,586	665
Blue Ridge Coal Company,	159,857	498
Sterrick Creek Coal Company,	130,490	493
Pierce Coal Company,	82,150	225
Murray Coal Company,	56,057	107
Johnson's Coal Company,	367,333	909
Dolph Coal Company,	179,200	609
Franklin Coal Company,	48,347	139
Riverside Coal Company,	46,144	532
Russell B. Coal Company,	9,300	83
Winton Washery Coal Company,	28,389	21
Total,	6,515,790	17,890

*364.2 tons per employee.

TABLE B.—Number of Fatal Accidents and Quantity of Coal Produced per Life Lost.

Names of Companies.	Number of fatal accidents.	Number of tons of coal produced per life lost.
Delaware and Hudson Canal Company,	14	164,650
Hillside Coal and Iron Company,	9	76,539
Pennsylvania Coal Company,	2	178,700
North West Coal Company,	4	53,619
Delaware, Lackawanna and Western Railroad Company,	4	129,804
Johnson Coal Company,	4	91,833
Miscellaneous coal companies,	14	176,288
Total,	51	127,760

TABLE C.—Number of Fatal and Non-Fatal Accidents and Tons of Coal Produced per Accident.

Names of Companies.	Number of accidents.	Tons of coal produced per accident.
Delaware and Hudson Canal Company,	56	41,165
Hillside Coal and Iron Company,	17	40,521
Pennsylvania Coal Company,	5	71,480
North West Coal Company,	10	21,448
Delaware, Lackawanna and Western Railroad Company,	11	47,201
Johnson Coal Company,	22	16,692
Miscellaneous coal companies,	56	44,072
	177	36,812

TABLE D.—Showing Occupation of Persons Killed and Injured.

Occupation.	Killed or fatally injured.	Injured.	Total.
Miners,	15	54	69
Laborers,	25	36	61
Drivers,	3	14	17
Runners,	2	8	10
Oilers,	1	1	1
Door tenders,	1	4	5
Breaker boss,		1	1
Mason,		1	1
Company men,		3	3
Outside laborers,		1	1
Slate pickers,	4		4
Engineers,		1	1
Team leaders,		1	1
Track layers,		1	1
Timbermen,	1		1
	51	126	177

TABLE E.—Classification of Accidents.

Cause of Accidents.	Killed or fatally injured.	Injured.	Totals.
By falls of rock,	30	48	78
By falls of coal,	4	15	19
By cars, inside,	9	31	40
By premature blast,	1	4	5
By mules,	1	4	5
By electric shock,	1		1
By falling down shafts,	1		1
By breaker machinery,	2	3	5
By being drawn through coal pocket,	1		1
By cars, outside,	1	1	2
By explosions of gas,		2	2
By coal flying from shots,		2	2
By falling in breaker,	1	1	2
By explosion of caps,		1	1
By falling wall,		1	1
By explosions of powder,		2	2
By falling trestle,		2	2
By carriage,		1	1
Struck by rope and shaft bar,		2	2
	51	126	177

TABLE F.—Nationality of Persons Killed and Injured.

	Polish.	American.	Irish.	English.	Welsh.	Slavish.	Italian.	Austrian.	Hungarian.	German.	Russian.	Scotch.	Prussian.	Canadian.	Totals.
Killed,	17	9	4	4	3	4	1	3	2	1	3				51
Injured,	20	21	21	12	13	7	6	3	4	4	1	2	1	1	126
Totals,	47	30	25	16	16	11	7	6	6	5	4	2	1	1	177

TABLE I.—Showing Location, etc., of Collieries in the First Anthracite District.

Number showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
22	Lerggett's Creek.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
31	Marvine.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
24	Eddy Crook.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
23	Olyphant, No. 2.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
18	Grassy Island.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
15	White Oak.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
14	Jermyn No. 1.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
9	Powderly.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
7	No. 1 Shaft.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
6	Coal Brook.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
3	Racket Brook.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
11	Clinton.	Delaware and Hudson Canal Co.	Lackawanna	C. C. Rose.	Scranton.	Del. & Hudson C. Co.
10	Glenwood.	Hillside Coal and Iron Co.	Lackawanna	W. A. May.	Scranton.	N. Y., L. E. & W.
12	Erle.	Hillside Coal and Iron Co.	Lackawanna	W. A. May.	Scranton.	N. Y., L. E. & W.
13	Keystone.	Hillside Coal and Iron Co.	Lackawanna	W. A. May.	Scranton.	N. Y., L. E. & W.
14	Clifford.	Hillside Coal and Iron Co.	Susquehanna	W. A. May.	Scranton.	N. Y., L. E. & W.
1	No. 1 Shaft.	Pennsylvania Coal Company.	Lackawanna	Alexander Bryden.	Dunmore.	Erle & Wyoming V. Y.
27	Gypsy Grove.	Pennsylvania Coal Company.	Lackawanna	Alexander Bryden.	Dunmore.	Erle & Wyoming V. Y.
28	Gypsy Grove Washery.	Pennsylvania Coal Company.	Lackawanna	Alexander Bryden.	Dunmore.	Erle & Wyoming V. Y.
33	Edgerton.	Pennsylvania Coal Company.	Lackawanna	J. L. Crawford.	Scranton.	N. Y., L. E. & W.
32	Edgerton.	Pennsylvania Coal Company.	Lackawanna	J. L. Crawford.	Scranton.	N. Y., L. E. & W.
35	Richmond No. 3.	North West Coal Company.	Lackawanna	W. H. Richmond.	Scranton.	O. & W.
4	Simpson.	Elk Hill Coal and Iron Company.	Lackawanna	W. H. Richmond.	Scranton.	O. & W.
34	Richmond No. 4.	Elk Hill Coal and Iron Company.	Lackawanna	W. H. Richmond.	Scranton.	O. & W.
17	Mt. Jessup.	Mt. Jessup Coal Company.	Lackawanna	Charles P. Ford.	Scranton.	D. L. & W.
36	Moosic Mountain.	Moosic Mountain Coal Co.	Lackawanna	Charles P. Ford.	Scranton.	D. L. & W.
30	Storrs.	Del., Lack. & Western R. R. Co.	Lackawanna	W. R. Storrs.	Scranton.	N. Y., L. E. & W.
27	Forest Mine.	Forest Mining Company.	Lackawanna	E. S. Jones.	Scranton.	N. Y., L. E. & W.
26	Pancoast.	Pancoast Coal Company.	Lackawanna	Charles O. Sanderson.	Scranton.	N. Y., L. E. & W.
22	Lackawanna.	Lackawanna Coal Company.	Lackawanna	Charles O. Sanderson.	Scranton.	N. Y., L. E. & W.
51	Blue Ridge.	Lackawanna Coal Co.	Lackawanna	John R. Bryden.	Scranton.	O. & W.
30	Sterrick Creek.	Sterrick Creek Coal Company.	Lackawanna	John R. Bryden.	Scranton.	O. & W.
16	Pierce.	Pierce Coal Company.	Lackawanna	David Morgan.	Scranton.	N. Y., L. E. & W.
29	Murray.	Murray Coal Company.	Lackawanna	M. J. Murray.	Dunmore.	D. L. & W.
25	Johnsons.	Johnson's Coal Company.	Lackawanna	George D. Kingsley.	Peekville.	O. & W.

TABLE I.—Continued.

Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
Dolph,	Dolph Coal Company,	Lackawanna,	W. G. Robertson,	Scranton,	N. Y. S. & W.
Franklin,	Franklin Coal Company,	Lackawanna,	Hollister,	Carbondale,	N. Y. L. E. & W.
Riverside,	Riverside Coal Company,	Lackawanna,	J. M. Rice,	Scranton,	O. & W.
Russell R.,	Russell R. Coal Company,	Lackawanna,	Frank Christian,	Scranton,	O. & W.
Winton Washery,	Winton Washery Coal Company,	Lackawanna,	Frank Christian,	Scranton,	O. & W.

Numbers showing location of mines on district map.

39
40
41
42
43
44

TABLE II.—Gives the number of tons of coal mined in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the First Anthracite District for the year ending December 31, 1898.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal, in tons, used for steam and heat.	Sold to local trade and used by employes.	Railroad shipments, in tons, of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.
Lesgett's Creek,	Lackawanna,	221,378	21,900	2,716	195,769	190,955	535	3	4
Marvine,	Lackawanna,	301,749	21,940	2,543	278,186	199,755	528	3	3
Eddy Creek,	Lackawanna,	206,104	15,974	2,758	187,679	175,925	529	1	5
Olyphant No. 2,	Lackawanna,	94,487	7,275	.....	87,212	169,225	557	.....	1
Grassy Island,	Lackawanna,	168,238	15,968	2,758	179,482	186,000	474	.....	1
White Oak,	Lackawanna,	194,638	2,634	1,778	190,246	183,775	556	.....	1
Jermyn No. 1,	Lackawanna,	228,858	7,163	1,823	219,842	154,225	501	.....	1
Powderly,	Lackawanna,	75,401	1,171	.....	68,230	189,000	298	.....	1
No. 1 shaft,	Lackawanna,	129,455	32,308	766	96,847	189,775	447	.....	1
Coal Brook,	Lackawanna,	287,461	5,707	.....	280,988	171,500	724	.....	1
Forest Brook,	Lackawanna,	158,433	2,400	.....	156,033	181,500	58	.....	1
Clinton,	Lackawanna,	269,109	9,064	1,744	198,292	178,775	403	.....	1
Total and averages, .....	.....	2,305,192	148,364	17,886	2,138,852	174,8	5,873	14	42
Glenwood,	Lackawanna,	100,816	8,674	2,861	89,973	116,50	404	1	1
Elric,	Lackawanna,	123,585	12,717	3,699	107,999	124,00	416	3	2
Keystone,	Lackawanna,	41,515	916	.....	40,599	147,00	113	.....	1
Forest City,	Susquehanna,	293,222	12,887	7,566	177,456	130,50	764	.....	2
Clifford,*	Susquehanna,	121,777	9,548	1,170	*215,332	124	429	.....	2
Total and averages, .....	.....	688,855	44,752	14,214	629,889	126	2,131	9	8

*Of the number of tons shipped from this colliery, 95,342 tons were mined at Forest City.

TABLE II.—Continued.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal, in tons, used for steam and heat.	Sold to local trade and used by employes.	Railroad shipments, in tons, of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.
No. 1 Shaft,	Lackawanna,	146,612	2,161	.....	144,451	128.75	464	2	1
Gypsy Grove,	Lackawanna,	101,027	1,704	.....	99,323	124.75	361	.....	2
Gypsy Grove Washery,	Lackawanna,	109,761	11,022	.....	98,729	205.80	20	.....	.....
Totals and averages,		357,400	14,897	.....	342,503	153.30	845	2	3
Edgerton,	Lackawanna,	140,363	8,390	511	131,462	112.3	300	.....	1
Simpson,	Lackawanna,	214,478	8,888	772	204,818	147.8	416	4	6
Totals and averages,		354,841	17,278	1,283	336,280	130.1	716	.....	7
Richmond No. 3,	Lackawanna,	13,430	5,000	1,453	6,907	45	98	.....	.....
Richmond No. 4,	Lackawanna,	129,703	10,000	2,671	117,072	170.9	291	1	10
Totals and averages,		143,133	15,000	4,124	123,949	107.95	392	1	10
Mt. Jessup,	Lackawanna,	95,395	12,400	1,675	81,324	155.3	308	.....	2
Moosic Mountain,	Lackawanna,	103,022	6,100	1,949	94,983	148	227	1	1
Totals and averages,		198,417	18,500	3,624	176,307	151.65	535	1	3
Storrs,	Lackawanna,	519,217	41,650	2,634	474,933	178.8	1,112	4	7
Forest Mine,	Lackawanna,	2,3,639	7,300	2,293	2,045	157.2	1,682	.....	3
Pancoast,	Lackawanna,	238,083	31,957	2,828	203,938	195.75	641	.....	2
Lackawanna,	Lackawanna,	173,636	14,950	2,877	154,759	189.60	681	2	2
Ontario,	Lackawanna,	175,587	14,600	2,972	158,014	156.60	665	1	4
Blue Ridge,	Lackawanna,	159,857	15,000	2,564	144,293	168.80	498	2	2
Sterrick Creek,	Lackawanna,	130,490	6,000	2,782	121,708	116.30	493	1	3
Pierce,	Lackawanna,	82,150	2,500	141	79,509	171.00	225	4	8

Murray,	56,057	300	4,205	51,552	175.75	107	.....	.....
Johnson's, Nos. 1 and 2,	367,333	21,700	1,470	344,163	235.30	903	.....	18
Dolph,	179,200	22,000	827	156,373	110.8	600	.....	1
Franklin,	48,347	2,700	5,259	40,388	141.25	139	.....	2
Riverside,	46,144	15,000	200	30,944	47.6	532	.....	1
Russell,	9,300	500	100	8,700	105	83	.....	.....
Winton Washery Coal Company,	28,389	500	.....	27,889	182	21	.....	.....
Total and averages,	2,468,038	187,327	28,199	2,252,512	154.3	7,398	51	126

Recapitulation.

Delaware and Hudson Canal Co., ..	2,305,102	148,364	17,886	2,138,852	174.8	5,673	14	42
Hillside Coal and Iron Company,	688,855	44,752	14,214	629,889	195	2,431	3	3
Pennsylvania Coal Company,	357,400	14,897	.....	342,503	153.30	641	2	8
Edgerton and North West Coal Co., ..	354,841	17,278	.....	336,280	130.1	716	4	7
Elk Hill Coal and Iron Company,	143,123	15,000	1,253	123,989	107.95	292	1	10
Mt. Jessup & Moosic Mt. Coal Co., ..	198,431	18,500	3,624	176,307	151.65	535	1	3
Miscellaneous coal companies,	2,468,038	187,327	28,199	2,252,512	154.3	7,398	20	53
Grand total and averages,	6,515,790	446,118	69,330	6,000,312	153.3	17,890	51	126

TABLE II.—Continued.

Names of Collieries.	County.	Number kegs of powder used.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity, in gallons.	Number of steam engines of all classes.	Total horse power.	Number electric dynamos.	Voltage.	Number electric locomotives.	Number air compressors.	Number air locomotives.
Leggett's Creek,	Lackawanna,	5,866	3,514	61	28	10	5,713	15	1,477	.....	.....	.....	1	1
Marysville,	Lackawanna,	7,755	2,593	47	31	8	6,054	23	1,869	.....	.....	.....	.....	.....
Edley Creek,	Lackawanna,	8,888	1,550	46	6	7	2,040	17	1,096	.....	.....	.....	.....	.....
Olyphant No. 2,	Lackawanna,	4,225	2,882	49	5	3	3,500	14	843	.....	.....	.....	.....	.....
Grassy Island,	Lackawanna,	5,770	693	48	21	11	3,576	14	561	.....	.....	.....	.....	.....
White Oak,	Lackawanna,	4,635	25,425	58	9	.....	.....	.....	180	.....	.....	.....	.....	.....
Jermyn No. 1,	Lackawanna,	4,776	.....	36	4	.....	1,000	7	706	.....	.....	.....	.....	.....
Powderly,	Lackawanna,	4,618	2,760	34	18	7	1,500	3	369	.....	.....	.....	.....	.....
No. 1 Shaft,	Lackawanna,	3,620	800	69	15	6	3,312	3	300	.....	.....	.....	.....	.....
Coal Brook,	Lackawanna,	5,731	2,714	74	5	3	200	4	420	.....	.....	.....	1	2
Racket Brook,	Lackawanna,	1	.....	1	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clinton,	Lackawanna,	3,977	2,089	45	13	3	400	.....	200	.....	.....	.....	.....	.....
Totals and averages, .....	.....	67,961	46,900	598	163	61	27,330	117	8,136	.....	.....	.....	2	3
Glenwood,	Lackawanna,	3,875	7,414	36	10	10	3,410	7	410	.....	.....	.....	1	.....
Erie,	Lackawanna,	4,255	2,182	45	24	6	3,352	6	280	.....	.....	1	.....	.....
Keystone,	Lackawanna,	1,224	472	19	.....	1	98	2	60	.....	.....	.....	.....	.....
Forest City,	Susquehanna,	11,710	3,970	71	26	4	1,066	13	970	.....	220	4	.....	.....
Clifford,	Susquehanna,	6,169	6,060	48	8	7	1,246	10	463	.....	.....	.....	.....	.....
Totals and averages, .....	.....	27,224	29,338	219	64	28	9,181	38	2,183	4	220	5	1	.....
No. 1 Shaft,	Lackawanna,	5,833	1,723	42	7	7	1,179	22	789	.....	.....	.....	.....	.....
Gipsy Grove,	Lackawanna,	3,585	374	38	.....	5	1,375	9	335	.....	.....	.....	.....	.....
Gipsy Grove Washery,	Lackawanna, .....	.....	.....	1	2	3	1,170	4	121	.....	.....	.....	.....	.....
Totals and averages, .....	.....	9,418	2,097	81	9	15	3,924	35	1,247	.....	.....	.....	.....	.....

Edgerton,	3,268	270	62	8	2	600	8	341	.....	.....
Stumpson,	5,617	543	89	22	16	2,629	18	610	.....	.....
Total and averages,	8,915	773	151	39	18	3,229	26	951	.....	.....
Richmond No. 3,	240	10,600	6	11	6	.....	4	340	.....	.....
Richmond No. 4,	4,240	.....	25	4	4	.....	3	325	.....	.....
Total and averages,	4,440	10,600	41	15	10	.....	7	665	.....	.....
Mt. Jessup,	1,975	15,000	31	22	14	3,310	10	943	.....	.....
Moosic Mountain,	3,631	375	32	9	1	468	2	500	.....	.....
Total and averages,	5,626	15,975	62	31	15	3,978	12	1,443	.....	.....
Storrs,	17,979	5,136	106	21	18	4,526	22	1,622	.....	.....
Forest Mine,	7,258	31,000	46	12	19	2,000	11	900	.....	.....
Pancost,	10,871	15,350	69	24	11	2,652	12	1,226	.....	.....
Lackawanna,	6,786	.....	75	28	6	2,000	15	2,000	.....	.....
Ontario,	8,225	4,700	55	21	8	1,075	17	1,327	.....	.....
Blue Ridge,	7,210	425	42	14	5	729	10	704	.....	.....
Sterrick Creek,	6,209	1,200	45	18	6	1,500	5	575	.....	.....
Pierce,	2,203	.....	24	10	.....	.....	6	380	.....	.....
Murray,	1,640	299	18	.....	.....	.....	4	229	.....	.....
Johnson's, Nos. 1 and 2,	16,862	7,659	109	19	13	8,962	27	2,117	.....	.....
Lackawanna,	4,638	2,000	32	9	.....	2,000	11	620	.....	.....
Pittsville,	1,209	3,000	23	9	.....	2,500	7	559	.....	.....
Riverside,	1,645	1,800	32	10	.....	650	7	583	.....	.....
Russell B,	600	70	8	2	.....	.....	2	110	.....	.....
Winton Washery Coal Company, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total and averages,	92,406	53,111	692	194	90	26,976	156	12,376	.....	.....
								
								

Recapitulation.

Delaware and Hudson Canal Company,	67,461	46,900	598	163	61	27,330	117	8,136	.....	.....
Hillside Coal and Iron Company,	27,224	29,398	219	64	28	9,481	38	2,183	.....	.....
Pennsylvania Coal Company,	9,418	2,697	81	9	15	3,924	25	1,245	.....	.....
Edgerton and North West Coal Co.,	8,915	793	151	39	18	3,229	26	951	.....	.....
Elk Hill Coal and Iron Company,	4,440	10,600	41	15	10	2,000	7	665	.....	.....
Mt. Jessup and Moosic Mountain Coal Co,	5,626	15,975	62	31	15	3,978	12	1,443	.....	.....
Miscellaneous coal companies,	92,005	33,111	692	194	90	26,976	156	12,376	.....	.....
Grand total and averages,	215,590	119,374	1,845	596	237	76,339	391	26,999	.....	.....
								
								

TABLE III.—Showing the number of employees at each colliery in the First Anthracite District during the year 1898.

Names of Collieries.	Occupations of Persons Employed Inside.						Occupations of Persons Employed Outside.						Grand total, inside and outside.					
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.			Total inside.	Outside foremen.	Blacksmiths and carpenters.		Engineers and firemen.	State pickers.	Superintendents, bookkeepers and clerks.	All other employes.	Total outside.
							1	2	3										4	5	6	7	8	9	10	11	12	13	14	15
Delaware and Hudson Canal Co.																		
Leggett's Creek,	1	5	125	125	66	12	50	384	1	5	16	71	.....	.....	58	151	335
Marvine,	2	5	151	154	121	31	86	553	1	9	10	63	.....	.....	62	145	608
Buddy Creek,	1	3	134	144	49	16	45	392	1	7	7	72	.....	.....	53	140	532
Glyphian No. 2,	1	3	145	145	61	12	45	412	1	9	10	67	.....	.....	58	195	467
Whites Oak,	1	3	130	140	57	7	50	432	1	4	12	39	.....	.....	46	122	554
Jermyu No. 1,	1	.....	139	140	48	19	33	483	1	6	5	54	.....	.....	48	107	550
Powderly,	1	.....	167	11	41	6	28	254	.....	.....	4	3	.....	.....	33	44	298
No. 1 Shaft,	1	.....	206	78	78	6	45	396	1	4	4	3	.....	.....	3	53	447
Coal Brook,	2	.....	250	135	80	12	41	520	1	1	9	97	.....	.....	88	204	724
Racket Brook,	1	.....	104	112	48	9	31	305	1	6	6	38	.....	.....	22	58	158
Clinton,	13	19	1,857	1,287	682	137	492	4,487	11	68	91	606	.....	.....	610	1,386	5,873
Hillside Coal and Iron Company.																		
Glenwood,	2	.....	103	100	50	14	23	292	1	3	10	61	.....	.....	41	117	409
Erle,	2	.....	105	105	59	8	20	299	1	5	11	66	.....	.....	31	117	416
Keystone,	3	.....	30	29	14	.....	5	78	1	2	12	18	.....	.....	11	35	113
East City,	1	.....	234	234	82	11	58	611	1	8	13	57	.....	.....	61	143	794
Chilford,	1	.....	129	70	40	4	20	282	1	6	3	61	.....	.....	69	147	429
Total,	8	.....	601	544	251	37	131	1,572	5	24	44	263	10	213	559	2,131	
Pennsylvania Coal Company.																		
No. 1,	2	1	132	138	37	5	15	330	1	3	15	64	.....	.....	50	134	464
Gipsy Grove,	1	.....	108	100	40	9	15	273	1	2	6	46	.....	.....	32	88	361
Gipsy Grove Washery,	1	.....	.....	.....	.....	.....	.....	.....	1	.....	4	.....	.....	.....	15	20	20
Total,	3	1	240	238	77	14	30	603	3	5	25	110	2	97	242	845		

Edgerton and North West Coal Co.	2	89	71	30	3	6	201	1	7	6	40	5	40	99	300
Edgerton,	2	133	89	44	10	23	301	1	10	11	28	5	50	115	416
Simpson,	4	222	100	74	13	29	592	2	37	17	78	10	80	214	716
Totals,															
Elk Hill Coal and Iron Company.	1	12	12	3	.....	14	43	1	2	10	25	2	15	55	98
Richmond No. 3,	1	80	80	32	15	9	217	1	4	4	50	2	16	77	294
Richmond No. 4,	2	1	92	92	35	15	23	290	2	6	14	75	4	31	132
Total,															
Mc. Jessup and Moose Mountain Coal Co.	1	1	70	72	17	5	29	195	1	6	12	81	7	6	113
Mc. Jessup,	1	72	72	33	5	11	194	1	6	6	.....	4	16	33	227
Moose Mountain,	2	1	142	144	50	10	40	389	2	12	18	81	11	22	146
Total,															
Sturges,	2	6	321	104	16	122	916	1	9	21	88	2	105	226	1,142
Payneast,	1	217	203	42	18	26	507	1	7	12	66	507	3	58	642
Lackawanna,	3	153	153	78	24	45	460	1	7	11	87	3	50	137	631
Ontario,	2	1	190	70	9	52	534	1	7	1	90	3	50	167	681
Blue Ridge,	3	218	168	65	7	34	495	1	6	14	115	495	23	170	665
Sterrick Creek,	2	137	92	42	6	46	327	1	7	10	100	3	50	171	498
Pierce,	3	120	90	59	7	34	313	2	8	7	95	3	65	180	493
Murray,	1	45	70	12	2	12	142	1	3	8	45	1	2	83	225
Johnson's,	1	23	23	16	1	6	70	1	3	4	18	1	10	37	107
Dolph,	2	5	248	225	90	24	67	661	1	11	21	138	3	74	248
Franklin,	1	115	120	75	5	25	342	1	14	13	140	3	87	258	600
Riverside,	1	29	40	16	6	6	89	1	2	1	15	1	30	139	300
Russell W.,	1	139	162	34	6	17	360	1	6	8	98	3	56	172	552
Winton Washery Coal Company,	1	15	29	10	2	.....	43	1	2	2	.....	2	18	34	83
Total,	26	20	1,970	1,891	713	133	492	5,245	16	92	161	1,112	37	735	2,153

Recapitulation.

Delaware and Hudson Canal Company,	13	1,857	1,287	682	137	392	4,487	11	68	91	606	.....	610	1,386	5,873
Hillside Coal and Iron Company,	8	601	544	251	37	131	1,572	5	24	44	233	10	213	550	2,131
Pennsylvania Coal Company,	3	240	298	77	14	30	603	3	25	25	110	2	97	242	845
Edgerton and North West Coal Co.,	4	292	160	74	13	29	502	2	17	17	78	10	90	214	716
Elk Hill Coal and Iron Company,	2	1	92	32	35	15	23	290	2	6	14	75	4	31	132
Mc. Jessup and Moose Mountain Coal Co.,	2	1	142	144	50	10	40	389	2	12	18	81	11	22	146
Miscellaneous coal companies,	26	29	1,970	1,811	713	133	492	5,245	16	92	161	1,112	37	735	2,153
Grand total,	58	42	5,124	4,356	1,882	359	1,237	13,058	41	224	370	2,325	74	1,718	4,832

TABLE III.—Continued.

Number of Days Worked Each Month in Breaker.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Delaware and Hudson Canal Company												
Leggett's Creek,	17.5	14.75	12.5	10.5	10.25	12	14.5	16.25	17.5	20	21.75	22.75
Marvine,	17.25	14.75	13	10.5	10.25	11.5	14.5	16.50	18.25	15	21.5	23
Putty Creek,	17.25	13.25	15.75	15.75	12.75	13	18.25	16.5	18.25	11.5	19	13.25
Quarry No. 1, .....	.....	.....	.....	.....	.....	.....	5.5	16.25	17.75	20.5	18.25	14
Quarry No. 2, .....	.....	.....	.....	.....	9.5	.....	.....	16.5	17.5	21.25	20.5	18.75
Grassy Island,	16.75	14.75	13	10.75	9.5	12	14.75	14.75	15.25	20	20.5	18.75
White Oak,	17.75	14.75	13	12.25	9.75	11.75	14.75	14.75	15.25	20	20.5	18.75
Jermyn No. 1,	11	.....	3.5	9.75	10.75	12	14.75	14.75	17.75	21.45	21.5	20
Powderly,	17.75	14.75	13	12.75	10.25	11	14	15.25	16.75	20.5	21.5	20.5
No. 1 Shaft,	17	13.25	9.5	12.75	10.25	11	14	15.25	16.75	20.5	21.5	20.5
Coal Brook,	18.50	13.25	13	6	10.25	11	13.95	15.25	18.50	21.25	21.5	21.25
Racket Brook,	16.75	13.75	9.50	6	9.75	11.50	14.25	15.25	18.50	20.75	21.5	22.50
Clinton, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hillsdale Coal and Iron Company.												
Glenwood,	8.75	9	6.50	8	8	8.50	8.50	10.75	14.75	15	13	10.75
Erie,	3.75	9.25	6.50	8	8	8.50	8.50	10.75	13.50	16	18.25	13
Keystone,	6.75	9.25	6.50	8	8	8.50	7.50	10.75	17.50	15	24.75	25.50
Forest City,	3.75	9.25	6	8.50	8	8.50	7.50	11.75	16.25	14.25	13.50	13.25
Clifford,	3.75	9.25	7	7.50	8	8.50	7.50	11.75	15.50	16.25	15.75	13.25
Pennsylvania Coal Company.												
No. 1,	12.75	9.25	9	7.25	8	8.50	13.75	7.50	9.75	12	13.50	17.50
Gipsy Grove,	8.25	9.50	9	7.25	8	8.25	13.75	7.50	9.25	13.75	13.50	16.75
Gipsy Grove Washery,	20.10	15.10	12.70	26.50	23	19.3	12.10	.....	15.50	19.30	19.10	23
Edgerton and North West Coal Company.												
Edgerton,	4.2	7.8	5.8	6.3	9.1	8	10.7	11	11.9	14.4	12.5	10.6
Simpson,	6.7	6.7	5.9	5.2	9.5	9	10.3	13.2	18.6	21.7	20.7	20.3

Elk Hill Coal and Iron Company.

Richmond No. 3,	10.4	4.7	2	3.7	7.2	6	5	6
Richmond No. 4,	13.5	11.3	14.6	14.7	13.4	12.5	17.3	17.1
Mt. Jessup,	9	9	10.2	11.9	13.8	16.3	18.1	16.9
Moosic Mountain,	7.8	8.4	10	11.3	14.3	14.2	18.2	14
Storrs,	9	7	10	10.4	12.1	22.3	23.5	17.4
Frost, Mine,	8.8	9.1	8.9	8.5	14.9	20.3	19.8	15.5
Parcast,	10.8	12.5	10.25	12.75	17.50	22.25	25.0	20.50
Lackawanna,	13.4	11.4	9.1	11.7	13.8	13.9	21.8	18.5
Ontario,	12.4	11.1	9.5	12.7	12.8	13.7	19.7	16.3
Blue Ridge,	3.7	8	6.5	12.7	15.3	16.3	16.7	16.3
Sterrick Creek,	18.3	12.4	16.9	7.9	9.1	14.9	15.1	12.5
Murray,	9	8.75	9.25	11.7	13.8	13.4	17.9	12.6
Johnson's,	15.9	19.5	17.7	17.50	11.50	16.75	25.5	25.75
Dolph,	8.2	5.5	5.9	16	20.3	22.7	22.4	22.8
Franklin,	13.5	12.5	13	7.8	6.7	10.5	14.7	14.8
Riverside,	12	7.8	11.5	14	12	12	11.5	11
Russell B.,	15	13	15	11.8	11	10.25	11.5	10.5
Winton Washery Coal Company,	10	10	17	16	16	16	13	11
				18	17	16	13	11

TABLE IV.—List of fatal accidents that occurred in and about the mines of the First Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 14	John Holeaver,	Laborer,	41	M.	1	3	Johnson's, No. 2,	Lackawanna,	Was loading a car at the face of a breast when a slippery piece of rock from the edge of a small "fault" fell and instantly killed him.
19.	Falkso Shula,	Laborer,	21	S.	.....	.....	Simpson,	Lackawanna,	After helping to push a car back a short distance so that the runner could take out the sprags, instead of stepping to one side he sat on the bumper, and when the trip started he slipped and fell under and was fatally crushed.
Feb. 17	James McGown,	Miner,	54	M.	1	4	Leggett's Creek,	Lackawanna,	While trying to force a charge of powder to the back of a hole with a drill, it exploded and killed him.
18.	Andrew Kendle,	Miner,	35	M.	1	2	Simpson,	Lackawanna,	A piece of rock fell from a pillar while he was preparing to drill a hole. It struck him on the head and injured him; he died on the 27th following.
22.	Wypack Kojinski, ...	Laborer,	23	S.	.....	.....	Forest City slope, ...	Susquehanna,	While loading a car, a slab of rock fell on him and so severely injured him that he died in a few days afterward.
March 2.	Michael Biski,	Laborer,	35	M.	1	.....	Riverside,	Lackawanna,	While shoveling some bottom coal a piece of top coal fell and instantly killed him.
5.	David Davis,	Runner,	21	S.	.....	.....	Marvine shaft,	Lackawanna,	The first three of a trip of mine cars became uncoupled on a slope. After the three passed him, he attempted to cross the track, but was struck by the remaining six.

23,	James Kinney,	Laborer,	35	S.	Lackawanna drift, Coal Brook.	Lackawanna,	He was working with his father, who, after firing a blast, went back and began to pick what was loose. In the meantime telling his son to "keep back," as he knew the roof was bad. He, however, in coming back, walked to the face and was killed.
26,	Thomas Gillhood, ...	Miner,	38	M. 1 3	Erie,	Lackawanna,	He was making a passing branch, and in order to put up a "collar," it was necessary to first remove an old prop. He told his laborer to knock it out, but he refused to do so. Gillhood thereupon took up a drill, knocked out the prop and immediately scooped to lift the collar, but was prevented by the falling of the rock previously supported by the prop which he had just removed.
April 16,	Harry Davis,	Driver,	17	S.	Lackawanna shaft,	Lackawanna,	Fell in front of a trip of loaded cars that was going down a light pitch and was squeezed between the cars and the pillar.
19,	John Alabitz,	Laborer,	40	M. 1 3	Pierce,	Lackawanna,	A prop had been displaced whereby the men got back to the face. A small slab of rock fell, struck this man and fractured his skull.
21,	Benjamin Travis, ...	Miner,	52	M. 1 7	Moosic Mountain,	Lackawanna,	While trying to bar down a slab of rock under the edge of which there was a prop, it gave way, swung around, struck him, knocked him down and fatally injured him.
26,	Joseph Dorcas,	Laborer,	34	M. 1 2	Marvine,	Lackawanna,	The miner and Dorcas were putting up a prop, when a piece of rock fell and caused his death.
May 2,	Joseph Margoosa, ...	Laborer,	50	M. 1	Sterrick Creek,	Lackawanna,	While he and his miner were barring down a small piece of top coal, a piece of rock fell the way and struck him forcing the way against some loose coal, causing severe injuries, from which he died on the following day.
2,	Robert Butts,	Door tender,	15	S.	Richmond No. 4,	Lackawanna,	Attempted to jump on front end of an empty car in motion, but failed and fell under.
4,	Stano Wyton,	Laborer,	25	S.	Pierce,	Lackawanna,	A shot had been fired in the top coal and the roof afterward examined and found to be a "little bad." The miner and a fellow miner had tried to bar the piece down early in the morning before one car had been loaded. They failed, and then put a prop under what he supposed was the outer edge. This supported it until after the third car had been loaded, when they gave way and caught the laborer just as he had finished loading his car.

TABLE IV.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
May 5.	Mike Evanchlek,	Laborer,	27	M.	1	3	No. 2 shaft,	Lackawanna,	The miners in this place had taken down some bad pieces of roof near the face and had also sounded the piece that fell and killed this man, and had supposed it was safe, for they worked under it for some time after their examination of it.
18. 19.	John Adler, William Pollard,	Driver, Miner,	16 24	S. M.	1 1	.....	White Oak, Jermyn No. 1,	Lackawanna, Lackawanna,	Kicked on abdomen by a mule. While mining out a bench of coal near the roof, he heard something working. Thinking it was the coal, he tried to save himself, but jumped directly under the falling piece of roof and was fatally injured.
21.	David Meridith,	Miner,	52	M.	1	4	Storrs No. 3,	Lackawanna,	Shortly after a shot had been fired in the coal near the roof, at the face of a breast, this man went back, and, learning the shot had not done as expected, he took up a pick, sounded the roof and remarked to his laborer, it was "all right," and then began to work out the loose coal. After striking a few blows the coal burst out with great force and noise; at the same moment a bell-shaped rock fell, caught him on the arm and leg, badly shattering the former and cutting the latter. The arm was afterwards amputated; he died two days later.

26,	Francisco Mortino, ..	Laborer,	37	M.	1	2	No. 2 shaft, No. 1 colliery.	Lackawanna,	Was instantly killed by a fall of 8-inch boney at the face of a breast, while he was loading a car. The miner had tried to pull the slab down, but had failed; he then put a prop under the outer edge to support it until such time as another "cut" could be taken from the face. He charged the laborer not to go under it, and then went home. He did not obey the orders, however, but went under it and lost his life.
26,	Rudolph Wills,	Miner,	30	M.	1	....	Pierce,	Lackawanna,	He was killed by "top coal," which did not do the work expected of it. He went back to the face, and standing in what he thought to be a safe place, began to bar at the loosened coal, which gave way on a "slip" behind him, and crushed him to death.
June 17,	Henry Burgess,	Laborer,	21	S.	....	....	Eddy Creek,	Lackawanna,	While loading a car at the face of a gang-way, a piece of "bony" about six feet square and six inches thick, which had been twice examined by the miner and laborers, fell and caused his death. This man's miner was a very careful workman, but in some way or other was misled by this slab.
25,	Joseph Petrovitski, ..	Laborer,	33	M.	1	1	Storrs No. 1,	Lackawanna,	Was killed by slab about six and one-half feet long; two and one-half feet wide, not over six inches at the thickest. The miner had noticed it, and knew it was a "little loose," but thought it extended over a prop. It did not, however, but fell from between two props.
29,	Mike Garull,	Miner,	30	M.	1	....	Clifford,	Susquehanna,	Was killed by a fall of top coal at face of breast, which occurred while he was mining out some loose coal from bottom bench.
29,	Adam Dakuofski, ...	Laborer,	25	S.	....	....	Johnson's, No. 1,	Lackawanna,	While walking out a manway, he slipped, and in falling put out his hand to save himself. His hand came in contact with an electric wire, which burned his thumb weeks later.
July 6,	Onufrel Koda,	Laborer,	30	M.	1	2	Johnson's, No. 1,	Lackawanna,	While shoveling coal back from face to end of track, a slippery piece of middle rock fell and crushed him to death. It was undetermined but three feet.
13,	William Cashelski, .	Laborer,	22	S.	....	....	Simpson,	Lackawanna,	While loading a car at face of breast a large slab of rock fell and fatally injured him. On the preceding day the miner tried to pull the slab down but failed. He then put up two props, and thought the slab was secured.

TABLE IV.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
July 15,	John Koyack,	Laborer,	32	M.	1	2	Pierce,	Lackawanna,	Killed by a fall of six-inch bony in a breast through which he was clearing a place for a new track. Another laborer with him at the time stated that they had called the miner's attention to the slab, but that he took no heed, and that the accident was due to his carelessness. Caught between car and upright timber under breaker, and fatally squeezed; died shortly afterwards.
Aug. 2,	Charles White,	Runner,	38	M.	1	3	Blue Ridge breaker, ...	Lackawanna,	Struck by a loaded trip of cars on a plane. Instead of going up the manway parallel to the plane, he went up the plane and when about half way failed to get out of the way of the descending trip. Jumped on a large section of timber, his fall being toward the shaft from surface landing. The engineer miscalculated the distance he had to hoist the carriage, but on steam when it was within twelve feet of the landing, causing it to go past the landing at a high rate of speed. All on board were frightened but Jones jumped and he alone was injured.
3,	Adam Kosloski,	Miner,	32	M.	1	3	Lackawanna,	Lackawanna,	
12,	Thomas Jones,	Driver,	19	S.	....	....	Storrs No. 1,	Lackawanna,	

Sept. 9,	Evan J. Thomas, Miner,	57	M.	1	.....	Storrs No. 2,	Lackawanna,.....	Instantly killed by a fall of "bell-shaped" rock, which occurred within two feet of the face and the same distance from the rib. He was a very good and, it might be said, overly cautious miner, never allowing himself to be caught in the roof. Yet, after all, was killed by a very small but treacherous "bell" close to the face, where he had just come after firing a shot.
12,	Jacob Kendel,	32	M.	1	3	Simpson breaker,	Lackawanna,.....	A part of a trip of loaded cars on which he was riding from the mine to the breaker became uncoupled. He stooped between the sections to reach for the coupling and fell, when the first section jerked away from the second and he was horribly crushed.
15,	Samuel Barsush, Laborer, .....	.....	S.	.....	.....	Grassy Island,	Lackawanna,.....	Was cleaning the main road near a branch leading to a breast. A car was about to be run over and he was pushed and held between the lower rib of the gangway and another car that was standing there; when the car coming from the breast struck the curve, it jumped the track and struck the car on the gangway, knocking it against the rib, crushing this man to death. He had half a mile of gangway to go in to be safe, but for some reason chose this most dangerous place.
25,	Benjamin Blaney ... Laborer,	28	M.	1	1	Marvine,	Lackawanna,.....	Instantly killed at the face of a gangway by a fall of "bell-shaped" rock. He and others were in a high shaft a few feet from the face and had just begun to work after making an examination of the roof. They drilled and fired one short hole, and while the miner was "working" out some loose coal at the face this "bell" fell out of the roof and killed one of the laborers, who was cleaning coal preparatory to loading a car.
Oct. 3,	Garber Padwick, Laborer,	40	S.	.....	.....	Glenwood,	Lackawanna,.....	Was standing on a bench of bottom rock, within six feet of the face, throwing coal back, when a massive piece of rock fell, the inner edge of which pinned him to the ground. The roof had been examined a short time before and seemed to be all right. As it crashed and fell, the mass of broken rock was visible everywhere. The mass that fell measured twenty-two by fifteen feet, was two feet thick at the center, then tapered to a thin edge on all sides and rested on the other side of the gob in one unbroken piece.

TABLE IV.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Oct. 10,	Patrick Cox,	Miner,	50	M.	1	3	Clinton,	Lackawanna,	Was mining out a large piece of coal from the side of his chamber, when it suddenly gave way, caught and so severely injured him that he died on the third day following.
20,	Peter Fordelevidge, .	Laborer,	21	S.	.....	.....	Erie,	Lackawanna,	Instantly killed by a fall of rock at the side of his breast. Four props had been placed under the edges of the rock but it broke in the center and forced the props out as it fell.
20,	John Bossic,	Laborer,	24	S.	.....	.....	Erie,	Lackawanna,	Fatally injured by the same fall of rock that killed Peter Fordelevidge.
21,	Clemm Borish,	Miner,	41	M.	1	3	No. 2 shaft,	Lackawanna,	Was taking a "skip" off the side of a road, for the purpose of widening it for a branch. He fired a shot under a projecting piece of rock for the purpose of blowing it down. He went back to the face and, while examining the result of the shot, while in a stooping position, the rock fell on him, with fatal results.
22,	Joseph Wisely,	Miner,	45	M.	1	6	No. 1,	Lackawanna,	While timbering the mouth of a slope, a slide of rock occurred, and he and his partner were caught and killed thereby. It was one of the oddest accidents that ever occurred.

27.	Mike Movoblski, Slate picker,	65	.....	Racket Brook,	Lackawanna,	Both legs fractured by stepping on the rollers after giving the engineer a signal to start up. The rollers were blocked and after cleaning them he gave word to start up, but just before a start was made, he saw a few other pieces of coal and made an effort to lift them out, when the machinery reversed and caught him.
28.	Vernie Page,	14	.....	Ontario breaker,	Lackawanna,	He and another little boy were playing with a rope, near the exposed end of a revolving shaft. The rope switched around the shaft, pulled him with it, while barring out a piece of bottom coal at the face of a counter gangway, a triangular piece of bony, measuring three and a half feet on the sides and about eight inches thick, which he had tried to pull down about an hour before, fell on him and forced his head against the loose coal on the bottom, fracturing his skull and causing his death in about an hour afterward. He was a very careful and competent miner, but made a mistake in judgment, which cost him his life.
Nov. 15,	Mike Vargo,	46	M. 1 6	Blue Ridge,	Lackawanna,	While shoveling coal in a "bird eye" coal pocket, he was drawn through and
Dec. 16,	Wladislaw Obelims, Slate picker,	22	.....	Clifford breaker,	Susquehanna,	While shoveling coal back from the face to the end of the track, a small piece of "mistle" rock fell from the face and crushed him to death. It was about three feet long and about fifteen inches on the sides.
19,	John Kotoski,	42	..... 1 3	Johnson's, No. 1,	Lackawanna,	He and some other little boys were playing on a loaded gondola during dinner time. He jumped off, fell across the rail and before he could get up the car ran over him, crushing both legs; he died in a few hours.
21,	William Robinson, .. Slate picker,	14	.....	Leggetts' Creek,	Lackawanna,	While shoveling coal from rib to end of track a rail of rock occurred which killed him at once. The rock had been caused by the miner a short time before and found unsafe, and a prop had been placed under the edge of it to secure it. However, just as the miner stepped out from under it to drill a hole, it fell and caught the laborer.
22	And. Petrowey, Laborer,	27	..... 1	No. 1 drift,	Lackawanna,	

TABLE IV. —Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Dec. 24,	David Mulchrone, ...	Miner,	56	....	1	7	Leggett's Creek,	Lackawanna,	Fired a shot and on returning to the face, discovered it had blown out two props. He proceeded to re-stand one of them, and while doing so a fall of rock occurred which so severely injured him that he died in a few hours afterward.
29,	Charles Adams,	Laborer,	22	....	....	....	Pancoast,	Lackawanna,	While standing at the junction of an empty and loaded track a trip of the car was made and it fell from the track and struck him, fatally injuring him.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the First Anthracite District for the year ending December 31, 1898.

Date of accident	Name of Person	Occupation	Age	Name of Colliery	County	Nature and Cause of Accident in Brief.
Jan. 10	Wm. J. Oliver	Headman	37	Johnson breaker	Lackawanna	Leg broken by tippie falling on it; leg amputated.
19	George O'Hara	Olter	20	Johnson breaker	Lackawanna	Toes crushed; caught by belt; wrench slipped.
22	Dominick Crecoma	Miner	35	Riverside	Lackawanna	Arm fractured; piece of top coal fell while he was running out some bottom coal after a shot.
27	Joseph Moses	Laborer	36	Marvine	Lackawanna	Head cut; while he was blocking a car a mule slipped and in falling, threw out one of his legs, which struck him on the head.
28	Angus Campbell	Miner	36	Marvine	Lackawanna	Cut on face, head, back and thighs by flying coal from a shot.
Feb. 2	Timothy McAndrew	Miner	60	Glenwood	Lackawanna	Hip fractured and back hurt by a fall of rock.
8	Frank Harvey	Laborer	22	Terwyn	Lackawanna	Leg fractured while operating engine it tipped.
10	Frank Smith	Miner	42	Forest City Slope	Lackawanna	Leg fractured by a fall of rock.
11	Harry Dando	Miner	35	Pierce	Lackawanna	Both legs fractured by a fall of coal.
11	Pat. Haggerty	Driver	17	Marvine	Lackawanna	Face and hands slightly burned by an explosion of a small body of gas.
14	Sim Voerchuech	Miner	35	Blue Ridge	Lackawanna	Head, back and leg cut while retreating from a shot.
14	Harry Whittington	Miner	50	Coal Brook, Lackawanna drift	Lackawanna	Bruised on body and back; fall of "two-inch" rock.
15	Thomas Myers	Laborer	35	Coal Brook, Lackawanna drift	Lackawanna	Bruised on body and back; fall of "two-inch" rock.
15	Adam Coshinski	Miner	35	Johnson's, No. 1	Lackawanna	Injured on body by fall of rock.
19	Edward Gibner	Laborer	31	Ridge shaft	Lackawanna	Injured on body by fall of rock.
19	Marlin Poroski	Miner	40	Ridge shaft	Lackawanna	Leg fractured; a piece of coal fell on him while he was drilling a hole.
21	William Burns	Runner	20	Marvine	Lackawanna	Collar bone struck by cars.
26	William Judge	Laborer	27	Marvine	Lackawanna	Foot crushed by a fall of rock.
29	Patrick Haley	Miner	42	Richmond No. 4	Lackawanna	Cut on head by a fall of rock.
March 1	Marlin Crawl	Miner	44	Pierce	Lackawanna	Head badly cut by fall of rock.
7	John Dack	Miner	55	Eddy Creek	Lackawanna	While trying to pass between two cars he was injured.
9	Henry Spreckler	Miner	55	Mt. Jessup	Lackawanna	Body bruised by a fall of rock while he was getting ready to stand a prop.
10	William Berry	Breaker boss	36	Gipsy Grove	Lackawanna	Body badly bruised; he was leaning out of a win-dow and overbalanced and fell out.

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
March 12,	John Shalonski,	Driver,	18	Johnson's, No. 1,	Lackawanna,	Slight of one eye destroyed and fingers shattered by the explosion of a cap which he was playing with.
14,	William Griffith,	Runner,	18	Eddy Creek,	Lackawanna,	While standing against a car a slab of rock fell and fractured one of his legs.
18,	Velant Rempis,	Laborer,	20	Riverside,	Lackawanna,	While throwing coal back a slab of rock fell and fractured his leg.
21,	Jas. Malarkey,	Miner,	57	White Oak,	Lackawanna,	A piece of coal in which he was drilling a hole fell on him and badly fractured his leg.
23,	James Kinney,	Miner,	54	Coal Brook,	Lackawanna,	Injured by a fall of rock that killed his son.
30,	Pat McGerrity,	Driver,	15	Storrs No. 2,	Lackawanna,	Cut on head; kicked by a mule.
April 1,	Edward Kelley,	Miner,	32	Clinton,	Lackawanna,	Severely cut on head by a flying piece of coal.
5,	Stanley Metain,	Miner,	41	Johnson's, No. 1,	Lackawanna,	Face badly cut by flying coal from a shot, which he thought had missed and broken a piece of it.
14,	John Rupka,	Miner,	28	Johnson's, No. 1,	Lackawanna,	Fell on him and his leg was broken.
15,	Martin Heffron,	Driver,	18	Eddy Creek,	Lackawanna,	While standing a prop, a fall of rock occurred and bruised his back.
15,	John Ruban,	Laborer,	40	Eddy Creek,	Lackawanna,	Ribs fractured by a portion of a wall falling on him.
18,	Evan Gabriel,	Mason,	51	Storrs, No. 1,	Lackawanna,	He was spragging a car, which jumped the track and broke his leg.
27,	Samuel Buckthski,	Driver,	18	Johnson's, No. 2,	Lackawanna,	Leg fractured by a fall of rock.
29,	Benjamin Hall,	Miner,	36	Johnson's, No. 1,	Lackawanna,	Badly bruised by a fall of rock.
29,	John Reese,	Miner,	37	Johnson's, No. 1,	Lackawanna,	Severely bruised by fall of top coal while loading a car.
May 4,	Andrew Shender,	Laborer,	25	Pierce,	Lackawanna,	Cut on head, arm and hip by flying coal from a shot.
9,	Powel Wottle,	Laborer,	35	Blue Ridge,	Lackawanna,	Arm fractured struck by a rope.
10,	Ralph Fisher,	Door tender,	16	Clifford,	Susquehanna,	Leg fractured by fall of rock while cleaning up
10,	Mike Fisher,	Miner,	40	Sterrick Creek,	Lackawanna,	Leg fractured by fall of gangway road.
14,	Felix Paone,	Laborer,	25	Pierce,	Lackawanna,	Squeezed between cars and grabbed by falling.
16,	Charles Chlinski,	Runner,	33	Stimpson,	Lackawanna,	Fell off a car and was dragged for about 75 feet.
18,	Joseph Dunn,	Driver,	15	Dolph,	Lackawanna,	Cut on head by a fall of coal.
18,	John Zaxistouch,	Laborer,	30	Richmond No. 4,	Lackawanna,	Compound fractured of leg by a fall of rock.
23,	Joseph Bodrak,	Laborer,	38	Moosic Mountain,	Lackawanna,	Badly bruised and head cut by a fall of rock.
24,	Robert Estelle,	Miner,	42	Johnson's, No. 1,	Lackawanna,	Leg fractured and head cut by a fall of rock.
24,	Adam Velk,	Laborer,	26	Johnson's, No. 1,	Lackawanna,	Leg fractured and head cut by a fall of rock.

June	2,	Philip Hogan,	Driver,	16	Wilson Creek,	Lackawanna,	Struck by flying coal from a runaway car.
	2,	Joseph Burns,	Miner,	45	Marvins,	Lackawanna,	While making up powder with lamp on his hat a spark fell into powder, ignited it and burned him.
	2,	William Williams,	Miner,	34	Storrs No. 2,	Lackawanna,	Spark from lamp, which he had placed at what he thought was a safe distance, flew into loose powder, igniting it and burning his face.
	9,	John Sholtis,	Laborer,	28	Simpson,	Lackawanna,	Leg fractured; the miner barred down a piece of coal, which struck him.
	13,	Michael Klinchock,	Laborer,	30	Lackawanna drift,	Lackawanna,	Thigh fractured by flying coal from a blast.
	15,	Michael Sherlet,	Headman,	32	Lackawanna,	Lackawanna,	Arm fractured by falling from trestle that gave way.
	15,	Peter Krynock,	Runner,	23	Ontario breaker,	Lackawanna,	Body bruised by falling from trestle that gave way.
	17,	Jas. Wharton,	Miner,	32	Eddy Creek,	Lackawanna,	Head and shoulders injured by a fall of rock.
	17,	John Blaschak,	Laborer,	35	Mt. Jessup,	Lackawanna,	Leg fractured by a car which he tried to hold back.
	22,	Morgan Davis,	Miner,	40	Richmond No. 4,	Lackawanna,	Arms bruised by a fall of coal.
	22,	John Cosgrove,	Laborer,	26	Pierce,	Lackawanna,	Ribs fractured; thrown under a car when it jumped the track.
	29,	Thomas Bellolat,	Miner,	55	Pierce,	Lackawanna,	Head cut by a fall of coal.
July	11,	John Allich,	Laborer,	25	Wilson Creek,	Lackawanna,	Head, arms and hips injured by a fall of rock.
	13,	John Vallick,	Laborer,	45	Sturges,	Lackawanna,	Leg fractured by a fall of rock.
	15,	John Chalcoat,	Laborer,	43	Pierce,	Lackawanna,	Severely injured by a fall of rock.
	16,	William Wollert,	Miner,	48	Clinton,	Lackawanna,	Both legs fractured by a fall of rock.
	19,	Samuel Rouse,	Company man,	31	Storrs, No. 1,	Lackawanna,	Failed to unitch tail rope and was squeezed by severely bruised jumper on the track.
	20,	Adam Rulish,	Miner,	32	Simpson,	Lackawanna,	Severely squeezed by a fall of coal.
	20,	Steve Klucki,	Miner,	28	Simpson,	Lackawanna,	Severely squeezed by a fall of coal.
	20,	Harry Petrusse,	Driver,	35	No. 2 shaft,	Lackawanna,	Severely squeezed between cars.
Aug.	1,	Patrick Dean,	Headman,	41	Sterrick Creek,	Lackawanna,	Leg fractured; tipple at head of breaker struck him.
	3,	Joe Bartachie,	Driver,	16	Sterrick Creek,	Lackawanna,	He stepped behind one car to avoid a kicking mule; the cars in the rear bumped and broke his leg.
	5,	Patrick McCabe,	Miner,	69	Lackawanna,	Lackawanna,	While going to face of breast, a slab fell and injured him.
	6,	Andrew Shofkofski,	Miner,	45	Pancoat,	Lackawanna,	Head cut by a fall of rock at face of breast.
	8,	Thomas Evans,	Miner,	32	Leggett's Creek,	Lackawanna,	Severely injured by a fall of rock that occurred while he was sounding it.
	8,	Owen J. Owens,	Laborer,	52	Johnson's, No. 2,	Lackawanna,	Jaw bone broken; he attempted to get on the car, but the engine had been given and was caught by the car.
	11,	James Puckey,	Door boy,	14	Ridge shaft,	Lackawanna,	His foot was caught in mule traces and he was dragged a considerable distance, his head bumping the ties.
	11,	Michael White,	Miner,	42	Richmond No. 4,	Lackawanna,	Struck by flying coal from a shot and quite badly cut.
	22,	James Walsh,	Miner,	35	Grassy Island,	Lackawanna,	Body bruised by fall of rock at face of breast.
Sept.	1,	William Painter,	Company man,	22	Clinton,	Lackawanna,	Severely cut on head by being struck by a mine rail.
	9,	Owen Jones,	Runner,	17	Clinton,	Lackawanna,	Foot crushed by a car jumping track.
	10,	Israel Parsons,	Miner,	45	Richmond No. 4,	Lackawanna,	Leg fractured by a fall of coal which occurred while he was standing a prop at the face.
	14,	Steve Koschalek,	Driver,	17	Simpson,	Lackawanna,	Squeezed between mule and car.

TABLE V. —Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Sept.	16. Maurice McCann.	Driver.	48	No. 3.	Lackawanna.	Leg badly lacerated; caught by strap iron.
	19. John Martizies.	Miner.	46	Richmond No. 4.	Lackawanna.	Slightly injured by a fall of rock.
	14. Ant. Novick.	Laborer.	21	Richmond No. 4.	Lackawanna.	Slightly injured by a fall of rock.
	20. Bernard O'Hara.	Miner.	41	White Oak.	Lackawanna.	Leg badly fractured by a fall of rock.
	21. Fred Lloyd.	Laborer.	19	Starr No. 3.	Lackawanna.	Leg injured by a fall of rock.
	22. Frank Lewis.	Picker.	26	Olyphant No. 1.	Lackawanna.	Head and arm cut by falling rock scaffold.
	27. Frank Lewis.	Laborer.	19	Johnson's No. 1.	Lackawanna.	Head and arm cut by flying coal from a shot.
	28. Hugh Hammick.	Driver.	42	Lackawanna.	Lackawanna.	Arms fractured by being thrown from car.
Oct.	29. Owen H. Hughes.	Slaker.	18	Marvine (air shaft).	Lackawanna.	Arms fractured by a fall of rock.
	3. Ant. Gimley.	Laborer.	61	Gloisy Grove.	Lackawanna.	Head and back cut by a fall of rock.
	8. Philip Malanchuk.	Miner.	21	Erie.	Lackawanna.	Head and leg fractured by a fall of rock.
	S. John Packett.	Laborer.	35	Erie.	Lackawanna.	Arms and leg fractured by a fall of rock.
	11. Joseph Ballard.	Driver.	17	Olyphant No. 2.	Lackawanna.	Ribs fractured, car ran away on plane, causing rope to swing and strike him.
	12. Ant. Gilous.	Driver.	48	No. 2 shaft.	Lackawanna.	Head cut and jaw broken by falling under car.
	14. David Reese.	Miner.	40	Leggett's Creek.	Lackawanna.	Leg fractured by a fall of rock.
	18. Joseph Jenkins.	Track layer.	33	Storr's No. 1.	Lackawanna.	Squeezed between car and rib.
	20. John Hansas.	Laborer.	28	Olyphant No. 2.	Lackawanna.	Leg fractured; the broke and car ran on him.
	29. Chas. Lantbach.	Miner.	30	Johnson's No. 1.	Lackawanna.	Head cut by flying coal from a shot that exploded prematurely.
	22. Robert Judge.	Company laborer.	31	No. 1 slope.	Lackawanna.	Head and back cut by fall of earth and rock at mouth of shaft.
	25. And. Davis.	Miner.	36	Leggett's Creek.	Lackawanna.	Head and back cut by falling rock.
	28. James Craver.	Runner.	19	Marvine.	Lackawanna.	Back and head injured by a fall of coal that occurred while he was mining out bottom bench.
Nov.	29. Frank Suloski.	Laborer.	28	Storr's No. 1.	Lackawanna.	Shoulder injured by moving cars.
	3. And. Veckage.	Laborer.	47	Olyphant No. 2.	Lackawanna.	Head cut by fall of shivery piece of rock.
						A two-inch slab broke off between two props, struck him and broke three of his ribs.
						While standing in front of two loaded cars, the third struck them, his leg was broken.
						Leg fractured; car jumped track and caught him.
						While standing on a car, harring down a piece of coal, he fell and was injured.
						Arm fractured; caught between car and roof.
						He was harring out the bottom coal, when a piece of top coal struck him and broke his leg.
						Foot struck by falling coal from a blast.
						Head and back cut by falling coal from a blast.
						Back bruised by a small fall of rock.
Dec.	1. Hubert Khalip.	Miner.	35	Richmond No. 4.	Lackawanna.	

2.	Pat. Kane,	Door boy,	19	Marvine,	Lackawanna,	Severely injured by striking the rib in jumping off a car.
2.	Michael Price,	Miner,	25	Coal Brook,	Lackawanna,	Leg fractured by a fall of rock.
5.	Frank Curran,	Door boy,	15	Richmond No. 4,	Lackawanna,	Leg fractured; squeezed between door and car.
6.	Robert Lynn,	Miner,	38	Pancoast,	Lackawanna,	Slightly burned by igniting small body of gas on upper side of gangway.
8.	John Young,	Miner,	29	No. 1 shaft,	Lackawanna,	Ribs fractured by car running on him.
8.	William Oliver,	Miner,	35	Powderly,	Lackawanna,	Body fractured by a fall of rock.
8.	James Walsh,	Miner,	37	Powderly,	Lackawanna,	Body bruised by a fall of rock.
8.	Charles Blando,	Laborer,	48	Johnson's, No. 1,	Lackawanna,	Head cut by running against a car.
10.	George Obromski,	Miner,	33	Simpson,	Lackawanna,	Face and breast cut by fall of rock.
17.	Peter Kelley,	Miner,	35	Jermyn No. 1,	Lackawanna,	Body lacerated and cut by falling coal from a shot that blew through pillar.
27.	John McGowan,	Miner,	25	Leggett's Creek,	Lackawanna,	Body severely bruised by a fall of rock which occurred while he was barring it down.
28.	Frank Costello,	Laborer,	20	Johnson's, No. 1,	Lackawanna,	Hips and legs bruised by a fall of rock.
30.	James Dempsey,	Runner,	20	Powderly,	Lackawanna,	He fell in front of a loaded car and was injured.



Second Anthracite District.

(LACKAWANNA COUNTY.)

Scranton, Pa., February 14, 1899.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: In compliance with section 9, article 2, anthracite mine law, 1891, and section 5 of an act establishing a Bureau of Mines in the Department of Internal Affairs of Pennsylvania," etc., etc., approved July 15, 1897, I beg to submit my report for the year ending December 31, 1898.

In addition to the regular table forms I have retained the used of forms A, B, C, D, E and F, which give in a concise form the contents of the regular tables.

During the year 5,496,150 tons of coal were produced in the district. Of this 5,016,960 tons were shipped to market; of the difference between the quantity mined and shipped, some was sold to local purchasers, and the remainder was consumed at the mines for steam and heat.

15,851 persons were employed in and about the mines, divided as follows: Outside, 4,911; inside, 10,940.

There were 207,651 kegs of powder used, also 98,613 pounds of dynamite.

Comparing these figures with those returned for the previous year, we find that the production for 1898 shows a decrease of 489,480 tons, the shipment a decrease of 439,596 tons, number of persons employed a decrease of 727, number of pounds of powder used a decrease of 251,050.

The average number of tons of coal produced per employe for the year is 346.7, while for the year 1897, 361 tons per employe were produced, being a decrease for 1898 of 13.3 tons for each employe.

In addition to the foregoing, the several tables which follow will show that 621 boilers, 256 steam pumps, 359 steam engines, 5 dynamos, 3 electric motors and 1,930 horses and mules are in use in and about the mines of the district.

Having thus briefly noted the result of the year's work in production and shipment, together with the means employed to accomplish the same, we now pass to the accidents that occurred, which invariably form such an important part of the mining reports every year. Table IV shows that 31 fatal, and Table V that 154 non-fatal

accidents occurred, making a total of 185 during the year, being a decrease of 27 fatal and an increase of 5 non-fatal as compared with 1897.

The number of tons of coal produced per life lost was 177,295, and 29,709 tons per fatal and non-fatal accident. These figures make a favorable comparison with the ones of previous years.

Looking back over the accidents from the years 1892 to 1898 inclusive, I find that the number of accidents for each year will vary between 182 and 226, being an average of 203 per year.

The total accidents as returned are as follows:

Year.	Total Accidents.
1892,	214
1893,	210
1894,	182
1895,	226
1896,	200
1897,	207
1898,	185
<hr/>	
Average,	203
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Comparing the average with the number of accidents which occurred during any one year, I find that the above table shows the total number each year to be nearly the same, although the dangers to life and limb are continually increasing.

If we apply the same method of comparison to the fatal accidents only, it will be shown that they vary much more from the average. The fatal accidents for the years 1892 to 1898 will vary between 31 and 58, and the number of tons produced per life lost between 103,260 and 182,228. It will be admitted that it is difficult to strike an average between figures having such a wide margin of difference.

We are confined to the period of years taken, as the district has existed in its present form or bounded by the same lines only since 1892. From the foregoing I conclude that the statistics for the last seven years, so far as they relate to the inspection district, furnish a comparatively safe guide as to the total number of accidents that occur, but when I come to the tabulation of these accidents into fatal and non-fatal, the same figures are very unreliable. The condition of the mining industry as to safety, is judged generally from the number of persons killed, or the number of tons of coal produced per life lost, and not by the total number of accidents. Circumstances only, determine the class to which an accident shall belong; for instance, if a fall of roof occurs in the face of a working place, striking the miner on the leg fracturing the limb, it will be classed non-fatal. If the same fall struck the victim on a vital spot it would

of necessity be classed fatal. Hence there is but little difference in the nature of the accidents which we divide into fatal and non-fatal. Therefore, we are forced to think it safer to estimate on the total number of accidents than on the fatal ones.

Tables D and E show that more accidents have occurred from falls of coal and roof than from any other cause, and that a larger number of miners were killed and injured than of any other class of employes.

During the year just closed many improvements were made in the mines of the district, such as the sinking of shafts to new veins, the driving of rock planes to connect veins for the purpose of transportation and ventilation, the erection of new fans to replace others which had, owing to the increased ventilating pressures, required to produce adequate currents to maintain the extended workings in a sanitary condition, become insufficient, etc.

One breaker, namely the "Oxford," owned and operated by the Delaware, Lackawanna and Western Railroad Company, was destroyed by fire during the year, and has not yet been rebuilt.

It should also be noted that four mines in the district have changed hands since my last report was made.

The annual examination of candidates for mine foreman and assistant foreman was held by the board of examiners duly appointed by the court, in the city hall, Scranton, Pa., July 12 and 13, 1898. The following candidates were recommended to the Secretary of Internal Affairs to receive mine foreman's certificates:

Louis Boshck, Scranton; J. W. Jenkins, Duryea; Theo. Bowen, Scranton; F. C. Abbott, Dunmore; Wm. Bainbridge, Rendham; Stephen John, Rendham; Jas. G. McMillan, Pittston; Jesse Palmer, Scranton; F. C. Abbott, Dunmore; Wm. Bainbridge, Rendham; Solomon Crow, Dunmore.

Note.—Mr. C. E. Robertson also passed a successful examination. He was not recommended to receive a certificate because he lacked the necessary five years' experience as required by law.

The following were recommended to receive assistant foreman's certificates: Fred. White, Wm. Hartshorn, James Hartshorn, M. F. Madden, Thos. H. Jones, Pat. McNealy, I. Unsworth, Thos. Pugh, Geo. A. White, D. A. Morgan, Morris T. Watkins.

Respectfully submitted,

H. O. PRYTHERCH,

Inspector.

TABLE A.—Showing the production of coal, the number of persons employed by each company during the year 1898, and the average number of tons produced per employe.

Name of Companies.	Number of tons produced.	Number of persons employed.
Delaware, Lackawanna and Western Railroad Company,....	2,629,182	7,188
Austin Coal Company,	59,594	228
Delaware and Hudson Canal Company,	400,441	1,224
Lackawanna Iron and Steel Company,	387,231	1,223
Wm. T. Smith,	203,449	524
Green Ridge Coal Company,	165,140	419
Pennsylvania Coal Company,	306,992	947
Wm. Connell & Co.,	121,530	465
The Connell Coal Company,	273,786	607
Greenwood Coal Company,	199,651	751
Jermyn and Company,	305,233	930
Elliott, McClure & Co.,	104,738	380
West Ridge Coal Company,	116,359	242
E. D. & T. M. Spencer,	81,140	232
Nay Aug Coal Company,	89,892	164
Bull's Head Coal Company,	33,106	93
Columbus Colliery Company,	77,267	40
Spring Brook Coal Company,	1,419	94
Total,	5,496,150	15,851

Number of tons produced per employe, 346.7.

TABLE B.—Number of fatal accidents and tons of coal produced per life lost.

Names of Companies.	Number of fatal accidents.	Number of tons of coal produced per life lost.
Delaware, Lackawanna and Western Railroad Company,	11	239,017
Austin Coal Company,	1	59,594
Delaware and Hudson Coal Company,	3	133,480
Lackawanna Iron and Steel Company,	4	96,807
Wm. T. Smith,	1	203,449
Green Ridge Coal Company,	3	35,046
Pennsylvania Coal Company,	3	102,831
Wm. Connell & Co.,	1	121,530
The Connell Coal Company,	2	273,786
Greenwood Coal Company,	2	99,825
Jermyn and Company,	3	101,744
Elliott, McClure & Co.,	1	104,738
West Ridge Coal Company,	1	116,359
E. D. & T. M. Spencer,	1	81,140
Nay Aug Coal Company,	1	89,892
Bull's Head Coal Company,	1	33,106
Columbus Colliery Company,	1	77,267
Spring Brook Coal Company,	1	1,419
Total and average,	31	177,295

TABLE C.—Showing the number of fatal and non-fatal accidents, and the number of tons of coal produced per accident.

Names of Companies.	Number of accidents.	Number of tons of coal produced per accident.
Delaware, Lackawanna and Western Railroad Company,....	92	28,578
Austin Coal Company,	2	29,797
Delaware and Hudson Canal Company,	11	36,403
Lackawanna Iron and Steel Company,	11	35,203
Wm. T. Smith,	3	67,816
Green Ridge Coal Company,	10	10,514
Pennsylvania Coal Company,	14	21,928
Wm. Connell & Co.,	3	40,510
The Cernell Coal Company,	6	45,631
Greenwood Coal Company,	11	18,150
Jermyn and Company,	8	38,154
Elliott, McClure & Co.,	1	104,738
West Ridge Coal Company,	8	14,545
E. D. & T. M. Spencer,	4	20,285
Nay Aug Coal Company,	1	89,892
Bulls Head Coal Company,		33,106
Columbus Colliery Company,		77,267
Spring Brook Coal Company,		1,419
Total and average,	185	29,109

TABLE D.—Classification of accidents.

Classification of Accidents.	Killed or fatally injured.	Injured.	Total.
Falls of coal and roof,	19	57	76
Explosions of gas,		14	14
Explosions of blasts,	4	15	19
By rules,	1	8	9
Cars inside,	3	38	41
Cars outside,		6	6
Falling down shafts,			
Breaker machinery,	2		2
Careless use of powder,		6	6
Miscellaneous inside,	2	2	2
Miscellaneous outside,	2	8	10
Total,	31	154	185

TABLE E.—Occupation of persons killed and injured.

Occupations.	Killed or fatally injured.	Injured.	Total.
Miners,	15	59	74
Laborers,	7	33	40
Door boys,	1	8	9
Drivers and helpers,	3	30	33
Outside laborers,	1	3	9
Company men inside, .....	.....	8	8
Headmen, .....	.....	2	2
Fire bosses, .....	.....	1	1
Bunners, .....	.....	4	4
Slate pickers,	1	1	2
Sinkers, .....	.....	.....	.....
Engine drivers,	1	.....	1
Timber men,	1	.....	1
Outside foremen,	1	.....	1
Total,	31	154	185

TABLE F.—Nationality of persons killed or injured.

	Welsh.	English.	Scotch.	Irish.	Poles.	Slavs.	Austrians.	Americans.	Hungarians.	Italians.	Greeks.	Swedes.	Canadian.	German.	Total.
Killed,	6	5	2	9	4	1	1	2	1	.....	.....	.....	.....	.....	31
Injured,	23	10	.....	41	21	1	4	25	3	9	2	2	1	2	154
Total,	33	15	2	50	25	2	5	27	4	9	2	2	1	2	185

TABLE I.—Showing Location, etc., of Collieries in the Second Anthracite District.

Number showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
20	Archbald,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	W. R. Storrs, Genl. Coal Agt.,	Scranton,	D., L. & W.
15	Belleuve Shaft,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	R. Hughes, Asst. Supt.,	Scranton,	D., L. & W.
12	Brisbin,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	R. Phillips, Asst. Supt.,	Scranton,	D., L. & W.
11	Sayuga,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
7	Stoan and Central,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
11	Dodge,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
16	Diamond,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
13	Tripp Shaft,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
17	Tripp Drift,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
15	Hyde Park,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
17	Manville,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
14	Oxford,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
22	Holden,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
18	Hampton,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
21	Pyne,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
23	Taylor Shaft,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
24	Taylor Drift,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
23	Austin Tunnel,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
25	Blackburn Tunnel,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. I. Williams, Supt.,	Scranton,	D., L. & W.
4	Van Storch Shaft,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	J. H. Robertson,	Old Forge,	L., Y. & R.
4	Van Storch Slope,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	C. C. Rose,	Scranton,	D. & H. C. Co.
8	Capouse,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	C. C. Rose,	Scranton,	D. & H. C. Co.
10	Mount Pleasant,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	W. P. Morgan,	Scranton,	D., L. & W.
6	Green Ridge Slope,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Thos. Sprague,	Scranton,	D., L. & W.
1	Pennsylvania No. 5,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	W. L. Cunell,	Scranton,	D., L. & W.
38	Banker Hill,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Geo. B. Smith, Genl. Supt.,	Dunmore,	E. & W. Y.
23	Old Forge No. 1,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Alex. Buiden, Mine Supt.,	Dunmore,	E. & W. Y.
23	Old Forge No. 2,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Jas. Young, Asst. Supt.,	Dunmore,	E. & W. Y.
25	Meadow Brook Shaft,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	Col. E. H. Ripple, Genl. Supt.,	Scranton,	D., L. & W.
25	Meadow Brook Tunnel,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,	F. T. Jones, Genl. Mine Fore h	Scranton,	D., L. & W.
25	National,	Dela., Lacka. & West'n R. R. Co.,	Lackawanna,		Scranton,	D., L. & W.

TABLE I.—Continued.

Number showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
32	William A. Lawrence Shaft, Lawrence, Upper Drift, Lawrence, Lower Drift, Greenwood No. 1 Shaft, Greenwood, New, No. 1 Shaft.	The Connell Coal Company, The Connell Coal Company, The Connell Coal Company, Greenwood Coal Company, Greenwood Coal Company.	Lackawanna, Lackawanna, Lackawanna, Lackawanna, Lackawanna.	T. Jones, Genl. Supt., T. Jones, Genl. Supt., T. Jones, Genl. Supt., John Lovering, John Lovering.	Scranton, Scranton, Scranton, Scranton (Box 383), Scranton.	L. V., L. V., L. V., S. & W., N. Y., S. & W.
37	Greenwood No. 2 Shaft, Greenwood Drift, Greenwood No. 5 Drift, Greenwood No. 8 Drift, Greenwood No. 12 Drift.	Greenwood Coal Company, Greenwood Coal Company, Greenwood Coal Company, Greenwood Coal Company.	Lackawanna, Lackawanna, Lackawanna, Lackawanna.	John Lovering, John Lovering, John Lovering, John Lovering.	Scranton, Scranton, Scranton, Scranton.	N. Y., S. & W., S. & W., S. & W., S. & W.
39	Greenwood No. 1, Jermyon No. 3, Jermyon & Co., Sibley No. 2, West Ridge.	Jermyon & Co., Jermyon & Co., West Ridge Coal Company, A. D. & F. M. Spencer, Nay Aug Coal Company, Bull's Head Coal Company, Spring Brook Coal Company, Columbus Colliery Co., ...	Lackawanna, Lackawanna, Lackawanna, Lackawanna.	E. B. Jermyon, E. B. Jermyon, Jas. C. McClure, B. E. Kingsley, A. D. & F. M. Spencer, J. D. Caryl, Wm. Richmond, Chas. P. Ford, G. C. Nye, ...	Scranton, Scranton, Scranton, Scranton (N. M. ave), Dunmore, Scranton, Marshtwood, Scranton.	L. V., L. V., L. V., L. V., O. & W., E. & W., E. & W., O. & W.
36	Spencer, Bulls Head, Spring Brook, Columbus Colliery Co., ...	A. D. & F. M. Spencer, Nay Aug Coal Company, Bull's Head Coal Company, Spring Brook Coal Company, Columbus Colliery Co., ...	Lackawanna, Lackawanna, Lackawanna, Lackawanna.	A. D. & F. M. Spencer, J. D. Caryl, Wm. Richmond, Chas. P. Ford, G. C. Nye, ...	Dunmore, Scranton, Marshtwood, Scranton.	E. & W., E. & W., O. & W.
37						
39						

TABLE II.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Second Anthracite District for the year ending December 31, 1898.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad shipments in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.
Archbald,	Lackawanna,	124,988.19	9,000	980	114,998	103.9	587	.....	1
Bellevue,	Lackawanna,	271,846.15	24,640	9,339	237,567	188.9	638	.....	6
Brisban,	Lackawanna,	12,700	12,700	2,526	180,516	200	484	.....	2
Cayuga,	Lackawanna,	238,422.19	238,422	3,711	190.6	548	.....	2	.....
Lackawanna,	Lackawanna,	23,436.03	20,900	59	.....	.....	.....	.....	.....
Sloan and Central,	Lackawanna,	130,605.13	6,000	2,749	171,855	175.8	493	.....	2
Dodge,	Lackawanna,	210,227.12	10,000	2,536	206,691	185.8	469	.....	13
Diamond,	Lackawanna,	264,045.10	18,000	5,493	240,552	204.8	615	.....	12
Hyde Park,	Lackawanna,	170,548.62	4,390	3,678	162,479	198.2	463	.....	2
Manville,	Lackawanna,	123,065.35	13,435	1,977	59,544	100.7	439	.....	7
Oxford,	Lackawanna,	38,340.19	9,970	3,408	24,962	30.1	470	.....	2
Froden,	Lackawanna,	66,097.18	9,000	807	56,290	146.3	256	.....	5
Hampson,	Lackawanna,	174,260.06	11,000	3,338	159,222	181.2	441	.....	6
Pyramid,	Lackawanna,	317,306.19	10,000	2,092	305,214	185.9	633	.....	6
Taylor,	Lackawanna,	211,050.15	8,316	4,879	197,825	183.8	449	.....	4
Total, .....	.....	2,629,182.08	185,351	49,153	2,382,186	167	7,062	11	81
Austin Tunnel,	Lackawanna,	59,594.08	3,720	869	55,005	142.4	228	.....	2
Dickson,	Lackawanna,	180,983.19	.....	2,975	178,008	177.2	603	.....	3
Von Storch Shaft and Slope,	Lackawanna,	219,488.38	.....	5,794	213,664	187	621	.....	3
Manville, see D., L. & W. R. Co., .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total, .....	.....	400,441.57	.....	8,769	391,672	182.1	1,224	3	8

*12,486 tons of coal in breaker not yet shipped—to be included in checking up column.

TABLE II.—Continued.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad shipments in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.
Capouse,	Lackawanna,	194,457.00	5,000	4,295	185,062	160	648	2	2
Pine Brook,	Lackawanna,	192,774.03	.....	22,846	169,928	167.1	575	2	4
Total, .....	.....	387,231.03	5,000	27,241	354,990	163.5	1,223	4	1
Mount Pleasant,	Lackawanna,	203,449.00	.....	57,785	145,664	176.3	524	1	2
Green Ridge Slope,	Lackawanna,	105,140.15	.....	6,715	98,425	126.4	419	3	1
Pennsylvania No. 5,	Lackawanna,	116,223.00	3,635	.....	106,688	146.8	308	2	2
Bunker Hill,	Lackawanna,	136,689.00	10,668	.....	186,601	130.6	579	1	9
Old Forge Breaker,	Lackawanna,	36,392.00	13,703	.....	293,289	128.7	947	3	11
Total, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
National,	Lackawanna,	45,557.60	6,000	8,025	102,906	148.9	259	.....	2
Meadow Brook Shaft,	Lackawanna,	20,491.60	4,200	.....	.....	148.9	61	.....	.....
Meadow Brook Tunnel,	Lackawanna,	46,481.00	400	.....	.....	148.9	145	.....	1
Total, .....	.....	121,530.20	10,600	8,025	102,906	148.9	465	.....	3
William A.,	Lackawanna,	268,786.00	6,000	6,732	256,054	168.4	492	.....	5
Lawrence Shaft and Drifts,	Lackawanna,	5,000.00	5,000	.....	.....	168.4	115	.....	1
Total, .....	.....	273,786.00	11,000	6,732	256,054	168.4	607	.....	6

Greenwood No. 1,	138,059.00	11,000	2,047	125,012	112.7	508	1	7
Greenwood No. 2,	61,892.00	4,500	.....	57,692	92.4	249	1	2
Total,	199,951.00	15,500	2,047	182,704	105.3	757	2	9
Jermyn No. 1,	83,652.10	9,616	2,722	71,914	77.7	432	.....	1
Jermyn No. 2,	221,581.33	9,000	797	211,784	165	468	3	4
Total,	305,233.43	18,616	3,519	283,698	118.3	900	3	5
Sibley,	104,738.45	.....	1,279	103,459	133.3	380	.....	1
West Ridge,	116,359.23	5,000	14,909	96,450	111.6	342	.....	8
Spencer,	81,140.15	5,500	4,897	72,743	87.5	232	.....	4
Nay Aug Slope,	89,892.18	.....	.....	89,892	107.5	164	1	.....
Bulls Head,	33,106.00	.....	2,998	30,108	162	93	.....	.....
Spring Brook,	1,419.16	90	281	1,048	10.5	94	.....	.....
Columbus Colliery Company,	77,267.00	.....	.....	77,267	231.3	40	.....	.....
Total,	5,496,150.00	271,480	195,219	5,016,960	.....	15,725	31	174

TABLE II.—Continued.

Names of Collieries.	County.	Number kegs of powder used.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse-power.	Number electric dynamos.	Voltage.	Number electric locomotives.
Archbald,	Lackawanna,	4,083	250	76	14	6	800	7	131	.....	.....	.....
Bellevue,	Lackawanna,	9,351	5,500	50	26	12	6,821	27	1,693	.....	.....	.....
Brisbin,	Lackawanna,	3,069	1,273	57	13	13	3,692	.....	1,490	.....	250	.....
Cayuga,	Lackawanna,	2,176	2,176	23	24	11	7,783	.....	1,118	.....	.....	.....
Sloan and Central,	Lackawanna,	6,487	.....	18	49	30	5,498	14	1,341	.....	.....	.....
Continental,	Lackawanna,	4,817	600	73	15	8	1,806	17	999	.....	.....	.....
Diage,	Lackawanna,	6,790	50	88	23	8	1,425	9	512	.....	.....	.....
Diage and Hawley,	Lackawanna,	8,189	3,450	88	55	16	3,571	18	1,107	.....	.....	.....
Hwy Park,	Lackawanna,	7,112	500	72	12	1	200	6	391	.....	.....	.....
Manville,	Lackawanna,	7,862	7,804	46	18	8	845	12	659	.....	.....	.....
Oxford,	Lackawanna,	889	275	68	19	8	3,126	8	357	.....	.....	.....
Holden,	Lackawanna,	3,873	7,563	30	12	5	1,161	5	650	.....	.....	.....
Hampton,	Lackawanna,	6,107	.....	61	16	6	2,718	5	306	.....	.....	.....
Payne,	Lackawanna,	8,491	525	90	18	6	1,600	6	674	.....	.....	.....
Taylor,	Lackawanna,	5,952	200	75	25	10	3,329	15	932	.....	.....	.....
Total, .....	.....	86,580	29,918	951	345	153	39,089	160	11,268	1	250	2
Austin Tunnel,	Lackawanna,	2,060	2,639	18	5	4	1,037	7	210	1	250	.....
Dickson,	Lackawanna,	10,322	9,038	60	20	9	3,526	18	1,596	.....	.....	.....
Von Storch Shaft and Slope,	Lackawanna,	8,637	4,177	78	29	5	3,830	9	563	.....	.....	.....
Manville, see D., L. & W. R. Co.,	Lackawanna, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total, .....	.....	18,959	13,215	138	49	14	7,356	27	2,159	.....	.....	.....
Capouse,	Lackawanna,	6,580	1,012	77	4	3	3,252	7	731	.....	.....	.....
Pine Brook,	Lackawanna,	12,923	11,600	72	5	9	3,115	7	970	.....	.....	.....
Total, .....	.....	19,503	12,612	149	9	12	6,427	14	1,701	.....	.....	.....

Mount Pleasant,	Lackawanna,	7,758	190	37	15	4	953	12	766	1	270	1
Green Ridge Slope,	Lackawanna,	5,871	1,950	55	21	6	200	8	450	1	250	1
Pennsylvania No. 5,	Lackawanna,	4,625	1,976	32	3	5	750	14	413			
Bunker Hill,	Lackawanna,	6,812	8,655	57	13	10	1,346	19	60			
Old Forge Breaker,	Lackawanna,	11,437	10,631	89	22	15	2,096	34	1,123			
Total,												
National,	Lackawanna,	2,475	1,500	28	14	3	1,500	6	289			
Meadow Brook Shaft,	Lackawanna,	4,866	3,300	10	10	2	800	1	90			
Meadow Brook Tunnel,	Lackawanna,	4,046	3,400	16				1	35			
Total,		7,417	4,800	54	24	5	2,400	8	414			
William A.,	Lackawanna,	6,440	1,466	51	19	2	1,200	13	1,200	1	570	
Lawrence Shaft and Drift,	Lackawanna,	3,220	733	13	18			5	495			
Total,		9,660	2,199	64	37	2	1,200	18	1,695	1	570	
Greenwood No. 1,	Lackawanna,	7,228	5,000	88	17	5	1,825	7	559			
Greenwood No. 2,	Lackawanna,	3,354	3,550	43	9	3	488	4	264			
Total,		10,582	8,550	131	26	8	2,313	11	813			
Jermyn No. 1,	Lackawanna,	3,766	400	37	14	6	2,375	8	1,200			
Jermyn No. 2,	Lackawanna,	8,222	3,850	39	15	2	800	7	1,053			
Total,		11,988	4,250	76	29	8	3,175	15	2,253			
Sibley,	Lackawanna,	4,192	2,300	40	12	7		6				
West Ridge,	Lackawanna,	6,378	4,264	43	5	6		13	1,600			
Spencer,	Lackawanna,	2,485	225	37	11	1		10	484			
Nay Aug Slope,	Lackawanna,	1,338	650	22	3	2	800	6	218			
Bulls Head,	Lackawanna,	1,380	250	17	2	2		4	260			

TABLE II.—Continued.

Names of Collieries.	County.	Number kegs of powder used.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse-power.	Number electric dynamos.	Voltage.	Number electric locomotives.
Spring Brook	Lackawanna,	63	.....	6	6	3	1,025	2	110	.....	.....	.....
Columbus Colliery Company,	Lackawanna, .....	.....	.....	3	.....	4	.....	4	.....	.....	.....	.....
Total, .....	.....	207,651	98,613	1,930	621	256	68,071	359	25,474	5	1,590	3

‡Not in operation.

Note.—To make up the total production, 12,491 tons—the quantity of coal produced at the Sloan and Central, and which has not been shipped must be added to the totals of three following columns.

TABLE III.—Showing the number of employees at each colliery in the Second Anthracite District, during the year 1888.

Names of Collieries.	Occupations of Persons Employed Inside.						Occupations of Persons Employed Outside.						Grand total, inside and outside.						
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.		Superintendents, bookkeepers and clerks.	All other employes.	Total outside.			
																	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Archbald,	1	2	150	150	52	17	38	410	1	1	7	113	1	48	177	587			
Beaumont,	3	4	162	165	67	21	47	469	1	1	5	94	2	25	170	639			
Brishba,	1	3	133	129	45	8	23	348	1	4	4	64	1	53	136	484			
Cavaga,	1	3	133	133	65	14	51	400	1	1	9	77	1	51	148	548			
Sloan and Central,	1	2	109	112	46	19	22	355	1	10	46	84	1	33	60	382			
Dodge,	1	2	117	120	52	10	37	340	1	7	7	84	1	58	158	483			
Diamond,	2	3	159	155	58	18	45	442	1	9	11	54	1	50	123	463			
Hyde Park,	1	4	113	113	47	13	39	328	1	6	25	70	1	67	173	615			
Manville,	1	4	110	110	46	20	34	325	1	5	8	75	1	44	135	463			
Oxford,	1	2	95	95	26	21	85	325	1	3	11	63	1	33	114	439			
Holden,	1	2	62	62	13	6	24	159	1	7	10	71	2	54	145	470			
Hampton,	1	3	107	107	42	16	44	258	1	5	5	60	1	25	87	256			
Lynce,	1	3	167	170	51	16	48	438	1	6	8	85	1	54	156	441			
Taylor,	1	3	118	112	30	14	32	310	1	6	11	66	1	24	174	633			
Total and average,	20	39	1,718	1,735	640	204	601	4,957	16	99	162	1,080	16	732	2,105	7,188			
Austin Tunnel,	1	1	60	60	20	.....	15	157	1	5	8	30	2	25	71	228		
Dickson,	2	5	155	155	78	19	54	468	1	4	13	59	.....	58	135	603		
Von Storch,	1	5	158	138	84	18	78	482	1	11	13	50	3	61	139	621			
Manville, see D. L. & W. R. Co.,	3	10	313	293	162	37	132	950	2	15	26	109	3	119	274	1,224			

TABLE III. —Continued.

Names of Collieries.	Occupations of Persons Employed Outside.							Occupations of Persons Employed Outside.							Grand total inside and outside.	
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, bookkeepers and clerks.	All other employes.		Total outside.
Capouse,	2	2	150	154	73	20	41	442	1	8	7	144	2	44	206	648
Pine Brook,	2	4	118	121	52	34	61	392	1	8	7	140	2	25	183	575
Total,	4	6	268	275	125	54	102	834	2	16	14	284	4	69	339	1,223
Mount Pleasant,	1	2	110	118	55	13	38	337	1	5	6	120	5	50	187	524
Green Ridge Slope,	1	2	85	85	74	17	23	287	1	5	9	69	2	46	132	419
No. 5 Pennsylvania,	1	1	113	99	32	7	20	272	1	2	5	68	1	20	95	368
Old Forge Nos. 1 and 2,	3	3	174	169	56	13	23	441	1	4	15	63	1	52	138	579
Total,	4	4	287	268	88	20	43	714	2	6	20	131	2	72	233	947
National,	1	1	55	29	23	2	15	126	1	4	8	90	.....	30	133	259
Meadow Brook, .....	.....	.....	16	14	8	.....	6	44	.....	3	3	.....	.....	8	17	61
Meadow Brook Tunnel,	1	.....	64	50	19	3	4	142	.....	.....	.....	.....	.....	.....	3	145
Total,	2	2	135	93	50	5	25	312	1	7	14	90	3	38	153	465
William A. Lawrence Shaft and Drifts,	1	1	180	31	66	6	27	322	1	7	10	98	3	51	170	402
Total,	2	2	254	47	79	9	36	429	2	7	13	98	3	55	178	607

Greenwood No. 1,	2	133	111	41	36	19	344	1	8	7	77	2	63	158	502
Greenwood No. 2,	1	71	61	24	10	12	180	1	4	6	14	1	43	69	249
Total,	3	204	172	65	46	31	524	2	12	13	91	3	106	227	751
Jermyn No. 1,	2	114	80	34	8	40	250	1	5	10	61	4	71	152	432
Jermyn No. 2,	1	150	110	67	13	32	375	1	4	6	51	4	57	123	498
Total,	3	264	190	101	21	72	655	2	9	16	112	8	128	275	930
Sibley,	1	75	51	47	6	23	203	1	4	5	122	2	43	177	380
West Ridge,	1	80	80	36	11	30	241	1	5	7	60	2	26	101	342
Spencer,	1	34	35	31	7	31	140	1	2	6	31	2	50	92	232
Nay Aug Slope,	1	35	35	23	3	11	108	1	4	5	12	2	32	56	164
Bulls Head,	1	25	11	6	1	7	52	1	3	2	15	2	18	41	93
Spring Brook,	1	12	12	7	.....	7	40	1	2	4	40	2	5	54	94
Columbus Colliery Company, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	50	3,559	3,560	1,609	453	1,227	10,940	38	296	332	2,499	65	1,645	4,785	15,851

Floating gang of carpenters, masons, surveyors, etc., etc.

TABLE III. — Continued.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Archbald,	9.7	8.8	10.4	12.2	12.9	10.8	18.8	20.7	12.2	22.2	26.3	14.8
Bellevue,	9.7	9.8	9.8	12	12.9	10.8	18.8	20.7	22.2	26.3	25.2	16.6
British,	13.2	7.2	8.8	12.8	15.9	17.6	17.3	23.3	19.9	23.2	26.2	16.2
Cayuga,	10.9	8	7.2	12	13.7	14.7	19.2	19.1	20.7	23.6	24.4	17.1
Stoughton Central,	*	*	*	*	*	*	*	*	*	*	*	*
Continental,	11.4	4.8	10.4	12.8	13.6	16.5	17.8	17.6	20	23	26.3	16
Dodge,	8.8	8.8	9.5	10.4	15	1.62	13.9	17.4	22.5	22.9	25.6	16.6
Diamond,	19.3	5.6	10.4	13.6	13.6	15.4	18.1	20	21.8	21	26.4	16.6
Hyde Park,	9.3	8.8	8.8	12	13.6	18.1	18.8	19.5	22	24.6	26.6	16
Manville,	17.2	8.7	13	4.7	9.5	14	14.5	18.3	18	21	13.2	18.5
Oxford,	9.2	7.8	8.8	4	*	*	*	*	*	*	*	*
Holden,	9.5	4.8	11.2	9.6	12.1	16.9	11.9	16	14.9	15.2	16	14.2
Hampton,	11.7	9.7	8.8	11.2	11.8	21.3	18.3	21.3	22	22.5	23.6	17.8
Pyne,	8.4	4	12.2	18.1	14.7	19	14.4	19	22.5	22.5	23.8	17
Taylor,	9.3	9.3	10	8.8	11.9	13.2	18.1	21.4	22.5	23	23	18.6
Total and average,	9.9	7.7	9.4	8.9	11.5	12.6	15.9	18	20	22.3	23.8	16.6
Austin Tunnel,	12.6	12.6	5.8	6	7.8	8.3	14.3	13.2	14.7	17.2	14.7	15.2
Dickson,	17.2	13.5	13	11.2	9.7	12	14.7	16.5	17	18.7	12.5	21
Von Storch,	17.5	14.5	12.7	11	10.2	12	14.5	15.5	17.5	21.7	20.5	19.2
Manville, see D., L. & W. R. Co.,												
Total,	17.3	14	12.8	11.1	9.9	12	14.6	16	17.2	20.2	16.5	20.1

TABLE III.—Continued.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Bullis Head,	12	12	14	13	12	12	13	13	14	16	14	17
Spring Brook, .....	.....	1.2	6.2	1.1	1.1	1	.....	.....	.....	.....	.....	.....
Columbus Colliery Company,	17.4	19.4	23.5	20.9	22.1	21.6	14.5	19.4	16.5	19.5	18.3	18.2

*Not in operation.

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Second Anthracite District for the year ending December 31, 1898.

Date of Accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Feb. 15.	John Manley,	Miner,	54 .....	.....	1 .....	.....	Von Storch Slope,	Lackawanna,	Manley and his partner, Chas. Mullen, were working in a chamber in the Diamond vein. The roof is secured by props and double timber. A blast had been fired which had dislodged some of the timbers. Manley was examining the roof before starting to replace them, when a slab of rocks fell on him, causing instant death.
Mar. 25.	James Burge,	Miner,	30 .....	.....	1	4	Manville,	Lackawanna,	Burge was drilling a hole in the face of a heading when a slab of roof rock, which was unsupported by timber, fell on him, inflicting injuries from which he died April 8.
Apr. 2.	Patrick Levans,	Miner,	28 .....	.....	1	5	Von Storch Slope,	Lackawanna,	Levans was driving a chamber having a pitch of 25 degrees. He had drilled, charged, given the necessary support, and finished the cut and retired to an unsafe place. He was standing on the right side for safety. He was standing on the lower rib of the cross-cut. When the charge exploded the concussion caused a piece of coal to fall from the upper rib of the cross-cut, which struck Levans with fatal results. He died two and a half hours later.
7.	Charles Smith,	Laborer,	26 .....	.....	.....	.....	Tripp Shaft,	Lackawanna,	Smith was one of four men working in the chamber. Two men, both of whom are experienced miners say they had left the chamber thirty minutes before the accident took place. Before leaving they examined the roof with care and pronounced it safe. Thirty minutes later while the laborers were engaged in the face, a mass of roof fell without warning, causing Smith's instant death.

TABLE IV.—Continued.

Date of Accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Apr. 21,	Samuel Glencross, ...	Miner,	33	.....	1	.....	Pennsylvania, No. 5,	Lackawanna,	Glencross was working a chamber in No. 3, Dunmore vein, head of No. 1 Plane. At the time of the accident he and others were engaged pulling down some roof rock. When this rock fell; another piece which was not expected to fall came away at the same instant, which struck Glencross, killing him.
May 9,	Steve Domimskie, ...	Laborer,	30	.....	.....	.....	Bellevue Shaft,	Lackawanna,	Domimskie died at the Moses Taylor Hospital, Scranton, May 17, from injuries received May 9. He was engaged loading a car in the face of a chamber, when a piece of iron fell on the car and fell on his head, sustaining a fractured skull and fatal injuries which terminated in death as stated.
27,	H. A. Evans, ..	Engine driver, ...	38	.....	1	6	Greenwood No. 2,	Lackawanna,	Evans' mangled remains were found under the fan engine shaft. The mine having been idle on the day of the accident, there was no other person present at the time, consequently there was no witness to the accident. Among his clothes were found two small belts, one of which had been used to drive a small fan which Evans had made and erected for his own comfort, the other belt he had prepared to take the place of the one already mentioned, and which he considered too light to use. The opinion of the coroner was that he was killed by being caught in the start of the fan engine, while endeavoring to change the belts.

June	8,	Jos. White,	Miner,	42	.....	1	4	Jermyn No. 2,	Lackawanna,	White was assisting a gang of company men in the work of clearing a fall on a gangway road and replacing some dis-lodged timbers on the night shift. A piece of roof rock fell, causing his death.
	8,	Anthony Spurdis, ..	Miner,	30	.....	.....	.....	Von Storch Slope,	Lackawanna,	Spurdis died from injuries received from a fall of August 27, 1897.
	9,	Patrick Mullen,	Driver's helper, ..	16	.....	.....	.....	Pine Brook,	Lackawanna,	Mullen and a driver had charge of a three-mule team and at the time of the accident were taking a loaded trip to the passing branch. The driver was attending to the lead mule and Mullen to the wheel mule. Upon arriving at the passing branch the driver discovered that Mullen was missing. He was found later in an injured condition and was taken to Moses Taylor Hospital, where he died the same day. As no one saw the occurrence an inquest was held by the county coroner.
	24,	William Deacon,	Door boy,	16	.....	.....	.....	Capouse,	Lackawanna,	Deacon was employed attending to a door on an airway road. The door was about eighteen feet from the branch of the chamber in which he was killed. Deacon had been to the face of this chamber for oil and probably was returning when he was struck by a car which ran away from the face.
July	8,	Chas. Corper,	Laborer,	33	.....	1	.....	Continental,	Lackawanna,	Corper was working in a chamber in the Clark vein. The miners were drilling a hole in some roof rock which had been discovered to be unsafe. The roof is ten and a half feet high. The miners were working on horses. Corper had been warned this was dangerous. The rock fell instantly killing Corper. The rock Conaghy with three other men were working mining coal from a pillar. They were working in a retreating di-rection. The place was well secured by propping. A blast had just been fired. Conaghy was mining a part of the coal left by the shot when a slab fell from a slip which had been reached by the removed coal. He was instantly killed.
	13,	Chas Conaghy,	Miner,	45	.....	1	1	Nay Aug Slope,	Lackawanna,	

TABLE IV. — Continued.

Date of Accident.	Name of Person.	Occupation.	Age.	Married or single.	Widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Aug. 3.	Chas. Gonletz,	Laborer,	22	S.	.....	.....	Continental,	Lackawanna,	Gonletz was one of four men working in a chamber in the Clark vein. In this section of the mine the vein is seven feet thick and eight feet high. It weathers over the top of the Clark vein. On one side of the chamber the bony coal had been taken down, and props stood against the solid top. On the other side the bony had been propped up. A piece of this bony broke over the props and struck Gonletz with fatal results.
4.	John Davies,	Laborer,	46	S.	.....	.....	Cayuga,	Lackawanna,	Davies was working in a chamber in the Clark vein. The miners had been pulling down bony coal which had been covered to be unsafe. A piece of the bony coal which remained, and which the miners had failed to pull, fell without giving warning. It struck Davies, and he died. He was from Moses Taylor Hill, Pa., from which he died in a gangway fourteen feet wide in the Rock vein. A piece of the top coal was left hanging unsupported for a distance of eight feet from the face. A slip was plainly visible in this top coal near the left rib, and running parallel to it. One man was engaged drilling a hole in the top coal in order to blast it down, as he did not consider it safe. Edwards considered the top coal safe and continued to work under it while the hole was being drilled. The top coal fell on him, causing instant death.
6.	Anthony Edwards, ...	Miner,	32	M.	1	.....	Taylor Drift,	Lackawanna,	Edwards and his partner were working in a gangway fourteen feet wide in the Rock vein. A piece of the top coal was left hanging unsupported for a distance of eight feet from the face. A slip was plainly visible in this top coal near the left rib, and running parallel to it. One man was engaged drilling a hole in the top coal in order to blast it down, as he did not consider it safe. Edwards considered the top coal safe and continued to work under it while the hole was being drilled. The top coal fell on him, causing instant death.

16,	John Henry, Jr.,	Driver,	.....	25	S.	.....	Cayuga,	.....	Lackawanna,.....	The victim of this accident was away from his post of duty. He was assisting a fellow driver with a team of mules, when one of the mules kicked him. He was hardly disabled by the kick. Complications however ensued, and he died on the above date, the accident having occurred on the second instant.
16,	William Davies,	Miner,	.....	49	S.	.....	Jermyn No. 2,	.....	Lackawanna,.....	Davies. The injuries sustained by him appear to be of a serious nature at the time of the accident. He died on the following day. From the testimony of the laborer, it appeared Davies had fired a blast thirty minutes before the fall took place and no examination of the roof thereafter had been made, and to this neglect the accident is attributable.
Sept. 16,	James Hamighan, ..	Miner,	.....	52	1	.....	6 Jermyn No. 2,	.....	Lackawanna,.....	This man was driving a counter gangway. He had worked many years at similar work and was considered an expert miner. He was collecting his tools preparatory to firing a blast, in the face when a slab of clay fell on him causing him to fall down. All miners are ordered to pull down the fire clay, or support it by propping, while work is being done under the same. The order was not respected in this case.
Oct. 10,	John Knoeff,	Miner,	.....	47	1	.....	5 Hyde Park,	.....	Lackawanna,.....	Knoeff and another miner were working in a chamber in the New County vein. In this chamber some of the roof was taken down for height. A car was standing in the face close up to the rock. A hole had been drilled and charged. It was found that the blasting needle which projected from the hole interfered with Knoeff while he was kneeling and inserted a squib. When it became necessary to move the car, Knoeff placed his back against the hind part of the car to push it. While he was in this position, the lamp which hung on his cap touched the squib. The explosion and his death followed.
10,	John Barnak,	Miner,	.....	35	1	.....	3 Green Ridge Slope,	.....	Lackawanna,.....	Barnak and his laborer had been pulling a piece of roof rock which had been found to be unsafe. The roof was examined by Barnak and pronounced safe. He then commenced to work in the face when another slab fell, inflicting injuries which terminated fatally at 5 p. m., the following day.

TABLE IV.—Continued.

Date of Accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Oct. 14.	John Sheridan,	State picker,	16	S.	.....	.....	Pine Brook Breaker,	Lackawanna,.....	In this case the coroner's jury returned the following verdict: "We find that John Sheridan came to his death by falling from the roof of the Pine Brook Breaker, while engaged in the task of cleaning windows, said Sheridan having slipped in some unaccountable way, and striking on the outside of the windows, which from the evidence at hand appears to be due to the slippery condition of the roof. We further find that the company provided poles for the cleaning of the windows, which appeared to make it unnecessary for those engaged in such work to go on the roof." Monrow was driving a mule, attached to a loaded car, in Rowaines heading. At the time of the accident Rowaine was at his box 75 feet outside of the spot at which Monrow was fatally injured. Monrow in his injured condition said the mule knocked him down and trampled all over him. It is noted that the car was dragged grade in favor of the loaded car, and that it is customary for the driver to place a sprag in the front wheel when coming out. The car which injured Monrow had no sprag in.
18.	Thomas Monrow, ...	Driver,	18	S.	.....	.....	Green Ridge Slope,	Lackawanna,.....	About eight feet of top coal was hanging unsupported by timbers. This top coal is two feet thick. Some time before the accident a hole had been fired in this with the view of bringing it down. The top coal did not fall with the blast. The miner and laborer continued to work under it. It fell killing the miner and injuring the laborer.
25.	John Toole,	Miner,	60	1	.....	.....	Greenwood, New, No. 1,....	Lackawanna,.....	

Nov. 10.	David I. Davies,....	Timber man,	32	S.	Taylor Shaft,	Lackawanna,.....	The victim of this accident with another man was preparing to clear some gob from a cross cut between two chambers. A miner working in one of the chambers called their attention to the dangerous condition of the roof at the spot. Davies proceeded to sound the slab when it fell on him, causing instant death.
19.	Patrick Foy,	Laborer,	45	.....	Green Ridge Slope,	Lackawanna,.....	Foy was working in a gangway approaching a chamber, a blast was fired in this chamber, the flying coal from which struck Foy with fatal results. An alarm was given before the blast and responded to by a man who had just started to work in the mine, and who was unacquainted with the location.
29.	Chas. Guard,	Miner,	31	1	Holden,	Lackawanna,.....	Guard was charging a hole with dynamite and black powder when the charge exploded. It is probable that this accident was caused by a spark produced while the charge was being rammed into a connected hole.
Dec. 5.	Jas. O'Boyle,	Laborer,	21	S.	Old Forge No. 2,	Lackawanna,.....	O'Boyle was working in a chamber in the "Five Foot" vein. The chamber was traversed through a roll. The roof was laborer and his miner were working close together when a slab fell, killing the laborer. From the testimony it appears that examinations of the roof had been made.
15.	Benjamin H. Thomas,	Miner,	57	.....	Capouse,	Lackawanna,.....	Thomas had charged a hole in the face of his place. He had sent his laborer into the cross-cut to give the necessary alarm. He touched the squib and was retreating along his chamber road when the coal in the chamber blast struck him on the head. He died the same day.
17.	Edwin Trimby,.....	Prop cutter (outside),	64	1	Mount Pleasant,	Lackawanna,.....	Trimby was employed outside serving mine cars was passing at a slow rate of speed he fell on the ice and was rendered unconscious. He regained consciousness and was taken home. He died from concussion of the brain.
23.	John W. Marshall,....	Outside foreman,	60	1	Pennsylvania No. 5,	Lackawanna,.....	Marshall was on his round through the breaker. He was last seen alive standing on a plank above the main screen. He fell and was mangled beyond recognition.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Second Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan.	3, John Mella,	Miner,	48	M.	Greenwood No. 1,	Lackawanna,	Leg fractured by fall of coal.
	7, Mike Quinn,	Laborer,	38	M.	Oxford,	Lackawanna,	Leg fractured by fall of coal.
	10, August Bominski,	Driver,	16	S.	West Ridge,	Lackawanna,	Toe crushed between bumpers of cars while endeavoring to uncouple cars with his foot.
	13, William Williams,	Door tender,	54	M.	Von Storch Slope,	Lackawanna,	Severely injured by a door which was struck by a runaway car.
	19, James Morrissey,	Outside foot tender,	16	S.	Old Forge Breaker,	Lackawanna,	Slightly injured by being struck by cars.
21,	Edward Howard,	Miner,	32	M.	Manville,	Lackawanna,	The miner was seriously injured by a
	James Dawn,	Laborer,	44	M.	Manville,	Lackawanna,	slightly injured by premature blast caused by forcing charge into a tight hole.
Feb.	28, Thos. H. Davies,	Outside carpenter,	48	M.	Greenwood No. 1,	Lackawanna,	Two fingers cut off by circular saw.
	5, William Jones,	Driver,	19	S.	West Ridge,	Lackawanna,	Eye injured by kick from mule.
	7, James Ross,	Outside teamster,	35	M.	Diamond Breaker,	Lackawanna,	Injured by falling from load of hay while his team was running away.
	7, Patrick H. Higgins,	Miner,	33	M.	Oxford,	Lackawanna,	Injured by premature blast caused by shortening the squib.
	8, David Reese,	Door boy,	15	S.	Capouse,	Lackawanna,	Leg fractured by car jumping track and striking him.
9,	Benjamin Smith,	Helper,	15	S.	Manville,	Lackawanna,	Injured by a car jumping the track at the head block.
	John Lloyd,	Door boy,	15	S.	Archbald,	Lackawanna,	Arm fractured by falling under cars injured by flying coal from blast while riding to a place of safety.
11,	Thos. Mulligan,	Miner,	45	M.	Dickson,	Lackawanna,	Leg fractured by car jumping the track at the head block.
	Jas. Golden,	Driver,	16	S.	Dickson,	Lackawanna,	Seriously injured by car at head of plane.
Mar.	21, Lawrence Harrison,	Driver's helper,	15	S.	Old Forge No. 1,	Lackawanna,	Nose fractured by fall of roof in face of chamber.
	1, Stephen Bennett,	Laborer,	28	M.	Hampton,	Lackawanna,	Arm fractured in two places by a kick from mule.
	3, Mathew Grady,	Driver,	18	S.	Taylor,	Lackawanna,	Injured by falling under car while getting off the bumper.
5,	David Lewis,	Driver,	20	S.	Pyne,	Lackawanna,	

12,	Thos. Langan,	Miner,	.....	25	.....	Dickson,	.....	Lackawanna,	.....	Burned by powder while handling it in a careless manner.
24,	John Ruano,	Miner,	.....	66	M.	Austin Tunnel,	.....	Lackawanna,	.....	Slightly injured by fall of roof caused by dislodging three props by blast.
26,	Mike Resnock,	Miner,	.....	35	M.	Holden,	.....	Lackawanna,	.....	Both men slightly burned by explosion of gas while engaged taking down roof in gangway.
26,	John Resnock,	Laborer,	.....	30	M.	Holden,	.....	Lackawanna,	.....	Injured by fall of slate in face of heading. Thumb cut off while trying to sprag a car outside.
25,	Wm. Williams,	Laborer,	.....	32	S.	Manville,	.....	Lackawanna,	.....	Flesh wound on arm, the result of falling under cars.
4,	Michael Jones,	Laborer,	.....	25	S.	Diamond Breaker,	.....	Lackawanna,	.....	One finger mashed and head slightly squeezed by cars.
8,	Arthur Reese,	Helper,	.....	17	S.	Pine Brook,	.....	Lackawanna,	.....	Injured by being squeezed between car and prop.
8,	Wilfred Hallstone,	Runner,	.....	17	S.	Old Forge No. 2,	.....	Lackawanna,	.....	Burned by explosion of gas in face of rock plane which he was driving.
11,	James Fletcher,	Driver,	.....	18	S.	Bellevue Slope,	.....	Lackawanna,	.....	Burned by explosion of gas in face of rock plane in course of construction.
14,	Thomas Hawey,	Contractor,	.....	48	S.	Taylor,	.....	Lackawanna,	.....	Burned by explosion of gas while making the morning examination.
14,	John M. Jones,	Chargeman,	.....	40	S.	Taylor,	.....	Lackawanna,	.....	Injured by being squeezed between mule and rb.
16,	John L. Davies,	Fire boss,	.....	61	M.	Dodge,	.....	Lackawanna,	.....	Injured by fall of roof.
18,	Thomas Edwards,	Runner,	.....	22	S.	Pyne,	.....	Lackawanna,	.....	Slightly injured by fall of roof in face of chamber.
21,	Rich. Dunigan,	Miner,	.....	34	M.	Pennsylvania No. 5,	.....	Lackawanna,	.....	Slightly injured by fall of roof while returning to the face after a blast.
3,	Samuel Gibbs,	Miner,	.....	48	M.	Hampton,	.....	Lackawanna,	.....	Severely injured by flying coal from blast.
5,	Myies Barrett,	Miner,	.....	31	S.	Cayuga,	.....	Lackawanna,	.....	Slightly injured by fall of roof in face of pitching chamber.
11,	Jno. McNiff,	Miner,	.....	37	S.	Hampton,	.....	Lackawanna,	.....	Slightly injured by fall of roof in face of pitching chamber.
12,	Eli Whitehouse,	Miner,	.....	30	M.	Pyne,	.....	Lackawanna,	.....	Injured by falling from a hole fired by himself.
12,	Wade Clark,	Miner,	.....	29	M.	Pyne,	.....	Lackawanna,	.....	Two fingers cut off by fall of roof on dynamite cap.
14,	Michael Hart,	Miner,	.....	45	M.	Hampton,	.....	Lackawanna,	.....	Leg fractured by car jumping the track and striking him.
23,	Batist Johnketta,	Miner,	.....	29	M.	Meadow Brook,	.....	Lackawanna,	.....	Leg fractured by cars inside.
26,	Edward Benovick,	Driver,	.....	16	S.	Greenwood, New, No. 1,	.....	Lackawanna,	.....	Two fingers cut off by fall of roof.
30,	Nicholas Scarfg,	Driver,	.....	17	S.	Spencer,	.....	Lackawanna,	.....	Back slightly injured by derailed trip of loaded cars at head of slope.
30,	William Mack,	Miner,	.....	32	M.	Spencer,	.....	Lackawanna,	.....	Slightly injured by fall of roof in face of placing car on track.
8,	Andrew Toole,	Headman,	.....	18	S.	Spencer,	.....	Lackawanna,	.....	Leg fractured and thumb cut off by fall of rock.
13,	John Kleeman,	Miner,	.....	59	M.	Mount Pleasant,	.....	Lackawanna,	.....	Hand seriously injured by fall of roof while returning after blast.
13,	Anthony Narosky,	Laborer,	.....	26	S.	Cayuga,	.....	Lackawanna,	.....	Two ribs fractured by cars inside.
14,	Wm. Marsalek,	Laborer,	.....	42	M.	Pyne,	.....	Lackawanna,	.....	Knee injured while in the act of coupling cars.
15,	Patrick Dempsey,	Miner,	.....	48	M.	Von Storch Slope,	.....	Lackawanna,	.....
17,	Martin Burke,	Driver,	.....	16	S.	"William A.,"	.....	Lackawanna,	.....
23,	Howell Taylor,	Door boy,	.....	15	S.	Old Forge No. 2,	.....	Lackawanna,	.....

Apr.

May

June

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
June	23, Ebenezer Lewis,	Miner,	58	S	West Ridge,	Lackawanna,	Both men were burned by explosion of gas in China vein. Both men were injured by the same fall of rock. Thos. Healey sustained a fractured leg and Ford a cut on head.
	23, Tallie Lewis,	Laborer,	60	S	West Ridge,	Lackawanna,	
	28, Thos. Healey,	Miner,	38	M	William A.,	Lackawanna,	
	29, Thos Ford,	Laborer,	35	M	William A.,	Lackawanna,	
July	8, David L. Williams,	Miner,	35	M	Manville,	Lackawanna,	Hips bruised by fall of roof.
	11, John Sulgey,	Outside driver,	16	S	Taylor,	Lackawanna,	Leg injured by falling under car on culm dump.
	12, Anthony Levouts,	Laborer,	30	M	Diamond Drift,	Lackawanna,	Injured by fall of roof in face of chamber.
	11, Mark Coyne,	Miner,	29	M	Holden,	Lackawanna,	Injured by explosion of gas, the result of igniting a blower from the floor.
	13, Felix Millar,	Driver,	15	S	West Ridge,	Lackawanna,	Slightly injured by cars inside.
	15, Evan Jones,	Miner,	32	M	Dodge,	Lackawanna,	Injured by fall of roof in face of working place.
	15, Patrick Murray,	Miner,	49	M	Dodge,	Lackawanna,	These men were burned as the result of handling powder in a careless manner.
	15, Jos. Warholcik,	Laborer,	39	S	Dodge,	Lackawanna,	Injured by being kicked by a mule.
	16, Wm. Williams,	Driver,	16	S	Cayuga,	Lackawanna,	Injured by cars inside.
	16, Jas. O'Neill,	Driver,	19	M	West Ridge,	Lackawanna,	Face and scalp injured by being kicked by a mule.
	19, Jas. McDonough,	Driver,	20	S	Mount Pleasant,	Lackawanna,	Face and scalp injured by being kicked by a mule.
20, Steve Stockobolskie,	Laborer,	31	S	Continental,	Lackawanna,	Chest injured by a fall of roof in face of chamber.	
22, Martin Layelle,	Driver,	18	S	Dodge,	Lackawanna,	Arm fractured by cars inside.	
22, Thos Walsh,	Driver,	19	S	Austin,	Lackawanna,	Hip fractured by fall of rock.	
26, Joseph Marsh,	Miner,	35	M	Spencer,	Lackawanna,	Head and arm injured by fall of rock while he was returning to the face immediately after a blast.	
27, Thos. Coyne,	Miner,	28	M	Greenwood No. 2,	Lackawanna,	Thigh fractured and wrist injured by fall of top coal.	
Aug.	28, Pat. Timlin,	Miner,	41	M	Cayuga,	Lackawanna,	Injured by fall of roof in face of chamber.
	28, Steve Sabow,	Miner,	34	M	Green Ridge Slope,	Lackawanna,	Injured by explosion of gas while roaming through workings in which he had no business.
9, George Kislc,	Miner,	28	M	Green Ridge Slope,	Lackawanna,	Struck by flying coal from blast.	
10, Patrick Haley,	Miner,	55	M	British,	Lackawanna,	Face and body burned by handling powder in a careless manner.	
17, Edward Jones,	Door boy,	15	S	Manville,	Lackawanna,	Leg bruised by falling off the bumper of a car.	

4.	James Flynn,	Company man,	M. Continental,	Lackawanna,	These men were in a descending cage; owing to a mistake the engineer landed the cage at the top with the force due to eight feet of a drop; all the men were slightly injured.
4.	Jeffrey Powell,	Pumpman,	M. Continental,	Lackawanna,	Arm fractured by falling in front of moving cars.
4.	Wm. Hawkins,	Footman,	M. Continental,	Lackawanna,	Leg fractured by fall of roof in face of working place.
4.	Wm. Morans,	Blacksmith,	M. Continental,	Lackawanna,	Injured by coal dying from blast.
4.	Jos. Troanoskie,	Blacksmith helper,	S. Von Storch Slope,	Lackawanna,	Knee bruised by being squeezed between the bumpers of two cars.
4.	Jos. O'Hara,	Driver,	Hyde Park,	Lackawanna,	Injured while riding on the bumper of a car.
18.	Nelson Anderson,	Miner,	National,	Lackawanna,	Head wounded by fall of soapstone.
20.	J. J. Jennings,	Miner,	Dodge,	Lackawanna,	Leg fractured by falling off bumper of car.
22.	Wm. Langan,	Driver,	Green Ridge Slope,	Lackawanna,	Injured by fall of roof in face of chamber.
23.	Chas. Maguire,	Driver,	Jermyn No. 2,	Lackawanna,	Back injured by a derailed trip of loaded cars.
26.	Jno. Evans,	Miner,	Tripp Slope,	Lackawanna,	Hip injured while attempting to board a moving car.
29.	Thomas Junkins,	Driver,	Lawrence,	Lackawanna,	Shoulder injured by fall of roof in face of chamber.
30.	Emanuel Sagasa,	Miner,	Von Storch Slope,	Lackawanna,	Face injured by a kick from mule.
31.	James Gillgalon,	Wheel runner,	Belleve Shaft,	Lackawanna,	Both men injured by falls of roof in face.
31.	Frank Kellit,	Driver's helper,	Jermyn No. 2,	Lackawanna,	Arm fractured by falling into pockets while playing in breaker.
32.	Jas. Laigozoo,	Laborer,	Green Ridge Slope,	Lackawanna,	Burned by explosion of gas as the result of passing over a danger signal.
8.	A. Allen,	Driver,	Tupp,	Lackawanna,	Struck by sliding gob and slightly injured.
10.	Constantin Numarkte,	Laborer,	Sibley Breaker,	Lackawanna,	Leg fractured by being caught between electric motor and trip of cars.
10.	Jno. Nelman,	Laborer,	Old Forge No. 1,	Lackawanna,	Hip and foot injured by fall of roof in face of chamber.
14.	William Riddle,	Slate picker,	Belleve Shaft,	Lackawanna,	Arm fractured by falling off moving car.
15.	Sidney Staff,	Door boy,	Manville,	Lackawanna,	Injured by falls while hitching a mule.
16.	Jno. Garrett,	Laborer,	Tripp Slope,	Lackawanna,	Burned as the result of handling powder in a careless manner.
16.	Edward Fry,	Switchman,	Blue Brook,	Lackawanna,	Injured by fall of slab while waiting for a blast to explode.
16.	P. Hartman,	Miner,	"William A,"	Lackawanna,	Injured by fall of slab while waiting a blast to explode.
19.	David Watkins,	Driver,	"William A,"	Lackawanna,	Injured on the back by a fall of roof.
19.	Wm. Sullivan,	Miner,	Belleve Shaft,	Lackawanna,	Jaw bone fractured by coal flying from blast.
20.	Jno. McCabe,	Miner,	Greenwood No. 2,	Lackawanna,	Ankle fractured and leg bruised by falling off moving cars.
21.	Daniel Penona,	Miner,	Capouse,	Lackawanna,	Jaw and collar bones fractured by car striking and reading block.
21.	S. Oriscavage,	Laborer,	Belleve Slope,	Lackawanna,	Back injured by fall of roof in face of chamber.
21.	Daniel T. James,	Miner,	Dodge,	Lackawanna,	Back injured by fall of roof after blast.
27.	Patrick Sheridan,	Miner,			
31.	Jas. Potter,	Runner,			
7.	John Gibbons,	Laborer,			
11.	Mike Komoskie,	Laborer,			
14.	Henry A. Davis,	Miner,			

TABLE V. — Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Oct. 18.	Morgan Williams,	Door boy,	16	S.	Continental,	Lackawanna,	Arm cut off while he was attempting to board moving cars.
19.	Peter Stodden,	Miner,	37	M.	West Ridge,	Lackawanna,	Injured by fall of roof after blast.
20.	Thos. Blanch,	Laborer,	40	S.	Greenwood, New, No. 1,	Lackawanna,	Leg dislocated by fall of roof in face of chamber.
22.	Wm. Lewis,	Miner,	34	M.	Greenwood, New, No. 1,	Lackawanna,	These men were slightly injured by explosion of gas.
22.	Jno. Hines,	Laborer,	26	M.	Greenwood, New, No. 1,	Lackawanna,	Slightly injured by fall of roof in face of chamber.
25.	Peter Cusick,	Laborer,	36	M.	Greenwood, New, No. 1,	Lackawanna,	Injured by kick from mule.
27.	David Joseph,	Driver,	17	S.	Dodge,	Lackawanna,	Wound inflicted by coal flying from blast.
27.	Thos. Furgeson,	Miner,	45	M.	Dodge,	Lackawanna,	Injured by fall of roof in face of working place.
28.	Jno. P. Thomas,	Miner,	46	M.	Hampton,	Lackawanna,	Injured by fall of roof in face of working place.
29.	Thos. Dogherty,	Miner,	51	M.	Cayuga,	Lackawanna,	Injured by fall of roof in face of working place.
Nov. 2.	Thomas Reed,	Miner,	32	S.	Von Storch Slope,	Lackawanna,	Back injured by fall of roof in face of chamber.
7.	Richard Grey,	Miner,	35	M.	Jermyn No. 2,	Lackawanna,	Slightly burned by explosion of gas.
7.	John Willis,	Laborer,	24	M.	Jermyn No. 2,	Lackawanna,	Slightly burned by explosion of gas.
8.	John Hovniack,	Laborer,	35	M.	Holden,	Lackawanna,	Leg fractured by fall of roof in face of chamber.
10.	Mike Boback,	Miner,	30	M.	Green Ridge Slope,	Lackawanna,	Both men were injured by coal flying from blast fired by Mike Boback; this accident was the result of ignorance on the part of the men.
10.	John Cavatch,	Laborer,	26	S.	Green Ridge Slope,	Lackawanna,	Injured by fall of roof while returning to the face immediately after a blast.
10.	Joseph Millar,	Miner,	58	M.	Pyne,	Lackawanna,	Slightly injured by fall of roof in face of chamber.
15.	Michael Rudtch,	Laborer,	45	M.	Capouse,	Lackawanna,	Leg fractured by fall of coal from solid face.
17.	William G. Phillips,	Miner,	28	S.	Continental,	Lackawanna,	Injured by flying coal from blast, of which he had not received sufficient warning.
17.	Jas. Graham,	Miner,	31	M.	Dodge,	Lackawanna,	Two fingers cut off by cars inside.
17.	David Jones,	Laborer,	27	S.	Tripp Shaft,	Lackawanna,	Injured by cars.
18.	Tallie Phillips,	Driver,	17	S.	West Ridge,	Lackawanna,	Hand cut off by fall of top coal.
19.	Paul Surnia,	Dumper,	30	M.	Old Forge Breaker,	Lackawanna,	
21.	William Weltz,	Miner,	56	M.	Hydc Park,	Lackawanna,	

25.	Thos. McNally,	35	S. Old Forge No. 1,	Lackawanna,	Ankle dislocated by fall of roof.
29.	Patrick Conaboy,	32	M. Holden,	Lackawanna,	Injured by coal flying from premature blast.
29.	Stephen Nott,	26	M. Jermyn No. 1,	Lackawanna,	Severely injured by cage descending while he was crossing the shaft.
30.	George James,	42	M. Pine Brook,	Lackawanna,	Back and shoulder injured by fall of rock while returning to face after a blast.
1.	George Rees,	30	S. Tripp Slope,	Lackawanna,	Injured while assisting to replace car on track.
2.	Thomas Ockerle,	24	S. National Breaker,	Lackawanna,	Arm fractured by falling off trip of moving mine cars.
2.	Geo. Kosunkas,	21	S. Brislin,	Lackawanna,	Leg fractured by fall of roof.
3.	Henry Murray,	16	S. Pine Brook,	Lackawanna,	Injured by falling from a mule's back.
3.	Daniel Mitchell,	29	M. Old Forge No. 2,	Lackawanna,	Supports on descending cage injures while passing on it descending cage.
3.	W. T. Jones,	60	M. Continental,	Lackawanna,	Wounded by falling coal in face of chamber.
6.	Walter Williams,	30	S. Dodge Breaker,	Lackawanna,	Injured by being caught between locomotive and trip.
7.	Arthur Williams,	15	S. Tripp Slope,	Lackawanna,	Arm fractured by falling in the mine.
12.	Wm. Shoemaker,	40	M. Tripp Slope,	Lackawanna,	By powder; while preparing a cartridge, some powder was spilled, a spark from a lamp falling on the same caused an explosion which burned Shoemaker's face and hands.
12.	Anthony McDonnell,	27	S. Pennsylvania No. 5,	Lackawanna,	Foot injured by falling near moving trip of cars.
13.	John Moran,	32	S. Green Ridge Breaker,	Lackawanna,	Arm fractured by falling under moving trip of cars.
13.	John Forester,	22	S. Dodge,	Lackawanna,	Nose fractured by a kick from a mule.
19.	Stephen Woodleskie,	42	M. Hampton,	Lackawanna,	Failed to retreat to a place of safety after the alarm was given; his collar bone was fractured by coal flying from blast.
21	Jno. Reape,	44	M. Dodge,	Lackawanna,	Hip bone fractured by fall of roof while he was engaged mining in the face.
27	Ben. Jenkins,	35	S. Bellevue Shaft,	Lackawanna,	Injured by fall of roof as he was entering his working place after a blast.



THIRD ANTHRACITE DISTRICT.

(LUZERNE AND SULLIVAN COUNTIES.)

Pittston, Pa., February 18, 1899.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor herewith of presenting my annual report as Inspector of Mines for the Third Anthracite district for the year 1898. It contains the usual tables and a brief description of some of the improvements in and about the collieries. The number of fatal accidents was 85, leaving 39 wives widows and 104 children orphans. The number of fatal accidents this year was 22 more than last year. The increase was caused by the Exeter shaft, Midvale slope, and the Hallstead accidents, whereby 19 lives were lost, a brief account of which will be found in this report.

The total quantity of coal mined was 5,964,467 tons, an increase of 88,644 tons over 1897.

The average time worked was 144 days.

Very respectfully;

H. McDONALD,
Inspector.

Total Production of Coal in Tons During the Year 1898.

Pennsylvania Coal Company,	1,274,989
Lehigh Valley Coal Company,	961,216
Butler Mine Company, Limited,	201,038
Delaware, Lackawanna and Western Railroad Com- pany,	325,678
Forty Fort Coal Company,	267,631
Newton Coal Mining Company,	240,590
Old Forge Coal Company,	205,296
Delaware and Hudson Canal Company,	134,677
Thomas Waddell estate,	82,144
John C. Haddock,	203,641
Clear Spring Coal Company,	169,312
Florence Coal Company, Limited,	85,868
W. G. Payne & Co.,	138,061
Keystone Coal Company,	101,575
Avoca Coal Company,	58,801

Lancliff Coal Company, Limited,	92,426
Lafin Coal Company,	74,996
Robertson & Law,	57,916
Babylon Coal Company,	102,174
Mount Lookout Coal Company,	299,222
Raub Coal Company, Limited,	125,022
Algonquin Coal Company,	122,281
Laurel Run Coal Company,	80,900
Gardner Creek Coal Company,	13,659
William B. Miner,	18,713
Isaac Felts,	30,156
Wyoming Coal and Land Company,	83,532
State Line and Sullivan Railroad Company,	147,533
Stevens Coal Company,	156,663
Brookside Coal Company,	27,917
Anthony Brothers,	80,840
Total,	5,964,467

Number of fatal and non-fatal accidents and tons of coal produced for each life lost and for each person injured.

Name of Operators.	Number of lives lost.	Tons of coal produced per life lost.	Number of persons injured.	Tons of coal produced per person injured.
Pennsylvania Coal Company,	16	79,687	33	38,636
Lehigh Valley Coal Company,	22	43,691	42	22,886
Eutler Mine Company, Limited,	3	67,013	4	50,258
Delaware, Lackawanna and Western Railroad Company, ...	8	40,709	20	16,284
Forty Fort Coal Company,	5	53,526	5	53,526
Newton Coal Mining Company,	4	60,148	5	48,118
Delaware and Hudson Canal Company,	2	67,338	4	33,669
Thomas Waddell Estate,	1	41,072	2	41,072
John C. Haddock,	2	101,820	12	16,970
Clear Spring Coal Company,	1	33,882	5	33,882
Florence Coal Company, Limited,	1	85,868	1	85,868
W. G. Payne & Company,	1	10,629	13	10,629
Keystone Coal Company,	1	20,315	5	20,315
Avoca Coal Company,	1	23,106	4	23,106
Lancliff Coal Company, Limited,	1	92,426	4	23,106
Lafin Coal Company,	3	24,999	2	37,498
Robinson & Law,	1	14,479	4	14,479
Babylon Coal Company,	2	51,087	3	34,058
Mount Lookout Coal Company,	2	149,611	10	24,935
Raub Coal Company, Limited,	2	62,511	2	62,511
Algonquin Coal Company,	1	17,468	7	17,468
Laurel Run Coal Company,	1	20,225	4	20,225
Gardner Creek Coal Company,	2	6,821	1	6,821
W. B. Miner,	1	18,713	1	18,713
Isaac Felts,	1	30,156	5	6,031
Wyoming Coal and Land Company,	1	83,532	3	27,844
State Line and Sullivan Railroad Company,	1	147,533	4	39,166
Stevens Coal Company,	3	52,221	1	52,221
Brookside Coal Company,	1	27,917	1	27,917
Anthony Brothers,	1	80,840	2	102,648
Old Forge Coal Company,	5	41,059	2	41,059
Total,	85	70,170	201	29,674

Number of persons employed by each company and number of employes for each life lost and person injured.

Name of Operators.	Number of persons employed.	Number employed per life lost.	Number employed per person injured.
Pennsylvania Coal Company,	4,314	270	131
Lehigh Valley Coal Company,	2,703	123	64
Butler Mine Company, Limited,	825	275	206
Delaware, Lackawanna and Western Railroad Company,	941	115	46
Forty Fort Coal Company,	587	117	117
Newton Coal Mining Company,	733	153	147
Delaware and Hudson Canal Company,	426	213	106
Thomas Waddell Estate,	373	.....	151
John C. Haddock,	497	248	25
Clear Spring Coal Company,	582	.....	106
Florence Coal Company, Limited,	251	.....	251
W. G. Payne & Company,	472	472	36
Keystone Coal Company,	324	324	65
Avoca Coal Company,	299	.....	.....
Langcliffe Coal Company, Limited,	357	357	89
Laffin Coal Company,	291	97	146
Robertson & Law,	175	.....	44
Babylon Coal Company,	343	171	114
Mount Lookout Coal Company,	583	296	59
Raub Coal Company, Limited,	400	200	200
Algonquior Coal Company,	455	.....	84
Laurel Run Coal Company,	383	.....	96
Gardner Creek Coal Company,	72	35	.....
William B. Miner,	136	.....	.....
Isaac Felts,	95	.....	19
Wyoming Coal and Land Company,	360	360	120
State Line and Sullivan Railroad Company,	321	.....	.....
Stevens Coal Company,	375	125	94
Brookside Coal Company,	25	.....	.....
Anthony Brothers,	20	.....	.....
Old Forge Coal Company,	490	98	245
Total,	18,098	213	90

Annual Examination of Applicants for Mine Foreman Certificates.

The annual examination of applicants for certificates of qualification for mine foreman and assistant mine foreman was held at the Butler Hill school building, Pittston, Pa., May 19, 20 and 21, 1898. The board of examiners was H. McDonald, Inspector of Mines; S. B. Bennett, superintendent; Henry Martin and Howell Williams, miners. Eighteen applicants for mine foreman certificates appeared at the examination, and the following eleven were recommended to have certificates.

Robert J. Whitley, Wyoming; Charles H. Walker, Plainsville; James J. Corrigan, Dorranceton; William W. Morris, Plains; Daniel Davis, Miners Mills; Griffith D. Jones, Miners Mills; David Vaughn, Plains; John Ridgely, Avoca; John Jenkins, Avoca; William D. Powell, Plains; Harry Myers, Pittston.

Sixteen persons were recommended to have certificates qualifying them to act as assistant foremen issued to them.

Recapitulation of fatal accidents, 1898.

	Cause of Accidents.										Occupation.										Nationality.									
	By explosions of fire damp.	By falls of roof and coal.	By falling down shafts.	By mine cars, underground.	By explosions of powder and blasts.	Miscellaneous causes inside of mines.	Miscellaneous causes outside.	Total.	Miners.	Laborers.	Runners and drivers.	Foremen and assistants foremen.	Company day men.	Outside hands.	Total.	American.	Welsh.	Irish.	English.	Polish.	Hungarian.	German.	Italian.	Scotch.	Total.					
January,	1	1	1	1	1	1	6	1	2	1	1	1	1	1	7	2	1	2	1	1	1	1	1	1	7					
February,	1	1	1	2	1	1	7	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
March,	1	1	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
April,	1	1	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
May,	1	1	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
June,	1	1	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
July,	1	1	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
August,	1	1	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
September,	1	1	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
October,	1	1	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
November,	1	1	1	1	1	1	6	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	6					
December,	2	3	3	3	1	1	17	1	3	1	1	1	1	1	7	3	3	4	6	3	1	1	1	1	11					
Total,	6	22	8	6	8	16	85	33	31	4	2	10	5	85	12	9	6	4	30	13	6	3	2	85						

TABLE.—Showing number of each class of serious non-fatal accidents, number of each class of employees, and the nationality of persons injured for each month during the year 1898.

	Cause of Accidents.					Occupation of Those Injured.							Nationality of Persons Injured.													
	By explosions of fire damp.	By falls of roof and coal.	By mine cars, inside of the mines.	By explosions of powder and blasts.	From miscellaneous causes, inside.	From miscellaneous causes, outside.	Total.	Miners.	Laborers.	Runners and drivers.	Door tenders.	Foremen and assistant foremen.	Inside company workmen.	Outside employees.	Total.	American.	Welsh.	Irish.	Polish.	English.	Scotch.	Hungarian.	Russian.	German.	Italian.	Total.
January	4	7	2	1	3	2	15	7	2	3	1	1	1	2	15	3	2	4	2	1	1	2	1	1	1	15
February	1	2	4	2	1	5	11	4	4	4	1	3	1	1	11	1	1	4	5	1	1	1	1	1	16	
March	1	4	3	1	2	3	16	6	1	1	1	1	1	1	16	3	1	2	7	1	1	1	1	1	19	
April	1	2	3	1	1	1	12	5	1	1	1	1	1	3	12	3	4	1	3	1	1	1	1	1	18	
May	1	1	1	1	1	1	8	4	2	1	1	2	1	1	8	1	1	1	2	2	1	1	1	1	16	
June	1	6	1	1	1	1	16	6	7	1	1	1	1	1	16	1	1	3	2	2	1	1	1	1	19	
July	1	3	1	1	1	1	9	3	4	1	1	1	1	1	9	2	1	1	1	1	1	1	1	1	14	
August	1	6	2	1	2	7	14	2	6	1	1	1	1	1	14	3	2	1	1	1	1	1	1	1	23	
September	7	6	4	2	2	2	23	10	4	4	1	1	1	1	27	6	2	3	11	3	1	1	1	1	33	
October	12	7	4	4	1	1	31	11	5	3	1	1	1	1	34	3	5	4	3	3	1	1	1	1	47	
November	11	1	1	1	1	1	18	6	1	1	1	1	1	1	26	6	1	4	1	1	1	1	1	1	33	
December	1	6	1	1	1	1	12	5	7	1	1	1	1	1	26	6	1	4	1	1	1	1	1	1	26	
Total	37	68	36	18	15	27	201	71	48	28	8	7	23	16	201	34	17	28	63	15	1	16	3	15	9	201

Colliery Improvements for 1898.

Lehigh Valley Coal Company.

At the Prospect Colliery a new breaker has been erected on an entirely new site. The breaker is estimated to have a capacity of between 2,500 and 3,000 tons per ten hours. It is equipped with all of the latest improvements and is constructed in a thoroughly substantial manner. The main posts of the breaker are all cast iron columns which stand on concrete foundations and run to the level of the platform and support all of the heavy machinery of the breaker. Jigs were put in the breaker for handling doubtful and wet coal. The coal is screened over shaking screens driven by eccentrics and constructed somewhat after the pattern adopted by the Philadelphia and Reading Coal and Iron Company. The principal feature of this breaker is the arrangement for cleaning coal in large sizes which will be thoroughly done before it reaches the rolls, and it is proposed to do no further work in the matter of picking slate after the coal passes through the prepared rolls. No arrangements have been put in for picking the slate below the main screens, as it is proposed to do all this work thoroughly on the platform. The coal is carried to the breaker by two lines of conveyors, the flights of which are 10x54 inches; one line takes the coal from the Midvale Hillman slope and the other from the Prospect shaft over which a new steel tower has been erected and an iron self-dumping cage put in and the carriages dump the coal directly into the conveyors. The coal from the Midvale slope is hoisted by two pairs of engines which have been put in this year, and is discharged by the ordinary tail gate dump into the conveyors. A new brick boiler house has been built, and the Babcock and Wilcox pattern of boilers placed therein with a horse power capacity of 1,750. This boiler house is thoroughly modern and up to date in every respect. The forced draft is produced by two Sturdevant blowing fans and the gasses, after leaving the boilers, pass through an economizer of the "American Fuel Economizer" pattern, which extracts the heat remaining in the gasses after passing the boilers. The air is drawn through this economizer by an induction fan of the Sturdevant type. This boiler plant takes the place of 46 old style cylinder boilers which were distributed in seven different boiler houses which have now been abandoned. The steam is carried from the new boiler house to the various engines of the colliery.

Arrangements have been made to sink the Prospect shaft from the Baltimore vein to the Red Ash, and work is now in progress on this shaft.

In the Oakwood shaft of this company a slope has been sunk in the Red Ash vein to a point on a level with the foot of the Prospect

shaft at a point where it will break through to the Red Ash vein. A gangway is now being driven to pass the new shaft so that by the time the rock work breaks through, the foot will be in readiness for business.

The Hillman vein, which has heretofore been worked from the Wyoming Colliery, is now being worked through the slope which has been driven during the past year from the head of the old underground Hillman slope to the surface, which it reaches about half-way between the Wyoming and Prospect collieries. The coal is now hoisted directly to the surface by a pair of engines installed during the past year, and from that point it is handled by a locomotive which enters the old Hillman water course and under the new Prospect breaker to the Midvale Hillman slope, where it is hoisted and dumped into the conveyor line leading to Prospect breaker.

At the Wyoming colliery of the Lehigh Valley Coal Company a narrow gauge railroad has been constructed during the year which connects Wyoming and Prospect collieries. This narrow gauge road also extends to the Henry Colliery so that these three collieries are now connected on the surface.

At the Henry colliery of the above company, extensive improvements have been made in the breaker which greatly increases its facility for cleaning coal. The principal improvements were a traveling platform, and increase of the head room for cleaning the coal in the larger sizes. The breaker has been also equipped with the Ziegler slate pickers. The air shaft has been re-timbered and put in first class repair. The large ventilating fan has been thoroughly overhauled and repaired. A boiler house almost exactly the same as the one erected at the Prospect colliery has been erected at a point half way between Wyoming and Henry collieries, and these two workings are now supplied with steam from this plant.

At the Maltly colliery an opening has been made during the year to the old four-foot workings near the breaker which was abandoned a great many years ago, and coal is now being mined from this seam.

At the Exeter colliery, the Red Ash shaft was sunk to the Red Ash vein and gangways have been driven a considerable distance on each side of the shaft. No chambers have yet been driven, as the second opening is not connected. A four-compartment steel tower has been erected over the shaft, and a 20-foot fan, which is so arranged that it can be used as an exhaust or blower, has been erected and this plant is now in first class condition. Work was commenced at sinking an air shaft which will be about 575 feet deep and is 13 feet 10 inches by 15 feet. It is expected that this shaft will be through to the vein and connections be made in the coal by the middle of August next.

Pennsylvania Coal Company.

A new breaker has been erected at No. 6 colliery which is located about 200 yards east of the site occupied by the old breaker which was taken down and removed to make room for improvements about the shaft. The new breaker is a large structure and it is estimated that about a million and a half feet of timber was used in its construction. Mechanically it is far superior to any breaker now in possession of the company in this district. The equipment is the most modern known to the anthracite coal business for the preparation of coal. After the coal leaves the car at the head of the breaker it is handled entirely by machinery until deposited in the pockets at the lower end of the breaker. An endless chain system is used for conveying the cars into the two patent Farrell dumps at the head, and as soon as the cars are emptied they pass over the tips, run up a short incline and switch themselves back to another set of chain conveyors. The cars are handled entirely by chain and gravity. In moving through the breaker the coal first passes over a set of bars through which the culm and fine coal find an opening and pass to the extreme bottom of breaker. The coal is then conveyed to the top of the breaker again and passes over a separate pair of screens, where it is crushed into sizes, recleaned by the patent Thomas slate pickers, and conveyed by the belt conveyors into the chutes. The larger coal passes over the grate bars and lands on a movable platform where it is cleaned as it passes over. The greater quantity of the coal after going through the rolls is elevated by three sets of elevators to the six main screens where it is separated into sizes. The culm is conveyed on belt conveyors to a pocket 100 feet from the breaker. The capacity of this breaker is estimated at 2,000 tons per day. The coal to be handled by it is mined from shafts Nos. 5, 6 and 11.

A new washery has been erected midway between the Ewen and No. 6 breakers to wash the culm in the old culm bank.

The No. 6 shaft has been sunk from the Pittston seam to the Red Ash, and a new brick engine house erected close to the shaft.

Babylon Coal Company.

The Babylon colliery shut down on the 13th of January and resumed operations again on June 13, 1898, after being idle five months for general improvements in and about the breaker. The repairs consisted of taking down the trestling which spanned the 200 feet between the hoisting shaft and breaker. The hoisting shaft was re-cribbed from the rock to the surface, a distance of 56 feet, with 12x12 inch Georgia yellow pine, and a new tower was erected over the shaft. A conveyor line was built from the surface landing at the shaft to

dump room at the top of breaker, a distance of 300 feet. A No. 7 Harwood steel brushed chain with 12x48 inch flights, made by the Exeter Machine Works, of Pittston, Pa., conveys the coal along this chute to top of breaker for preparation.

A new addition has been built to the breaker, which has a capacity of 600 tons per day, for handling and cleaning all dirty coal by the process of washing the coal with water. A number of jigs and shakers were put in to prepare the smaller sizes for market.

Two tunnels were opened on the north end of the property to the Clark and Marcy seams. The Clark seam was cut at a distance of 525 feet; 425 feet of this was driven chiefly through quicksand which required double timbering with 12x12 timber with underlying mud sills, and is closely lagged with three-inch planks.

The other tunnel has been driven to the Marcy seam a distance of 160 feet, which required timbering in like manner as the above. The coal is taken from these tunnels by a 15-ton steam locomotive over a road three miles long to the breaker, where it is dumped and taken up in the breaker by the same line of conveyors that takes the shaft coal up.

The Clark seam is ventilated through the Red Ash vein by a rock plane driven for the purpose, and the Marcy tunnel is ventilated by a 12-foot fan run by compressed air, which gives great satisfaction at present.

Mount Lookout Coal Company.

At the Mount Lookout colliery a Sullivan undercutting machine was placed on trial in the Marcy seam, which is four feet in height and of a very hard nature requiring considerable powder to blast the coal required for a day's work. Therefore, this machine was placed on trial to test the practicability of adopting this method of mining in this vein. But what success has been met with in the different tests is impossible for me to say at present, as the drill has been in use only a few months, and this being the first cutting machine in the anthracite coal as I understand, it requires careful testing before it should be accepted or condemned. Therefore, the drill is placed to undercut in the different parts of the seam. A test has been made by cutting out the bony coal and again undercutting close along the bottom and carefully noting the results of each test. When I examined the machine at work they were undercutting along the bottom of the seam which is undermined from pillar to pillar across the face of the breast and four feet under; then three holes are drilled, one on each pillar, the other in the centre, and very little powder is required to bring the coal down. The opening at the face of the chamber in height to allow the drill to undercut the four feet is about ten inches and tapering down to the

back end. There was an expert handling the cutter, which is no light work to manipulate, who was sent by the manufacturer to make the tests. The machine is run by compressed air conducted in iron pipes from the surface down the shaft and along the heading road and then taken up the chambers by hose. It appears to be the proper method of mining coal in small and hard seams as well as larger ones, as undermining the coal and then blasting it down is certainly the proper way of mining, as a great loss of coal takes place by blasting it out of the solid, especially when the holes are too heavily charged with powder which throws the coal into the gob where it is not obtainable and is lost, as it is mixed with the refuse of the chamber, causing a loss to the operator as well as the miner.

Mine Accidents.

During 1898, 85 persons were killed or fatally injured and 201 were more or less seriously injured in and about the mines of the Third anthracite district. Of the number killed, 19 lost their lives in four separate accidents, which caused the increase over last year. The four accidents referred to are the Hallstead shaft, whereby David Emanuel, fire boss, and Thomas Williams, miner, lost their lives by venturing too far under a general settling of the roof in the old abandoned workings of the Red Ash vein after being warned by the mine boss to take no unnecessary risk by entering the disturbed district where the crush was in progress.

On May 5 Stephen Jenkins, James Monohan and John Titus lost their lives in the above shaft while putting guides in the shaft. The accident was caused by a chain used as a sling to hold the tackle block which was used to lower the guides to the men in the shaft giving way, allowing the guide to fall down the shaft, knocking the platform from under the men, causing them to fall to the bottom of the shaft and instantly killing them.

The other two accidents, one at the Midvale slope on October 1, whereby five men lost their lives by suffocation caused by the timber in the intake airway taking fire. The other accident occurred in the Exeter shaft on the morning of November 5, when nine men who were descending the shaft to work were killed by three loaded mine cars being run into the shaft by a misplaced switch. The evidence taken at the coroner's inquest of those accidents I send with this report.*

The verdict of the coroner's jury in the case of the five men who lost their lives by having been suffocated in the Midvale colliery on October 1 by smoke from timber in mine taking fire was that the

*The evidence before the coroner's jury in this case is on file in the Bureau of Mines.

accident was unavoidable and no blame should be attached to the officials of the Lehigh Valley Coal Company.

In the case of the men who were killed at the Exeter shaft on November 5, 1898, by cars falling down the shaft on a cage in which they were, the coroner's jury rendered a verdict that the engineer, Price, and the brakeman, Anthony, were culpable, and they were taken before Judge Lynch, of Luzerne county, where they waived a hearing and were held to bail for their appearance at court.

TABLE I.—Showing Location, etc., of Collieries in the Third Anthracite District.

Number showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
1	Barnum No. 1 Shaft,	Pennsylvania Coal Company,	Luzerne,	George B. Smith and	Dunmore,	E. & W. Y.
1	Barnum No. 2 Shaft,	Pennsylvania Coal Company,	Luzerne,	Alex. Bryden, Asst.	Dunmore,	E. & W. Y.
2	Barnum No. 3 Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
3	Laws Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
4	No. 13 Shaft,	Pennsylvania Coal Company,	Lackawanna,	do.	Dunmore,	E. & W. Y.
4	No. 9 Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
4	Nos. 10 and 10 J. Shafts,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
5	Nos. 1 and 8 Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
4	No. 4 Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
4	No. 5 Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
4	No. 6 Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
7	No. 7 Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
7	No. 11 Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
8	No. 14 Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
6	Hoyte Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
9	Schooley Shaft,	Pennsylvania Coal Company,	Luzerne,	do.	Dunmore,	E. & W. Y.
10	Butler Shaft,	Butler Mine Company, Limited,	Luzerne,	S. B. Bennett,	Pittston,	L. V.
11	Fernwood Shaft,	Butler Mine Company, Limited,	Luzerne,	S. B. Bennett,	Pittston,	L. V.
10	Chapman Shaft,	Newton Coal Mining Company,	Luzerne,	S. S. S.,	Pittston,	L. V.
10	Twin Shaft,	Newton Coal Mining Company,	Luzerne,	John B. Law,	Pittston,	L. V.
12	Ravine Shaft,	Newton Coal Mining Company,	Luzerne,	John B. Law,	Pittston,	L. V.
12	Seneca Shaft,	Newton Coal Mining Company,	Luzerne,	John B. Law,	Pittston,	L. V.
13	Phoenix Shaft,	Old Forge Coal Mining Company,	Luzerne,	John B. Law,	Pittston,	L. V.
13	Columbia Shaft,	Lehigh Valley Coal Company,	Luzerne,	John B. Law,	Pittston,	L. V.
13	Prospect Shaft,	Lehigh Valley Coal Company,	Luzerne,	W. A. Athrop and	Wilkesbarre,	L. V.
11	Midvale Slope,	Lehigh Valley Coal Company,	Luzerne,	Asst. Ell T. Connor,	Wilkesbarre,	L. V.
15	Wyoming Shaft,	Lehigh Valley Coal Company,	Luzerne,	do.	Wilkesbarre,	L. V.
15	Henry Shaft,	Lehigh Valley Coal Company,	Luzerne,	do.	Wilkesbarre,	L. V.
16	Exeter Shaft,	Lehigh Valley Coal Company,	Luzerne,	do.	Wilkesbarre,	L. V.
17	Heidelberg Shaft,	Lehigh Valley Coal Company,	Luzerne,	do.	Wilkesbarre,	L. V.
18	Heidelberg Slope,	Lehigh Valley Coal Company,	Luzerne,	do.	Wilkesbarre,	L. V.
19	Maitly Shaft,	Lehigh Valley Coal Company,	Luzerne,	do.	Wilkesbarre,	L. V.
20	Clear Spring Shaft,	Clear Spring Coal Company,	Luzerne,	J. L. Cake,	Pittston,	L. & W.
21	Elmwood Nos. 1 and 2 Shafts,	Florence Coal Company,	Luzerne,	Charles P. Ford,	Marchwood,	D., L. & W.

22	East Boston Shaft,	W. G. Payne & Co.,	Luzerne,	William O. Williams,	Kingston,	D. L. & W.
23	Ridgewood Shaft and Slope,	Keystone Coal Company,	Luzerne,	John T. Jetter,	Wilkesbarre,	C. R. R. of N. J.
24	Katy Did Tunnels and Slope,	Robertson & Law,	Luzerne,	John M. Robertson,	Moosic,	D. L. & W.
25	Stevens Shaft and Slope,	Stevens Coal Co.,	Luzerne,	E. D. Jenkins,	Pittston,	L. V.
26	Lafin Shaft,	Latlin Coal Company,	Luzerne,	G. G. Brooks,	Latlin,	C. R. R. of N. J.
27	Langcliffe Shaft and Tunnel,	Langcliffe Coal Company,	Luzerne,	John Lovering,	Avoca,	D. & H. C. Co.
28	Avoca Shaft,	Avoca Coal Company,	Luzerne,	W. H. Hollister,	Avoca,	L. V.
29	Pine Ridge Shaft,	Alconquin Coal Company,	Luzerne,	George T. Nealley,	Wilkesbarre,	W. & E.
30	Laurel Run Slope,	Laurel Run Coal Company,	Luzerne,	George T. Nealley,	Wilkesbarre,	W. & E.
31	Louise Tunnel,	Raub Coal Company,	Luzerne,	C. R. Marcy,	Luzerne,	D. L. & W.
32	Serliche Drifts,	State Line and Sullivan R. R. Co.,	Sullivan,	I. O. Blight,	Towanda,	L. V.
33	Crescent Tunnel,	Gardner Creek Coal Company,	Luzerne,	H. G. Williams,	Parsons,	L. V.
34	Miner's Drifts,	Madoc B. Miner,	Luzerne,	George W. Milnes,	Wilkesbarre,	L. V. & E.
35	Grillith Tunnel,	Wyoming Coal and Land Co.,	Luzerne,	F. H. Clements,	Scranton,	D. & H. C. Co.
36	Delaware Shaft,	Delaware and Hudson Canal Co.,	Luzerne,	C. C. Rose,	Scranton,	D. L. & W.
37	Pettebone Shaft,	Del. Lack. & Western R. R. Co.,	Luzerne,	W. R. Storrs,	Scranton,	D. L. & W.
38	Hallstead Shaft,	Del. Lack. & Western R. R. Co.,	Luzerne,	W. R. Storrs,	Scranton,	L. V.
39	Forty Fort Shaft,	Forty Fort Coal Company,	Luzerne,	J. S. Crawford,	Scranton,	L. V.
40	Harry E Shaft,	Babylon Coal Company,	Luzerne,	J. S. Crawford,	Scranton,	L. V.
41	Babylon Shaft and Tunnel,	Mount Lookout Coal Company,	Luzerne,	J. S. Crawford,	Scranton,	L. V.
42	Mount Lookout Shaft,	Mount Lookout Coal Company,	Luzerne,	J. S. Crawford,	Scranton,	L. V.
43	Mill Hollow Shaft,	Thomas Waddell Estate,	Luzerne,	James B. Davis,	Dorranceeton,	L. V.
44	Black Diamond Shaft,	John C. Haddock,	Luzerne,	David R. Roberts,	Plymouth,	D. L. & W.
45	Brookside Washery,	Brookside Coal Company,	Luzerne,	H. Jennings,	Scranton,	L. V.
46	Bennett Washery,	A. R. & H. W. Anthony,	Luzerne,	James T. Sharkey,	Wilkesbarre,	L. V.

TABLE II.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, etc., in the Third Anthracite District for the year ending December 31, 1898.

Names of Collieries.	County.	Total productions in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employees.	Railroad shipments in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.
Pennsylvania Coal Company.									
Barnum Nos. 1, 2 and 3 shafts.	Luzerne.	218,395	8,070	.....	210,055	120	589	1	3
No. 13 and Lav's shafts.	Lacka. and Luzerne.	148,828	8,171	.....	150,667	128	481	2	.....
Nos. 9, 10 and 10 Jr. shafts.	Luzerne.	141,923	9,618	.....	131,605	118	553	3	1
Nos. 1 and 8 shafts.	Luzerne.	91,783	2,280	.....	89,503	126	335	.....	.....
Nos. 7 and 4 and Hoyte shafts.	Luzerne.	251,700	15,045	.....	236,715	149	748	1	12
Nos. 5, 6 and 11 shafts.	Luzerne.	130,012	7,726	.....	122,286	112	710	2	4
Nos. 3, 4 and 11 shafts.	Luzerne.	162,851	10,023	.....	152,828	127	484	1	4
Schulz shaft.	Luzerne.	118,242	11,457	.....	106,785	132	377	6	8
No. 6 washery.	Luzerne.	2,155	824	.....	1,331	13	37	.....	.....
Total.	.....	1,274,989	73,214	.....	1,201,775	*127%	4,311	16	33
Lehigh Valley Coal Company.									
Prospect, Oakwood and Midvale shafts.	Luzerne.	167,891	Cum.	673	167,918	110	573	7	13
Wyoming and Henry shafts.	Luzerne.	121,337	Cum.	9,927	178,068	110	500	1	.....
Maltby shaft.	Luzerne.	207,361	.....	2,247	198,114	135	522	.....	7
Exeter shaft.	Luzerne.	231,498	.....	10,057	209,474	128	462	13	11
Heidelberg shaft.	Luzerne.	150,469	.....	11,326	108,313	132	316	.....	.....
Heidelberg slope.	Luzerne.	112,800	.....	374	105,343	142	298	1	.....
Total.	.....	661,216	36,586	17,600	907,030	*131	2,701	22	42
Butler Mine Company, Limited.									
Butler and Chapman shafts and tunnel.	Luzerne.	112,178	5,400	1,068	106,710	156	438	2	3
Fernwood shaft and drift.	Luzerne.	88,860	4,200	623	84,022	148	387	1	1
Total.	.....	201,038	9,600	1,706	189,732	*152	825	3	4

Delaware, Lackawanna and Western R. R. Co.	92,613	15,000	1,778	75,825	310	4
Hallstead shaft,	223,065	6,000	4,234	222,831	614	16
Pettebone shaft,						
Total,	325,678	21,000	6,012	2 8,406	924	20
Miscellaneous Coal Companies.						
Harry E. and Forty Fort shafts,	267,631	Culm.	1,910	265,721	587	5
Twin, Seneca and Ravine shafts,	240,590	22,475	12,363	1 5,752	733	5
Phoenix and Columbia shafts,	205,296	13,360	1,258	190,678	499	2
Middletown shaft,	134,677	Culm.	3,290	131,417	426	5
Delaware shaft,	82,144	7,642	18,179	36,323	391	2
Black Diamond shaft,	32,000	6,368	165,233	437	2	
Clear Spring shaft,	16,812	1,253	136,529	532	5	
Blumwood, two shafts,	85,882	11,000	3,939	101,871	451	1
East Boston shaft,	138,063	1,107	3,939	134,122	139	13
Ridgewood shaft and slope,	101,575	9,750	1,107	90,718	355	5
Avoca shaft,	58,801	Culm.	2,869	55,932	969	1
Lancaster tunnel and shaft,	92,426	3,900	756	87,770	136	2
Latin shaft,	74,946	6,480	2,115	66,401	251	3
Katy Did slope and tunnel,	57,916	2,700	1,084	54,132	107	4
Babyton shaft,	102,174	Culm.	517	101,657	114	3
Mount Lookout shaft,	289,222	4,000	4,984	2 4,278	593	10
Louis tunnel and drift,	125,022	Culm.	4,464	116,558	130	2
Line Ridge shaft,	122,283	Culm.	3,671	118,610	129	7
Laurel Iron slope,	80,900	Culm.	1,872	79,028	116	4
Chardner rock tunnel, f,	13,659	3,600	49	10,010	72	2
Middletown shaft,	48,113	1,300	109	47,313	109	1
Cressent tunnels,	83,539	1,500	1,135	82,039	95	5
Griffith tunnel,	137,593	9,550	1,352	128,069	291	3
Bernie drift,	156,663	Culm.	2,934	143,629	304	1
Stevens shaft and slope,	27,917	Culm.	2,934	153,779	116	3
Brookside washery,	80,849	Culm.	2,710	77,917	96	4
Bennett washery,		2,190		75,940	21	1
Total,	3,291,546	143,225	37,583	2,909,740	9,315	36

*Average time worked.

†These two mines prepare their coal in the same breaker.

Recapitulation.

Pennsylvania Coal Company,	1,274,989	73,214	12,754	1,201,775	4,314	33
Lehigh Valley Coal Company,	981,216	36,586	17,000	907,089	2,703	22
Bethler Mine Company, Limited,	201,058	9,650	1,706	189,782	825	4
Delaware, Lackawanna and Western Railroad Com- pany,	325,678	21,000	6,012	298,666	941	8
Miscellaneous Coal Companies,	3,291,546	143,223	37,583	2,909,740	9,315	36
Total,	5,961,497	283,623	122,901	5,557,943	144	18,098

TABLE II.—Continued.

Names of Collieries.	County.	Number kegs of powder used.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse power.	Number electric dynamos.	Voltage.	Number electric locomotives.	Number air compressors.	Number air locomotives.	
Pennsylvania Coal Company.															
Barnum Nos. 1, 2 and 3 shafts,	Luzerne,	7,246	442	55	6	8	478	20	788	.....	.....	.....	.....	.....
No. 2 and 3 shafts,	Luicke, and Luzerne,	3,423	551	51	17	13	2,593	17	587	.....	.....	.....	.....	.....
No. 9, 10 and 10 Jr. shafts,	Luzerne,	4,246	689	64	6	10	1,102	13	656	.....	.....	.....	1	.....
Nos. 1 and 8 shafts,	Luzerne,	2,554	620	39	8	12	4,495	13	505	.....	.....	.....	.....	.....
Nos. 7 and 4 and Hoyte shafts,	Luzerne,	9,295	4,255	62	15	15	3,457	15	961	.....	.....	.....	1	.....
Nos. 5, 6 and 11 shafts,	Luzerne,	4,397	1,052	79	25	8	188	19	861	.....	.....	.....	.....	.....
No. 14 shaft and tunnels,	Luzerne,	4,498	1,331	62	9	8	1,840	23	842	.....	.....	.....	1	.....
Schooley shaft,	Luzerne,	5,615	1,197	29	7	15	4,629	19	667	.....	.....	.....	.....	.....
No. 6 washery,	Luzerne, . . . . .	.....	.....	.....	.....	3	10,000	3	156	.....	.....	.....	.....	.....
Total, . . . . .	.....	41,838	10,148	441	90	82	24,784	148	6,103	.....	.....	.....	3	1
Lehigh Valley Coal Company.															
Prospect, Oakwood and Midvale shafts,	Luzerne,	4,830	2,752	75	7	12	4,000	24	3,790	.....	.....	.....	1	.....
Wyoming and Henry shafts,	Luzerne,	3,292	4,456	57	7	17	800	15	1,345	.....	.....	.....	.....	.....
Nashby shaft,	Luzerne,	5,069	6,467	79	27	7	280	22	1,800	.....	350	.....	.....	.....
Heidelberg shaft,	Luzerne,	3,067	30,101	47	8	4	3,300	22	1,800	.....	.....	.....	.....	.....
Heidelberg shaft,	Luzerne,	3,801	753	36	6	5	1,336	13	1,042	.....	.....	.....	.....	.....
Heidelberg slope,	Luzerne,	2,370	1,421	33	9	5	1,863	8	555	.....	.....	.....	.....	.....
Total, . . . . .	.....	26,141	52,611	380	59	55	10,729	94	9,773	.....	.....	.....	.....	.....
Butler Mine Company, Limited.															
Butler and Chapman shafts and tunnel,	Luzerne,	5,264	2,450	20	19	6	2,500	8	610	.....	.....	.....	.....	.....
Fernwood shaft and drift,	Luzerne,	3,248	6,450	36	13	7	2,030	10	760	.....	.....	.....	.....	.....
Total, . . . . .	.....	8,662	8,900	75	32	13	4,530	18	1,360	.....	.....	.....	.....	.....

TABLE III.—Showing the number of employees at each colliery in the Third Anthracite District, during the year 1898.

Names of Collieries.	Occupations of Persons Employed Inside.										Occupations of Persons Employed Outside.						Grand total, inside and outside.
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, bookkeepers and clerks.	All other employes.	Total outside.		
Pennsylvania Coal Company.																	
Barnum Nos. 1, 2 and 3 shafts,	18	20	1,182	1,129	364	130	233	3,076	9	33	136	639	10	411	1,238	4,314	
Nos. 13 and Law's shafts,	3	5	94	77	55	16	83	333	1	16	19	116	5	83	240	573	
Nos. 9, 10 and 10 Jr. shafts,	1	6	83	90	56	7	55	299	1	10	22	56	4	108	201	500	
Nos. 1 and 8 shafts,	1	1	298	36	58	14	37	369	1	9	16	55	3	78	162	522	
Nos. 1, 4 and Hoyte shafts,	1	5	138	72	59	.....	34	309	1	8	15	56	4	99	183	472
Nos. 5, 6 and 11 shafts,	1	1	66	52	21	3	18	162	1	1	8	79	4	57	154	316	
Nos. 14 shaft and tunnels,	1	1	73	43	24	1	17	160	1	5	6	74	5	49	140	300	
Schooley shaft,	2	2	118	125	43	8	25	239	1	3	17	82	1	43	148	484	
No. 6 washery,	2	2	103	79	20	8	25	239	1	.....	2	18	1	15	37	37
Total,	18	20	1,182	1,129	364	130	233	3,076	9	33	136	639	10	411	1,238	4,314	
Lehigh Valley Coal Company.																	
Prospect, Oakwood and Midvale shafts,	3	5	94	83	90	56	7	55	299	1	10	22	56	4	108	201	
Wyoming and Henry shafts,	1	1	298	36	58	14	37	369	1	9	16	55	3	78	162	522	
Malby shaft,	1	5	138	72	59	.....	34	309	1	8	15	56	4	99	183	472
Exeter shaft,	1	1	66	52	21	3	18	162	1	1	8	79	4	57	154	316	
Heibelburg shaft,	1	1	73	43	24	1	17	160	1	5	6	74	5	49	140	300	
Heidelberg slope,	1	1	73	43	24	1	17	160	1	5	6	74	5	49	140	300	
Total,	10	23	662	370	273	41	244	1,623	6	53	86	436	25	474	1,068	2,703	
Butler Mine Company, Limited.																	
Butler and Chittiman shaft and tunnel,	3	2	138	62	45	7	25	282	2	6	9	94	2	43	156	438	
Fernwood shaft and drift,	2	1	95	62	50	7	41	288	1	4	7	94	1	22	129	287	
Total,	5	3	233	124	95	14	66	540	3	10	16	188	3	65	285	825	

TABLE III.—Continued.

Number of Days Worked Each Month in Breaker.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Pennsylvania Coal Company.												
Barium Nos. 1, 2 and 3 shafts,	12	9.25	5	10.25	9	12.25	11.25	11	9.25	9.25	13.50	17
No. 4 shaft,	9	2.75	13.50	8.25	11.25	14.75	10.25	9.50	9.25	9.25	11.25	15.50
Nos. 9, 10 and 16 shafts,	8.75	9.25	6.75	3.50	10.50	13	10	9.25	11.50	5.75	14.50	15
Nos. 1 and 8 shafts,	11.25	7.50	6.75	7.50	6.75	14	10.50	9.50	5.50	17.75	16.25	13.25
Nos. 7, 1 and Hoyte shafts,	14.25	12.75	7.25	7.25	11	12	14	13.50	10.50	15	13.25	15
Nos. 5, 6 and 11 shafts,	8.75	9.75	6.75	14.50	14	9.50	.....	.....	12	16.50	12.25	8.50
No. 14 shaft and tunnels,	7.50	13	6	11.75	11	13.25	9	9.75	9.25	17.75	7.50	7.50
Schooley shaft,	11.50	12.75	11.25	6.75	10.75	10.50	11	8.75	15.75	12.50	11.50	11
No. 6 washery, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.50	11.50
Total,	83	74.25	68.75	69.75	84.25	99.25	76	71.25	83.25	99	111.75	114.25
Lehigh Valley Coal Company.												
Prospect Oakwood and Midvale shafts,	10.5	10.7	8.2	7.1	7.5	10.2½	15.6	9.9	15.2	16.7	17.8	11.5½
Wyoming and Henry shafts,	11.5	12.3	3.5	.....	.....	.....	13.7½	10.6	14.3	15.7	14.0½	12.6½
Maitly shaft,	9.9	10.4	8.2½	7.4	6.5	8.5½	13.9½	9.6½	14.3	8.5	16.5½	12
Fernwood shaft,	9.3½	10.1½	7.4	.....	.....	.....	12.6½	9.2½	13.5	18.1	11.9½	11.9½
Heidelberg shaft,	8.1½	8.2½	6.5½	5.3	6.6	9.2	13.8½	11.1½	15.4	17.4½	12.9½	12.9½
Heidelberg slope,	8.5	8.7½	6.6½	5.5	6.5½	9.4½	11.7	11.3½	16.3½	21	18.2	14.65
Total,	57.9	60.5½	40.6½	31.6	33.2	45.9½	86.0½	61.9	89.05	97.75	98.8½	75.7½
Butler Mine Company, Limited.												
Butler and Chapman shaft and tunnel,	13.3	8.3	7.8	9.3	7.8	13.1	11.2	13.2	14.4	14	20.9	16.1
Fernwood shaft and drift,	15.2	8.7	8.7	8.3	9.8	12.4	9.7	11.4	15.1	17.1	17.5	16.5
Total,	28.5	17	16.5	17.6	17.6	25.5	20.9	24.6	29.5	36.1	38.4	32.6

Delaware, Lackawanna and Western Railroad Co.	30.1	7.3	10.2	.....	8.7	7.5	15	15	13.4	15
Haltstead shaft,	11.8	8.8	11.1	13.7	12.7	12.8	19	19	22.6	18.7
Pettebone shaft, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	21.9	16.1	21.3	13.7	21.4	20.3	34	34	37.4	33.7
Miscellaneous Coal Companies.										
Harry F. and Forty Foot shafts,	13.1½	15.7½	12.9	10.1½	11.2	15	21.3	21.3	16.6	18.3
Phoenix and Columbia shafts,	16.8	16.2	13.7	13.6	8.5	11.2	15.3	20.3	19.5	17
Twin, Seneca and Ravine shafts,	18.7	15.6	16.1	13.6	9.5	12.1	13.6	13.6	19	14.6
Delaware shaft,	14.7½	13.2½	12	11.2½	10.9	7.5	14.5	14.5	19.2½	11
Mill Hollow shaft,	8.6½	10.4	7.7	7.5	7.2	7.8	10.9½	12.9	15.2½	11
Black Diamond shaft,	16.0½	16.1	18.8	17.2½	17.2½	18.1½	20.9½	21.2½	17.4½	15.5
Clear Spring shaft,	10.2	11.3½	10.8	11.3½	12.5	9.5	16.9½	23.4½	23.9	18.7½
Elmwood, two shafts,	6.7	9.4	6.7	6.5	7.4	7.7	10.4	15.1	16.8	14.4
Easton Boston shaft,	6.6	8.6	9.9	9.9	8.9	8.9	13.8	13.1	15.7	15.6
Ridgewood shaft and tunnel,	13.9	10.1½	14.2	13.8½	14.4	13.9½	12.5½	12.1	13.2	12.6½
Avoca shaft,	12.6	10.4	12.7	11.1	11.1	11.9	11.9	9.8	14.4	16.2
Lancaster shaft and tunnel,	11.8	6.8	7	6.8	11.8	11.7	9.7	12.9	15.1	14.3
Lathin shaft,	8.4	7.8	6	5.7	6	6.3	8	9.7	7.4	8.6
Keokuk shaft,	3.7½	8	6.5	7	7	8	8.9	9.7	8	8
Keokuk shaft,	4.6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mount Lookout shaft,	13.8½	19.0½	11.6½	9.8½	10.4	10.9	14.5	11.5	11.2½	11.5
Louise tunnel and drift,	12.5	16.1	16.1	7.5	7.6	14.2	18.0½	17.8	21.4	14.8
Pine Ridge shaft,	15.1	6.5	6.5	6.5	9.2	11.9	11.3	22.0½	19.7	17.1½
Laurel Run slope,	11.6	6.9	7.5	6.1	8.4	6.3	8	13.4½	13.2	11.5
Gardner Creek tunnel,	3.5	.....	.....	.....	.....	.....	.....	9.6	13	13.8
Miner tunnel, .....	.....	.....	.....	.....	.....	.....	.....	3.2	14.6	15.7
Miner tunnel, .....	.....	.....	.....	.....	.....	.....	.....	9	4	7
Crescent tunnel,	8.7	8	9.5	7.1	7.7	8.3	9.1	10.6	8.1	7.8
Griffith tunnel,	11.2	11	10.7	7.5	7.7	9.8	12.3	12.4	12.4	10.7
Bernice drift,	16.5	12	14.2½	10.2½	12	12.5	16.5	17.2½	21.7½	24.7½
Stevens shaft and slope,	7.3½	7.6	5.2	5.1½	6	7.5	11.8	9.0½	17.1	14.8½
Brookside washery,	9	6	5	6	11	7	7	8	9	10
Bennett washery,	15	13	20	20	12	15	17	18	16	20
Total,	287.3	275.3	255.7	233	245.1	277.7	352.2	374.3	321.2	373.6

Recapitulation.

Pennsylvania Coal Company,	83	74.25	68.75	69.75	84.25	99.25	76	71.25	82.25	111.75
Lehigh Valley Coal Company,	57.9	60.5½	40.6½	31.6	33.2	45.9½	56.0½	61.9	69.05	98.8½
Butler Mine Company, Limited,	25.5	17	16.5	17.6	17.6	25.5	29.9	24.6	21.5	38.4
Delaware, Lackawanna and Western Railroad Co.,	21.9	16.1	21.3	13.7	21.4	20.3	18.8	34	31.5	33.7
Miscellaneous coal companies,	287.3	275.3	255.7	233	245.1	277.7	337	352.2	374.3	373.6
Total,	475.6	443.2	402.9	365.6	401.5	468.6	538.7	543.9	610.5	629.9

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Third Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 7.	James Jones,	Miner,	38	M.	1	3	Exeter shaft,	Luzerne,	Fatally injured by fall of rock; died same day.
Feb.	Edward Vosnock,	Slate picker,	14	S.	Babylon breaker,	Luzerne,	Killed; caught in cog wheels. Killed by fall of rock in face of chamber. Killed by blast breaking through pillar. Killed by fall of top coal. Killed by runaway trip of cars on inside slope. Killed by falling down shaft. Fatally crushed by falling under cars; died March 11.
	1. Henry Burch,	Laborer,	23	S.	.....	.....	No. 10 Jr. shaft,	Luzerne,
	4. George Dervites,	Laborer,	24	M.	1	.....	Schoolley shaft,	Luzerne,
	10. John McHale,	Miner,	15	S.	.....	.....	Griffith tunnel,	Luzerne,
	15. George Oleksak,	Bell ringer,	35	M.	1	4	Stevens shaft,	Luzerne,	
19. John K. Thomas,	Miner,	41	S.	.....	.....	Stevens shaft,	Luzerne,	
25. John Ricker,	Driver,	42	M.	1	.....	Westminster tunnel,	Luzerne,	Fatally injured by fall of rock; died June 2.
March	2. John Shenko,	Laborer,	23	S.	Forty Fort shaft,	Luzerne,	Killed by falling down shaft. Killed by going back to blast he thought had missed. Fatally injured by coal from blast; died March 11.
	10. David Breen,	Miner,	39	M.	1	.....	No. 9 shaft,	Luzerne,
	10. Charles Maseleskie, ..	Laborer,	28	M.	1	.....	Ravine shaft,	Luzerne,
April	14. Marchie Traller,	Laborer,	40	M.	1	3	Ridgewood shaft,	Luzerne,	Killed by fall of rock in chamber. Killed by fall of top coal. Killed by fall of rock in chamber. Killed by having been run over by cars on gravity plane. Killed by ash clinker rolling on him. Killed by blast; he cut the match too short. Killed by fall of rock in his chamber. These two men were killed by having been entombed by fall of roof. The bodies were not recovered.
	13. Charles Bath,	Miner,	42	M.	1	6	Lawata shaft,	Luzerne,	
	25. George Krull,	Laborer,	40	M.	1	.....	Lehigh tunnel,	Luzerne,
	7. George Fredorich, ..	Laborer,	39	M.	1	2	Langcliffe shaft,	Luzerne,	
	12. James Galvin,	Laborer,	27	M.	1	2	Prospect, outside,	Luzerne,	
16. John Vosloskie,	Miner,	46	M.	1	.....	Delaware shaft,	Luzerne,	
20. William Daniels,	Miner,	42	M.	1	3	Schoolley shaft,	Luzerne,		
21. David Emmanuel, ..	Fire boss,	38	M.	1	.....	Hallstead shaft,	Luzerne,	
29. Thomas Williams, ..	Miner,	39	M.	1	7	Hallstead shaft,	Luzerne,		

Month	Name	Age	Sex	Occupation	Location	Cause of Death
May	2, Charles Engle,	30	M.	4	Oakwood shaft,	Fatally injured by fall of coal; died same day.
	3, George Yaruba,	37	M.	1	Phoenix shaft,	Fatally burned by powder.
	4, James Monohan,	28	S.	4	Hallstead shaft,	These three men were killed by the chain coming loose while lowering a conductor down shaft, which fell, knocking the platform from under them.
	5, John Titus,	23	S.	4	Hallstead shaft,	Killed by fall of rock in his chamber. Killed; caught on revolving shaft.
	5, Stephen Jenkins,	35	S.	4	Hallstead shaft,	
June	10, John Piechock,	23	S.	4	Black Diamond shaft,	Fatally burned by gas; died June 22.
	10, James Werts,	33	S.	1	Schooley breaker,	Fatally injured by fall of rock; died same day.
	13, John Lipko,	22	M.	1	Westminster tunnel,	Killed by fall of rock in cross entrance.
	15, Michael Sullivan,	27	M.	1	Harry E. shaft,	Killed by fall of rock.
	22, Anthony Weger,	29	M.	1	Ferrywood shaft,	Fatally injured by fall of rock; died same day.
July	23, Machie Veshtlanish,	55	M.	3	Pettebone shaft,	Fatally injured by fall of rock; died same day.
	29, Stephen Macket,	29	S.	1	Schooley shaft,	Fatally burned by gas; died same day.
	5, Zachariah Hughes,	64	M.	1	Seneca slope,	Killed by fall of rock.
	7, Matthias Digen,	35	S.	1	Twin shaft,	Died from cause unknown.
	7, Martin Htek,	17	S.	1	Lafin, outside,	Killed by falling down shaft.
Aug.	15, David J. Jones,	32	M.	1	Mount Lookout shaft,	Killed by fall of rock.
	28, Anthony Pogenco,	21	S.	1	No. 14 shaft,	Fatally injured; crushed between car and timber; died next day.
	28, Joseph Stalski,	23	S.	1	Phoenix breaker,	Killed by fall of rock.
	15, Charles Klotz,	54	S.	1	Butler shaft,	Killed; supposed to have fallen down shaft.
	26, Joseph Pollusky,	53	M.	6	Harry E. shaft,	Killed by runaway car on slope.
Sept.	29, Enoch Shacskafinski,	28	S.	1	Stevens slope,	Killed by fall of rock.
	30, Peter Matchett,	29	M.	1	Schooley shaft,	Fatally injured while riding on loaded car shaft through pillar.
	5, Samuel Vainho,	46	S.	1	Harry E. shaft,	Fatally injured by fall of rock; died September 18.
	8, Hugh Farrell,	52	M.	1	Phoenix shaft,	Fatally injured by fall of rider coal; died September 30.
	14, Joseph Pazeck,	27	S.	1	Phoenix shaft,	Killed by fall of rock.
Oct.	21, Charles Smith,	35	S.	1	Pettebone shaft,	Killed by fall of coal.
	24, John Zegelske,	29	S.	1	Lafin shaft,	Killed by fall of coal.
	26, Michael Borowick,	26	S.	1	Louise tunnel,	Killed by fall of coal.
	28, George Blchorn,	46	M.	3	Black Diamond shaft,	Killed by mule throwing and dragging him.
	29, Robert Hopkins,	30	S.	1	No. 10, outside,	Fatally injured by having been run over by culm car; died same day.
Oct.	1, John Gilrain,	12	S.	1	Heidelberg shaft breaker,	These five men were suffocated by smoke from timber striking fire at the intake airway from unknown cause.
	1, Peter Creek,	45	M.	1	Midvale slope,	Fatally squeezed between railroad cars at breaker;
	1, Peter Crowie,	35	M.	1	Midvale slope,	Fatally injured by premature blast; died October 21.
	1, Martin Smidovitch,	28	M.	1	Midvale slope,	Killed while dumping car of rock.
	1, Joseph Tomasky,	42	M.	1	Midvale slope,	Killed by fall of top coal.
Oct.	1, Joseph Tomasky,	42	M.	1	Midvale slope,	Kicked by mule; died October 16.
	5, Samuel Iuth,	24	S.	1	Seneca breaker,	Fatally injured by fall of rock; died same day.
	7, David Lewis,	40	M.	1	Pettebone shaft,	Fatally injured by fall of rock.
	8, Michael Smith,	18	S.	1	Mount Lookout, outside,	Fatally burned by gas; died same day.
	12, Andrew Maxes,	24	S.	1	No. 11 shaft,	Killed by fall of top coal.
Oct.	12, John Savage,	15	S.	1	Exeter shaft,	Fatally injured by fall of rock; died same day.
	13, John McClave,	19	S.	1	No. 13 shaft,	Fatally injured by fall of rock; died same day.
	17, Michael Duffey,	19	S.	1	Phoenix shaft,	Killed by fall of rock.
	17, Robert Lyttle,	35	M.	1	Forty Fort shaft,	Fatally burned by gas; died same day.
	17, Robert Lyttle,	35	M.	1	Forty Fort shaft,	Fatally burned by gas; died same day.

TABLE IV.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of Wives made Widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Oct. 24	James Amear,	Miner,	50	M.	1	3	Louise drift,	Luzerne,	Killed by fall of rock. Killed by falling down the shaft. These nine men were killed while descending the Exeter shaft in the morning while on their way to work. Accident was caused by the lead-wood shaft coming from the lead-ash shaft going on the wrong track, breaking the safety block and falling down the shaft on cage load of men.
25	Thomas Gately,	Laborer,	24	S.	1	No. 6 shaft,	Luzerne,		
25	Paul Lecksoonus, ..	Laborer,	26	M.	1	Exeter shaft,	Luzerne,		
25	Michael Pedisabanny,	Miner,	41	M.	1	Exeter shaft,	Luzerne,		
25	Joseph Culoock,	Miner,	51	S.	1	Exeter shaft,	Luzerne,		
25	Joseph Vinstor,	Laborer,	37	M.	1	Exeter shaft,	Luzerne,		
25	John Anaxavovsky, ..	Miner,	29	M.	1	Exeter shaft,	Luzerne,		
25	Michael W. Nowaksky,	Miner,	41	M.	1	Exeter shaft,	Luzerne,		
25	Andrew Tinecho,	Miner,	48	S.	3	Exeter shaft,	Luzerne,		
25	Michael Smith,	Miner,	48	S.	3	Exeter shaft,	Luzerne,		
25	Michael Brazuka,	Laborer,	36	S.	1	Exeter shaft,	Luzerne,		
25	Anthony Bronlika,	Miner,	28	M.	1	Schooley shaft,	Luzerne,		
19	James Cooper,	Breaker boss,	28	M.	1	Exeter breaker,	Luzerne,	Died from suffocation after an explosion of gas. Killed by having been caught in conveyors.	
6	Andrew Allen,	Mining engineer, ..	35	M.	1	No. 4 shaft,	Luzerne,		
9	Joseph Hlinski,	Laborer,	28	S.	...	Henry shaft,	Luzerne,	Fatally injured and burned by an explosion of gas; died December 9. Killed by a fall of rock. Killed while tamping a hole by powder exploding.	
14	Peter Wypasek,	Laborer,	27	S.	...	Chapman shaft,	Luzerne,		
20	Thomas Kelley,	Miner,	33	M.	4	Lanv's shaft,	Luzerne,	Killed by fall of top coal. Killed by fall of rock. Killed by an explosion of gas. Fatally injured by a fall from belt room; died same day.	
21	Anthony Sidbarols, ..	Miner,	30	S.	...	Hydro shaft,	Luzerne,		
21	Michael Edg,	Laborer,	20	S.	...	East Bottom shaft,	Luzerne,		
30	Edward Holmes,	Plateman,	20	S.	...	Exeter breaker,	Luzerne,		

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Third Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.	
Jan.	4. Peter Lavel,	Driver,	20	S.	Wyoming shaft,	Luzerne,	Seriously kicked by a mule.	
	4. Walter Hopkins,	Laborer,	52	S.	Oakwood shaft,	Luzerne,	Two ribs fractured by fall of coal.	
	5. Lewis Ort,	Carpenter,	52	M.	Stevens, outside,	Luzerne,	Hand crushed by block and tackling falling on him.	
	6. Harry Garrison,	Breaker roller,	17	S.	Mount Lookout breaker,	Luzerne,	Leg broken; fell through a hole in platform.	
	7. Dominick Callahan,	Timberman,	45	M.	Black Diamond shaft,	Luzerne,	Small bone in leg broken; prop fell on him.	
	11. Michael Checkosky,	Miner,	29	M.	Prespect shaft,	Luzerne,	Face and hands burned by powder while making a cartridge.	
	12. Frank Cosgrove,	Miner,	24	S.	Babylon shaft,	Luzerne,	Hips bruised by fall of rock.	
	14. Michael Wisowat,	Laborer,	28	M.	Louisa drift,	Luzerne,	Leg broken by fall of rock.	
	15. William Miller,	Miner,	23	M.	East Boston shaft,	Luzerne,	Arm broken by car jumping track on him.	
	18. George Falhook,	Miner,	33	M.	No. 4 shaft,	Luzerne,	While two men were working together, and while taking a pile of rock came down on them, bruising them.	
	24. James Rodgers,	Miner,	32	M.	No. 4 shaft,	Luzerne,	Leg broken and side bruised by fall of rock.	
	24. Thomas Constantine, ..	Miner,	50	M.	Pine Ridge shaft,	Luzerne,	Foot cut by rock falling on it.	
	25. Paul Burda,	Miner,	30	M.	Malby shaft,	Luzerne,	Head cut and bruised by ear, while spragging it.	
	28. Joseph Leonard,	Runner,	23	S.	Mount Lookout breaker,	Luzerne,	Face severely cut; kicked by a mule.	
	29. John Sheeren,	Driver,	18	S.	Pettebone shaft,	Luzerne,	Leg painfully bruised by having been caught between car bumpers.	
	Feb.	4. Michael Burns,	Runner,	18	S.	Pettebone shaft,	Luzerne,	Leg painfully bruised by having been caught between car bumpers.
		7. Andrew Pisanke,	Miner,	30	M.	Mount Lookout shaft, ..	Luzerna,	Foot crushed and cut on chest by fall of bone.
		8. Joseph Hogshte,	Laborer,	25	S.	No. 5 shaft,	Luzerne,	Painfully bruised by fall of rock.
		8. Edward Pantamus,	Driver,	16	S.	No. 11 shaft,	Luzerne,	Crushed between mine cars.
		9. Thomas Richards,	Driver,	38	S.	Forty foot shaft,	Luzerne,	These two men were burned on face and hands by an explosion of gas.
		11. Alexander Smith,	Miner,	25	S.	Forty foot shaft,	Luzerne,	Face and hands injured by gas.
		11. Michael Kosskie,	Miner,	25	S.	Mount Lookout shaft, ..	Luzerne,	Face and hands slightly burned by gas.
		14. Michael Gill,	Miner,	22	S.	Mount Lookout shaft, ..	Luzerne,	One leg cut off and the other broken; caught between cars.
		14. James Murphy,	Company man,	29	M.	Ledlin shaft,	Luzerne,	Body painfully bruised by runaway car on slope.
16. Anthony Ballschoc,		Laborer,	31	M.	Griffith tunnel,	Luzerne,	Leg broken; thrown down by a mule.	
March	3. Edward Doyle,	Driver,	29	S.	Schooley shaft,	Luzerne,	Chest bone broken by having been struck by slope rope.	
	3. Anthony Getz,	Miner,	19	M.	Schooley shaft,	Luzerne,	Painfully crushed between cars.	
	4. Jacob Prysliawich,	Laborer,	31	S.	Pettebone shaft,	Luzerne,	Body slightly burned by gas in old workings.	
4. Simon Purdock,	Laborer,	32	M.	Phoenix shaft,	Luzerne,	Severely bruised by fall of rock.		
4. Andrew Mofackons, ...	Miner,	33	M.	Clear Spring shaft,	Luzerne,			

TABLE V. —Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
March 5.	James C. Williams,	Miner,	60	M.	Laurel Run slope,	Luzerne,	Collar home broken and face bruised by having been struck by a prop.
7.	Martin King,	Company man,	18	S.	Langcliffe, outside,	Luzerne,	Leg broken by having been struck by prop timber while unloading car.
11.	William Mullin,	Driver,	15	S.	No. 4 shaft,	Luzerne,	Foot crushed, necessitating amputating; fell under trip of cars.
14.	Anthony Olovisky,	Miner,	35	M.	Ridgewood shaft,	Luzerne,	Hands and body cut and bruised by fall of rock.
15.	William Parry,	Door boy,	15	S.	Mount Lookout shaft,	Luzerne,	Head painfully crushed between car and prop.
16.	Michael Evans,	Company laborer,	43	M.	Prospect, outside,	Luzerne,	Slightly burned while shoveling hot ashes.
16.	Andrew Keskavitch,	Company laborer,	22	S.	Prospect, outside,	Luzerne,	Burned by a rush of hot ashes in the bank.
16.	Michael Maloy,	Company laborer,	50	M.	Prospect, outside,	Luzerne,	Leg broken and hands burned also by the above.
16.	Anthony Koichinski,	Laborer,	38	M.	Delaware shaft,	Luzerne,	Eye cut and bruised by fall of slate from roof.
20.	Davidow-Castlaway,	Miner,	27	M.	Crescent drift,	Luzerne,	Eye cut and bruised by premature explosion of
30.	Michael Johnat,	Miner,	46	M.	Oakwood shaft,	Luzerne,	Thigh broken by premature explosion of a blast.
31.	John Jacobs,	Car loader,	53	M.	Stevens head,	Luzerne,	Jaw broken by having been kicked by a mule.
April	John A. Miller,	Miner,	28	M.	No. 1 shaft,	Luzerne,	Back bruised by fall of rock.
7.	Charles Mullik,	Teamster,	23	M.	Henry, outside,	Luzerne,	Face and chest bruised; his team ran away.
9.	Paul Williams,	Miner,	40	M.	Malthy shaft,	Luzerne,	Arm and hand slightly burned by gas.
9.	Daniel Williams,	Pipe boss,	34	M.	Hoyle, outside,	Luzerne,	Arm broken while unloading car of timber.
12.	James Derrig,	Miner,	45	M.	Exeter shaft,	Luzerne,	Shoulder dislocated by fall of rock.
12.	Jacob Hinz,	Carpenter,	49	M.	Prospect, outside,	Luzerne,	Side bruised by rolling clinker from ash bank.
15.	Owen Tippett,	Miner,	37	M.	Langcliffe shaft,	Luzerne,	Head bruised by fall of rock.
16.	David Evans,	Footman,	27	M.	Pettebone shaft,	Luzerne,	Head bruised; caught between car and prop.
25.	Andrew Buctko,	Driver,	20	S.	Butler shaft,	Luzerne,	Leg broken while unhitching mule from cars.
25.	Joseph Evans,	Door boy,	16	S.	East Boston, outside,	Luzerne,	Head and shoulder bruised; was caught by timber truck.
26.	Sammel Madinaskie,	Miner,	43	M.	Ridgewood shaft,	Luzerne,	Foot crushed by coal falling on it.
27.	Thomas Howells,	Coal inspector,	53	M.	Stevens shaft,	Luzerne,	Right knee was caught between car bumpers.
4.	Richard Poppleton,	Miner,	62	M.	No. 4 shaft,	Luzerne,	These two men were seriously cut and bruised
4.	Dobson Dickson,	Laborer,	39	M.	No. 4 shaft,	Luzerne,	while tamping a hole by the powder explosion.
6.	John Toy,	Miner,	58	M.	Mount Lookout shaft,	Luzerne,	Back severely bruised by fall of rock.
11.	Edmund Spurio,	Laborer,	30	S.	Mount Lookout shaft,	Luzerne,	Arms burned by gas.
17.	Lewis Reese,	Breaker oiler,	18	S.	Exeter washery,	Luzerne,	Leg broken in three places; was caught in conveyors.
17.	Michael Gelk,	Miner,	33	M.	Hallstead shaft,	Luzerne,	Leg broken by a piece of coal flying from a blast.

Month	No.	Name	Occupation	Location	Description of Accident	
June	19.	Henry Oplinger,	Driver,	Laurel Run slope,	Leg broken: was struck by mine car.	
	23	Mathew Kruglo,	Miner,	Mount Lookout shaft,	Leg broken by fall of rock.	
	25.	John Hooper,	Miner,	East Boston shaft,	Leg and jaw broken and cut on neck from a blast.	
	6.	Michael Suplack,	Miner,	Laurel Run slope,	Head cut and body bruised by fall of rock.	
	7.	Charles Holiszcr,	Pumpman,	Delaware shaft,	Head cut by rock shaft of pump.	
	8.	Joseph Webb,	Laborer,	No. 8 breaker,	Body slightly bruised by coal rolling on it.	
	8.	Joseph Massa,	Mine dumper,	Black Diamond shaft,	Violently crushed between mine cars.	
	9.	Thomas Swaney,	Miner,	Black Diamond shaft,	Milhollov's back was bruised and his laborer Milhollov's hip was fractured by a fall of rock.	
	10.	Jonathan Parker,	Miner,	No. 14 shaft,	These three men were more or less severely burned on face and hands by an explosion of gas in their chamber.	
	10.	Andrew Tussaw,	Laborer,	No. 14 shaft,	These two men were painfully burned by gas by going into abandoned workings.	
	13.	Michael Swintz,	Laborer,	Black Diamond shaft,	Severely bruised by fall of rock.	
	13.	Frank Seltz,	Laborer,	Black Diamond shaft,	Knee bruised; was caught between car bumpers.	
	16.	Joseph Condr,	Laborer,	Mill Hollow shaft,	Small bone in leg broken by fall of rock.	
	16.	John H. Glennon,	Footman,	Mill Hollow shaft,	Arm broken and body bruised by coal flying	
	21.	Joseph Swinsinsky,	Laborer,	Pine Ridge shaft,	Back bruised by fall of rock.	
	22.	Daniel Mundy,	Miner,	No. 7 shaft,	Leg broken and back bruised by fall of rock.	
	July	7.	Anthony Woylamis,	Miner,	Crescent drift,	Head cut and bruised by fall of bony coal.
		9.	George Riker,	Laborer,	Black Diamond shaft,	Painfully bruised by fall of slate.
		11.	Frank Soudesvskie,	Miner,	East Boston shaft,	Head cut by coal flying from a blast.
		13.	Andrew Puskate,	Miner,	Mount Lookout shaft,	Leg broken; was struck by a piece of coal.
		13.	Andrew Cosmer,	Laborer,	Harry E. shaft,	Foot and ankle bruised by car.
		13.	Peter Sevities,	Laborer,	Babylon shaft,	Leg broken by car striking door before he opened it.
27.		Stephen Dobray,	Miner,	Midvale slope,	Both legs crushed; he fell in front of car.	
27.		George Nagaske,	Laborer,	Midvale slope,	Thigh and leg broken by fall of rider coal.	
27.		Paul Smith,	Miner,	Exeter shaft,	Leg broken while putting car on track.	
29.		Michael George,	Laborer,	Seneca breaker,	Leg broken by plank slipping from rope.	
2.		Valantz Collas,	Laborer,	Phoenix breaker,	Body bruised by coal flying from a blast.	
Aug.		2.	Thomas Brew,	Door boy,	Pettebone shaft,	Foot bruised; was run over by car.
		6.	John Croleski,	Car loader,	Henry breaker,	Arm broken; fell from beam in breaker.
		9.	Reuben Milkeln,	Slate picker,	East Boston breaker,	Arm broken; fell from beam in breaker.
		10.	Joseph Ankasbefski,	Laborer,	Henry shaft,	Slightly bruised by fall of rock.
		10.	Metro Falvich,	Miner,	Matthy breaker,	Face and hands severely burned by powder, which he was handling.
		10.	George Falvich,	Carpenter,	Pettebone shaft,	
		17.	John E. Sanson,	Miner,	No. 6 new breaker,	
		18.	James Waite,	Laborer,	Griffith tunnel,	
		19.	Sammuel Teeth,	Laborer,	Seneca breaker,	
		21.	James Critcorcky,	Miner,	Griffith tunnel,	
		25.	Hugh Baxter,	Plateman,	No. Matthy breaker,	
	27.	Patrick Reilly,	Laborer,	Madin shaft,		
	27.	John Schuer,	Laborer,	East Boston shaft,		
	3.	Stephen Grawsky,	Miner,	Exeter shaft,		
	Sept.	6.	Edgar Jones,	Slate picker,	Babylon breaker,	
		6.	August Gauriches,	Miner,	Barnum No. 2 shaft,	

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Sept. 6.	Frank Frost,	Miner,	27	M.	Katy Did tunnel,	Luzerne,	Two ribs broken and back bruised by fall of checker coal.
6.	Benjamin Stewart,	Driver,	20	S.	Katy Did tunnel,	Luzerne,	Head cut and bruised by a kick from a mule.
8.	George Hilbert,	Miner,	42	M.	Pine Ridge shaft,	Luzerne,	Two ribs broken by a fall of coal and rock.
9.	Peter Dummigan,	Driver,	29	S.	Katy Did slope,	Luzerne,	Leg broken; was caught between car bumpers.
12.	Charles Carl,	Laborer,	40	M.	Kavine shaft,	Luzerne,	Skull fractured and three ribs broken by an explosion of gas.
13.	Michael Phillips,	Driver,	17	S.	Maitby shaft,	Luzerne,	Leg broken; was caught between cars.
13.	Thomas Stanford,	Track layer,	39	S.	Black Diamond shaft,	Luzerne,	Stained by gas; Alabaugh, his helper, was severely burned by gas in an old chamber, where they went to get some rails.
13.	Thomas Alabaugh,	Helper,	23	S.	Black Diamond shaft,	Luzerne,	Severely burned by gas.
16.	John Tomshaw,	Miner,	40	M.	Maitby shaft,	Luzerne,	Face and hands burned by gas.
20.	Thomas Walsh,	Timberman,	33	M.	Hallstead shaft,	Luzerne,	Leg broken; he slipped and fell while carrying a pipe.
21.	David Evans,	Driver,	28	M.	Black Diamond shaft,	Luzerne,	Leg slightly bruised; was caught between cars.
21.	Harry Falcomb,	Miner,	32	S.	Pettebone shaft,	Luzerne,	Head and body bruised by fall of rider coal.
22.	Frank Drumbrosky,	Miner,	35	M.	Midvale slope,	Luzerne,	These two men were slightly burned on face and hands by an explosion of gas in their chamber.
22.	Andrew Stroca,	Laborer,	45	M.	Midvale slope,	Luzerne,	
23.	Anthony Krakuskle,	Miner,	36	M.	Maitby shaft,	Luzerne,	Face and hands burned by gas.
27.	Paul Jacobs,	Miner,	33	S.	East Boston shaft,	Luzerne,	Ankle bruised by fall of rock.
27.	Patrick Earley,	Miner,	46	M.	Pine Ridge shaft,	Luzerne,	Back severely bruised by fall of rock.
28.	Fred. Merritt,	Laborer,	30	M.	Pettebone shaft,	Luzerne,	Leg and body painfully bruised by fall of rock.
30.	Morgan Reese,	Car loader,	26	M.	Ridgewood breaker,	Luzerne,	Leg and foot caught between railroad car and rest of breaker.
Oct. 5.	Thomas Buckworth,	Mine carpenter,	37	M.	Schooley shaft,	Luzerne,	Painfully burned on face and hands by gas.
5.	Clement Bendict,	Miner,	49	S.	Excelsior shaft,	Luzerne,	Head and shoulders bruised by fall of rock.
5.	George Dancigo,	Miner,	19	S.	Excelsior shaft,	Luzerne,	Body severely bruised by fall of rock.
5.	Michael Droder,	Laborer,	26	M.	Ferrywood breaker,	Luzerne,	Back and chest bruised; he fell in front of moving mine cars.
6.	Miner Wilbur,	Car dumper,	18	S.	Crescent breaker,	Luzerne,	Arm broken; fell in front of moving mine cars.
6.	John Mitchell,	Driver boss,	22	S.	No. 5 shaft,	Luzerne,	Foot squeezed between mine cars.
10.	Simon Buckshot,	Miner,	37	M.	Exceter shaft,	Luzerne,	Blasting barrel entered his side from a blast.
10.	Adam Pelatzki,	Miner,	25	S.	East Boston shaft,	Luzerne,	Slightly injured by fall of top rock.
10.	Emilio Schettano,	Slate picker,	16	S.	Elmwood breaker,	Luzerne,	Leg cut off; he fell into the jaws, in breaker.
11.	Ralph Zernovich,	Miner,	25	S.	Exceter shaft,	Luzerne,	Head bruised and cut by fall of rock.
11.	Michael Perer,	Door boy,	16	S.	Crescent drift,	Luzerne,	Heel of right foot bruised; was caught by car wheel.

13.	Peter Senkervitch,	26	S. S.	Prospect shaft,	Luzerne,	Leg broken and back bruised by fall of rock.
13.	John Martto,	28	S. S.	Maltby shaft,	Luzerne,	Body slightly bruised by having been squeezed between cars.
17.	William Pearson,	19	S. S.	Wyoming shaft,	Luzerne,	Head and leg bruised and cut and O'Boyle's arm severely cut, caused by a miner firing a blast before the boys could get away.
17.	Joseph Kashek,	28	M. M.	Mount Lookout shaft,	Luzerne,	Face and hands burned by gas.
18.	John Drowse,	29	M. M.	Lancelleite shaft,	Luzerne,	Skull fractured and nose broken by fall of rock.
19.	Samuel Sands,	15	M. M.	Ridge-wood slope,	Luzerne,	Leg bruised by fall of rock.
19.	Charles Pymond,	17	S. S.	Exeter breaker,	Luzerne,	Leg bruised and cut; was caught in conveyor line.
20.	John Visbur,	34	S. M.	Crescent drift,	Luzerne,	Knee bruised by fall of rider coal.
20.	John Mogeta,	21	M. M.	Exeter shaft,	Luzerne,	Finger crushed while spragging a car.
21.	Martin McHonough,	41	M. M.	Schooley shaft,	Luzerne,	Arm and back bruised by fall of rock.
24.	Michael Saraphin,	33	S. S.	Delaware shaft,	Luzerne,	Back and side bruised by fall of rock.
28.	John Reilley,	37	S. S.	East Boston shaft,	Luzerne,	Knee bruised by fall of rock.
28.	Simon Man,	33	M. M.	Clear Spring shaft,	Luzerne,	Body bruised from coal flying from a blast.
28.	Robert Richardson,	20	S. S.	Pine Ridge shaft,	Luzerne,	Leg broken; run over by mine car.
28.	Samuel Kanis,	49	M. M.	Pine Ridge shaft,	Luzerne,	Hips and leg bruised by fall of rock.
29.	Frank Patroch,	28	M. M.	Schooley shaft,	Luzerne,	Face and hands burned by gas.
3.	Michael Uliskas,	32	S. S.	Pipe Ridge shaft,	Luzerne,	Head painfully cut by fall of rider coal.
3.	William Pukas,	41	S. S.	Exeter shaft,	Luzerne,	Head cut and body bruised by three mine cars falling down shaft on caged load of men.
5.	John Martin,	37	S. S.	Harry E. shaft,	Luzerne,	Leg severely bruised by fall of rock.
5.	Andrew Kethen,	30	M. M.	Laurel Run slope,	Luzerne,	Back severely bruised by fall of rock.
S.	James E. Coulter,	41	M. M.	Schooley shaft,	Luzerne,	severely burned about the face and hands by an explosion of gas; caused by the fire boss and Metcalf going up into an abandoned chamber to make a place to drive a cross entrance through to the adjoining place; how the gas accumulated so soon after the morning-examination is a mystery, as the explosion occurred shortly after work began in the morning.
S.	George Metcalf,	26	M. M.	Schooley shaft,	Luzerne,	Painfully cut and bruised; went back to blast too soon, which he thought had missed.
S.	John McQuilian,	53	M. M.	Schooley shaft,	Luzerne,	Leg broken by rock he was in the act of barring.
S.	James Mackin,	15	S. S.	Schooley shaft,	Luzerne,	Grilles' leg was crushed and the other one broken; Llewellyn's collar bone was broken and Lane's head cut and bruised while standing a sett of double timber, by fall of rock.
10.	Michael Bolshock,	27	S. S.	Harry E. shaft,	Luzerne,	Slight scald wound by fall of rock.
12.	John J. Dunn,	46	M. M.	Midvale slope,	Luzerne,	Head cut and bruised by fall of rock.
12.	John McGrilles,	28	M. M.	Pettebone shaft,	Luzerne,	Leg cut and badly bruised; he fell in front of railroad cars.
12.	Morris Llewellyn,	28	M. M.	Pettebone shaft,	Luzerne,	
12.	Nehemiah Lane,	57	M. M.	Pettebone shaft,	Luzerne,	
14.	Alexander McGubre,	49	M. M.	Ravine shaft,	Luzerne,	
18.	Joseph Walko,	28	S. S.	Butler shaft,	Luzerne,	
19.	Andrew Drewortski,	17	S. S.	Exeter breaker,	Luzerne,	

Nov.

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or Single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Nov. 19,	Sidney Baker,	Mine boss,	35	M.	Pettebone shaft,	Luzerne,	Baker, Hughes and Thomas were painfully burned on face and hands; they went into an abandoned chamber to locate a bore hole, and did not take safety lamp, thinking there was no danger; they ignited a body of gas which came from the bore hole they were looking for, which burned them as above stated.
19,	Joseph Hughes,	Machinist,	42	M.	Pettebone shaft,	Luzerne,	
19,	Daniel Thomas,	Timberman,	28	S.	Pettebone shaft,	Luzerne,	
19,	Peter McValley,	Miner,	36	S.	Black Diamond shaft,	Luzerne,	Knee cap dislocated; was struck by a piece of rock.
21,	William Maston,	Locom. engineer,	26	M.	Prospect shaft,	Luzerne,	
22,	John Barrala,	Laborer,	34	M.	Black Diamond shaft,	Luzerne,	Finger cut off by the cross head while wiping the shaft.
22,	Rudolph Basko,	Driver,	20	S.	Hallstead shaft,	Luzerne,	
Dec. 1,	Michael Leanord,	Laborer,	28	S.	Ravine shaft,	Luzerne,	Two fingers cut off; while riding on car he was caught between coal and roof.
	1,	John Farrell,	Driver,	15	S.	Barnum No. 3 shaft, .....		Luzerne, .....
2,	Thomas Chishom,	Runner,	28	S.	Clear Spring shaft,	Luzerne,	Foot slightly bruised by mine car.
2,	Charles Caturkus,	Laborer,	30	S.	Clear Spring shaft,	Luzerne,	
3,	John Verchotes,	Laborer,	28	S.	Clear Spring shaft,	Luzerne,	Arm broken; mule turned and pressed him against the car.
5,	Stanley Moskabage,	Miner,	48	M.	Louise tunnel,	Luzerne,	
5,	John Tella,	Plateman,	22	S.	Maitby breaker,	Luzerne,	These three men were burned by an explosion of gas about the face and hands by going into a chamber they were told to keep out of by the fire boss until he removed the gas.
							Shoulder bruised; was caught between car and dump.
							Bryden, Campbell and Cooke were more or less severely burned about the face and hands about an explosion of gas, while examining a way to enter a chamber, which was burning at the time in the Mary seam. After determining the route and the length of pipe required, they went to the return airway outside of the fire, and while Allen was in the return, the explosion took place, which fatally injured Allen; he died in three days after. The others are about again at this writing.
6,	Alexander Bryden,	Mine superintendent,	48	M.	No. 4 shaft,	Luzerne,	
6,	William Campbell,	Mine boss,	44	S.	No. 4 shaft,	Luzerne,	
6,	Thomas Cooke,	Mine boss,	50	S.	No. 4 shaft,	Luzerne,	

8.	Joseph Helbek,	Laborer,	35	M.	No. 14 shaft,	Luzerne,	Painfully bruised on body while pulling block from car wheel; car ran on him.
5.	Robert Clelland,	Miner,	57	M.	No. 10 shaft,	Luzerne,	Three ribs broken by fall of soapstone.
9.	James Cockring, Jr.,	Driver,	16	S.	East Boston shaft,	Luzerne,	Head bruised; was struck by a mule.
10.	Samuel Morgan,	Driver,	16	S.	East Boston shaft,	Luzerne,	Face and hand painfully burned by gas.
13.	James Graham,	Track layer,	52	M.	Mill Hollow shaft,	Luzerne,	Severely cut and bruised by an explosion of powder while tamping the same.
14.	Frank Skosyonski,	Miner,	29	S.	Chapman shaft,	Luzerne,	Hips painfully crushed between cars.
17.	George Symanshak,	Driver,	18	S.	Hallstead shaft,	Luzerne,	Arm broken and hip dislocated by fall of rock.
17.	George Lomistovich,	Laborer,	30	S.	Pettebone shaft,	Luzerne,	Back and chest bruised by fall of rider coal.
18.	Michael Savol,	Miner,	34	M.	Wagoning shaft,	Luzerne,	Scalp wound caused by ice falling down shaft.
19.	John Ocol,	Laborer,	33	M.	Black Diamond shaft,	Luzerne,	Thumb and little finger cut off by circular saw in shop.
20.	C. V. Faovist,	Carpenter,	45	W.	Pettebone, outside,	Luzerne,	Hand badly bruised; was caught in machinery.
20.	John Foralskie,	Gig tender,	15	S.	Ridgewood breaker,	Luzerne,	Nose broken; was struck by lever while putting car on track.
21.	Wm. Clark,	Driver,	18	S.	Langcliffe breaker,	Luzerne,	Leg cut by fall of rock.
22.	Frank Martuk,	Miner,	60	M.	Past Boston shaft,	Luzerne,	Knee and leg cut; was caught by fly-wheel in engine house.
23.	Michael O'Brian,	Runner,	21	S.	Katy Did slope,	Luzerne,	Leg broken by coal sliding down the pitch on him.
25.	Anthony Close,	Laborer,	26	M.	Delaware shaft,	Luzerne,	



Fourth Anthracite District.

(LUZERNE COUNTY.)

Office of Inspector of Mines,
Wilkes-Barre, Pa., February 15, 1899.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor of presenting herewith my report as Inspector of Mines for the Fourth anthracite district for the year 1898.

It contains tables prepared as required on the blanks formulated in the office of the Bureau of Mines, an article describing a mine fire in the Alden Coal Company's No. 2 shaft, and a brief record of lessons derived from mine fires in this district during the last eighteen years.

The mine fire in the Conyngham mine of the Delaware and Hudson Canal Company was isolated by flushing the surrounding workings with culm. This was completed by September 9, 1898, since which time no indication of the existence of fire has been discovered.

The effects of flooding the South Wilkes-Barre shafts to extinguish a fire have been repaired and all the explosive gases have been expelled from the workings.

A brief report of inspections of mines and of the condition of the mines when inspected, together with a record of work for every day, also a copy of the report and description of every accident that occurred during the year was sent to the Chief of the Bureau. My remarks on the condition of the mines and on mine accidents in the report for the year 1897 will be as appropriate for 1898, and it is not necessary to repeat them.

I deeply regret that the number of accidents has been increased in 1898. The fatal casualties were 75 against 60 in the year 1897, and the serious non-fatal accidents were 278 against 269 in 1897. The tons of coal produced per life lost was 104,883 against 124,290 in 1897. The only explanation for this is that men become less watchful during intermittent work than when working continuously, and a much poorer class of miners is now employed than ever before.

The average number of days worked was 143.27 against 133.92 days in 1897.

The total production was 7,866,277 tons against 7,457,418 in the year 1897.

Yours very respectfully,

G. M. WILLIAMS,

Inspector of Mines, Fourth Anthracite District.

The Production of Coal in Tons During the Year 1898.

Lehigh and Wilkes-Barre Coal Company,	1,737,338.01
Delaware and Hudson Canal Company,	1,334,689.18
Susquehanna Coal Company,	1,175,219.09
Kingston Coal Company,	783,552.02
Delaware, Lackawanna and Western Railroad Com- pany,	773,220.19
Lehigh Valley Coal Company,	358,998.03
Red Ash Coal Company,	175,369.05
Parrish Coal Company,	376,060.13
Alden Coal Company,	183,119.07
Plymouth Coal Company,	237,491.00
West End Coal Company,	171,114.00
Crescent Coal Mining Company,	65,754.16
Hillman Vein Coal Company,	71,848.04
Warrior Run Coal Company,	162,153.00
Melville Coal Company,	81,392.12
Chauncey, Geo. W. Milnes,	80,697.19
Reynolds Coal Company, separator,	20,328.05
Wyoming Coal Company, washery,	75,920.00
	<hr/>
Total,	7,866,277.12
	<hr/> <hr/>

The total production was made up as follows:

	Tons.
Shipped by railroad to market,	6,916,903.14
Sold at the mines for local use,	223,529.18
Consumed to generate steam (estimated),	725,844.00
	<hr/>
Total,	7,866,277.12
	<hr/> <hr/>

TABLE A.—Showing number of lives lost, tons of coal produced per life lost and per person injured, number of employees and number of employes per life lost and per person injured.

Names of Operators.	Number of lives lost.	Tons of coal produced per life lost.	Number of persons seriously injured.	Tons of coal produced per person seriously injured.	Number of persons employed.	Number of employes per life lost.	Number of employes per person injured.
Lehigh and Wilkesbarre Coal Company,	14	124,995	49	35,457	5,705	407	116
Delaware and Hudson Canal Company,	18	166,826	22	60,667	3,090	386	140
Susquehanna Coal Company,	18	68,290	58	20,262	3,891	216	67
Kingston Coal Company,	3	261,184	11	71,232	2,262	754	206
Delaware, Lackawanna and Western Railroad Company,	9	85,914	45	17,183	2,330	259	51
Lehigh Valley Coal Company,	4	89,749	7	11,285	1,439	285	162
Lehigh Coal Company,	*	*	7	25,052	652	.....	83
Perrish Coal Company,	5	76,212	32	11,752	1,466	233	36
Alden Coal Company,	2	91,559	9	20,316	672	336	73
Plymouth Coal Company,	4	59,372	15	15,833	490	122	53
West End Coal Company,	1	171,114	1	171,114	547	548	548
Crescent Coal Mining Company,	1	65,751	9	7,983	202	202	.....
Hillman Vein Coal Company,	3	23,942	6	27,483	264	368	96
Warrlor Run Coal Company,	2	81,076	6	40,065	976	488	68
Melville Coal Company,	1	81,332	5	40,065	976	278	189
Chauncey, Geo. W. Milnes, .....	*	*	.....	16,278	237	.....	47
Reynolds Coal Company, Washery, .....	*	*	.....	.....	23	.....	.....
Wyoming Coal Company Washery, .....	*	*	.....	.....	23	.....	.....
Total,	75	104,883	278	28,295	23,377	312	84

*No life lost.
†No person injured.

CLASSIFICATION OF FATAL AND NON-FATAL ACCIDENTS.

Cause of Accidents,	Fatal.	Non-Fatal.
By explosion of fire damp,	16	86
By falls of roof and coal,	33	80
By mine cars in various ways,	9	53
By explosion of powder and blasts,	7	25
By falling down shafts,	1	1
By miscellaneous causes in the mines,	5	13
By miscellaneous causes on surface,	4	15
Total,	75	278

Number of wives left widows, 47; orphans, 158.

Classification of Fatal and Non-fatal Accidents.

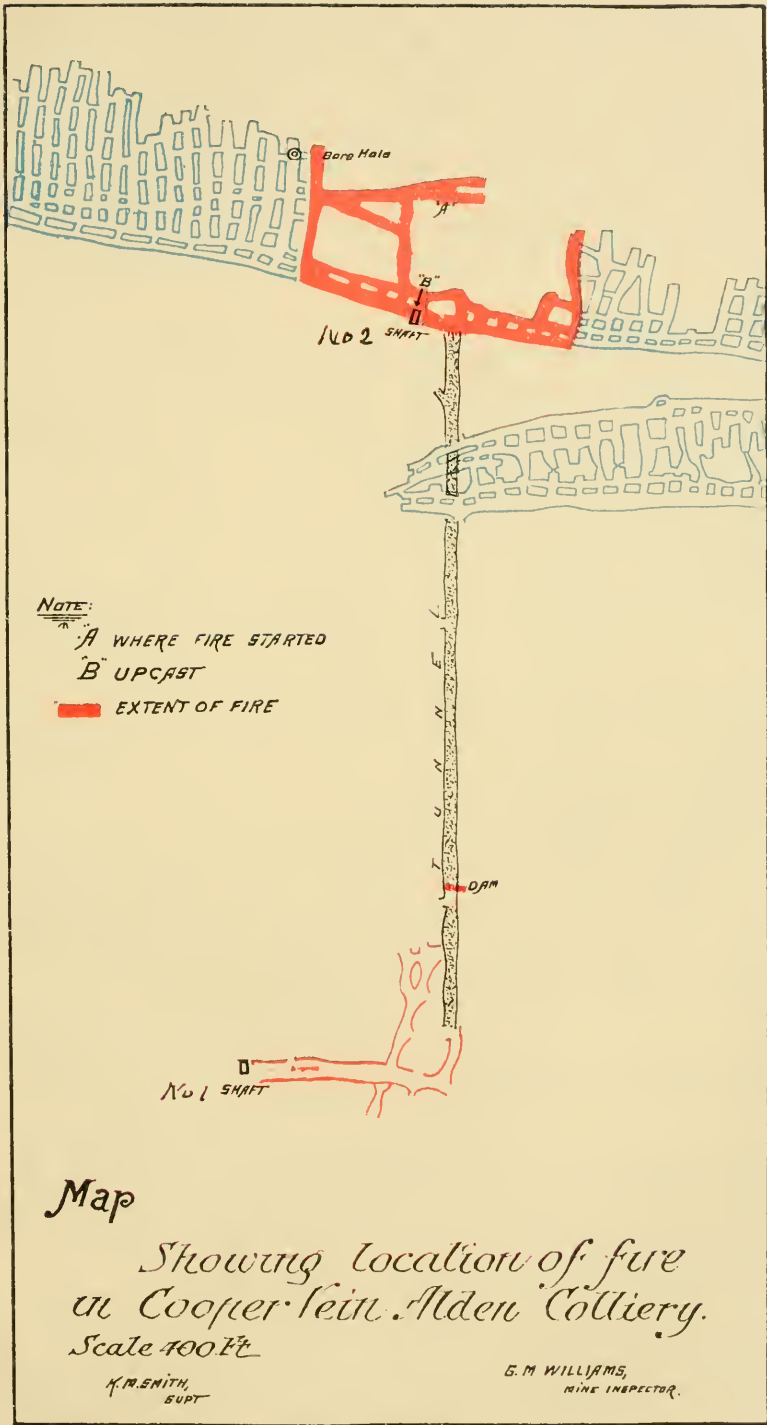
On June 22, Martin Cavanaugh, a plane headman in the No. 9 colliery at Sugar Notch died suddenly while at head of plane in the mine. This was not included in the list of fatal accidents.

There were 104 very slight accidents reported that are not included in the tables. In all these cases the person injured was not disabled for more than from one to four days.

Destructive Fire in No. 2 Shaft, Alden Colliery.

Tuesday evening January 25, 1898, at about 7 P. M. a party of men that were driving a back counter gangway in the Cooper seam of the No. 2 shaft Alden colliery set a few cartridges of dynamite in an empty box around a lighted Clanny safety lamp to thaw, and in a few minutes the dynamite ignited and burned setting the brattice on fire. This occurred at the crosscut A on the accompanying sketch of the Alden workings. A line of water pipe had already been laid into the gangway but the water was not on. The miners, not knowing how to manipulate the valves so as to let the water on, lost considerable valuable time, and the fire by that time had extended. Other men, led by Superintendent K. M. Smith, and the fire boss, Daniel Pine, Frank Richards and others, went in and joined in the work of beating the fire back by applying water from hose, etc., and when they were progressing successfully, explosive gases accumulated and exploded, burning six of the men and blowing the others about roughly. All found their way out through the tunnel to the No. 1 shaft.

At 10 P. M. the writer was called to the mine and immediately took the electric cars for Alden. On reaching that place he found that the fire had spread in a remarkably short time down the return airway to the shaft, and was burning up the fan shaft almost to the top. The air current had a short circuit down the hoisting compartments and up the upcast, and the brattice was on fire in the



NOTE:
 A WHERE FIRE STARTED
 B UPCAST
 [Red Box] EXTENT OF FIRE

Map

Showing location of fire
 in Cooper's in Alden Colliery.
 Scale 400 Ft

K. M. SMITH,
 SUPT

G. M. WILLIAMS,
 MINE INSPECTOR.

shaft and it was burning fiercely. When the writer reached there, the top of the shaft was covered with plank and the planking again covered with earth and clay so as to prevent a current of air going down the shaft and the fan was stopped. The next morning, after an examination by Superintendent K. M. Smith, James W. Turner, two fire bosses and the writer, a pair of doors were erected across the tunnel a short distance inside of the point where the dam was afterwards constructed. The object of the doors was, that if deemed necessary, they could be closed so as to shut the air off entirely from the fire.

On the morning of January 27, the writer, accompanied by Superintendent M. R. Morgans, of the Lehigh and Wilkes-Barre Coal Company, Mr. K. M. Smith, James W. Turner, and a fire boss, went in to the bottom of No. 2 shaft and made a careful examination of the situation and found the fire burning furiously at the bottom of the shaft at the upcast side, and the workings filled with explosive gas to within about twenty feet of the fire, and it was decided at once that the fire could not be fought out, and that preparations should be made to flood that part of the mine with water. To effect this without flooding the whole mine, a dam had to be erected across the tunnel leading from the No. 1 shaft. (See sketch.)

On January 28, while a gang of men was busy cutting hitches and working on a dam at a point near the inner end of the tunnel, Superintendent K. M. Smith, Mine Foreman Thomas E. Griffiths and one of the fire bosses went in to the No. 2 shaft again and just as they were leaving to return, an explosion took place, the gas igniting from the fire. The foreman, Thomas E. Griffiths, was fatally injured, and Superintendent Smith and Fire Boss Thomas Turner were slightly burned and roughly blown about. The workmen went to their aid at once, and Griffiths was carried out. Mr. Smith, although being bruised and hurt, after seeing that all were out, closed the doors erected on the 27th across the tunnel, which shut the air current off from that direction.

James W. Turner was put in charge of a gang of men to replace the planking covering on the top of No. 2 shaft which had been blown off by the explosion.

On January 29 a strong battery of props and braces was erected against the doors, so as to resist the force of an explosion should one occur, and compel it to go up the No. 2 shaft. Then a dam was constructed across the tunnel at the point indicated on sketch, and when this was completed, water was poured down the No. 2 shaft, filling it to a vertical height of 100 feet. While the water was filling a bore hole was drilled at the point indicated on sketch to let the penned up gases escape. The hole was completed on March 4 at a depth of 563 feet, and the water was up to the bottom, being at

a height of 103 feet from the bottom of the shaft. On March 13 they began hoisting the water out, and by April 3 it was all out and they commenced to repair the brattice separating the upcast in the shaft, and by April 16 all was completed ready to start the fan. The men were withdrawn and the fan was operated. On the night of the 18th an explosion took place, followed by several other explosions, showing that the fire was not completely extinguished and that it was increasing. Water was poured in again until the bottom gangways were sealed air-tight and it was kept at a height of 30 feet from the bottom. An opening was made above the water from the shaft to the return airway at B. All the workings above the water were filled with carburetted hydrogen gas unmixed with air. Conducting air with brattice the return airway was opened all the way up to the counter gangway A, and both east and west as far as indications of fire had been seen. By using a Vajen Bader smoke protector and an electric lamp the open workings beyond the points where the fire had been seen were examined and no fire was found. It became evident now that the non-combustible gases had extinguished the remnant of the fire at all points and it was concluded to hoist all the water out so that the fan could be set in motion. This was done, and since that time no fire has been seen. The work of re-opening the airways required extraordinary care and skill, and it was efficiently executed without a mishap. As in all other cases where it becomes necessary to flood the workings, the roof is very generally brought down and it has taken many months of steady work to reopen the gangways which were filled with water. The parts of the workings that were not under water have stood without being damaged and work was soon resumed therein.

Lessons Derived from Mine Fires in this District.

Fires have originated from the following causes:

From fires under steam boilers located in the mines. This was the cause of expensive and destructive mine fires several years ago but now the steam boilers are located on the surface and the danger from that source is obviated.

From carelessly constructed ventilating furnaces in the mines. But the law prohibiting the use of furnaces for ventilating purposes in gaseous mines has excluded them from all the mines of this district, therefore this cause of mine fires has been eliminated.

From the use of fires in grates for heating purposes in shanties at bottom of shafts and slopes in winter. This now has nearly all been superseded by steam conducted from the boilers on surface, and combustible shanties have been changed for others constructed of non-combustible material.

Fires have occurred from stoves and open lamps in fire boss stations which were built of combustible material. The stoves are now in most places superseded by steam heat conducted from surface, and the stations are constructed of stone walls with the natural rock floor, and working benches constructed of sheet iron. No combustible material of any kind should be used in the construction of a fire boss station, owing to the large quantities of oil used.

Fires have occurred in oil rooms underground. Oils should not be stored in the mines, but if absolutely necessary, it should be kept in fire proof rooms and no open lights should be permitted near them.

Pump rooms, engine rooms and tool shanties constructed of boards or having plank floors, have been the places where mine fires have frequently originated. All such should be constructed of rock, brick or bone, and no inflammable floors, benches or cupboards should be constructed therein.

Fires have originated in such rooms from the spontaneous combustion of oily waste stored in wooden kegs; from old clothes saturated with oil, by sparks flying from an open mine lamp into a heap of cotton waste; and from the careless use of mine lamps by engineers and pumpmen in the vicinity of inflammable material. Fires have originated in piles of wood near plane drums where the worn particles of wood falling from the brake blocks have ignited by a spark from the friction of the brake.

One fire originated where a car load of fresh lime was unloaded on a platform made of a dry, half rotted old door. The lime, on being slacked, generated heat enough to set the old door on fire, and this in turn set timber near by on fire, and had it not been discovered in a short time, a serious mine fire would have been the result.

Canvas doors, old dry brattice boards, and timber and lagging have been ignited by the careless use of the lamps of persons passing. Fires in such cases have been started by the ignition of gas feeders; by explosions of accumulations of gas, and by the spark from electric currents used to run motors and electric pumps.

The chances of fires in all such places are reduced by having all loose boards, rotten timber, and chips of wood cleaned out. Electric lights, trolley wires and wires conducting electric currents to run electric machines should not be placed in passages thickly timbered nor where there are gas feeders, or where there are chances for accumulation of bodies of explosive gases. Neither should they be placed in the return airways of gaseous mines. There are grave doubts as to the safety of electric currents in any part of a dry or gaseous mine. It is somewhat like a red hot poker in a powder

house; if it does not touch the powder, nothing happens, but its presence is at all times dangerous.

The most prolific cause of mine fires at present is the igniting of strong gas feeders by blasting, and by the careless use of naked light in gaseous gangways, and in the vicinity of gas feeders, and gas accumulations. The gas feeders are so numerous at many places that when one is ignited all the others ignite and the whole passage becomes a sheet of flame which is exceedingly difficult to extinguish. They are liable to be ignited by the squib used in firing blasts. The commonly used black powder ignites the feeders with nearly every blast. The so-called flameless powder, and the high explosives generally ignite the feeders if used in improper temperature, but all the high explosives ignite the gas much less frequently than the black powder and for that reason are much preferable for blasting in extremely gaseous places.

All nitro-glycerine compounds freeze at about 42 degrees Fahrenheit and explode at a temperature of 360 degrees Fahrenheit. When ignited in the open air unconfined, it burns without explosion; it ignites gas feeders when charged in a frozen condition, and it loses much of its efficiency and is difficult to explode with a cap. Frozen cartridges should be thawed before being charged for blasting. The following rules are furnished by the manufacturers for thawing nitro-glycerine compounds:

"When the cartridges are frozen, do not expose to a direct heat, but thaw by one of the following methods:

"First. Place the number of cartridges needed for the shift or day's work on shelves in a room heated by steam pipes (not live steam) over a stove, lamp or fire.

"Taking cartridges out as holes are ready for loading. If a small house is built for this purpose, bank it around with earth, or preferably fresh manure.

"Second. Use two water tight kettles, one smaller than the other; put the cartridges in the smaller kettle and place the same in the large kettle, filling space between kettles with hot water at 130 to 140 degrees Fahrenheit or so that the hand can be held in it. To keep water warm do not try to heat it in the kettle, but add fresh warm water. Cover kettles to retain the heat. Do not in thawing allow the temperature to get above 212 degrees Fahrenheit.

"Third. Where the number of cartridges to be thawed is small, they may be placed about the person of the blaster until ready for use.

"Do not thaw cartridges by putting them in hot water or by exposing them to live steam, as this (unfortunately very common) method has an injurious effect on the powder. Do not thaw cartridges by holding them in the hand before a fire. Keep cartridges

away from all fires as much as possible—this is true of all explosives.

“Do not leave cartridges exposed after thawing, as they freeze again rapidly. They may be carried to where they are to be used in a box. Cover cartridges with sawdust or manure to retain heat.”

It appears to be impossible to prevent the ignition of blowers in gaseous places where blasting is necessary, but the possibility of doing so is greatly reduced by using safety lamps exclusively and using high explosives for blasting, and exploding them by electric battery and not by squibs.

To extinguish burning blowers or gas feeders, compressed air is very effective; so is water under a high pressure. In a large number of the gaseous mines a line of pipe is laid in each gangway with water in readiness to apply in case of fire. Other mines have a line of pipe for compressed air ready to apply from a hose in case of feeders igniting; both means are very effective and are the means of preventing many disastrous fires. When a fire becomes so extensive that it cannot be fought by applying water from hose, or where explosive gases accumulate and explode, making it too dangerous for men to work, one of two methods is adopted. Either the workings should be filled with water, or have the air shut off and the workings filled with incombustible gases.

To fill a mine with water is both expensive and damaging to the mine. The action of the water causes the bottom to heave and the top to fall, so that in most cases the mine is practically closed, and in many instances, owing to inclosed gases, the water has failed to cover the fire, and it is found to be burning after the water is taken out. Fires have been extinguished by shutting off the air from the mine, or from a section of the mine, in which the fire was burning. The gases generated by the burning of coal or wood, and carburetted hydrogen, when unmixed with air, are non-combustible, and if a mine or a part of a mine is effectively isolated from the air and filled with non-combustible gases, such as carbonic acid, nitrogen, and carburetted hydrogen unmixed with air, a fire cannot burn. Where the latter method can be effectively applied it is the cheapest and least damaging, but in nearly all instances the operator has been too impatient to give the time necessary for it to be effective, and has resorted to flooding with water and finally finding that it requires fully as much time and much more expense to put the mine in condition to work again.

Annual Examination of Applicants for Mine Foreman and Assistant Mine Foreman Certificates.

The annual examination of applicants for mine foreman and assistant mine foreman certificates was held at the Union Street school

building, Wilkes-Barre, Pa., May 19, 20 and 21. The Board of Examiners was composed of G. M. Williams, Inspector of Mines; Edward Mackin, superintendent; Andrew McGeehan and William D. Morgan, miners. Twenty-four applicants appeared for examination for mine foreman's certificates, and twenty-five for assistant foreman certificates. The following named eleven were recommended to have mine foreman certificates:

Thomas D. Lewis, Patrick F. Murray and Samuel G. Morgan, of Nanticoke; Thomas C. Gilson, Plymouth; William Kitching, Christopher; William L. Powell, David Fulton and Richard D. Rosser, Edwardsdale; James Peters, Edwin J. Broom and William Smeaton, Wilkes-Barre.

Twenty-five persons were recommended to have certificates of qualification for assistant mine foreman issued to them.

TABLE I.—Showing Location, etc., of Collieries in the Fourth Anthracite District.

Number showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
7	Hollenback No. 2,	Lehigh and Wilkesbarre Coal Co.,	Luzerne,	W. J. Richards, Genl. Manager;	Wilkesbarre,	V.
8	Empire No. 4,	Lehigh and Wilkesbarre Coal Co.,	Luzerne,	Morgan R. Morgans, Inside Supt.;	Wilkesbarre,	L. V.
9	Stanton No. 7,	Lehigh and Wilkesbarre Coal Co.,	Luzerne,	Supt.; W. H. Herring, Outside Supt.;	Wilkesbarre,	L. V.
11	S. W.-barre Nos. 3 & 5,	Lehigh and Wilkesbarre Coal Co.,	Luzerne,	Charles Huber, Chief Engineer.	Wilkesbarre,	L. V.
12	Maxwell No. 20,	Lehigh and Wilkesbarre Coal Co.,	Luzerne,	do.	Wilkesbarre,	L. V.
38	Colliery No. 9,	Lehigh and Wilkesbarre Coal Co.,	Luzerne,	do.	Wilkesbarre,	D. L. & W.
39	Lance No. 11,	Lehigh and Wilkesbarre Coal Co.,	Luzerne,	do.	Wilkesbarre,	D. L. & W.
40	Nottingham No. 15,	Lehigh and Wilkesbarre Coal Co.,	Luzerne,	do.	Wilkesbarre,	D. L. & W.
41	Wearns Nos. 16, 17, and 18,	Lehigh and Wilkesbarre Coal Co.,	Luzerne,	do.	Wilkesbarre,	D. L. & W.
42	Baltimore No. 3,	Delaware and Hudson Canal Co.,	Luzerne,	C. C. Rose, General Supt.;	Scranton,	D. & H. C. Co.
43	Baltimore No. 3,	Delaware and Hudson Canal Co.,	Luzerne,	E. R. Petebone, Chief Mining Engineer.	Scranton,	D. & H. C. Co.
44	Conyngham Nos. 1 and 2,	Delaware and Hudson Canal Co.,	Luzerne,	do.	Scranton,	D. & H. C. Co.
23	Boston,	Delaware and Hudson Canal Co.,	Luzerne,	do.	Scranton,	D. & H. C. Co.
24	No. 2 Plymouth,	Delaware and Hudson Canal Co.,	Luzerne,	do.	Scranton,	D. L. & W.
25	No. 3 Plymouth,	Delaware and Hudson Canal Co.,	Luzerne,	do.	Scranton,	D. L. & W.
26	No. 4 Plymouth,	Delaware and Hudson Canal Co.,	Luzerne,	do.	Scranton,	D. L. & W.
27	No. 5 Plymouth,	Delaware and Hudson Canal Co.,	Luzerne,	do.	Scranton,	D. L. & W.
15	Colliery No. 5,	Susquehanna Coal Company,	Luzerne,	Morris Williams, Manager; J. H. Bowden, Chief Engineer;	W'barre & Nant'e,	C. R. R. of N. J.
16	Colliery No. 7,	Susquehanna Coal Company,	Luzerne,	Geo. T. Morgan, General Superintendent.	W'barre & Nant'e,	C. R. R. of N. J.
17	Colliery No. 6,	Susquehanna Coal Company,	Luzerne,	do.	W'barre & Nant'e,	C. R. R. of N. J.
18	Nos. 1 and 4 Shafts,	Kingston Coal Company,	Luzerne,	Daniel Edwards, Genl. Supt.,	Kingston,	D. L. & W.
19	Nos. 1 and 3 Shafts,	Kingston Coal Company,	Luzerne,	do.	Kingston,	D. L. & W.
20	Gaylord,	Kingston Coal Company,	Luzerne,	do.	Kingston,	D. L. & W.
21	Avondale,	Del., Lacka., & West. R. R. Co.,	Luzerne,	W. P. Storrs, Genl. Coal Agent;	Scranton,	D. L. & W.
22	Woodward Nos. 1 and 2,	Del., Lacka., & West. R. R. Co.,	Luzerne,	W. H. Storrs, Asst. Genl. Coal Agent;	Scranton,	D. L. & W.
23	Bliss & Hanover Tunnel,	Del., Lacka., & West. R. R. Co.,	Luzerne,	John F. Snyder, Chief Mining Engineer; B. Hughes, Genl. Inside Foreman.	Scranton,	D. L. & W.
24	Auchincloss Nos. 1 and 2,	Del., Lacka., & West. R. R. Co.,	Luzerne,	do.	Scranton,	C. R. R. of N. J.
37	Dorrance,	Lehigh Valley Coal Company,	Luzerne,	W. A. Lathrop, Genl. Supt.,	Wilkesbarre,	V.
10	Franklin,	Lehigh Valley Coal Company,	Luzerne,	do.	Wilkesbarre,	L. V.
5	No. 1 Red Ash,	Red Ash Coal Company,	Luzerne,	M. B. Williams,	Wilkesbarre,	L. V.
6	No. 2 Red Ash,	Red Ash Coal Company,	Luzerne,	do.	Wilkesbarre,	L.

TABLE I.—Continued.

Number showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
13	Alden,	Alden Coal Company,	Luzerne, ...	K. M. Smith,	Alden Station,	C. R. R. of N. J.
32	Farrish,	Farrish Coal Company,	Luzerne, ...	H. H. Ashley & Wm. T. Smyth,	Plymouth,	D. L. & W.
42	Burtonwood,	Farrish Coal Company,	Luzerne, ...	John Conyngham,	Plymouth,	P. R. R.
17	West End,	West End Coal Company,	Luzerne, ...	J. N. Rice, Manager,	W'barre & Sh'ks'y,	P. R. R.
16	Lee,	Westville Coal Company,	Luzerne, ...	George W. Milnes,	Lee and Scranton,	P. R. R.
34	Hadleigh,	Westville Coal Company,	Luzerne, ...	S. J. Tomkin,	Wilkesbarre,	C. R. R. of N. J.
38	Hillman,	Champion Coal Company,	Luzerne, ...	A. J. Davis,	Wilkesbarre,	C. R. R. of N. J.
54	Warrrior Run,	Hillman Coal Company,	Luzerne, ...	George W. Milner,	Peeby & W'barre,	C. R. R. of N. J.
36	Chancey,	Warrrior Run Coal Co.,	Luzerne, ...	A. R. Anthony,	Wilkesbarre,	D. L. & W.
40	Wyoming Washery,	Reynolds and Moyer Coal Co.,	Luzerne, ...		Sugar Notch,	
		Wyoming Coal Company,	Luzerne, ...			

TABLE II.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, etc., in the Fourth Anthracite District for the year ending December 31, 1898.

Names of Collieries.	County.	Total production in tons of	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employees.	Railroad shipments in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs of powder used.
Lehigh and Wilkesbarre Coal Company.										
Hollenback No. 2,	Luzerne,	155,061.03	15,048	14,266.65	105,746.18	37.20	559	2	9	3,639
Empire No. 4,	Luzerne,	4,500.00	4,500	39,897.00	169,716.19	100.80	701	2	11	2,761
South Wilkesbarre Nos. 3 and 5,	Luzerne,	229,613.19	20,000	7,586.00	137,738.11	59.30	663	2	4	3,697
Stanton No. 19,	Luzerne,	165,854.11	20,530	5,192.00	329,431.13	124.30	922	4	8	7,713
Maxwell No. 20,	Luzerne,	357,780.13	19,162	1,427.00	114,369.15	53.30	493	1	1	3,400
Sugar Notch No. 9,	Luzerne,	125,377.15	9,381	1,742.00	97,975.12	74.60	518	1	2	2,737
Sauce No. 11,	Luzerne,	211,662.12	17,335	4,735.40	241,281.06	114.20	512	1	9	5,218
Wootingham No. 15,	Luzerne,	154,370.16	48,255	4.00	141,244.17	102.80	476	1	4	3,465
Wootingham No. 16,	Luzerne,	136,626.06	13,687	1,884.00	188,121.15	97.20	536	.....	.....	3,465
Wanamie Nos. 18 and 19,	Luzerne,	133,692.15	13,687	1,884.00	188,121.15	97.20	536	.....	.....	3,465
Total, .....	.....	1,737,338.01	180,970	80,734.15	1,475,693.06	*100.42	5,705	14	49	35,357
Delaware and Hudson Canal Company.										
Baltimore Nos. 2 and 4,	Luzerne,	173,869.07	14,426	1,978.07	157,465.00	157.00	292	2	4	2,284
Baltimore No. 3,	Luzerne,	170,247.06	18,461	2,239.08	149,546.18	170.75	456	1	2	4,931
Conyngam Nos. 1 and 2,	Luzerne,	64,046.17	24,364	1,004.14	38,678.03	80.25	144	.....	.....	1,633
Boston,	Luzerne,	172,839.13	12,062	.....	160,777.13	117.45	341	.....	.....	4,788
No. 2 Plymouth,	Luzerne,	163,791.17	38,068	.....	125,723.17	137.75	349	1	7	4,270
No. 3 Plymouth,	Luzerne,	204,488.11	12,994	3,395.00	188,099.11	152.50	514	.....	.....	7,501
No. 4 Plymouth,	Luzerne,	198,959.16	16,151	.....	182,808.15	188.00	464	.....	.....	5,789
No. 5 Plymouth,	Luzerne,	180,446.12	16,852	4,654.65	164,950.07	162.25	530	.....	.....	6,451
Total, .....	.....	1,334,686.18	153,308	13,271.14	1,168,650.04	*155.78	3,090	8	22	37,599

TABLE II.—Continued.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad shipments in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs of powder used.
Susquehanna Coal Company.										
Shaft No. 1, Breaker No. 4.	Luzerne	398,105.12	42,078	.....	356,027.12	147.90	1,455	7	20	7,991
Shaft No. 2, Breaker No. 5.	Luzerne	.....	.....	.....	.....	.....	.....	5	11	.....
Slope No. 4, Breaker No. 5.	Luzerne	374,450.13	46,307	17,439.10	310,704.03	164.70	1,301	1	9	6,436
Shaft No. 6, Breaker No. 6.	Luzerne	.....	.....	3,030.05	355,449.19	150.15	1,105	4	11	.....
Slope No. 6, Breaker No. 6.	Luzerne	402,668.04	44,183	.....	.....	.....	.....	1	3	9,978
Tunnel No. 6, Breaker No. 6.	Luzerne	.....	.....	.....	.....	.....	.....	.....	4	.....
Total.	.....	1,175,219.09	132,568	20,469.15	1,022,181.14	*154.25	3,891	18	58	24,405
Kingston Coal Company.										
Shaft No. 1, Breaker No. 4.	Luzerne	397,498.01	7,000	.....	300,498.01	180.75	890	.....	2	8,369
Shaft No. 4, Breaker No. 4.	Luzerne	.....	.....	.....	.....	.....	.....	.....	3	.....
Shaft No. 2, Breaker No. 2.	Luzerne	375,762.05	4,700	16,024.00	355,038.05	189.60	1,065	2	1	10,583
Shaft No. 3, Breaker No. 2.	Luzerne	100,291.16	2,050	2,203.05	96,038.11	125.15	287	1	5	2,964
Gaylord Shaft and Slope.	Luzerne	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.	.....	783,552.02	13,750	18,227.05	751,574.17	*165.16	2,262	3	11	21,946
Delaware, Lackawanna and Western R. R. Co.										
Avondale.	Luzerne	155,668.11	36,900	992.15	117,775.16	186.60	482	4	9	4,584
Woodward Nos. 1 and 2.	Luzerne	334,951.09	17,000	2,514.00	335,437.09	196.90	895	3	24	8,306
Bliss and Esby Tunnel.	Luzerne	264,610.19	32,000	2,497.00	220,113.19	164.35	571	2	11	3,363
Auchincloss Nos. 1 and 2.	Luzerne	8,000.00	8,000	.....	.....	18.20	82	.....	.....	98
Total.	.....	773,230.19	93,900	6,003.15	673,327.04	*188.68	2,330	9	45	21,982

Lehigh Valley Coal Company.		247,903.04	6,658	40,752.06	290,402.17	147.00	585	1	2	5,525
Dorrance,		111,094.19	14,315	2,316.16	94,463.03	75.00	554	3	5	2,958
Franklin Rock and Old Slope,								4	7	8,483
Total,		358,998.03	20,973	43,069.02	294,956.00	*111.00	1,139			
Red Ash Coal Company.		78,362.08	6,840	.....	71,523.08	99.35	297	.....	2	2,265
No. 1 Red Ash,		97,906.17	3,648	.....	90,963.17	31.39	355	.....	5	3,406
No. 2 Red Ash, .....								.....	7	5,671
Total,		175,369.05	10,488	2,455.00	162,426.05	*99.82	652			
Parrish Coal Company.		179,712.18	14,136	6,154.10	159,422.08	178.30	525	3	20	6,246
Parrish,		196,347.15	7,296	2,347.00	186,704.15	156.35	641	3	12	5,596
Buttwood,								5	32	11,842
Total,		376,060.13	21,432	8,504.10	346,127.03	*167.32	1,166			
Miscellaneous Coal Companies.		183,119.07	7,000	4,773.14	171,945.13	154.40	672	2	9	4,533
Alden Coal Company,		161,194.16	10,360	363.00	54,441.16	84.35	202	1	.....	1,204
Wadleigh Crescent Coal Mining Company,		18,360.00	1,620	6,545.06	146,763.90	137.29	647	1	.....	2,828
West Erie Coal Company,		171,848.04	14,680	1,892.00	142,948.00	140.90	264	3	9	2,919
Hull's Run Coal Company,		162,153.00	14,640	1,892.00	142,948.00	125.90	276	2	6	2,580
Warrior Run Coal Company,		81,332.12	7,800	4,032.00	77,690.12	125.90	276	1	5	2,735
Lee Mayville Coal Company,		80,637.19	1,825	576.00	77,690.12	156.55	282	.....	.....	2,735
Chauncey Geo. W. Milnes,		237,491.00	23,000	6,127.00	205,364.00	224.00	490	.....	15	6,268
Dodson Plymouth Coal Company,		75,920.00	3,000	.....	72,920.00	221.00	23	.....	.....	.....
Wyoming Coal Company Washery,		22,328.05	2,000	.....	20,328.05	166.00	23	.....	.....	.....
Reynolds Separator, .....								.....	.....	.....
Total,		1,451,819.03	98,335	30,797.02	1,022,627.01	*157.00	3,142	14	47	26,367

*Average

Recapitulation.

Lehigh and Wilkesbarre Coal Company,	1,737,338.01	180,970	80,784.15	1,475,633.06	109.42	5,705	14	49	35,957
Delaware and Hudson Canal Company,	1,234,689.18	153,368	13,271.14	1,168,050.94	155.78	3,090	92	22	27,699
Susquehanna Coal Company,	1,175,219.09	132,668	20,469.15	1,022,181.14	154.25	3,891	18	58	24,446
Kingsland Coal Company,	783,552.02	13,750	18,227.05	751,574.17	165.16	2,282	3	11	21,946
Daleware, Lackawanna and Western Railroad-Company,	773,230.19	98,900	6,003.15	673,327.04	118.65	2,830	9	45	21,982
Lehigh Valley Coal Company,	358,948.02	20,973	43,069.02	294,956.00	110.00	1,139	4	7	8,483
Red Ash Coal Company,	175,369.05	10,488	2,455.00	162,426.05	99.82	652	.....	.....	.....
Parrish Coal Company,	376,060.13	21,432	8,504.10	346,127.03	167.82	1,166	5	32	11,842
Miscellaneous coal companies,	1,451,819.03	98,335	30,797.02	1,022,627.01	157.00	3,142	14	47	26,367
Total,	7,866,277.12	725,844	223,529.18	6,916,903.14	*143.27	23,377	75	278	194,252

Shaft No. 6, Breaker No. 6,	122	66	9	3,350	14	3,000	1	2
Shaft No. 6, Breaker No. 6,								
Tunnel No. 6, Breaker No. 6,								
Total,	46,700	295	35	16,050	50	10,450	4	2
Kingston Coal Company.								
Shaft No. 1, Breaker No. 4,								
Shaft No. 4, Breaker No. 4,	5,200	62	33	6,110	14	2,659	2	
Shaft No. 2, Breaker No. 2,	1,850	44	5	1,100	14	1,131		
Shaft No. 3, Breaker No. 2,	200	38	5	1,200	5	87		
Gaylord Shaft and Slope,								
Total,	6,750	266	43	8,410	33	4,377	2	
Delaware, Lacka, and West. R. Co.								
Average,	600	56	23	14,287	6	593	1	250
Wanted Nos. 1 and 2,	625	46	7	2,026	21	2,530	2	760
Elles and Esly Tunnel,	11,958	65	15	4,424	12	1,675	3	500
Auchincloss Nos. 1 and 2,	1,217	12	7	2,840	4	1,665	1	
Total,	14,400	234	47	41,587	43	6,174	6	1,510
Lehigh Valley Coal Company								
Dorrance,	4,682	66	21	6,000	12	1,200		1
Franklin Rock and Old Slope,	1,575	61	8					
Total,	6,257	127	29	6,000	24	1,200		1
Red Ash Coal Company.								
No. 1 Red Ash,	150	24	15	7	1,021	5	585	
No. 2 Red Ash,	190	37	8	1	39	7	563	
Total,	250	61	23	8	1,060	12	1,148	
Parrish Coal Company.								
Parrish,	3,250	60	25	5	3,000	15	1,000	
Buttonwood,	1,750	53	4	3	900	10	2,600	1
Total,	11,000	113	29	8	3,900	25	3,600	1
Miscellaneous Coal Companies.								
Allen Coal Company,	7,425	79	20	4	2,000	12	1,745	1
Hadleigh Crescent Coal Mining Company,	1,140	19	6	6	800	8	620	8
West End Coal Company,	7,100	26	10	23	780	23	780	
Hullman Coal Company,	100	25	12	6	535	6	270	
Lehigh Valley Coal Company,	2,350	23	5	5	2,000	5	200	
Lehigh Valley Coal Company,	3,000	22	13	8	564	6	670	
Chauncey Geo. W. Milnes,	1,850	42	3					
Thosom Plymouth Coal Company,	1,400	39	12	1	2,887	10	1,283	2
Wyoming Coal Company Washery,		2	2	2	50	4	180	4
Reynolds Separator,			2	1		2	40	
Total,	44,015	321	123	47	9,316	78	5,688	3

Recapitulation.

Names of Collieries.	County.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse power.	Number electric dynamos.	Voltage.	Number electric locomotives.	Number air compressors.	Number air locomotives.
Lehigh and Wilkesbarre Coal Company,		123,129	700	282	55	32,384	116	12,069	.....	.....	.....	6	.....
Delaware and Hudson Canal Company,		3,282	398	208	34	13,510	102	12,980	.....	.....	.....	.....	.....
Susquehanna Coal Company,		46,700	467	205	35	16,050	50	10,450	.....	.....	.....	4	2
Kinston Coal Company,		6,150	266	137	43	8,410	33	4,577	.....	.....	.....	2	.....
Delaware, Lackawanna and Western Railroad Company,		14,400	234	100	47	41,537	43	6,174	.....	1,510	3	3	.....
Lehigh Valley Coal Company,		6,257	121	29	13	6,000	24	1,200	.....	.....	.....	1	.....
Red Ash Coal Company,		11,000	113	23	8	3,000	35	3,748	.....	.....	.....	.....	.....
Parrish Coal Company,		44,015	321	123	47	9,316	78	5,688	.....	.....	.....	3	.....
Miscellaneous coal companies,
Total,		255,783	2,687	1,136	330	132,217	483	57,886	6	1,510	3	20	2

*Average.

†In the number of engines given a large number are pairs of engines.

TABLE III.—Showing the number of employees at each colliery in the Fourth Anthracite District, during the year 1898.

Names of Collieries.	Occupations of Persons Employed Inside.										Occupations of Persons Employed Outside.									
	Inside boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total Inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, book-keepers and clerks.	All other employes.	Total outside.	Grand total inside and outside.				
Lehigh and Wilkesbarre Coal Company.																				
Hollenback No. 2,	2	7	186	51	47	18	39	350	1	5	16	118	2	67	209	559				
Empire No. 4,	1	2	4	5	34	36	110	14	1	1	7	1	.....	3	11	25			
South Wilkesbarre Nos. 3 and 5,	1	9	128	155	34	49	56	473	1	1	23	130	.....	67	228	701			
Stanton No. 7,	1	7	353	50	68	26	49	384	1	5	54	182	3	94	579	993				
Maxwell No. 30,	1	5	130	240	27	30	68	292	1	2	20	144	.....	50	173	483			
Sugar Notch No. 9,	1	2	169	89	50	21	65	333	1	3	9	76	.....	38	135	518			
Nance No. 11,	1	10	242	130	58	12	86	539	1	7	26	164	.....	73	273	812			
Reynolds No. 16,	1	3	123	86	57	23	55	348	1	5	11	59	.....	50	158	476			
Wanamie Nos. 18 and 19,	1	4	163	87	39	28	40	362	1	6	20	82	.....	64	174	536			
Total,	13	57	1,569	944	431	232	592	3,838	10	47	176	1,044	19	571	1,867	5,705				
Delaware and Hudson Canal Company.																				
Baltimore Nos. 2 and 4,	1	3	39	37	10	.....	32	113	1	5	14	125	1	33	179	292			
Baltimore No. 3,	1	1	99	80	46	11	72	583	1	5	12	103	.....	50	173	456			
Conyngbam Nos. 1 and 2,	1	5	9	9	8	6	58	96	1	14	2	2	.....	26	48	144			
Boston,	1	1	71	71	22	10	34	210	1	5	9	71	.....	44	131	341			
No. 2 Plymouth,	1	1	62	78	24	5	38	240	1	5	16	72	1	44	139	349				
No. 3 Plymouth,	1	2	154	128	54	20	56	383	1	6	18	71	.....	32	129	514			
No. 4 Plymouth,	1	1	108	113	46	16	57	342	1	6	14	61	.....	41	159	464			
No. 5 Plymouth,	1	1	120	144	63	13	54	374	1	6	13	67	.....	46	134	550			
Total,	8	18	614	660	273	81	381	2,085	8	42	107	578	8	312	1,055	3,090				

TABLE III.—Continued.

Names of Collieries.	Occupations of Persons Employed Inside.										Occupations of Persons Employed Outside.									
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, book-keepers and clerks.	All other employes.	Total outside.	Grand total inside and outside.				
Susquehanna Coal Company.																				
Shaft No. 1, Breaker No. 1	2	11	330	472	128	69	159	1,171	1	10	27	148	2	126	314	1,485				
Shaft No. 2, Breaker No. 2	2	10	197	440	117	54	149	969	1	24	36	133	2	136	322	1,301				
Slope No. 4, Breaker No. 3	3	8	294	278	109	29	114	835	1	9	22	129	1	108	270	1,105				
Slope No. 6, Breaker No. 6	7	29	821	1,190	354	152	422	2,975	3	43	85	410	5	370	916	3,891				
Total	13	58	1,542	2,380	608	252	844	6,000	6	59	144	620	10	840	2,212	8,212				
Kingston Coal Company.																				
Shafts Nos. 1 and 4, Breaker No. 4	3	5	233	130	81	21	75	548	1	23	39	188	2	89	342	890				
Shafts Nos. 2 and 3, Breaker No. 2	3	1	271	238	93	54	74	734	1	18	17	236	3	76	351	1,085				
Gaylord Shaft and Slope	1	.....	66	31	30	10	14	152	1	3	7	80	1	43	135	287			
Total	7	6	570	399	204	85	163	1,434	3	44	63	504	6	208	828	2,262				
Delaware, Lacka, and Western R. R. Co.																				
Avondale	1	2	105	127	28	20	56	328	1	6	18	77	1	51	154	482				
Woodward Nos. 1 and 2	3	7	188	212	80	26	126	645	1	8	24	131	2	82	250	895				
Bliss Shaft and Hanover Tunnel	3	3	158	105	50	17	265	600	1	6	6	162	1	91	271	871				
Auchincloss Nos. 1 and 2	1	3	6	6	.....	.....	34	49	1	3	8	.....	.....	21	33	82
Total	7	12	457	448	158	57	483	1,622	5	24	59	370	5	245	708	2,330				

Lehigh Valley Coal Company.														
Dorrance,	2	4	128	102	53	22	68	379	1	10	14	82	266	555
Franklin Rock and Old Slope,	2	2	137	93	49	18	54	355	1	15	14	69	139	354
Total,	4	6	265	195	102	40	122	734	2	25	28	151	405	1,159
Red Ash Coal Company.														
No. 1 Red Ash,	1	.....	70	71	27	6	17	102	1	4	5	53	105	297
No. 2 Red Ash,	1	.....	91	56	38	10	18	214	1	6	4	74	141	355
Total,	2	.....	161	127	65	16	35	406	2	10	9	127	246	652
Parrish Coal Company.														
Parrish,	1	4	103	96	51	22	61	328	1	4	20	110	137	525
Buttonwood,	1	4	142	134	66	39	59	445	1	4	13	128	196	641
Total,	2	8	245	230	117	61	120	783	2	8	33	238	333	1,166
Miscellaneous Coal Companies.														
Alden Coal Company,	2	4	133	109	48	28	57	441	1	9	16	122	221	672
Bodson Plymouth Coal Company,	1	4	90	120	63	21	40	339	1	6	15	85	41	151
Hadleigh Crescent Coal Mining Company,	1	1	38	45	12	3	14	114	1	3	8	45	28	88
West End Coal Company,	1	1	121	123	45	2	46	339	1	1	23	110	63	208
Hillman Vein Coal Company,	1	2	55	55	15	20	30	178	1	2	8	45	27	86
Warrior Run Coal Company,	1	2	106	100	24	18	21	272	1	5	11	90	34	134
Lee Melville Coal Company,	1	2	70	45	18	6	24	166	1	6	9	70	112	278
Thauncey Geo. W. Milnes,	1	1	48	52	31	6	27	166	1	5	5	27	31	71
Wyoming Coal Company Washery, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reynolds and Moyer Washery, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	9	17	661	709	256	104	259	2,015	9	43	102	602	1,127	3,142

Recapitulation.

Lehigh and Wilkesbarre Coal Company,	13	57	1,569	944	431	232	592	3,828	10	47	176	1,044	1,867	5,705
Delaware and Hudson Canal Company,	8	18	614	650	273	81	381	2,035	3	42	107	578	1,025	3,090
Susquehanna Coal Company,	7	29	821	1,130	354	152	422	2,975	3	43	85	410	916	3,891
Kingsport Coal Company,	7	6	570	399	204	85	163	1,434	3	44	63	504	828	2,262
Delaware, Lacka. and Western R. R. Co.,	7	12	457	448	158	57	483	1,622	5	24	59	370	718	2,330
Lehigh Valley Coal Company,	4	6	265	195	102	40	122	734	2	25	28	151	405	1,139
Franklin Rock and Old Slope,	2	.....	161	127	65	16	35	406	2	10	9	127	246	652
Parrish Coal Company, .....	.....	8	245	230	117	61	120	783	.....	8	33	238	333	1,166
Miscellaneous coal companies,	9	17	661	709	256	104	259	2,015	9	43	102	602	1,127	3,142
Total,	59	153	5,363	4,902	1,900	828	2,577	15,842	44	286	662	4,024	7,585	23,377

*No breaker.

TABLE III.—Continued.

Number of Days Worked Each Month in Breaker.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Lehigh and Wilkesbarre Coal Company.												
Hollenback No. 2,	13.50	7.20	5.60	.....	6.40	6.60	4.00	8.10	8.90	12.00	13.20	11.70
Empire No. 4,	6.50	4.60	6.70	7.90	8.10	8.00	6.10	9.80	8.70	11.40	12.00	11.00
South Wilkesbarre Nos. 3 and 5,	32.70	7.70	5.60	4.90	8.80	5.30	4.50	4.10	8.90	11.70	13.10	11.00
Stanton No. 7,	33.90	9.60	6.90	8.90	8.90	9.20	6.10	-0.30	10.20	13.20	14.50	13.70
Suxwell No. 20,	14.10	6.40	2.70	6.90	8.00	5.10	3.80	7.20	7.20	10.20	11.15	10.55
Stewart No. 9,	14.20	7.90	2.80	.....	.....	.....	.....	8.20	8.40	11.40	11.30	10.40
Lance No. 11,	13.60	9.00	5.50	5.80	8.80	7.90	5.70	9.40	11.10	12.30	13.70	11.40
Nottingham No. 15,	13.30	7.00	5.60	6.50	7.50	5.60	5.30	9.50	11.90	11.90	11.50	10.60
Reynolds No. 16,	13.90	6.20	5.60	6.50	5.60	4.90	4.40	8.60	9.20	11.00	11.70	9.60
Wanamie Nos. 18 and 19, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Delaware and Hudson Canal Company.												
Baltimore Nos. 2 and 4,	18.00	11.50	9.25	11.50	10.50	11.00	15.00	14.00	10.00	16.75	14.95	15.25
Baltimore No. 3,	17.75	13.25	12.50	11.00	10.00	12.00	15.00	14.50	13.00	17.25	15.60	17.50
Corryingham Nos. 1 and 2,	13.25	14.00	10.50	13.50	12.00	7.75	.....	.....	.....	9.25	9.50	9.25
Boston,	17.00	13.60	11.75	11.75	11.15	14.75	14.75	13.00	16.25	12.75	20.50	14.75
No. 2 Plymouth,	14.75	14.00	12.00	11.25	12.25	13.00	14.75	13.75	12.60	12.75	12.50	13.00
No. 3 Plymouth,	17.75	13.60	11.50	11.25	12.25	10.50	12.10	13.25	12.60	12.75	12.50	13.00
No. 4 Plymouth,	17.75	13.60	11.50	9.50	12.25	15.50	15.00	13.50	17.00	21.50	22.00	20.50
No. 5 Plymouth,	17.75	12.50	12.00	.....	6.50	14.75	14.25	12.50	16.25	17.00	21.00	17.75
Susquehanna Coal Company.												
Shaft No. 2, Breaker No. 5,	11.20	14.05	8.20	6.40	6.70	7.25	13.25	13.60	12.55	17.25	18.60	17.65
Slope No. 4, Breaker No. 5, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Shaft No. 6, Breaker No. 6,	11.10	15.00	8.00	6.40	6.50	12.00	17.05	18.70	18.00	17.05	19.15	15.75
Slope No. 6, Breaker No. 6, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tunnel No. 6, Breaker No. 6,	10.60	15.20	8.80	6.10	6.80	8.10	15.00	13.40	12.90	17.70	19.75	15.80

Kingston Coal Company.												
Shafts Nos. 1 and 4, Breaker No. 4,	8.90	13.15	10.60	8.60	10.45	11.65	17.70	19.30	20.10	20.45	21.25	18.60
Shafts Nos. 2 and 3, Breaker No. 2,	11.65	12.75	11.80	8.65	9.60	11.75	18.40	20.55	19.10	21.95	22.45	20.95
Gaylord Shaft and Slope,	14.30	11.45	5.75	6.35	7.60	8.00	12.35	9.80	12.00	12.70	13.10	11.75
Delaware, Lackawanna and Western Railroad Co.												
Avondale,	4.00	10.40	12.00	11.80	13.20	16.00	19.50	18.40	19.50	20.40	22.90	18.50
Woodward Nos. 1 and 2,	9.60	10.30	12.00	14.00	15.70	16.40	19.50	19.90	20.00	19.50	22.10	17.80
Bliss Shaft and Hanover Tunnel,	4.55	7.40	11.10	12.15	15.00	16.00	11.60	17.90	21.05	16.95	17.50	13.10
Auchincloss Nos. 1 and 2,*												
Lehigh Valley Coal Company.												
Dorrance,	10.50	11.05	9.30	7.90	7.50	9.35	14.10	10.40	15.60	18.70	17.90	14.80
Franklin Rock and Old Slope,									16.85	22.9	19.15	16.10
Red Ash Coal Company.												
No. 1 Red Ash,	11.15	6.70	4.10	5.85	5.60	5.25	4.40	5.20	6.15	11.30	12.80	11.85
No. 2 Red Ash,	10.80	6.60	4.40	5.60	6.20	5.40	4.30	5.20	6.40	11.10	13.40	11.90
Parrish Coal Company.												
Parrish,	14.40	14.60	11.05	10.65	10.40	12.25	15.90	16.25	18.90	18.80	17.25	17.85
Buttunwood,	12.05	11.50	8.85	7.80	9.15	8.50	15.25	14.90	17.05	18.55	16.45	16.20
Miscellaneous Coal Companies.												
Alden Coal Company,	11.20	11.60	9.30	7.60	8.60	8.90	15.10	14.00	12.90	20.80	17.70	16.70
Dodson Plymouth Coal Company,	16.50	16.25	20.30	19.80	19.20	19.85	17.65	20.10	17.95	19.45	18.15	18.80
Bradefield Crescent Coal Mining Company,	12.00	7.05	5.15	3.95	5.10	4.90	6.00	6.50	7.20	8.15	9.05	9.30
Ward and Coa Company,	13.20	14.60	7.10	6.90	6.90	7.70	12.20	12.50	14.00	15.10	13.60	13.40
Hillmar Vein Coal Company,	10.60	13.05	10.35	8.05	7.85	9.40	13.05	13.45	14.25	14.60	13.35	12.90
Warrior Run Coal Company,	13.40	12.50	10.00	8.00	9.00	11.10	16.00	14.50	18.00	18.00	17.25	14.00
Lee Melville Coal Company,	13.40	12.50	10.00	8.00	7.00	8.70	9.00	8.20	10.70	13.40	14.80	16.70
Chauncey Geo. W. Milnes,	17.00	16.30	18.65	17.60	16.75	16.45	18.65	17.90	12.55	8.80	8.10	9.40
Wyoming Coal Company Washery,	17.00	17.00	19.10	21.00	14.00	17.00	18.00	17.00	16.00	21.00	24.00	20.00
Reynolds and Moyer Washery,	5.00	20.00	22.00	23.00	14.00	26.00	12.00	17.00	16.00	16.00	20.00	19.00

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Fourth Anthracite District for the year ending December 31, 1898.

Date of Accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made	Number of orphans.	Name of Colliery.	Luzerne County—Location.	Nature and Cause of Accident in Brief.
Jan. 4.	Frank Schwartz,	Laborer,	33	M.	1	2	Slope No. 4,	Nanticoke,	Killed by a fall of coal immediately after blasting.
5.	David Jones,	Miner,	31	M.	1	7	Avondale,	Plymouth twp.,	Severely burned by an explosion of gas; on entering their working place in the morning; neglected to use safety lamps; all died within a few days.
5.	David Powell,	Laborer,	31	M.	1	1	Avondate,	Plymouth twp.,	Norwood was fatally hurt and Posluszny was injured, killed, blast fired when with means to be used, after stamping a hole; Norwood died January 24.
5.	John E. Jones,	Laborer,	32	S.	1	1	Avondate,	Plymouth twp.,	
17.	Gotlieb Norwood,	Miner,	62	M.	1	5	Shaft No. 4,	Plymouth twp.,	Killed by an explosion of gas caused by a mine fire.
17.	Anthony Posluszny, ..	Laborer,	35	M.	1	3	Shaft No. 4,	Plymouth twp.,	
28.	Thomas E. Griffiths, ..	Mine foreman,	53	M.	1	9	Alden,	Alden,	Burned by an explosion of gas occurring when they with eleven other men, were trying to extinguish burning gas feeders; all were more or less severely burned; Haley died February 14 and Higgins, February 11.
Feb. 9.	Patrick Haley,	Co-laborer,	48	M.	1	7	Dodson,	Plymouth twp.,	Killed by a fall of rock; Thomas Anderson was injured by the same fall.
9.	Thomas Higgins,	Miner,	38	M.	1	2	Dodson,	Plymouth twp.,	
10.	Edward Hughes,	Rock miner,	35	M.	1	3	Baltimore No. 2,	Wilkesbarre twp.,	Burned by an explosion of gas; died February 23.
14.	Andrew Elliott,	Miner,	32	M.	1	1	Woodward No. 1,	Plymouth twp.,	Fatally hurt by a culm car; died one hour
16.	Hugh Eaton,	Spragger,	19	S.	.....	.....	Alden Breaker,	Alden,	Fatally hurt by a fall of top bone; died March 6.
25.	Andrew McLaughlin, ..	Driver,	22	S.	.....	.....	Hillman Vein,	Wilkesbarre,	Fatally injured by falling under a car; died February 28.
28.	Alexander Martin,	Driver,	16	S.	.....	.....	Stanton,	Wilkesbarre,	Fatally hurt by a fall of rock; died March 13.
Mar. 3.	John Bolton,	Miner,	52	M.	1	7	Shaft No. 2,	Edwardsdale,	Cut on hand; died of blood poisoning April 5.
25.	James Burke,	Platform man,	56	M.	1	4	S. Wilkesbarre Breaker,	Wilkesbarre,	Cap of pump cylinder was blown up and fell on him; injury fatal; died same night.
Apr. 4.	James Coogan,	Engineer,	50	M.	1	5	Shaft No. 2 Surface, ..	Nanticoke,	

5,	George Fern,	34	S.	.....	Dorrance,	Wilkesbarre,	Instantly killed by a fall of rock.
7,	Albin Lavendofski,	29	M.	1	S. Shaft No. 6,	Glen Lyon,	Instantly killed by a fall of top rock.
16,	James D. Nichols,	36	M.	1	Fan Shaft Slope No. 4,	Nanticoke,	Killed by stumbling and falling headlong down the shaft.
20,	James Boyle,	32	S.	.....	Maxwell,	Ashley,	Fatally hurt by a blast; died in an hour after.
May 1,	Peter Vitkofski,	37	M.	1	Shaft No. 9,	Sugar Notch,	Fatally injured by a fall of coal; died
3,	Adam Yankoski,	23	S.	.....	Woodward,	Plymouth twp.,	Killed by a fall of rock.
12,	August Alderson,	37	M.	1	West End,	Mocanqua,	Killed by a fall of rock; tried to pull it down and failed.
19,	Rees Williams,	15	S.	.....	Shaft No. 2,	Nanticoke,	Fatally burned; clothing took fire from his lamp; died May 12.
25,	George Kosick,	29	M.	1	Boston,	Plymouth twp.,	Killed by a fall of coal.
26,	Charles Brush,	43	M.	1	Bliss,	Hanover twp.,	Killed by a fall of coal.
June 3,	Cornelius McMonagle,	46	M.	1	Dodson,	Plymouth,	Fatally hurt by a fall of slate and bone; died same night.
10,	Anthony Dally,	42	M.	1	Maxwell,	Ashley,	Fatally hurt by a fall of coal; died same night.
10,	John Morgan,	69	M.	1	Parrish,	Plymouth,	Killed by a fall of top slate.
10,	William R. Davies,	47	S.	.....	Hollenback,	Wilkesbarre,	Killed by a fall of fire clay top.
13,	Adolph Jacobs,	39	M.	1	Butonwood,	Hanover twp.,	Fatally hurt by a fall of coal; died the following day.
16,	Charles W. Sayre,	40	S.	.....	Hillman Vein,	Wilkesbarre,	Killed (same day) fall of coal; pulled the coal down upon himself.
16,	Theo. Boginski,	20	S.	.....	Parrish,	Plymouth,	Fatally burned by explosion of powder; died next day.
July 8,	Martin Ruminski,	28	S.	.....	S. Shaft No. 6,	Glen Lyon,	Burned by an explosion of gas when brushing; died August 15.
16,	Frank Kurtoski,	25	M.	1	Woodward,	Plymouth twp.,	Struck on head by cap-piece from a falling prop; died July 19.
25,	John Truhan,	36	M.	1	Dodson,	Plymouth,	Killed by a fall of rock.
27,	Lean Pontofski,	30	S.	.....	Baltimore Shaft No. 3,	Wilkesbarre twp.,	Killed by a fall of top coal.
30,	Andrew Vertas,	34	M.	1	Hillman Vein,	Wilkesbarre,	Burned by powder firing in a hole; died August 7.
Aug. 2,	David Phillips,	50	M.	1	Parrish,	Plymouth,	Fatally hurt by an explosion of gas; died same night.
2,	Frank Rawalski,	27	M.	1	S. Shaft No. 6,	Glen Lyon,	Killed by a fall of rock.
10,	George Nawi,	32	M.	1	Franklin,	Wilkesbarre,	Killed by a fall of rock in face of gangway.
19,	Thomas B. Jones,	18	S.	.....	South Wilkesbarre,	Ashley,	Killed by a fall of top coal.
19,	John Brocoski,	46	M.	1	Maxwell,	Wilkesbarre,	Killed by an explosion of gas.
25,	Jacob Marcabodge,	38	S.	.....	Lance No. 11,	Plymouth,	Injured by a fall of rock, was barring it down; died September 2.
26,	Frank Searnofski,	28	M.	1	S. Shaft No. 1,	Nanticoke,	Burned by an explosion of gas; died September 3.
27,	Ben. Richards,	45	M.	1	Avondale,	Plymouth twp.,	Burned on neck, head, arms and face by an explosion of gas; died September 5.
Sept. 14,	Andrew Antos,	26	S.	.....	Shaft No. 4,	Plymouth twp.,	Fatally burned by an explosion of gas in gangway; the first died September 23; the last two died September 17; three other persons were painfully burned the same time.
15,	Isaac Smith,	43	M.	1	Shaft No. 2,	Nanticoke,	
15,	Thomas H. Smith,	19	S.	.....	Shaft No. 2,	Nanticoke,	
15,	John Yerahofski,	27	S.	.....	Shaft No. 2,	Nanticoke,	

TABLE IV.—Continued.

Date of Accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	Luzerne County—Location.	Nature and Cause of Accident in Brief.
Sept. 22,	George H. Morgan,	Contractor,	44	M.	1	1	Shaft No. 1,	Nanticoke,	All instantly killed; carried down and covered in a rush of rock and coal in a breast pitching nearly vertical.
23,	John Shannon,	Laborer,	37	M.	1	2	Shaft No. 1,	Nanticoke,	Killed by a fall of rock and bone in a breast.
23,	John C. Jones,	Laborer,	37	M.	1	1	Shaft No. 1,	Nanticoke,	Killed by a fall of rock and bone in a breast.
23,	Adam Zealsky,	Miner,	33	M.	1	1	Warrior Run,	Warrior Run,	Killed; tried to board a trip of cars and fell under.
Oct. 17,	James B. Bristin,	Miner,	37	S.	1	4	Warrior Run,	Warrior Run,	Killed by a rush of coal at face of breast.
26,	Valentine Gallie,	Miner,	30	M.	1	2	N. Shaft No. 1,	Nanticoke,	Both fatally hurt by a fall of rock; both died the same day.
26,	Joseph Hockup,	Laborer,	35	M.	1	1	N. Shaft No. 1,	Nanticoke,	Killed; tried to board a trip of cars and fell under.
23,	Anthony Daugherty,	Laborer,	34	M.	1	5	Maxwell,	Ashley,	Killed by a fall of top coal.
Nov. 8,	Matt Novitski,	Miner,	38	M.	1	2	N. Shaft No. 6,	Glen Lyon,	Killed by a fall of coal.
9,	John Zipsick,	Miner,	35	M.	1	4	Shaft No. 3,	Edwardsdale,	Fatally hurt, crushed between a car and prop; died November 16.
10,	Thomas Naughton,	Runner,	23	S.	1	1	Franklin,	Wilkesbarre,	Fatally hurt by a fall of rock; died same day.
21,	Elick Colincavitz,	Miner,	30	M.	1	1	Shaft No. 2,	Edwardsdale,	Fatally hurt by a fall of rock; died same day.
23,	William H. Harris,	Carpenter,	59	M.	1	3	Stanton,	Wilkesbarre,	Killed by a fall of rock at face of breast.
28,	David P. Jones,	Miner,	38	M.	1	1	Shaft No. 1,	Nanticoke,	Fatally injured by a blast; died in ten minutes.
Dec. 1,	Frank Widoh,	Miner,	46	M.	1	7	Shaft No. 2,	Plymouth,	Fatally injured; struck by a trip of cars while talking by the engine plane; died the same day.
2,	Aaron Murray,	Miner,	31	M.	1	2	Buttonwood,	Hanover twp.,	Killed by runaway cars on slope; was riding down on empty trip when loaded trip broke loose above ran down and caught him crushing him to death.
9,	Ellis Williams,	Footman,	20	S.	1	1	Franklin,	Wilkesbarre,	Fatally burned by an explosion of powder; on approaching his box in the morning he in some unexplained manner fired nearly two kegs full of powder; died December 18.
9,	Patrick Kelley,	Miner,	48	M.	1	5	Baltimore No. 2,	Wilkesbarre twp.,	Fatally injured by runaway cars on slope; killed December 19.
14,	Levi Price,	Driver,	19	S.	1	1	Nottingham,	Plymouth,	Crushed; hind end of car jumped track and killed his head against a prop.
16,	John F. Mansfield,	Driver,	19	S.	1	1	Bliss,	Hanover twp.,	

19.	August Mitchel,	Miner,	36	M.	1	.....	Hollenback,	Wilkesbarre,	Fatally burned by an explosion of gas which occurred when he with other men were trying to extinguish burning gas feeders; died January 6, 1899.
21, 29.	John Selgritz,	Runner,	17	S.	.....	.....	Lee Outside,	Conyngam twp.,...	Killed; kicked by a mule on way to barn.
	William Stubblebine,	Door tender,	16	S.	.....	.....	Reynolds,	Plymouth,	Fatally injured; tried to board a trip of loaded cars and fell; cars ran over his side injuring him so that death ensued in a few days.
31.	Andrew Lennahan,...	Driver,	16	S.	.....	.....	Hadleigh,	Sugar Notch,	Fatally injured by runaway cars at foot of slope; he heard the cars coming and ran to the signal bell and thus got right into the way of the cars; he died that evening.

Recapitulation of Fatal Accidents for 1898.

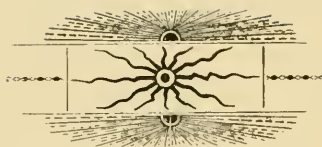
1898.

	Causes of Fatal Accidents.													Occupations of Persons Fatally Injured.													Nationality of Persons Fatally Injured.												
	Explosion of Gas.	Falls of roof and coal.	By mine cars underground.	By falling down shafts.	By explosions of powder and blasts.	From miscellaneous causes, outside.	From miscellaneous causes, inside.	Total.	Miners.	Laborers.	Runners.	Drivers.	Door tenders.	Foot and headmen.	Mine foremen and fire bosses.	Miscellaneous occupations, inside.	Miscellaneous occupations, outside.	Total.	American.	Welsh.	Irish.	English.	Polish.	Slavich.	Russian.	German.	Swede.	Austrian.	Total.	Widows.	Orphans.								
January	4	1	1	1	1	1	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	26						
February	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4						
March	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4						
April	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11						
May	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10						
June	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4						
July	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4						
August	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6						
September	3	1	1	1	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	20	20						
October	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	6						
November	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15	15						
December	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11						
Total	16	33	9	1	7	5	4	75	33	21	2	5	3	1	2	4	3	75	3	19	12	2	21	2	4	4	1	3	75	47	158								

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Fourth Anthracite District for the year ending December 31, 1898.

	Causes of Severe Non-Fatal Accidents.										Occupations of Persons Severely Injured.										Nationality of Persons Non-Fatally but Severely Injured.										
	Explosion of gas.	Falls of roof and coal.	By mine cars underground.	By falling in shafts.	By explosions of powder and blasts.	From miscellaneous causes, outside.	From miscellaneous causes, inside.	Total.	Miners.	Laborers.	Runners.	Drivers.	Door tenders.	Bratticemen and timbermen.	Mine foremen and fire bosses.	Footmen and headmen.	Miscellaneous occupations, inside.	Miscellaneous occupations, outside.	Total.	American.	Welsh.	Irish.	English.	Polish.	Slavtch.	Russian.	German.	Swede.	Austrian.	Total.	Very slight non-fatal accidents.
January,	1	5	1	1	1	1	14	4	6	1	2	1	1	1	1	1	1	1	14	1	1	1	1	1	1	1	1	1	1	14	10
February,	1	4	1	1	1	1	30	4	8	1	1	1	1	1	1	1	1	1	30	1	1	1	1	1	1	1	1	1	30	1	
March,	4	4	4	1	1	1	18	1	4	1	1	1	1	1	1	1	1	1	18	1	1	1	1	1	1	1	1	1	18	5	
April,	3	3	4	1	1	1	11	4	4	1	1	1	1	1	1	1	1	1	11	1	1	1	1	1	1	1	1	1	11	5	
May,	8	8	1	1	1	1	16	8	6	1	1	1	1	1	1	1	1	1	16	2	1	1	1	1	1	1	1	1	16	5	
June,	16	7	5	4	1	1	31	10	12	1	1	1	1	1	1	1	1	1	31	1	1	1	1	1	1	1	1	1	31	10	
July,	1	3	7	4	1	1	16	6	2	1	1	1	1	1	1	1	1	1	16	5	1	1	1	1	1	1	1	1	16	5	
August,	8	14	6	3	1	1	42	21	10	2	1	1	1	1	1	1	1	1	42	3	13	3	3	1	1	1	1	1	42	12	
September,	12	3	4	1	1	1	23	8	5	2	1	1	1	1	1	1	1	1	23	4	6	3	1	1	1	1	1	1	23	12	
October,	3	11	4	1	1	1	23	9	8	1	1	1	1	1	1	1	1	1	23	3	5	1	1	1	1	1	1	1	23	18	
November,	6	5	1	1	1	1	15	11	3	3	1	1	1	1	1	1	1	1	15	4	3	2	1	1	1	1	1	1	15	9	
December,	7	9	1	1	1	1	25	9	3	3	1	1	1	1	1	1	1	1	25	3	3	3	1	1	1	1	1	1	25	9	
Total,	86	80	55	1	25	18	278	112	76	7	30	5	6	11	3	17	11	278	35	53	21	29	91	19	14	14	2	9	278	104	

1898.



FIFTH ANTHRACITE DISTRICT.

(LUZERNE AND CARBON COUNTIES.)

Hazleton, Pa., February 18, 1899.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I have the honor to submit herewith my annual report as Inspector of Mines for the Fifth Anthracite district for the year ending December 31, 1898.

The total production of coal for the year was 5,555,480.17 tons, which is an increase of 68,290.11 tons as compared with the production of 1897.

The total shipments, including local sales, were 4,891,767.07 tons. The number of lives lost was 32; 18 wives were made widows and 50 children left fatherless.

The number of non-fatal accidents was 72, making the total casualties in and about the mines of the district this year 104, which was 43 less than the previous year.

The number of tons of coal mined per life lost was 173,620; 2,308,975 pounds of soda powder, and 1,031,844 pounds of dynamite were used in mines and strippings of this district during the year.

The report contains the usual tables and statistics, with a brief description of the most important improvements made at the collieries, also remarks on fatal accidents.

I am pleased to conclude my remarks by saying that the provisions of the Mine Law have been very generally complied with in this district during the past year, and that the mines are to-day in a healthful condition.

Very respectfully yours,

W. H. DAVIS,
Inspector of Mines.

Tons of Coal Mined During the Year 1898.

A. Pardee & Co.,	303,798.01
The Cross Creek Coal Company,	1,036,230.09
Lehigh Coal and Navigation Company,	727,160.14
G. B. Markle & Co.,	825,429.16
Lehigh Valley Coal Company,	657,424.14

(129)

Estate of A. S. Van Wickle,	697,737.12
Calvin Pardee & Co.,	585,343.11
Upper Lehigh Coal Company,	194,486.19
Lehigh and Wilkes-Barre Coal Company,	51,505.00
M. S. Kemmerer & Co.,	82,482.07
C. M. Dodson & Co.,	183,753.00
J. S. Wentz & Co.,	80,000.00
Audenreid Coal Company,	112,136.14
Miscellaneous operations,	18,352.00
Total,	5,555,840.17

Number of Fatal Accidents and Tons of Coal Mined per Life Lost.

Names of Operators.	Number of lives lost.	Number of tons of coal mined per life lost.
A. Pardee & Co.,	2	151,899
The Cross Creek Coal Company,	4	259,057
Lehigh Coal and Navigation Company,	2	363,580
G. B. Markle & Co.,	6	127,571
Lehigh Valley Coal Company,	9	73,017
Estate of A. S. Van Wickle,	3	232,579
Calvin Pardee & Co.,	3	195,114
Upper Lehigh Coal Company,	2	97,243
M. S. Kemmerer & Co.,	1	82,482
Total and average,	32	173,620

Number of Non-Fatal Accidents and Tons of Coal Mined per Person Injured.

Names of Operators.	Number of persons injured.	Tons of coal mined per persons injured.
A. Pardee & Co.,	6	50,633
The Cross Creek Coal Company,	12	86,352
Lehigh Coal and Navigation Company,	4	181,750
G. B. Markle & Co.,	8	130,178
Lehigh Valley Coal Company,	8	82,178
Estate A. S. Van Wickle,	7	99,677
Calvin Pardee & Co.,	17	33,843
Upper Lehigh Coal Company,	1	194,186
Lehigh and Wilkesbarre Coal Company,	3	17,168
M. S. Kemmerer & Co.,	3	27,494
C. M. Dodson & Co.,	3	61,251
Total and average,	72	77,164

Number of Fatal and Non-Fatal Accidents and Tons of Coal Mined per Accident.

Names of Operators.	Number of accidents, fatal and non-fatal.	Tons of coal mined per fatal and non-fatal accidents.
A. Pardee & Co.,	8	37,974
The Cross Creek Coal Company,	16	64,764
Lehigh Coal and Navigation Company,	6	121,193
G. B. Markle & Co.,	14	58,959
Lehigh Valley Coal Company,	17	38,671
Estate of A. S. Van Winkle,	10	69,773
Calvin Pardee & Co.,	20	29,267
Upper Lehigh Coal Company,	3	97,243
Lehigh and Wilkesbarre Coal Company,	3	17,168
M. S. Kemmerer & Co.,	4	20,620
C. M. Dodson & Co.,	3	61,251
Total and average,	104	53,421

Comparative Statement Showing the Number of Tons of Coal Produced, Number of Fatalities, Tons of Coal Produced per Fatal Accident, Number of Persons Employed per Life Lost, and the Number of Deaths per Thousand Employed for the Past Ten Years.

Years.	Production of coal in tons.	Number of fatal accidents.	Tons of coal produced per fatal accidents.	Number of persons employed.	Number of persons employed per life lost.	Number of deaths per thousand persons employed.
1889,	5,655,514	46	122,939	14,686	319.26	3.290
1890,	5,776,699	52	111,090	14,421	277.33	3.696
1891,	5,803,964	53	109,509	14,961	282.28	3.548
1892,	5,842,721	48	121,725	16,277	339.19	2.949
1893,	6,239,068	38	167,570	17,540	392.48	3.307
1894,	6,132,627	58	105,735	18,361	316.53	3.103
1895,	6,590,965	52	126,750	18,467	355.13	3.461
1896,	5,872,427	42	139,819	17,568	418.28	2.470
1897,	5,487,550	33	166,289	17,119	518.73	1.941
1898,	5,555,850	32	173,620	14,649	457.78	2.184

Nationality of Persons Fatally and Non-Fatally Injured.

Nature of Accident.	Hungarian.	Polish.	Irish.	English.	Welsh.	German.	American.	Austrian.	Italian.	Total.
Fatal accidents,	6	4	9	1	1	4	4	2	1	32
Non-fatal accidents,	18	12	8	2	4	3	19	4	2	72
Total,	24	16	17	3	5	7	23	6	3	104

Table of Comparison Showing Number of Different Causes of Fatal Accidents in the Fifth Anthracite District During the Past Ten Years.

Causes of Accident.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Total.
By water from workings,			9								9
Asphyxiated by gases,			6						5		11
By explosions of gas,	1	1			1	1	1				5
By falls coal, rock and clay, ...	22	19	16	25	18	21	24	18	9	16	188
By blasts and powder explosions,	4	1	4	2	11	15	7	2	2	1	49
By mine cars inside and outside side the mine,	11	19	6	15	15	15	13	11	10	8	123
By machinery inside and on the surface,		7	5	3	4	3	2	4	2	3	33
By boiler explosions,	4		1				1	3			9
From miscellaneous causes in- side and on the surface,	4	5	6	3	9	3	4	4	5	4	47
Total,	46	52	53	48	58	58	52	42	33	32	474

Recapitulation of Accidents as per Table No. 4.

Occupation.	Number killed.	Per cent.	Nationality.	Number killed.	Per cent.	Causes of Accidents.	Number killed.	Per cent.
Foreman,	2	.0625	Americans,	4	.1250	By falls of coal and rock in the mine,	13	.4062+
Miners,	13	.4062+	English,	1	.0312	By falls of clay and rock on strippings,	3	.0937+
Miners' laborers,	2	.0625	German,	1	.0312	By explosions of powder in the mine,	1	.0312+
Drivers and runners,	2	.0625	Polish,	4	.1250	By mine cars in the mines,	4	.125
Outside laborers,	2	.0625	Germans,	9	.2812	By mine cars on the surface,	1	.0312+
Other company men,	2	.0625	Irish,	4	.1250	By mine cars on the strippings,	3	.0937+
Street cleaners,	2	.0625	Poles,	2	.0625	By machinery about the breaker,	3	.0937+
Errand boys,	1	.0312+	Austrian,	6	.1875	From miscellaneous cause inside,	3	.0937+
			Hungarian,	1	.0312	From miscellaneous cause on the surface,	1	.0312+
			Italian,	1				
	32	100.00		32	100.00		32	100.00

Recapitulation of Non-Fatal Accidents as per Table No. 5.

Occupation.	Number Injured.	Per cent.	Nationality.	Number Injured.	Per cent.	Cause of Accident.	Number Injured.	Per cent.
Miners,	28	.3888+	Americans,	19	.2643	By explosion of fire damp,	2	.0277+
Laborers,	12	.1666+	English,	2	.0277	By falls of all kinds in mines,	24	.3333+
Drivers and runners,	8	.1111+	Welsh,	4	.0555	By falls of all kinds on the strippings,	4	.0555+
Door tenders and patchers,	8	.1111+	German,	3	.0416	By premature blasts in mines,	4	.0555+
Shale picker,	4	.0555+	Polish,	18	.1111	By explosion of powder in the mines,	1	.0138+
Patchers and loaders,	4	.0555+	Yugoslavian,	14	.1927	By mine cars outside,	10	.1388+
Crucible laborers,	6	.0832+	Austrian,	4	.0555	By mine cars on the strippings,	3	.0416+
Engineers,	1	.0138+	Hungarian,	18	.2500	By machinery in and about the breakers,	4	.0555+
Carpenters,	3	.0416+	Italian,	5	.0677	From miscellaneous causes inside,	9	.1250
All other company men,	3	.0416+		0		From miscellaneous causes outside, ..	8	.1111+
	72	100.00		72	100.00		72	100.00

Examination of Applicants for Mine Foreman and Assistant Mine Foreman's Certificates.

The annual examination of applicants for certificates of qualification of mine foreman and assistant was held in the Pine Street school building, Hazleton, Pa., June 23 and 24, 1898.

The Board of Examiners was W. H. Davies, Inspector; A. C. Leisnering, superintendent; Robert Munroe and Patrick Kelly, miners.

Eleven applicants for mine foreman and one assistant mine foreman appeared at the examination, and the following eight applicants having passed a satisfactory examination were recommended and received certificates:

Evan Williams, Hazleton; Thomas Miller, Hugh McGorry, Michael Smith, Nesquehoning; William T. Morgans, Audenreid; William Renshaw, Conrad Greising, Jeddo; Henry Fox, Nuremburg.

Colliery Improvements Which Were Made During the Year 1898. The Cross Creek Coal Company.

Drifton slope No. 1 was principally working and developing the Wharton and Mammoth vein, and the colliery was exclusively operated on White ash for eight months in the year on account of the difficulties encountered in disposing of the product when Red Ash and White Ash were run through the breaker together.

The Buck Mountain vein strippings have been extended eastward to the property line and the available stripping coal along the south crop will be nearly exhausted by the early part of 1899.

Drifton slope No. 2, an air compressor and air motor were installed during the winter of 1897, but on account of suspension of Buck Mountain vein mining, the plant did not receive a fair trial until the fall of 1898, when the slope was run to its capacity. Transportation was very expensive in that slope on account of the constant spooning to the west, without a possibility of arranging an independent working level, therefore mechanical haulage had to be resorted to. The capacity was increased about fifty per cent.; at the same time 36 mules were dispensed with.

The motor hauls trips of eighteen empty cars up grade, overcoming 120 feet perpendicular in distance of 6,000 feet, and then brings the loaded cars back again in trips of 18 cars; the braking power of the motor is not sufficient to hold the cars in perfect control on the heavy grades (which are as much as three degrees) and to overcome the bad effect of spragging, shoes are used under the wheels of four cars on one side, so that eight wheels are sliding on these shoes which exerts sufficient brake power to run the trip safely down the grades.

The time for making the round trip, which distance is equal to

about two and one-half miles, is thirty-five minutes of which eighteen minutes is taken up in actual running, while the balance of the time is taken up in charging the motor and collecting or making up the trip. Under favorable conditions the actual running time is as low as fifteen and sixteen minutes, which takes in the reduced speed of stopping and starting the motor.

The workings westward now show a dipping to the west again, so that we may suppose that the Main Lattimer basin is entered. The Buck Mountain is split into two benches by an intervening rock of from eight to twelve feet in thickness, with a very fine top bench of seven feet, and a small bottom bench of two and one-half feet, which, on account of the lighter pitch on which the vein lies, is very troublesome to mine.

The total production of Drifton slope No. 1 and No. 2 was 239,572 tons, of which 39,035 tons were consumed at the collieries.

At Eckley colliery, comprising the Council Ridge and Old Buck Mountain workings, only residuary mining was done in the Eckley colliery proper. Strippings East Spoon and Slope No. 4 were completed after removal of 260,000 yards, also the West Spoon end of Slope No. 1 basin has been stripped, requiring the removal of 420,000 yards; these strippings will now be continued eastward, contracts having been awarded.

In Buck Mountain the gangways were extended eastward and stripping levels opened. The strippings in the spoon end of No. 1 basin are continued westward, and the contract which provides for a removal of 240,000 yards, is in progress.

The Old Buck Mountain workings furnished about 50 per cent. of the output at the Eckley breaker.

The total production at Eckley for 1898 was 221,103 tons, of which 25,879 tons were consumed at the colliery.

Stockton Colliery.

At this colliery the underlying veins have to be entirely depended upon for production, and a lease was entered into with the East Sugar Loaf Coal Company for a section in the extreme east of their property, on which the Wharton and Ganna will be worked. This lease also gives the option of working the veins overlying the Primrose, but nothing but preparatory work has been done.

The Mammoth vein workings are submerged by the water raising in the abandoned workings of the East Sugar Loaf Coal Company, and five brick dams were erected in the tunnel connecting the Wharton and Big Vein, to keep the Wharton workings clear of water.

Up to this moment it remains a problem who actually does pump the water from the "East Sugar Loaf," as it does not rise perceptibly on

the old workings, and varies only from five to six feet between the highest and lowest water line.

The influx of water is handled on this side by the three pumps which were running at the time when Linderman & Skeer operated the colliery, and these pumps are sufficient, not only to keep the Wharton and Ganna workings clear of water, but are sufficient to pump even the Mammoth workings clear during the dry summer season.

Considering that Linderman & Skeer at the time of abandoning the workings required twenty pumps to keep their mines clear, it is evident that these comparatively small pumps cannot handle the same quantity of water as was handled by Linderman & Skeer.

The east strippings are being extended westward and will give about a year's production independent of other veins, and will be finished in about two months.

The total production of Stockton for 1898 was 124,388 tons, of which 19,836 tons were consumed at the colliery.

At Beaver Meadow stripping, work has been continued along the south crop of the Temperance and along the south crop of the Temperance basin in the Tench Coxe (adjoining the Lehigh Valley property).

The old workings have been pretty well explored and surveyed, also gangways have been driven to the line in the Temperance basin as well as in the Greenfield workings east and west, proving that there is quite a large quantity of virgin coal below the old working levels.

Negotiations are practically completed between the Cross Creek Coal Company and the Lehigh Valley Railroad Company (Hazleton Coal Company), for an extension of the lease until all the coal on the property is worked. In anticipation of increasing the capacity of this colliery, two nests of Babcock and Wilcox boilers have been installed, representing one thousand horse power. Plans for a new breaker are prepared and it is expected that the new breaker will be built during the spring of 1899, ready for operation in the fall.

Extensive strippings, especially in the Greenfield basin, which are estimated to amount to several million cubic yards, are contemplated, as this is considered the only economical way of mining the coal left in the old workings and obtaining the virgin coal below the levels.

In Slope No. 4 the Wharton vein has been developed by gangways and the spoon is turned below the old No. 3 Wharton workings, which are submerged. The Wharton vein coal is of excellent quality in these No. 4 workings, and this slope at present gives 50 per cent. of the output.

The much talked of drainage tunnel will hardly materialize, as con-

trary to all expectations, the influx of water in Slope No. 4 workings has not materially increased any during the past year or two, and can be easily handled with the present pumping capacity.

The total production of Beaver Meadow for 1898 was 134,521 tons, of which 25,085 tons were consumed at the colliery.

Tomhicken Colliery.

This colliery was idle, and only the necessary repair work to keep the colliery open was done. There is no immediate prospect of the colliery resuming operations.

Derringer Colliery.

Derringer, taking care of the Gowen coal, also has been running more steadily than any of the other collieries under this company.

Two nests of Babcock and Wilcox boilers (representing 1,000 horse power), were added to the steam plant, which were provided with the Coxe stokers, so as to make the plant uniform.

The installation of an air motor is contemplated and preparations have been made for same. The air motor is intended to haul the coal from the east end workings, which at present extend almost two miles from the breaker.

Gowen Colliery.

Here the coal is mined principally from the extreme west end lower levels, Buck Mountain. There is little mining done in the overlying veins. At this colliery it is in contemplation to sink to lower levels on the Buck Mountain during the coming year and to develop the Mammoth and Wharton workings by a gravity plane from Slope No. 3 water level gangway.

The total production of Derringer-Gowen during 1898 is 316,199 tons, of which 28,258 tons were consumed at the collieries.

G. B. Markle & Co.

Jeddo No. 4. A 250 horse power Babcock and Wilcox boiler has been installed. Two shaker screens have been installed to act as auxiliaries to the counter screens.

A Jeansville duplex pump, size 10x6x12, has been installed to pump feed water to the boilers.

Two Green Ridge slate pickers have been added to the plant for use on egg coal.

Two double blocks buildings have been erected, one in Japan and one in Oakdale, to be used as club houses for the employes.

A steam drag line has been placed at the bottom of slope for the purpose of taking away the empty cars.

Highland No. 5. A 1,500 horse power Warren-Webster heater has been installed.

At the western end of Highland No. 5 two bore holes have been driven from the surface to the second lift of Old Pink Ash, one to carry steam to pump, and one for rope haulage over ground through the bore hole to the second lift Pink Ash, from which point it is the intention to sink a slope to bottom of Buck Mountain vein.

Engines for operating this slope, together with engine house, have been erected at the fresh water pumping station.

A 16-foot Guibal fan has been installed and an airway driven from second lift Pink Ash to the surface, for the purpose of ventilating the western portion of these mines.

A 250 horse power Babcock and Wilcox boiler has been installed.

The tunnel from bottom level to connect with Old Pink Ash workings at second lift gangway has been completed.

The tunnel which was being driven south from bottom gangway west, to connect with north pitch of vein, has been completed.

A tunnel about 100 yards long has been driven from second lift of the Wharton vein in Jeddo No. 4 to the south pitch of the Buck Mountain vein to connect No. 5 and No. 4 mines.

A steam drag line has been placed at bottom of slope for the purpose of taking away the empty cars.

Ebervale. Old Slope No. 3 has been opened, engine and boiler house erected, engines placed in position, and two 100 horse power Erie City Economic boilers installed.

Fifteen-hundred-gallon water tank has been erected.

Tracks laid from the south to north side of the basin, over which coal is conveyed to the breaker at Jeddo No. 4.

The fan which was on the north side of the Ebervale basin has been placed in position on the south side near No. 3 slope.

The South Side drainage canal, west end of Jeddo property line, has been completed to connect with South Side drainage canal on the Harleigh property.

Second and Third lift gangways on the South Side are being opened.

The bottom gangway to the west toward the Harleigh property is also being opened.

Lehigh Valley Coal Company.

Hazleton No. 1 Colliery. The tunnel started in 1897 on Third lift was extended southward 910 feet across the No. 1 basin to the north dip of the Wharton vein, and will be still further extended in the coming year to the north dip of the No. 6 basin. This tunnel

has opened up several overlying veins which have been found in a workable condition. The tunnel will also be the means of transportation for the proposed No. 6 and No. 7 strippings.

The Fifth lift tunnel was extended southward 367 feet to the Diamond vein, which was cut in the trough of the basin.

On the Fourth lift a tunnel was driven southward 263 feet from the Wharton into the old Mammoth workings, which will be reopened and worked therefrom.

On the Third and Fifth lifts, tunnels are being driven from the Wharton to the Buck Mountain.

Second outlet shafts were completed on both north and south dips on the Diamond vein.

We note the attention given to the retimbering of main turnouts on Seventh and Fifth lifts and Seventh lift pump room. Stone batteries in air courses and maintenance of pump houses.

Outside. The old No. 6 breaker was torn down, as were also the old boiler house, carpenter and blacksmith shop and the old engine house and buildings at the No. 7 slope. The buildings were old and of little value, and were removed to prevent the possibility of a fire and its communication to the mine workings.

Proper care has been given to the fencing of mine holes and strippings.

Hazleton No. 2 Colliery. The breaker, old cylinder boiler house, stable and smaller buildings were razed and removed from the property, leaving intact only the Porcupine boiler house and slope hoisting engine house.

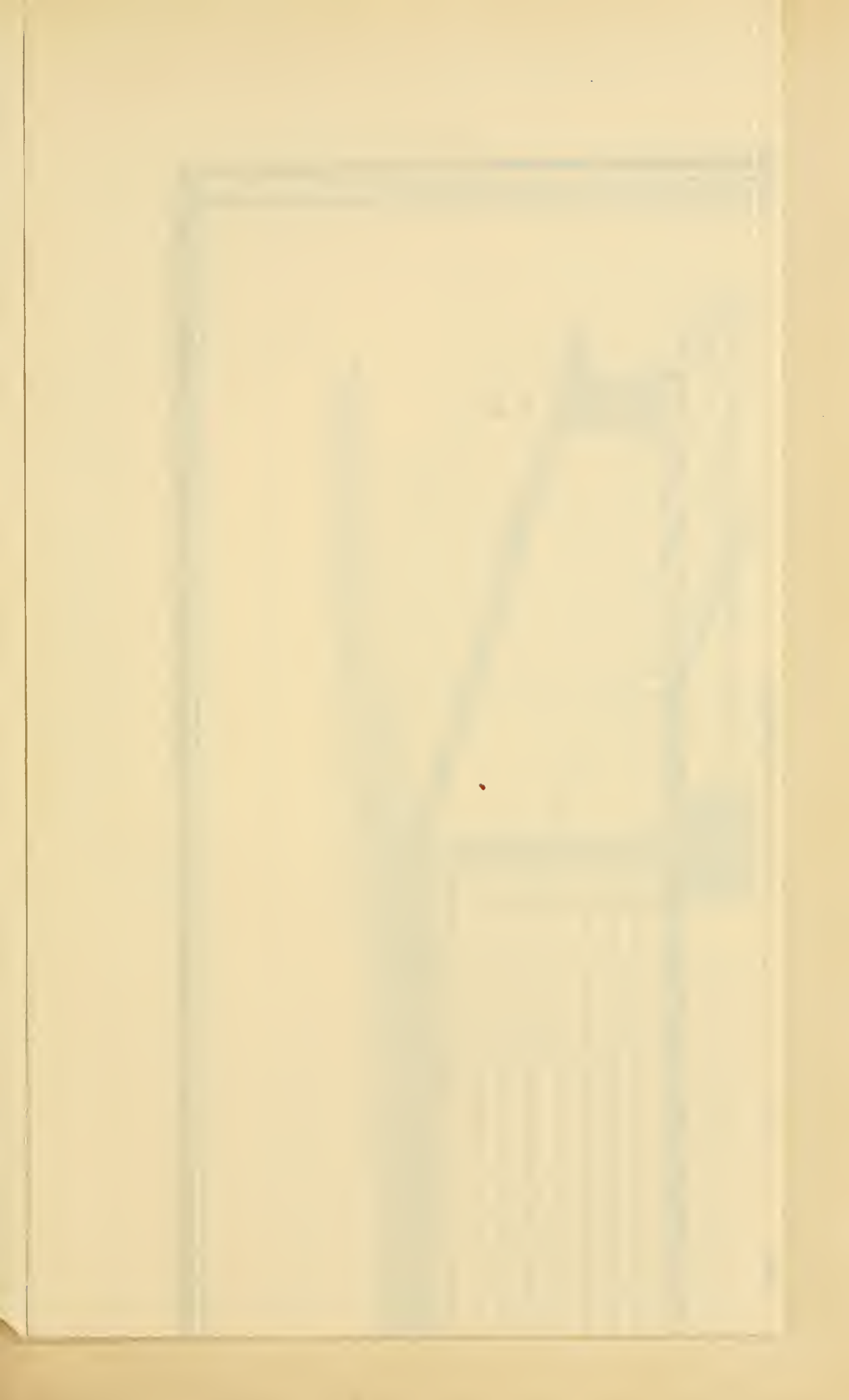
On January 19 fire was discovered in the Stockton No. 8 culm bank, close to the dividing line between the Lehigh Valley Coal Company and East Sugar Loaf Coal Company properties.

Prompt measures were taken by both companies to confine the fire within a limited area, where it might burn itself out without further damage to either properties.

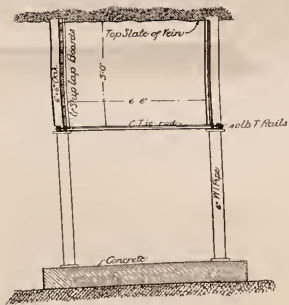
To accomplish this on the east the Stockton No. 8 breaker and surrounding buildings which were of no value were either burned or torn down and removed from the property. The No. 8 slope was filled with clay and an open cut made through the dirt bank through which a stream of water was turned. On the west the heading connecting Hazleton No. 2 with Stockton workings was walled and puddled with clay, as was also the east gangway, first lift, and an open breast to the surface filled with clay to a point above this heading.

The water in the old workings in the East Sugar Loaf Colliery prevented the downward spread of the fire, which seems to be exhausting itself within the prescribed limits.

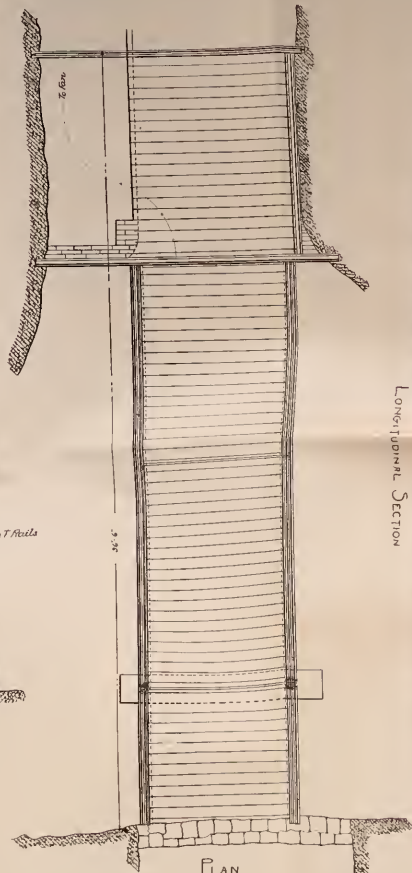
The cause or origin of this fire is from the inside, and in all prob-



Plan of Wooden Over-Cast
 Hazleton Colliery 11^a 5
 Lehigh Valley Coal Co
 Scale 1/2" = 1'

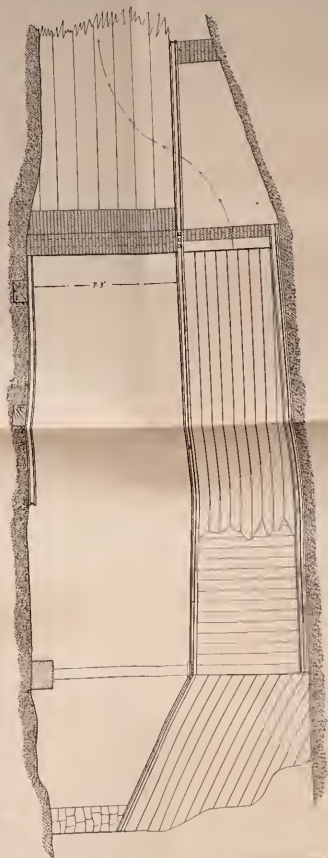


TRANSVERSE SECTION



PLAN

LONGITUDINAL SECTION



ability was left from the mine fire in the Stockton mines of Linderman & Skeer just before their abandonment in 1896.

Hazleton No. 3 Colliery. This breaker has remained idle during the year and no work was done until June, when the gangways were started up and the coal stocked outside until September when the inside resumed work in all the breasts and the coal was prepared for market in the new Hazleton shaft breaker.

Two new tunnels were driven on Second lift from the Wharton to the Mammoth vein to rework to the south edge of the stripping, the eastern end of the property. A third tunnel is also being driven for a similar purpose.

Hazleton No. 5 Colliery. The accompanying sketch shows a plan and section of the newly constructed overcast or air bridge designed and erected by District Superintendent Caleb Williams, at Hazleton No. 5 colliery.

I dare say that this is the most modern structure of an overcast in the anthracite coal fields and was only accomplished after many years of practical experience with the old methods of constructing air bridges, for ventilation in mines. Mr. Williams is an untiring student. He has been employed by the Lehigh Valley Coal Company for many years and is at present in charge of the Eastern mining district of their Hazleton property under Division Superintendent F. E. Zerby. Through their kindness I have been enabled to give the mining public the plan and section together with a written description of the overcast. It is built of wood, iron and brick and at a comparatively small cost. The main structure is supported by a brick wall at the north end and two wrought iron column pipes for posts at the south end, on which rest two 40 pound T rails on each side tied together with one inch iron rods. The stiffening pieces run diagonally from the main supports to the roof, to which the 6x6-inch oak posts are nailed, one-inch ship lapped boards running longitudinally and transversely. The cracks and joints are sealed carefully with a cement wash. This structure is situated at the south of the tunnel spanning the gangway at the curve to the Buck Mountain vein, which gives perfect service and general satisfaction in every particular.

The old "Laurel Hill Breaker" and old cylinder boiler house and smaller buildings of no value were torn down. Valuable material and machinery transferred to other collieries and inflammable material burned up. This was done to place the plant in condition for the transportation of coal from the No. 5 slope to the new breaker, for which purpose a new gun-boat dump chute was built at the mouth of the No. 5 slope and tracks constructed connecting this with the shaft breaker.

No. 4 and No. 5 slope mouths were remodeled and made safe.

Guide rails were placed in the slopes and the hoisting engine houses of both slopes were repaired.

Two corrugated iron powder houses were erected.

The 16-foot fan formerly at No. 1 slope was transferred to No. 5 and set in place over the Wharton shaft and is enclosed in a corrugated iron building resting on stone foundation.

This is a suction fan and was started in July and has given the colliery an improved and sufficient ventilation.

We are pleased to note the good airways and overcasts, all of which were made with a view of permanency and safety from fires.

The No. 5 slope is used by a gun-boat and balance for the hoisting of coal only, the No. 4 slope being the tender slope for the use of men and supplies.

Double fire plugs at the mouth of the slope are connected with the city mains and sufficient hose is carried on hand for the protection to the slopes and buildings.

This place was idle until June, when work was resumed and coal stocked until September, since which time it is being prepared at the shaft breaker.

Hazleton Shaft Colliery. In the month of April work was begun on the Hazleton shaft breaker and the structure was practically completed by the close of August and the first shipment of coal made on the twenty-ninth of September.

The structure is modern in every way. Size, 180x158x142 high to the dump, and is built of Georgia yellow pine, the main centre bents and supports under the jigs being of cast iron columns. This latter is a new feature in breaker building and it is expected will overcome the heretofore frequent renewals and repairs of the heavy timbering in the main portion of the breaker.

The coal for the breaker from the No. 3 and No. 5 slopes is raised by a 10x54 inch flight double chain conveyor from a Coxe patent car dump at the ground level on a pitch of 34 degrees and 36 minutes to the platform.

The coal from the shaft will be raised from the surface level by two similar conveyor lines.

There are two traveling platforms and an unique arrangement of picking stands for properly cleaning the coal before it passes into the rolls.

There are 28 jigs in the breaker, 7 revolving screens and 32 shaking screens.

The breaker is rope driven, by a 250 horse power Corliss valve movement engine 22x42 inch, which is housed in a separate building encased with corrugated iron.

The feature of preparation at this breaker is in the cleaning of the coal at the platform and mud screens before the passage into

the rolls, and by the large jig capacity, and in the mixing of the dry and wet coal so as to have the jigs working on the poor coal only.

There are elevator and conveyer lines and many appliances for the proper preparation of a large output.

The auxiliary buildings erected during the year were a frame warehouse, two-story brick oil house with cement floor and iron roof, frame carpenter, blacksmith and machine shop, frame office and loaded and empty car railroad scale house.

A breaker pump engine house attached to the breaker engine house containing a 24½x15x36 inch Thatcher pump with room for another.

A conveyer line 534 feet in length takes the fuel from the breaker to the boiler house.

The grading for 5,844 feet of railroad track was completed and connection made with the Lehigh Valley Railroad, M. & H. division.

All buildings and scales are steam heated and efficient fire protection is installed by having fire proof buildings wherever practicable, fire plugs, fire connections, fire buckets and hose carriage.

The shaft hoisting engine house, now under construction, is of brick 52½x95½ feet, with iron truss roof covered with granite roofing. The only wood work will be the floor. It is large enough for two sets of engines, but one set only is now in place, as they are sufficient for present requirements.

These engines are 30x48 inch, first motion, fitted with steam and hand brake, two conical drums each 10 feet diameter small end, 14 feet diameter large end, 6 feet 4 inch face, with 34 grooves to wind 1,250 feet of one and three-quarter inch rope. One drum is keyed to shaft and the other is loose and operated by means of a clutch.

The material is on the ground and work will be started at once on the construction of an iron and steel frame self dumping cage and dump chute at the head of the shaft.

A 16-foot fan is the present means of ventilating the shaft, which is being kept free from water.

Inside. The work was started in November, 1897, by Jno. H. Thomas & Son, contractors, and continued until September, when the shaft had been sunk a total depth of 380 feet, or to a bottom elevation of 1,198 feet, which is 58 feet below the second level of the shaft, give sufficient sump room.

Besides the shaft sinking, rock tunnel landings were made at the first and second levels, extending 104 feet north and 87 feet south at each level.

All the timbering in the shaft at the two landings, and for the keeps has been set and everything is ready for the new cages, except placing the guides.

During the year 1899 tunnels will be started north and south from the shaft across the basin on both levels.

Pumping Plant. The inside pumping plant described in last year's report was operated successfully during 1898, keeping the water below the Seventh or bottom working level of the Hazleton property.

The water has receded in the Diamond workings to the eastward to an elevation of 1,138 or 50 feet above the Hazleton level of 1,085 feet and 60 feet below the bottom lift of the new shaft.

A 6-inch bore hole was sunk from the surface into the Mammoth workings back of the brick dam to release the compressed air and gases.

The outside steam lines were capped and covered to prevent condensation.

A 16-foot reversible fan was constructed at the mouth of the No. 41 breast, and brick overcasts at Second and Third lifts, thus giving a means of ventilation into the pump rooms entirely separate from the regular No. 3 mine workings.

Spring Mountain Colliery. Diamond drill provings have been made during the year, locating the Primrose vein on this property.

The coal from No. 4 is being prepared in the No. 1 breaker.

Spring Brook Colliery. Tunnels were driven from the Buck Mountain to the Lykens Valley vein on counter and shaft levels in the No. 1 basin.

Remarks on Fatal Accidents.

Stephen Mihalick, miner, age 34 years, was working in breast No. 87 of No. 3 west gangway slope No. 4, Beaver Meadow.

A cross cut was driven from breast No. 86 to breast No. 87. Mihalick had drilled a hole on line of east rib of breast and fired the same; it was a strong hole, which can only be explained as a consequence of his being perfectly familiar with the conditions of the coal in his breast, which was full of face slips. After the shot had been fired, Mihalick and Adam Gutolssky started to go up breast No. 87 but were met by the smoke from the shot and at the same time heard the driver leave a car at the chute; they went back to the platform to load their cars, then proceeded up to the face again. Mihalick, according to the testimony of Gutolssky, examined and sounded the coal in face and commenced to pick on the bottom bench, preparing for another hole. He then went into the heading and with Gutolssky sounded the upper rib of the heading; both considered the place sufficiently safe to go ahead with their work. Mihalick sat down in the cross cut; Gutolssky commenced to clean away the loose coal preparatory to setting timbers, when, without a moment's warning, the coal discharged itself and covered Mihalick, killing

him instantly. A careful examination developed the fact that a face slip was running clear through the pillar from breast No. 87 to No. 86, therefore the sounding of this large body of coal would be misleading to the most experienced miners.

John Onfree, a driver, aged 18 years, was working on the Hazle mine stripping, driving a two mule team; he had taken two dump cars out to the tip, had them unloaded and was returning with the empty cars, when suddenly the car upon which he stood jumped the track, throwing the victim to the ground; he landed upon his feet, fell backward striking his head against the car wheel. His skull was fractured, causing instant death, which was due to the recklessness of the driver himself.

Henry Weaver, a laborer, working at keeping the tracks clear about the coal shed, near the Milnesville breaker. He had been employed at this occupation more than twelve months, thus becoming very familiar with the place and surroundings, consequently few men gave him any further attention, and were very much surprised to learn that he had been injured. No person saw the accident occur. Weaver was 115 feet from the head of the slope when struck by a loaded car. Andrew Banker, a repairman, was the first upon the scene. He testified that he was attracted to the scene by the cries of Weaver, whom he found doubled up under the car; he summoned assistance and removed Weaver to his home as soon as it was possible, but he succumbed to his injuries before reaching his home, which was at Hazleton.

Hiram Schrumme, a laborer, working in west side gangway on Second lift of No. 2 shaft, Upper Lehigh colliery. He was laboring for his father, Wm. Schrumme, and they were engaged driving the gangway at this particular place. The vein carries a top clod about eight to ten inches thick and it was their custom to take it down. Investigation showed that they had undermined this clod and intended to load two cars of coal before taking it down, when the fall occurred, killing Hiram instantly by crushing his skull; the miner, Wm. Schrumme, who was alone responsible for the accident, was also injured.

James Boyle, a miner, employed as a battery starter in the No. 5 shaft colliery, Summit Hill, was preparing a shot to relieve the blocked condition of the battery before the driver came along with the empty cars, when suddenly a stick of dynamite exploded, severing his right hand at the wrist and injuring him internally, also inflicting several lacerations about his head and body. He was removed to the Miners' Hospital at Ashland, Pa., where he died March 12, 1898.

Boyles' testimony after the accident was that he did not know what caused the dynamite to explode in his hands. After a care-

ful examination of the place, together with the testimony of some of the men employed at the work, I find that miners' squibs are too frequently used in place of the regular safety fuse in connection with detonators. I do not hesitate to say that in this particular case the squib was ignited prematurely by the victim's lamp, which caused the dynamite to explode with the above result.

Stephen Leist, a miner, employed at Hazleton colliery No. 1, was driving an airway from the West Diamond gangway to the surface. He went to work at 3 P. M., was working at face of airway when a small quantity of soft top slate fell, partially covering his body, killing him instantly by breaking his neck. An examination of the place showed this to be another instance of an experienced miner losing his life by not giving the proper attention to standing props at the proper time.

Hugh Smith, employed as repairman on slope No. 1, Hazleton, was engaged in company with George Mantz at putting in pulleys on east side of slope, 150 feet from the surface; at the same time three men were loading cleanings from the west side of slope near the Fifth lift. The hoisting engineer and both parties had a proper understanding that the men loading the coal were to signal for the regulating of the movement of the car. About 9.30 P. M. the men at the Fifth lift had the car loaded and gave the regular slope signal to lower the west side car; Mantz testified that he and Smith heard the signal and Mantz told Smith to "lookout." Smith was below Mantz, but Smith did not heed the the warning in time, and, as Mantz said, for the time being forgot all about the car being so near them, consequently before they could avert it, Smith was caught between the car coming up the slope and the centre prop.

He was injured internally and died at the colliery office at 10 P. M. of the same evening. For further investigation the case was turned over to the coroner's jury, which rendered the following verdict:

"That Hugh Smith came to his death by being caught between a car and centre props in No. 1 slope, and that it was an unavoidable accident due to his own neglect; and that they exonerate the Lehigh Valley Coal Company from blame whatsoever."

The Inspector was of the opinion that this was not an unavoidable accident, but one that could have been avoided had the victim himself withdrawn to a place of safety when the signal was given and not waiting until the last possible minute, which is too frequently the case with many experienced men about the mines. This was a case where a man recklessly threw away his life.

Andrew Marosko, a miner, employed at Highland No. 5 colliery, was busily engaged loading a car in the face of west B gangway, tunnel F, when without a moment's warning a fall of top slate buried

him; he was dead when taken out. The investigation revealed the fact that Marosko had taken the usual precaution in making a thorough examination before commencing work by sounding the top, but I am sorry to say he was deceived by a V slip running clear across the gangway, which would have misled the greatest expert. This, in the opinion of the writer, was an unavoidable accident.

James O'Brien, a miner, employed at Spring Mt. Colliery No. 4, was instantly killed by a fall of rock in a breast. He, with his fellow miners had fired a blast, and not waiting to even allow the smoke to clear away, O'Brien returned to examine the place as to what had been done by the shot or blast; he commenced to bar off loose coal left standing by the shot when suddenly a large body of the roof fell, killing him instantly; his body was badly mutilated. This was another instance of an experienced miner losing his life by being too hasty in returning after a shot.

Charles Heaney, laborer, employed at Jeddo No. 4 colliery. The miner had just fired a shot in the bottom bench in the breast and while he and the laborer were putting down the coal into a chute, a small piece of bone coal fell on the laborer's head, knocking him forward onto his pick. The point of the pick entered the right side of the nose and passing into the skull by way of the nasal passage. He died a few minutes after the accident.

Andrew Ferrari, a tunnel laborer, with three of his fellow workmen, employed at Spring Brook No. 1 colliery, was sitting down on the low side of the gangway west of the tunnel, also west of the foot of slant. James J. Boyle, a laborer, and James Dougherty, the patchers, were running cars to head of slant; one car stood at the head of grade with four sprags in it, the two cars came down too fast, bumped into the standing car, and all three ran away down the grade. Boyle and Dougherty tried to stop them, but failed to get the sprags in at the proper time; the first car stuck, and the other cars not being coupled telescoped the middle car, which jumped the track, pinning Ferrari against the rib, fracturing his legs and injuring him internally. He was removed to the Miners' Hospital at Hazleton where he died.

Boyle and Dougherty, who had undertaken to run down the cars in the absence of the driver, were jointly responsible for this accident, and as they had done this work without the knowledge of the mine officials they were immediately discharged. This is one accident which was caused by violation of general rule of the mine laws.

Frederick Feisner, assistant breaker boss at the Eckley breaker. This man was putting the egg coal jig scraper driving belt on the pulley while the machinery was in motion and his mitten was caught between the belt and pulley which drew him over the guard rail into the shaft where the revolving of the two guides which are used

to keep the belt from jumping off the pulley cut his both legs off, one about the knee and the other at the ankle. The unfortunate man lived about a half hour after the accident.

This accident was due to the foolhardiness of the victim himself, as he knew it was a difficult task to replace the belt on the smaller pulley with the machinery in motion.

Joseph Symon Yori, a miner, was fatally injured by a fall of bony coal; he was working in the east Fifth lift gangway, Primrose vein, along with Contractor Hannibal Rossi, and he was coming away from the face of gangway when a piece of the top bony bench, which lies between the vein and top rock, fell striking Yori on the back between the shoulders and neck, knocking him down on a sharp lump of coal. The piece that fell was $1\frac{1}{2}$ inches thick, 20 inches wide and 30 inches long; this in itself was not sufficient to cause the injury, but in the fall Yori struck the sharp piece of coal against the lower portion of his abdomen, causing internal injury; he died 24 hours later at the hospital. An examination of the place, together with the testimony of the witnesses, showed that the victim had neglected taking the usual precaution of sounding the roof; had he done so, the accident would not have occurred, for he could have readily detected the loose piece and taken it down. This is another example of the carelessness of miners.

Stephen Lowass, a timberman, employed repairing the No. 9, west gangway, Gowan colliery. He, with several other men, were changing poles at a point on the gangway where it was proposed to make room for the tunnel. Foreman Morgans was with them until they had placed six poles and considered it safe. Before leaving, he told Lowass to be careful and not to pick down too much coal, but to put up a prop as soon as he had room. They had put one more pole and Lowass was picking room for the eighth pole, when he was cautioned by his helper, Joseph Demel, that it was working, to which he replied that he had done such work before and "that he should just clean the road." Shortly after a slip of coal fell, killing Lowass instantly.

He was alone responsible for the accident having refused to take heed to the warning given.

Patrick Mahan, a miner, was fatally injured at the Spring Mountain No. 4 colliery. He was barring after a shot in the four foot bench of the Wharton vein, and while he was endeavoring to undercut the top bench, a piece of bony coal dividing the top and bottom bench of the vein, 10 inches thick and of a two-foot triangular shape, fell, striking him on the back of the neck and head, crushing his skull, also inflicting a lacerated wound on the head and neck. He died while he was being removed to the bottom of the slope.

James Boden, a hitcher, employed at the bottom of No. 4 slope,

Jeddo, Pa., was instantly killed by being crushed between an empty car and the rib of turnout near the foot of the slope. He was as usual walking beside the empty car for the purpose of unhitching the same, and when nearing the bottom the car jumped the track, pinning his head between the car and the rib, crushing his skull and causing almost instant death.

John Dolan, oiler, age 17 years, was employed oiling machinery at the Spring Mountain colliery breaker No. 1. While thus engaged on November 28, 1898, he evidently had been oiling the journals of the pea coal jig and upon returning slipped and fell, his clothing coming in contact with the main line shaft, winding his clothing about it in such a manner as to cause instant death. Upon examination it was found that his neck had been broken and his right shoulder dislocated. The exact cause will always remain a mystery, for in this case, as in many accidents about the mines, the only one that could have thrown any light upon the cause of the accident was the victim himself.

Evan L. Jenkins, mine foreman, age 34 years, was employed by the Lehigh Coal and Navigation Company at Tunnel No. 1, Nesquehoning. He was making a tour of the Mammoth workings and at 11.45 A. M. he came to the bottom of a chute which had been reported to him as being through to the surface, and being very anxious to learn the condition of the top of said chute, he was met here by John McLaughlin, a miner, who remarked that he did not think it a very safe way to travel as yet; that the man who drove the hole through to the surface did not care to risk it the day before, but went up the regular traveling way and filled the chute from the top down; still the only reply Jenkins made to McLaughlin was that he would risk it anyway, and started up the chute, leaving McLaughlin on the gangway. The colliery being idle in the afternoon, Jenkins was not missed until he failed to return to his home in the evening, when the family became alarmed and a party went in search of him; they went directly to the place where he was last seen by McLaughlin; the party went up the chute; finding no trace of him in the chute, and seeing the chute filled with coal, concluded that he was in it. So a plank was removed from the side of the chute, and when several cars of coal was allowed to run down the manway his body was discovered in a standing position, he having been smothered in the loose coal.

The exact cause of this accident will remain a mystery, but I can only surmise from a practical standpoint that after Jenkins reached the head of the chute, he concluded to go through to the surface, and which making the attempt was carried by a rush of the gob or loose coal back down the chute where he fell a victim to suffocation.

Anthony Peteoski, a miner, aged 35 years, employed at Harwood

colliery No. 5, had been engaged on account of his experience and ability as a miner at "robbing" for some time in a breast on No. 2 branch of No. 5 slope. He had fired a shot in the pillar and the powder blew out on the inside leaving the coal standing in a shattered condition. He went back to bar it off when a piece of clod which hung over the end of the pillar fell upon him, killing him instantly.

Jacob Plitnic, a miner, aged 28 years, was fatally injured by a fall of rock in No. 5 Harwood colliery. He had been employed driving a breast in the Gamma vein on the No. 4 branch of No. 5 slope. The Gamma vein is capped with several benches of slate and bone from 8 to 10 inches thick; above this clod is the hard conglomerate rock; which in places is broken up by slips or folds. The miner and his partner, Joseph Zueofski, had taken down the clod square with the face, but on the west rib of breast one of the slips was undermined and they noticed it beginning to draw. The miners in the next breast, Joseph Cogus and Ludwic Janatowski, visited this breast and noticing the dangerous condition of the same, warned Plitnic and Zueofski to take it down, but, unheeding the warning given them, they decided to fire another hole in the coal, and after doing so, Plitnic went back to bar off the loose coal, and while at the face, the top fell, fatally injuring him. He was immediately removed to the hospital, but died shortly after; he alone was responsible for the accident.

William Garlow, a miner, aged 52 years, was instantly killed by a fall of coal. While preparing a hole in the seven-foot bench on the south side of No. 2 stripping, a portion of the top bench of coal two feet thick fell upon him crushing him to death. I visited the scene of the accident and found that the victim had deliberately gone under the overhanging two-foot bench to drill a hole in the seven-foot, which was simply madness. He alone, through his own carelessness, was responsible for the accident.

Frank Radashessky, a special laborer, aged 26 years, who was employed bugging coal in the rock chute of the Greenfield stripping, at about 8.10 in the morning, while loading the buggy on the south side of the pit, a piece of slate about 3x5x7 slid out of the rib on the south side of stripping where the pitch of the strata is about 65 degrees and crushed him against the side of the buggy, killing him instantly. I visited the scene and made a careful examination of the place. I concluded, after listening to the testimony of the men working about the place, that the only reason that could be assigned for the sudden falling out of said slip was the changes in the temperature, as no blasting had been done at this point or near it for more than two weeks.

John Mealing, a miner, aged 48 years, was instantly killed by a fall of coal in slope No. 6, Upper Lehigh colliery. He was engaged

drawing back pillars and at this particular time he had undermined considerable of the top bench, drilled and charged a hole in the overhanging bench; about the time he was ready to fire the said hole, he recommenced to bar out the bottom bench, when a small piece of the top coal fell upon him without giving a moment's warning, killing him instantly. This man made a mistake in returning to barring the bottom coal when he should have fired the shot, and this mistake cost him his life beyond a doubt.

William Keck, a driver, aged 16 years, was employed on the night shift at East Crystal Ridge colliery. While taking out two loaded cars from the gangway he forgot to fix or set the latches for the loaded track so that the cars which were being brought out by him ran on the empty track, he being on the corner or side of the car, was caught between the rib of turnout and side of the car, causing instant death. I went to the scene, made a careful examination of the place and found that from the point of latches to the place where accident occurred was 35 feet with two to four feet of clearance on the side, where he could have jumped from the car with perfect safety when he discovered that the car was on the wrong track. After hearing the testimony of the workmen, I was led to believe that the boy had fallen asleep on the car and was consequently unable to detect his error, and was crushed by the car against the rib, as already stated.

Michael Duffy, a miner, was instantly killed by a fall of coal at the Spring Mountain colliery No. 4. He was working in the Wharton vein robbing pillars and was undercutting the top bench; he had already cut 20x22 feet of overhanging top bench, which was entirely non-practical for a man of Duffy's experience; he had been cautioned by his fellow partner or miner not to take chances but to blast it down, but, unheeding the advice of his partner who was shoveling coal back, he said he would drill another hole in the bottom bench and started to do so when suddenly the top bench fell without a moment's warning, killing him instantly.

This is another instance where an experienced miner recklessly threw away his life.

John Norton, a slate picker, aged 34 years, employed on the Milnesville breaker, was smothered in the rice coal pocket. The last seen of Norton prior to the accident was when Breaker Foreman Lannon put him in the said pocket to shovel coal back, until he was discovered by the loader a few hours later coming through with the coal that was being loaded into a gondola or railroad car. To me this accident was so shrouded in mystery that it was impossible to place the responsibility and in order to have the matter more fully investigated, the case was given to a coroner's jury, which, I understand, also failed to solve the mystery further than to agree that the said

John Norton came to his death by being smothered in loose coal in the breaker pocket.

Andrew Meas, a miner, aged 37 years, was reported to have been killed by a fall of coal at the Sandy Run Colliery. An investigation of the accident showed that the coal was of a shaley nature and that the quantity was so slight that it was impossible for a man to be killed by such a fall. He was engaged driving across heading through the pillar. He was at the time of the accident standing a prop when the slip fell out. He was immediately removed to his home where Dr. G. O. Jarvies, upon examining the body, found that the victim had not been injured at all other than that he died from shock. The writer is of the opinion that the inexperience of the miner had a great deal to do with his death.

TABLE I.—Showing Location, etc., of Collieries in the Fifth Anthracite District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
16	Cranberry.	A. Pardee & Co.	Luzerne	Frank Pardee.	Hazleton.	V.
24	East Crystal Ridge.	A. Pardee & Co.	Luzerne	Frank Pardee.	Hazleton.	L. V.
6	Drifton Nos. 1 and 2.	The Cross Creek Coal Company.	Luzerne	Luther C. Smith, general superintendent; John R. Wagner, supt. of motive power.	Drifton.	L. V. & S. L. V.
10	Eckley.	The Cross Creek Coal Company.	Luzerne	Edgar Kudlich, mining engineer.	Drifton.	L. V.
22	Stockton.	The Cross Creek Coal Company.	Carbon	John Rowland, supt. of preparation.	Drifton.	L. V.
18	Beaver Meadow.	The Cross Creek Coal Company.	Luzerne	do.	Drifton.	Pennsylvania.
11	Tomlicken.	The Cross Creek Coal Company.	Luzerne	do.	Drifton.	C. R. R. of N. J.
12	Derringer.	The Cross Creek Coal Company.	Luzerne	do.	Drifton.	C. R. R. of N. J.
13	Gowan.	The Cross Creek Coal Company.	Luzerne	do.	Drifton.	C. R. R. of N. J.
	Colliery No. 1.	The Lehigh Coal and Nav. Co.	Carbon	W. D. Zehner, genl. supt.; Baird Snyder, Jr., asst. supt.; T. M. Whitlin, inside supt.	Lansford.	C. R. R. of N. J.
	Colliery No. 4.	The Lehigh Coal and Nav. Co.	Carbon	do.	Lansford.	C. R. R. of N. J.
	Colliery No. 5.	The Lehigh Coal and Nav. Co.	Carbon	do.	Lansford.	C. R. R. of N. J.
	Colliery No. 6.	The Lehigh Coal and Nav. Co.	Carbon	do.	Lansford.	C. R. R. of N. J.
	Colliery No. 9.	The Lehigh Coal and Nav. Co.	Carbon	do.	Lansford.	C. R. R. of N. J.
	Screen Building.	The Lehigh Coal and Nav. Co.	Luzerne	John Markle, genl. supt.	Jeddo.	L. V.
3	Jeddo No. 1 & Eberve's.	G. B. Markle & Co.	Luzerne	Samuel Dumkerly, inside supt.	Jeddo.	L. V.
4	Highland No. 5.	G. B. Markle & Co.	Luzerne	W. A. Lathrop, genl. supt.	Wilkesbarre.	L. V.
5	Colliery No. 1.	Lehigh Valley Coal Company.	Luzerne	F. E. Zerbey, div. supt.	Hazleton.	L. V.
15	Hazleton Shaft Colly.	Lehigh Valley Coal Company.	Luzerne	F. E. Zerbey, div. supt.	Hazleton.	L. V.
25	Spring Mountain No. 1.	Lehigh Valley Coal Company.	Luzerne	F. E. Zerbey, div. supt.	Hazleton.	L. V.
26	Spring Mountain.	Lehigh Valley Coal Company.	Luzerne	F. E. Zerbey, div. supt.	Hazleton.	L. V.
27	Spring Brook.	Lehigh Valley Coal Company.	Carbon	James E. Roderick, genl. supt.	Hazleton.	L. V.
29	Milnesville.	Estate of A. S. Van Wickle.	Carbon	James E. Roderick, genl. supt.	Hazleton.	L. V.
17	Colestrate.	Estate of A. S. Van Wickle.	Carbon	A. W. Drake, supt.	Lattimer.	L. V.
7	Lattimer No. 1.	Calvin Pardee & Co.	Luzerne	A. W. Drake, supt.	Lattimer.	L. V.
8	Lattimer No. 3.	Calvin Pardee & Co.	Luzerne	A. W. Drake, supt.	Lattimer.	L. V.
28	Harwood.	Calvin Pardee & Co.	Luzerne	W. J. Richards, supt.	Lattimer.	L. V.
	Upper Lehigh.	The Upper Lehigh Coal Co.	Luzerne	W. J. Richards, supt.	Upper Lehigh.	C. R. R. of N. J.
	Tresckow No. 2.	The Lehigh and Wilkesbarre Coal Co.	Carbon	George F. Jones, supt.	Wilkesbarre.	L. V.
	Tresckow Stripping.	The Lehigh and Wilkesbarre Coal Co.	Carbon	John G. Scott.	Wilkesbarre.	L. V.
20	Sandy Run.	J. S. Kemmerer & Co.	Luzerne	F. L. Bullock, supt.	Sandy Run.	L. V.
19	Beaver Brook.	J. S. Kemmerer & Co.	Luzerne	George Reichert.	Beaver Brook.	L. V.
14	Stoake Colliery.	J. S. Kemmerer & Co.	Luzerne	John G. Scott.	Hazleton.	L. V.
	Stoake Washery.	Audenreid Coal Company.	Luzerne	Thomas J. Morgans.	Zehners.	L. V.
	Pond Creek Colliery.	Wyoming & Pond Creek Coal Co.	Luzerne	James Rowe.	McAdoo.	L. V.
2	Dusky Diamond.	Morgans & Arnold.	Luzerne		McAdoo.	L. V.
	Rowe Colliery.	Stautfer & Rowe.	Luzerne		Beaver Meadow.	L. V.

TABLE II.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, etc., in the Fifth Anthracite District for the year ending December 31, 1899.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employees.	Railroad shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs of powder used.
A. Fardee & Co.										
Cranberry, including Crystal Ridge,	Luzerne,	365,798.01	37,350.08	3,496.18	262,950.15	153	835	2	6	7,870
The Cross Creek Coal Company										
Drifton No. 1,	Luzerne,	920,579.03	89,035.03	8,227.17	199,990.02	226	589	.....	5	4,118
Eckley, including Buck Mountain,	Luzerne,	221,100.03	25,879.15	1,427.05	133,798.08	236	318	.....	.....	2,473
Stockton,	Luzerne,	124,388.13	19,836.13	1,416.00	103,108.03	217	318	.....	.....	2,473
Beaver Meadow,	Carbon,	134,521.13	25,085.13	1,731.10	107,704.15	207	337	.....	.....	2,516
Tonahickens,	Luzerne,	444.10	444.10	.....	.....	.....	.....	.....	.....	2,386
Derringer & Gowan,	Luzerne,	316,199.17	25,258.11	4,214.18	283,726.11	243	650	.....	.....	5,751
Total,	Luzerne,	1,036,230.09	138,540.02	16,147.07	881,543.00	207.2	2,349	4	12	17,744
Lehigh Coal and Navigation Company.										
Colliery No. 1,	Carbon,	253,465.08	20,102.00	2,569.00	223,856.02	167	644	.....	.....	960
Colliery No. 4,	Carbon,	188,824.18	20,989.00	3,608.00	188,251.19	174	357	.....	.....	600
Colliery No. 5,	Carbon,	68,074.04	2,856.00	2,003.00	62,775.04	73	312	.....	.....	350
Colliery No. 6,	Carbon, .....	.....	3,828.00	.....	.....	.....	182	.....	.....	182
Colliery No. 3,	Carbon,	216,736.04	5,840.00	5,837.14	240,697.15	173	428	.....	.....	300
Screen Building,	Carbon, .....	.....	12,388.00	.....	.....	234	299	.....	.....	.....
Total,	Carbon,	727,160.14	65,752.00	11,637.14	725,188.00	146.8	2,217	2	4	2,582
G. B. Markle & Co.										
Jeddo No. 4, including Ebervale,	Luzerne,	423,606.15	35,989.00	296.10	387,311.05	146	755	.....	.....	6,290
Highland No. 2,	Luzerne,	146,627.03	21,450.00	4,467.03	129,710.00	132	371	.....	.....	2,652
Highland No. 5,	Luzerne,	255,105.18	10,950.00	48.00	244,107.18	130	515	.....	.....	5,183
Total,	Luzerne,	825,429.16	68,389.00	4,911.13	752,129.03	136	1,641	6	8	15,225

Recapitulation.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs of powder used.
A. Pardee & Co.,	Luzerne,	303,798.01	87,350.08	3,496.18	262,950.15	153.0	835	2	6	7,870
The Cross Creek Coal Company,	Luzerne,	1,036,230.69	138,540.02	16,147.07	881,643.00	207.2	2,349	4	12	17,744
Lehigh Coal and Navigation Company,	Carbon,	727,160.14	65,752.00	14,037.14	725,188.00	146.8	2,217	6	4	2,582
R. B. McKeen & Co.,	Luzerne,	825,429.16	68,389.00	4,911.13	752,129.03	136.0	1,641	2	8	15,225
Lehigh Valley Coal Company,	Luzerne,	657,737.12	156,950.00	4,225.00	536,562.12	249.5	1,627	3	7	9,010
Lehigh Valley Coal Company,	Luzerne,	657,424.14	75,012.00	35,292.17	533,535.17	139.2	2,150	9	8	11,968
Calvin Pander & Co.,	Luzerne,	585,343.11	93,269.00	4,435.16	487,637.15	180.2	1,866	3	17	17,400
Upper Lehigh Coal Company,	Luzerne,	194,486.19	29,746.00	3,324.06	161,416.13	145.0	432	2	1	3,526
Upper Lehigh Coal Company,	Luzerne,	183,753.00	25,000.00	13,000.00	145,753.00	163.0	467	3	3	3,336
C. M. Dodson & Co.,	Luzerne,	82,482.07	4,604.00	1,133.00	76,745.07	159.0	230	1	3	594
M. S. Kemmerer & Co.,	Luzerne,	80,000.00	8,000.00	2,000.00	70,000.00	149.0	450	1	3	1,332
J. S. Wentz & Co.,	Carbon,	51,505.00	20,440.00	.....	31,065.00	179.5	183	.....	.....	.....
Lehigh and Wilkesbarre Coal Company,	Carbon,	112,136.14	3,695.00	.....	108,251.14	185.0	72	.....	.....	.....
Audenreid Coal Company,	Luzerne,	7,319.00	800.00	1,820.00	5,699.00	50.0	46	.....	.....	.....
Wyoming and Pond Creek Coal Company,	Luzerne,	6,083.00	469.00	6,216.00	5,921.00	300.0	16	.....	.....	.....
Morgans & Arnold,	Luzerne,	.....	300.00	.....	.....	286.0	18	.....	.....	.....
Krove & Stauffer,	Luzerne,	.....	.....	.....	1,329.00	.....	.....	.....	.....	.....
Total, .....	.....	5,555,850.17	738,016.10	112,438.11	4,779,397.16	157.3	14,649	32	72	92,759

TABLE II.—Continued.

Names of Collieries.	County.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in Gallons.	Number of steam engines of all classes.	Total horse power.	Number electric dynamos.	Voltage.	Number air compressors.	Number air locomotives.
A. Pardee & Co.												
Cranberry, including Crystal Ridge,	Luzerne,	34,425	124	75	15	23,100	36	3,340	.....	.....	1	.....
The Cross Creek Coal Company.												
Drifton Nos. 1 and 2,	Luzerne,	6,026	74	77	15	8,407	15	1,000	.....	.....	1	.....
Eckley, including Buck Mountain,	Luzerne,	21,289	40	24	17	4,801	12	750	.....	.....	.....	.....
Stockton,	Luzerne,	10,544	24	27	12	3,652	7	500	.....	.....	.....	.....
Beaver Meadow,	Carbon,	8,488	34	32	9	8,748	8	560	.....	.....	.....	.....
Tomhicken,	Luzerne,	218	3	1	.....	.....	.....	.....	.....	.....	.....	.....
Derringer & Gowan,	Luzerne,	7,176	95	28	8	8,651	9	670	.....	.....	.....	.....
Total, .....	.....	52,841	270	189	61	34,019	51	3,559	2	196	1	.....
Lehigh Coal and Navigation Company.												
Colliery No. 1,	Carbon,	58,000	109	31	15	9,700	12	445	.....	.....	.....	.....
Colliery No. 4,	Carbon,	30,050	65	21	17	18,125	6	275	.....	.....	1	.....
Colliery No. 5,	Carbon,	4,750	45	9	3	872	8	275	.....	.....	.....	.....
Colliery No. 6,	Carbon,	10,780	10	16	2	550	10	368	.....	.....	1	.....
Colliery No. 9,	Carbon,	36,800	83	20	5	1,951	8	343	.....	.....	.....	.....
Screen Building,	Carbon, .....	.....	.....	14	9	9,175	10	347	1	550	.....	.....
Total, .....	.....	140,350	312	111	51	30,079	54	2,050	1	550	2	.....
G. B. Markle & Co.												
Jeddo No. 4, including Elbervale,	Luzerne,	82,069	111	28	8	3,672	36	1,769	.....	.....	.....	.....
Highland No. 2,	Luzerne,	6,141	61	40	18	6,665	17	786	.....	.....	.....	.....
Highland No. 5,	Luzerne,	18,262	94	17	6	3,536	24	1,081	1	110	1	.....
Total, .....	.....	96,502	265	85	32	14,273	77	3,636	1	110	1	.....

TABLE II.—Continued.

Names of Collieries.	County.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse power.	Number electric dynamos.	Voltage.	Number air compressors.	Number air locomotives.
Estate of A. S. Van Wickle.												
Milnesville,	Luzerne,	422,300	76	65	23	8,900	36	1,150	1	2,000	.....	.....
Coleraine, including Evans,	Carbon,	59,150	115	60	30	14,004	43	1,398	.....	.....	1	.....
Total, .....	.....	481,450	191	125	53	22,904	79	2,548	1	200	1	.....
Lehigh Valley Coal Company.												
Hazleton No. 1,	Luzerne,	40,972	75	14	9	3,600	13	2,600	.....	.....	2	.....
Hazleton Shaft,	Luzerne,	8,418	54	16	10	7,000	17	2,600	.....	.....	.....	.....
Spring Mountain,	Luzerne,	3,953	70	68	18	8,600	18	2,800	2	230	1	.....
Spring Brook,	Carbon,	3,021	33	48	13	3,000	12	1,000	.....	.....	.....	.....
Total, .....	.....	56,374	232	146	50	22,500	60	7,400	2	230	3	.....
Calvin Pardee & Co.												
Lattimer No. 1,	Luzerne,	31,930	31	39	15	7,900	16	800	.....	.....	1	.....
Lattimer No. 3,	Luzerne,	32,766	29	26	13	2,000	18	430	.....	.....	.....	.....
Lattimer Stripping,	Luzerne,	36,323	44	2	.....	.....	7	1,110	.....	.....	1	.....
Lattimer Canal,	Luzerne,	28,151	4	.....	1	800	2	60	.....	.....	.....	.....
Lattimer Washery,	Luzerne, .....	.....	.....	.....	.....	.....	1	160	.....	.....	.....	.....
Hatwood,	Luzerne,	12,000	61	54	23	6,250	17	960	1	110	1	.....
Total, .....	.....	141,200	169	121	52	16,950	61	3,850	1	110	3	.....
Upper Lehigh Coal Company.												
Upper Lehigh,	Luzerne,	650	72	87	31	15,800	44	1,446	.....	.....	1	.....
C. M. Dodson & Co.												
Beaver Brook,	Luzerne,	1,990	58	54	20	17,066	17	1,401	1	110	.....	.....

Sandy Run,	M. S. Kemmerer & Co.	37	27	4	3,480	9	405		
Hazle Brook,	J. S. Wentz & Co.	26	19	10	2,500	17	400		
Stockton Washery,	Audenreid Coal Company.	6	8	3	2,160	13	415		
Pond Creek,	Wyoming and Pond Creek Coal Company.	4	1	3	904	2	180		
Dusky Diamond,	Morgans & Arnold.	11	2			1	15		
Rowe Colliery,	Rowe & Stauffer.	9	2	1	35	1	30		
Tresckow,	Lehigh and Wilkesbarre Coal Company.	16	20	3	110	2	240		
					1,096				

There are 64,603 tons that is stock coal at the breakers included in the steam and heat tonnage not included in total production. There are no electric locomotives in use.

Recapitulation.

A. Pardee & Co.,	34,425	124	75	15	23,100	26	3,340		
The Cross Creek Coal Company,	53,851	270	189	51	24,105	51	3,553	1	196
Lehigh Coal and Navigation Company,	140,350	312	111	33	39,073	77	550	2	550
G. B. Markle & Co.,	146,562	106	8	53	14,272	1	110	1	110
Estate of A. S. Van Winkle,	42,374	195	135	53	22,504	79	2,548	1	2,000
Lehigh Valley Coal Company,	54,374	232	146	50	22,200	60	7,400	2	220
Calvin Pardee & Co.,	141,200	169	121	52	16,850	61	3,580	1	110
Upper Lehigh Coal Company,	141,520	72	87	31	15,800	44	1,446	1	
M. S. Kemmerer & Co.,	1,980	58	54	20	17,086	17	1,401	1	110
J. S. Wentz & Co.,	6,052	37	27	4	3,480	9	405		
Morgans & Arnold,	6,644	26	19	10	3,500	17	400		
Lehigh and Wilkesbarre Coal Company,	1,096	16	20	3	110	2	240		
Audenreid Coal Company,	1,400	6	8	3	2,160	13	415		
Wyoming and Pond Creek Coal Company,	1,400	4	1	3	904	2	180		
Morgans & Arnold,		11	2			1	15		
Rowe & Stauffer,		9	2	1	35	1	30		
Total,	1,081,844	1,803	1,072	389	206,600	524	30,645	9	3,596
								14	1

TABLE III.—Showing the number of employees at each colliery in the Fifth Anthracite District, during the year 1898.

Names of Collieries.	Occupations of Persons Employed Inside.							Occupations of Persons Employed Outside.							Grand total inside and outside.	
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, book-keepers and clerks.	All other employes.		Total outside.
A. Pardee & Co.																
Cranberry, including Crystal Ridge,	3	7	330	137	48	25	45	595	1	29	33	56	2	119	240	835
The Cross Creek Coal Company.																
Drifto Nos. 1 and 2,	3	1	116	15	30	10	114	349	2	.....	13	104	8	113	240	589
Eckley, including Buck Mountain,	3	3	117	13	19	8	69	223	2	.....	19	91	1	82	195	418
Stockton,	3	3	100	10	12	2	64	137	3	.....	10	74	1	77	164	350
Beaver Meadow,	3	3	51	13	14	2	81	137	3	.....	12	98	1	77	190	337
Tomhicken,	3	1	.....	.....	1	.....	1	3	2	.....	.....	.....	1	1	2	5
Derringer & Gowan,	3	1	228	41	43	18	100	434	2	.....	15	96	1	102	216	650
Total,	17	2	572	92	120	43	396	1,342	10	.....	69	463	13	452	1,007	2,349
Lehigh Coal and Navigation Company.																
Colliery No. 1,	3	8	141	43	43	22	131	391	1	12	41	111	1	87	253	644
Colliery No. 4,	1	3	35	24	25	9	104	201	1	4	21	82	.....	48	156	357
Colliery No. 5,	1	1	48	24	18	6	77	176	1	5	12	62	.....	56	136	312
Colliery No. 6,	1	2	54	23	11	3	49	143	1	3	14	.....	.....	21	39	182
Colliery No. 3,	2	1	70	63	19	4	88	247	1	7	16	81	.....	71	176	423
Screen Building, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	96	299	299
Total,	8	16	348	177	116	44	449	1,158	6	35	120	518	1	379	1,059	2,217
G. B. Markle & Co.																
Jeddo No. 4, including Ebervale,	1	2	196	123	59	16	110	517	1	16	22	96	8	95	238	755
Highland No. 2,	1	1	102	46	46	10	46	229	1	11	16	66	7	48	149	371
Highland No. 5,	1	3	116	123	86	11	40	320	1	16	16	88	7	67	195	515
Total,	3	6	404	298	121	37	190	1,059	3	43	54	250	22	210	582	1,641

1	1	29	31	13	4	45	123	1	18	35	49	5	399	630
4	1	295	201	35	5	32	543	1	26	48	120	9	250	997
Total,		1	294	232	48	77	666	2	44	83	169	14	649	1,627
Lehigh Valley Coal Company.														
2	3	216	94	41	4	95	455	1	14	18	91	2	165	750
2	3	250	55	21	4	75	390	1	36	21	50	3	129	630
2	1	111	26	29	4	12	185	1	7	34	89	3	97	410
1	1	89	58	14	.....	23	191	1	8	23	67	1	69	360
Total,		7	646	233	105	210	1,221	4	65	96	288	9	460	2,150
C. Calvin Pardee & Co.														
1	3	30	62	11	3	37	148	1	11	20	133	3	89	405
.....	4	16	95	12	4	23	154	3	13	20	148	3	98	488
.....	.....	12	55	11	.....	2	80	11	18	20	.....	.....	192	321
.....	.....	.....	.....	.....	.....	.....	.....	4	4	6	.....	.....	32	46
.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	.....	.....	8	10
2	5	238	115	33	8	29	430	2	24	23	130	4	123	746
Total,		3	296	327	67	91	812	21	71	94	411	10	547	1,966
Upper Lehigh Coal Company.														
4	.....	84	70	24	10	28	220	2	7	38	91	8	66	432
C. M. Dodson & Co.														
1	3	83	74	21	14	53	249	1	10	23	80	5	99	467
M. S. Kemmerer & Co.														
1	.....	43	50	13	2	10	119	1	5	16	53	3	33	230
J. S. Wentz & Co.														
2	.....	90	35	26	12	25	190	1	6	18	96	6	133	450
Audenreid Coal Company.														
Stockton,		.....	.....	.....	.....	.....	.....	1	3	4	57	2	66	133
Wyoming and Pond Creek Coal Company.														
1	.....	6	12	1	.....	.....	20	1	2	3	12	3	5	26
Morgans & Arnold.														
1	.....	5	2	1	.....	4	13	.....	.....	.....	1	.....	.....	3
Rowe & Stauffer.														
1	.....	4	4	1	.....	.....	10	.....	1	1	1	1	4	8
Lehigh and Wilkesbarre Coal Company.														
1	2	26	12	4	2	18	64	.....	.....	.....	.....	.....	8	72
Tresckow,		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Recapitulation.

Names of Collieries.	Occupations of Persons Employed Inside.							Occupations of Persons Employed Outside.							Grand total inside and outside.	
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, book-keepers and clerks.	All other employes.		Total outside.
A. Pardee & Co.,	2	1	330	137	48	25	45	585	1	29	33	56	2	119	240	835
The Cross Creek Coal Company,	17	2	672	92	120	43	396	1,342	10	.....	69	463	13	452	1,007	2,349
Lehigh Coal and Navigation Company,	8	16	348	177	116	44	449	1,158	6	35	120	518	1	379	1,059	2,217
G. B. Markle & Co.,	3	6	404	268	121	37	190	1,059	2	43	54	250	22	210	582	1,641
Estate of A. S. Van Winkle,	1	1	294	232	48	9	77	696	2	44	83	169	14	649	961	1,627
Lehigh Valley Coal Company,	2	1	646	232	105	12	210	1,221	4	65	96	288	9	460	929	2,150
Delvin Fardee & Co.,	2	12	296	327	67	15	31	812	21	94	411	10	547	1,154	1,966	
Upper Lehigh Coal Company,	4	3	84	70	24	10	28	240	2	7	38	91	8	66	212	432
Lehigh Coal Company,	1	3	83	74	21	14	53	249	1	10	23	80	5	99	218	467
C. M. Dodson & Co.,	1	.....	63	30	13	10	20	149	1	5	16	53	3	33	111	230
M. S. Kemmerer & Co.,	2	.....	60	30	26	12	20	150	1	6	18	36	6	133	260	450
Lehigh Valley Coal Company,	1	2	26	12	4	2	18	64	.....	.....	.....	.....	.....	.....	.....	122
Lehigh Valley Coal Company, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
Audenreid Coal Company, .....	.....	.....	6	12	.....	.....	.....	20	1	2	3	12	.....	66	133	133
Wyoming and Pond Creek Coal Company,	1	.....	5	2	1	.....	4	13	.....	.....	.....	.....	.....	5	23	28
Morgans & Arnold,	1	.....	4	4	1	.....	.....	10	.....	.....	.....	.....	.....	.....	.....	16
Rowe & Stauffer, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
Total,	58	56	3,331	1,755	716	225	1,586	7,738	54	321	653	2,545	101	3,220	6,911	14,649

TABLE III.—Continued.

Number of Days Worked Each Month in Breaker.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
A. Pardee & Co.												
Cranberry, including Crystal Ridge,	11.4	11.2	6.5	6.1	7.1	9.7	14.5	12.8	18.0	19.8	19.4	16.3
The Cross Creek Coal Company.												
Drifton Nos. 1 and 2,	16.0	13.0	13.0	11.0	16.0	17.0	21.0	24.0	23.0	27.0	25.0	20.0
Eckley, including Buck Mountain,	21.0	16.0	16.0	14.0	13.0	19.0	19.0	24.0	26.0	23.0	25.0	29.0
Stockton,	5.0	7.0	6.0	4.0	8.0	11.0	11.0	11.0	16.0	15.0	14.0	12.0
Beaver Meadow,	18.0	12.0	9.0	9.0	13.0	17.0	18.0	24.0	23.0	25.0	22.0	17.0
Tomhicken,	17.0	13.0	12.0	14.0	17.0	21.0	23.0	29.0	27.0	27.0	24.0	21.0
Derringer & Gowan,	81.0	61.0	56.0	50.0	67.0	85.0	92.0	112.0	115.0	117.0	110.0	90.0
Total,												
Lehigh Coal and Navigation Company.												
Colliery No. 1,	17.3	11.4	10.1	10.3	8.4	11.1	13.4	15.4	14.5	19.3	18.4	17.1
Colliery No. 4,	17.5	9.8	10.3	10.8	9.6	13.2	14.1	17.7	13.4	20.3	19.1	18.3
Colliery No. 5,	17.5	10.1	9.9	6.1	.....	.....	.....	.....	.....	.....	18.6	16.1
Colliery No. 6, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colliery No. 9,	16.3	9.3	10.2	10.8	9.0	13.4	15.3	16.4	16.7	19.8	18.7	16.8
Screen Building,	25.4	15.0	14.3	13.1	14.0	19.0	21.8	21.2	18.7	20.8	25.2	25.0
Total,	94.0	55.6	54.8	51.1	41.0	56.7	64.6	70.7	63.3	80.2	101.0	93.3
G. E. Markle & Co.												
Leadon No. 4, including Ebervale,	8.8	10.0	7.9	6.4	7.1	8.8	14.1	15.0	16.3	19.7	16.6	15.2
Highland No. 2,	8.7	4.3	8.7	5.7	6.6	7.8	13.8	12.1	10.3	16.4	14.1	14.0
Highland No. 5,	8.7	11.6	8.3	6.7	6.0	8.7	12.9	11.8	14.3	15.1	13.1	12.7
Total,	25.2	30.9	24.6	18.8	19.7	25.3	40.8	38.9	46.9	51.2	43.9	41.9

TABLE III.—Continued.

Number of Days Worked Each Month in Breaker.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Estate of A. S. Van Wickle.												
Milnesville,	23.4	21.2	24.3	23.8	25.3	24.0	24.3	25.0	24.7	25.5	25.3	24.0
Coleraine, including Evans,	18.2	17.1	12.3	9.6	9.6	14.7	16.6	13.6	22.6	24.4	24.7	24.3
Total,	41.6	38.3	36.6	33.4	34.9	38.7	40.9	38.6	47.3	49.9	50.0	48.3
Lehigh Valley Coal Company												
Hazleton No. 1,	10.5	10.6	8.8	7.1	5.9	6.9	15.9	12.5	20.0	24.1	22.4	17.3
Hazleton Shaft,	12.7	12.4	5.3	5.3	5.2	7.0	11.7	13.3	18.0	22.0	21.8	18.7
Spring Mountain,	10.4	11.8	5.3	5.0	4.3	7.0	14.9	12.4	18.2	20.0	18.8	18.9
Spring Brook,										21.0	18.8	18.3
Total,	33.6	36.8	20.0	17.4	15.4	20.9	45.5	37.4	57.1	87.1	79.8	66.4
Calvin Pardee & Co.												
Lattimer No. 1,	16.0	16.1	12.7	8.9	18.5	23.0	22.5	22.6	23.2	23.4	22.4	15.8
Lattimer No. 3,	15.6	15.6	12.3	8.9	18.4	22.2	20.9	22.8	23.4	23.4	23.0	24.2
Lattimer Stripping,												
Lattimer Canal,												
Lattimer Washery,	18.1	17.3	12.2	8.0	14.8	18.1	23.0	24.4	23.9	25.7	25.1	24.5
Harwood,	15.2	15.3										
Total,	64.9	61.3	37.2	25.8	51.7	63.3	66.4	79.8	70.5	72.5	70.5	64.5
Upper Lehigh Coal Company.												
Upper Lehigh,	12.6	10.9	9.3	11.9	8.2	10.2	11.8	10.8	13.1	16.2	17.0	12.6
C. M. Dodson & Co.												
Beaver Brook,	16.3	12.2	9.3	8.7	7.7	15.8	15.1	10.7	12.9	18.4	18.4	17.6

M. S. Kemmerer & Co.	13.6	14.1	14.6	11.1	12.7	12.4	11.9	14.2	20.1	18.7	15.2
Sandy Run,											
J. S. Wentz & Co.	10.5	7.5	6.5	7.5	10.0	13.0	10.0	16.5	19.5	19.0	18.0
Hazle Brook,											
Audenreid Coal Company.	6.6	16.9	15.3	14.6	10.2	14.4	4.6	17.4	18.5	14.1	16.7
Stockton,											
Wyoming and Pond Creek Coal Company.											
Pond Creek,											
Morgans & Arnold.					4.0	4.0	6.7	7.0	9.0	10.0	10.0
Dusky Diamond,	26.0	26.0	26.0	26.0	26.0	25.0	27.0	26.0	26.0	26.0	24.0
Rowe & Stauffer.	25.0	23.0	24.0	23.0	22.0	21.5	21.0	24.0	26.0	25.0	26.0
Rowe Colliery,											

Recapitulation.

A. Pardee & Co.,	11.4	11.2	6.5	6.1	7.1	9.7	14.5	12.8	18.0	19.4	16.3
The Cross Creek Coal Company,	81.0	61.0	56.0	59.0	67.0	85.7	92.0	112.0	117.0	110.0	90.0
Lehigh Coal and Navigation Company,	94.0	53.6	54.3	33.8	19.7	56.7	64.6	70.7	63.3	101.0	93.3
G. B. Markle & Co.,	25.0	38.3	26.6	33.4	34.9	25.3	40.8	38.9	46.9	43.9	41.9
Estate of A. S. Van Winkle,	33.6	26.8	20.0	17.4	15.4	20.9	40.9	38.6	47.3	50.9	48.3
Lehigh Valley Coal Company,	33.6	26.8	20.0	17.4	15.4	20.9	40.9	38.6	47.3	49.9	48.3
Calvin Peltz & Co.,	64.9	64.3	37.9	25.8	51.7	63.3	66.4	79.8	57.1	87.1	79.8
Upper Lehigh Coal Company,	12.6	10.9	9.3	11.9	8.2	10.2	11.8	10.8	13.1	16.2	12.6
C. M. Dodson & Co.,	16.3	12.3	9.3	8.7	7.7	15.8	15.1	10.7	12.9	18.4	17.6
M. S. Kemmerer & Co.,	10.5	11.0	14.1	14.6	11.1	12.7	12.4	11.9	14.2	20.1	18.7
J. S. Wentz & Co.,			7.5	6.5	7.5	10.0	13.0	10.0	16.5	19.0	18.0
Lehigh and Wilkesbarre Coal Company,											
Audenreid Coal Company,	6.6	6.0	16.9	15.3	14.6	10.2	14.4	4.6	17.4	14.1	16.7
Wyoming and Pond Creek Coal Company,											
Morgans & Arnold,	26.0	24.0	26.0	26.0	26.0	26.0	25.0	27.0	26.0	26.0	24.0
Rowe & Stauffer,	25.0	25.5	23.0	24.0	23.0	22.0	21.5	21.0	26.0	25.0	26.0

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Fifth Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 7.	Stephen Mehalick,	Miner,	34	M.	1	3	Beaver Meadow No. 4, ...	Carbon,.....	Instantly killed by a fall of coal, while in a cross-heading through pillar between breast Nos. 86 and 87 of No. 3 west gangway of the No. 4 slope workings; the investigation of this accident proved beyond doubt that the victim had no business in said cross-heading, after having a timber at the place where he was engaged trimming the loose pieces down after a blast or shot, consequently the victim was alone responsible.
10.	John Nufree,	Driver,	18	S.	.....	.....	Hazleton No. 1 Stripping.	Luzerne,.....	Instantly killed; he was employed driving a two mule team hauling two dump cars on the culm or dirt bank; the victim had allowed the cars too much headway, the cars became derailed and in his efforts to jump off the car he fell backward, striking his head against the car wheel, which caused his death.
11.	Henry Weaver,	Laborer,	55	M.	1	2	Milnesville,	Luzerne,.....	Fatally injured; while cleaning the track within one hundred and fifty feet of the top of the slope, he was knocked down by a loaded car, from which he received such injuries that he died of his death before he reached his home.
Feb. 16.	Hiram Schriner,	Laborer,	16	S.	.....	.....	Upper Lehigh Shaft,	Luzerne,.....	Instantly killed by a fall of clod at the face of the gangway, due to carelessness of the miner.
26.	James Boyle,	Loader,	58	M.	1	6	Summit Hill No. 5,.....	Carbon,.....	Fatally injured; he was preparing a shot to start the battery, when a stick of dynamite exploded, causing serious injury, which finally resulted in his death.
Apr. 5.	Stephen Leist,	Miner,	36	M.	1	5	Hazleton No. 1,	Luzerne,.....	Instantly killed by a fall of top slate which fell upon him breaking his neck.

6.	Hugh Smith,	Repairman,	50	M.	1	5	Hazleton No. 1,	Luzerne,	Fatally injured; being squeezed between a moving car on the slope and a center prop; he died from his injuries before reaching home.
May	Andrew Marosko,	Miner,	27	M.	1	.....	Highland No. 5,	Luzerne,	Instantly killed by a fall of slate, due to an unforeseen slip.
20.	Andrew Vozteck,	Miner,	45	M.	1	.....	Jeddo No. 4,	Luzerne,	Fatally injured by a falling piece of top coal while the boys were taking down top coal; he died the day after the accident.
June	James O'Brien,	Miner,	45	M.	1	.....	Spring Mountain No. 4,	Luzerne,	Instantly killed by a fall of top rock near face of breast, caused by a slip.
7.	Andrew Ferrari,	Hammerman,	29	S.	.....	.....	Spring Brook No. 1,	Carbon,	Fatally injured; crushed by a runaway car and rib of gangway; he was removed to the hospital where he succumbed to his injuries a few hours later.
16.	Charles Heeney,	Laborer,	24	S.	.....	.....	Jeddo No. 4,	Luzerne,	Fatally injured; while moving loose coal he fell on the point of a pick which passed through the nasal into the brain, causing death twenty minutes later.
Aug.	Cosema Kurch,	Jig runner,	17	S.	.....	.....	Lattimer Breaker,	Luzerne,	Fatally injured; was caught by a jig line shaft and whirled around until the machinery was stopped; he had no business there other than to gratify his curiosity; he died the day after the accident.
20.	John Fox,	Errand boy,	17	S.	.....	.....	Jeddo North Cross Creek Stripping,	Luzerne,	Fatally injured; while preparing to jump from a moving train he fell to the track between the engine and car; lived but a short time after the accident.
25.	Frederick Felsner,	Assistant breaker boss,	24	S.	.....	.....	Eckley Breaker,	Luzerne,	Fatally injured; caught by a shaft pulley while attempting to replace a belt on coal jig scraper line; he died shortly after being extricated.
Sept.	J. Symon Yorl,	Miner,	24	S.	.....	.....	Hazleton No. 1,	Luzerne,	Fatally injured by a fall of bone coal in the gangway; he was taken to the hospital where he died on the following day.
9.	Stephen Lovass,	Timberman,	29	S.	.....	.....	Gowan No. 1,	Luzerne,	Instantly killed by a fall of coal in the gangway while engaged changing the timbers in gangway.
28.	Patrick Mahan,	Miner,	45	M.	1	.....	Spring Mountain No. 4,	Luzerne,	Fatally injured by a fall of bone coal; he died two days after the accident.
Oct.	James Bowdin,	Hitcher,	23	M.	1	.....	Jeddo No. 4,	Luzerne,	Instantly killed by being crushed between a derailed mine car and a coal rib at the bottom of the slope.
19.	John Smith,	Laborer,	40	M.	1	.....	Jeddo Stripping,	Luzerne,	Instantly killed by a fall of crop coal and clay while engaged putting coal into a chute.
Nov.	Anthony Petoski,	Miner,	35	M.	1	.....	Harwood,	Luzerne,	Instantly killed by a fall of clod while barring after a shot.
8.	William Keck,	Driver,	16	S.	.....	.....	East Crystal Ridge,	Luzerne,	Instantly killed; crushed between the side of a mine car and rib of turnout, due to his neglect to set latches for the proper track.

TABLE IV.—Continued.

Date of accident.	Name of Person	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Nov. 8,	Evan L. Jenkins,	Mine foreman, ..	34	M.	1	6	No. 1 Tunnel Nesquehoning.	Carbon,	Smothered in loose coal; he was trying to go from the head of a chute to the face over a horse. As the horse rushed back into the chute he was struck by the coal where he was found buried in the coal several hours later.
14,	Andrew Mease,	Miner,	37	M.	1	3	Sandy Run,	Luzerne,	Killed by shock; caused by a rush of coal from the rib of a cross-heading in a breast pillar.
28,	John Dolan,	Oiler,	17	S.	.....	.....	Spring Mountain No. 1, ...	Luzerne,	Instantly killed; while oiling the machinery his clothes caught in the line shaft winding his clothes around the shaft and breaking his neck; no person witnessed the accident.
Dec. 7,	Michael Duffy,	Miner, .....	.....	.....	1	4	Spring Mountain No. 4, ...	Luzerne,	Instantly killed by a fall of coal, due to his own recklessness in mining too far under the same.
13,	Jacob Plittine,	Miner,	28	S.	.....	.....	Harwood No. 5,	Luzerne,	Instantly killed by a fall of rock in a breast, while barring after a shot; had he taken the warning given him by his comrades, this accident could have been averted.
14,	John Mealing,	Miner,	48	.....	1	5	Upper Lehigh No. 6 Slope.	Luzerne,	Instantly killed by a fall of coal; he had drilled a hole in the top bench and before firing the same he started again to bar out the bottom bench to better the working chance of the top hole, when a piece from top bench fell upon him with the above result.
15,	John Norton,	Slate picker,	34	S.	.....	.....	Milnesville,	Luzerne,	Smothered in a rice coal pocket in the breaker.
17,	Joseph Uretsa,	Jackman,	29	.....	1	3	Milnesville Stripping,	Luzerne,	Fatally injured; crushed between two cars on the stripping; he was removed to the hospital where he succumbed to his injuries.

22,	F. Redashefsky,	Laborer,	26	S.	1	8	Beaver Meadow Stripping, East Crystal Ridge Strip- ping.	Carbon,	Instantly killed by a fall of slate, due to an unforeseen slip and the sudden change in temperature.
30,	William Garlow,	Miner,	52	.....	1	8	Beaver Meadow Stripping, East Crystal Ridge Strip- ping.	Luzerne,	Instantly killed by a fall of coal; while drilling a hole in the seven foot bench a portion of the overhanging two foot bench fell upon him with the above result.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Fifth Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 4.	John Krommas,	Miner,	25	M.	Highland No. 5,	Luzerne,	Leg fractured by a fall of coal.
15.	Peter Cotsack,	Miner,	49	M.	Spring Mountain No. 12,	Carbon,	Jaw and arm fractured; struck by a piece of rock.
S.	Charles Coyle,						
12.	Lawrence Ratcliff,	Miner,	25	S.	Nesquehoning Shaft No. 1,	Carbon,	Burned by explosion of C. H. 4; due to their recklessness in taking a naked light into the gas.
12.	Frederick Heide,	Slate picker,	27	M.	Nesquehoning Shaft No. 1,	Carbon,	Foot injured; caught by drag line scraper.
13.	George Kiesel,	Driver,	18	S.	Stockton,	Luzerne,	Leg fractured by slipping under a mine car.
14.	William Beisel,	Road man,	18	S.	Lattimer No. 1,	Luzerne,	Leg fractured; struck by a lump of clay.
18.	Mathew Kukitil,	Miner,	33	M.	Harwood,	Luzerne,	Hips badly lacerated by a premature explosion of dynamite.
19.	Angelo Anselme,	Miner,	27	S.	Gowan Slope No. 1,	Luzerne,	Hip dislocated by a fall of coal.
20.	William Dorneman,	Miner,	25	S.	Cranberry,	Luzerne,	Leg fractured by a fall of slate.
24.	Michael Valliant,	Jackman,	32	M.	Lattimer Stripping,	Luzerne,	Back badly wrenched; struck by a lump of frozen clay.
Feb. 16.	John Brehm,	Patcher,	17	S.	Upper Lehigh No. 5,	Luzerne,	Leg fractured; struck by a cable on the slope.
16.	Henry Schermer,	Loco engineer,	22	S.	Cranberry,	Luzerne,	Jaw fractured; struck by a piece of rock on culm bank.
17.	William McBride,	Patcher,	16	S.	Coleraine,	Carbon,	Leg fractured; struck by a piece of coal coming down the slope.
23.	Harvey Williams,	Switch tender,	17	S.	Cranberry,	Luzerne,	Leg crushed by a locomotive in the mines, necessitating amputation.
26.	Irwin Hawk,	Patcher,	16	S.	Sandy Run,	Luzerne,	Arm and collar bone fractured; crushed by a mine car top.
26.	Dominic Pacenzo,	Laborer,	26	S.	Lattimer,	Luzerne,	Leg fractured by a boiler front falling upon him.
Mar. 2.	George Garnick,	Driver,	19	S.	Hazleton No. 1,	Luzerne,	Leg fractured; struck by a moving mine car.
15.	Henry Duffy,	Laborer,	17	S.	Sandy Run,	Luzerne,	Leg fractured by a column pipe falling upon it.
21.	John Greshing,	Miner,	28	S.	Harwood No. 5,	Luzerne,	Leg fractured by a fall of rock.
31.	John Faduskie,	Miner,	32	S.	Jeddo No. 4,	Luzerne,	Patris fractured by a fall of bone coal.

Apr. 5,	Hiram Rinebach,	Miner,	49	Gowan No. 4,	Luzerne,	Leg fractured by being doubled up under a mine car.
12,	George Berbeck,	Miner,	37	Highland No. 5,	Luzerne,	Head and spine injured by a fall of coal in the gangway.
13,	Lenge Figaroli,	Miner,	30	Jeddo No. 4,	Luzerne,	Skull fractured by a fall of bone coal.
18,	William Linderman,	Driver,	28	Gowan No. 3,	Luzerne,	Hand injured and finger cut off, crushed by a wheel.
18,	Thomas McBride,	Outside loader,	20	S. Evans,	Carbon,	Leg crushed between mine car and chute timber.
May 9,	Stanley Pochop,	Laborer,	60	Trescow,	Carbon,	Seriously injured; squeezed between mine car and brattice.
10,	Michael Hoeh,	Laborer,	23	Coleraine,	Carbon,	Skull fractured by the dumping of a mine buggy.
11,	Adolph Marth,	Miner,	20	Derringer,	Luzerne,	Leg fractured by a fall of coal.
11,	Andrew Chernego,	Patcher,	24	Jeddo No. 4,	Luzerne,	Leg fractured; crushed between mine car and door on gangway.
12,	Frank Maxinovich,	Laborer,	37	Harwood,	Luzerne,	Seriously injured by a fall of coal.
June 1,	Joseph Fisher,	Miner,	28	Crabtree,	Luzerne,	Painfully injured; while forcing a charge of dynamite and soda powder into a hole with a coal drill.
8,	Frederick Wertz,	Miner,	34	Hazleton No. 1,	Luzerne,	Right arm and hand struck by a piece of coal while fracturing a blast.
13,	Charles Change,	Miner,	24	Hazleton No. 1,	Luzerne,	Right arm and hand struck by a piece of coal while fracturing a blast.
13,	George Fisher,	Miner,	30	Lattimer Stripping,	Luzerne,	Shoulder bone fractured by falling under a locomotive.
15,	Simon Helvig,	Patcher,	30	Beaver Brook,	Luzerne,	Leg, collar bone and rib fractured by fall of rock.
18,	Robert E. Jackson,	Miner,	45	Coleraine,	Carbon,	Leg fractured by a fall of rock.
20,	James McElwain,	Miner,	35	Drifton No. 1,	Luzerne,	Leg fractured by a fall of clod.
28,	Walter Parsons,	Miner,	48	Trescow No. 16,	Carbon,	Both legs fractured by a stick of timber.
July 25,	James Watkins,	Driver,	18	Nesquehoning No. 1 Shaft,	Carbon,	Foot badly contused; run over by a rock truck.
26,	Michael Cotsack,	Hitcher,	32	Lattimer No. 5,	Luzerne,	Foot badly contused; run over by a rock truck.
27,	Daniel Harris,	Laborer,	39	Coleraine,	Carbon,	Leg fractured by a fall of clod.
30,	Adam Holdak,	Battery starter,	35	Milnesville,	Luzerne,	Head, face and eyes injured by returning too soon to a blast.
Aug. 10,	Michael Davarski,	Driver,	25	Lattimer No. 2 Stripping,	Luzerne,	Leg fractured by jumping off a mine car.
10,	Joseph Rutkoski,	Hitcher,	20	Lattimer, West, Stripping,	Luzerne,	Internally injured; struck by a car while painfully scalded while repairing a valve joint.
10,	J. H. O'Donnell,	Breaker engineer,	50	Drifton No. 2,	Luzerne,	Leg fractured by a fall of top bench.
10,	Joseph Radachoski,	Laborer,	32	Hazleton No. 3,	Luzerne,	Leg fractured; struck by a piece of rock rolling down the chute.
11,	Michael Olaya,	Loader,	40	Lattimer, West, Stripping,	Luzerne,	Arm fractured; caught by a screen conveyor shaft.
15,	Aaron Weaver,	Slate pletter,	13	Sandy Run,	Luzerne,	Shoulder blade fractured; crushed between a car and brattice.
27,	George Willet,	Driver,	22	Gowan,	Luzerne,	Seriously injured by a fall of coal.
Sept. 9,	Alonzo Dodson,	Miner,	42	Crabtree,	Luzerne,	Seriously injured; kicked by a mule.
12,	Michael Morinko,	Driver,	27	Milnesville,	Luzerne,	Leg fractured by falling under a moving mine car.
16,	John Welch,	Driver,	17	S. Evans,	Luzerne,	Arm fractured; squeezed between a car and timbered by a dynamite cartridge exploding in his hand.
28,	Francis Dwyer,	Block tender,	16	Drifton No. 2,	Luzerne,	
Oct. 14,	Michael Ilka,	Driller,	38	Beaver Meadow Stripping,	Carbon,	

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Oct. 21.	John Kennedy,	Jig tender,	17	S.	Lansford No. 9,	Carbon,	Ribs fractured; knocked down by a moving car near the breaker.
2.	Michael Procopovich,	Miner,	34	M.	Drifton No. 1,	Luzerne,	Leg fractured by a fall of bone coal.
21.	August Shilling,	Carpenter,	50	M.	Hazleton Shaft Breaker,	Luzerne,	Arm fractured; caught by a set screw while boxing the same.
Nov. 4.	George Evans,	Slate picker,	13	S.	Harwood Breaker,	Luzerne,	Concussion of the brain; caused by falling from a platform into a pocket.
4.	John Frophius,	Car coupler,	25	S.	Cranberry,	Luzerne,	Thumb cut off; struck by a piece of coal coming down the slope.
5.	Stephen Martin,	Laborer,	30	S.	Lattimer Stripping,	Luzerne,	Skull fractured by falling down a culm bank.
18.	Condy Boyle,	Miner,	35	M.	Harwood No. 2,	Luzerne,	Leg fractured by a fall of coal.
1.	Charles Bendzins,	Miner,	33	S.	Harwood No. 4,	Luzerne,	Leg fractured by a fall of coal.
8.	Michael Novjack,	Tip man,	26	S.	Beaver Brook,	Luzerne,	Leg fractured; being struck by a lever while lifting a car.
12.	Angella Fellin,	Miner,	35	M.	Drifton No. 2,	Luzerne,	Leg fractured by a fall of rock in the gangway.
13.	Benjamin Reess,	Miner,	46	S.	Jeddo No. 4,	Luzerne,	Leg fractured; caught by a rush of coal at the battery.
16.	Felix Fordonskie,	Laborer,	33	M.	Hazleton No. 1,	Luzerne,	Leg fractured by a fall of rock on the gangway.
17.	John Proherts,	Miner,	40	M.	Highland No. 5,	Luzerne,	Chest, back and leg injured; caused by battery giving way.
17.	John Meyers,	Laborer,	30	M.	Highland No. 5,	Luzerne,	Back injured; caused by battery giving way.
21.	John Grehey,	Laborer,	58	S.	Spring Mount'n Slope No. 4,	Luzerne,	Leg fractured by a fall of coal.
21.	Joseph Fluro,	Miner,	30	M.	Preskov No. 16,	Carbon,	Arm fractured by a fall of coal.
22.	John Dukarte,	Laborer,	39	M.	Harwood Boiler Room,	Luzerne,	Arm fractured; caught by the cog gearing of a drag line.

Sixth Anthracite District.

(SCHUYLKILL COUNTY.)

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I have the honor of herewith submitting to you my annual report of the Sixth anthracite coal district for the year 1898.

The report shows a decrease of nineteen fatal and one non fatal accident during the year, as compared with 1897. It also shows a decrease in the number of employes to be 897, and an increase in the production of coal of 37,225 tons, and a decrease in the railroad shipments of 18,179 tons of coal.

Yours very respectfully,

WILLIAM STEIN,
Mine Inspector.

Examination of Applicants for Mine Foreman's Certificates.

The annual examination for mine foreman's certificates was held in Pottsville, June, 1898. The examiners were William Stein, Mine Inspector; William H. Lewis, superintendent; James Powell and Michael McCarthy, miners.

The following are the names of the successful candidates who were granted certificate for mine foreman: Thomas Haley, Ellangowan; William Broderick, Yatesville; William Bradley, Park Place; William H. Pierce, Frackville; David R. James, Shenandoah; Edward J. Ratchford, Shenandoah, and William Hewitt, St. Nicholas, assistant mine foreman.

Total Number of Persons Employed Inside and Outside of Mines, and Nature of Their Employment.

Inside foremen,	54
Fire bosses,	140
Miners,	4,717
Miners' laborers,	2,389
Drivers and runners,	877
Doorboys and helpers,	257
All other employes,	2,837

Total inside,

11,271

Outside.

Outside foremen,	61
Blacksmiths and carpenters,	291
Engineers and firemen,	758
Slate pickers,	4,249
All other company men,	3,422
Superintendents, bookkeepers and clerks,	107
Total outside,	8,888
Total inside and outside,	20,159

Table Showing the Quantity of Coal Produced and Shipped During the Years 1897 and 1898.

	Years.	
	1897.	1898.
Quantity of coal produced in tons of 2,240 pounds,	6,475,930	6,513,155
Quantity of coal shipped in tons of 2,240 pounds,	5,625,688	5,607,509

Table Showing Number of Fatal Accidents and Quantity of Coal Produced per Life Lost.

	Number of fatal accidents.	per fatal accident.	Tons of coal produced
Philadelphia and Reading Coal and Iron Company,	25		141,733
Lehigh Valley Coal Company,	10		76,902
Lehigh and Wilkesbarre Coal Company,	3		152,362
Lentz & Co.,	5		52,016
Silver Brook Coal Company,	1		260,069
William Penn Coal Company,	2		121,021
Mill Creek Coal Company,	4		77,195
Cross Creek Coal Company,	1		258,892
Individual firms,	3		134,616

Years.	Killed.	Injured.	Total.	Total number of employes.	Number of employes for each casualty.	Number of tons of coal mined for each fatal casualty.	Number of tons of coal mined for each non-fatal casualty.	Ratio of tons of coal for each casualty.	Number of tons of coal mined for each employe.	Total number of tons of coal mined.
1894,	73	94	167	20,109	120	86,817	67,445	37,963	306	6,339,831
1895,	72	85	157	19,816	139	121,828	84,292	49,758	359	7,164,885
1896,	87	99	186	20,879	126	97,872	66,937	39,503	312	6,231,510
1897,	73	73	146	21,006	144	88,711	88,711	44,356	308	6,475,930
1898,	54	72	126	20,159	160	129,614	93,238	51,691	322	6,513,155
Total,	325	423	749	102,119	689	518,872	399,929	223,001	1,609	33,015,321
Averages,	65	84	149	20,423	138	108,774	79,986	44,600	321	6,603,064

The Following Table Taking the Death Rate per Thousand as a Basis of Comparison Between the Different Companies and Individual Operators, Shows the Ratio for the Year.

	Number of employees.	Number of deaths.	Death rate per thousand.
Philadelphia and Reading Coal and Iron Company,	11,652	25	2.14
Lehigh Valley Coal Company,	2,362	10	4.23
Lehigh and Wilkesbarre Coal Company,	1,500	3	2
Lentz & Co.,	748	5	6.6
Silver Brook Coal Company,	490	1	2
William Penn Coal Company,	869	2	2.2
Mill Creek Coal Company,	694	4	5.7
Cross Creek Coal Company,	615	1	1.6
Individual firms,	1,229	3	2.4

The following is the Number of Accidents Fatal and Non-Fatal and the Nationalities of those Killed and Injured.

	Fatal.	Non-Fatal.
Americans,	8	16
English,	1	3
Irish,	10	10
Welsh,	3	4
Scotch,	1	.....
Germans,	3	3
Polish,	25	27
Hungarian,	2	4
Italian,	1	5
Total,	54	72
Wives left widows,		23
Orphans,		80

Fatal Accidents and Their Causes.

From explosions of gas,	2
From explosions of powder and blasts,	5
Boiler explosions,	2
From falls of coal and rock,	25
From falling down shafts and slopes,	1
From mine cars and machinery,	10
From falling down chutes,	1
Squeezed between mule and car,	1
Kicked by mule,	1
Miscellaneous, ..	6
Total,	54
Killed inside,	47
Killed outside,	7
	54

Non-Fatal Accidents and Their Causes.

From explosions of gas,	16
From explosions of powder and blasts,	7
From falls of coal and rock,	22
From mine cars and machinery,	14
Miscellaneous,	13
Total,	72
Injured inside, non-fatal,	55
Injured outside, non-fatal,	17
	72

Summary Sixth Anthracite District, 1898.

Total production in tons of coal,	6,513,155
Tons of coal used for steam and heat,	815,350
Tons of coal sold to local trade and employes,	90,296
Tons of coal shipped by railroad,	5,607,509
Tons of coal produced from washeries which are included in total production,	147,818
Average number of days worked,	155
Number of persons employed,	20,159
Number of fatal accidents,	54
Number of non-fatal accidents,	72

Number of fatal accidents inside,	47
Number of non-fatal accidents inside,	55
Number of fatal accidents outside,	7
Number of non-fatal accidents outside,	17
Number of wives left widows,	23
Number of children left fatherless,	80
Number of kegs of powder used,	132,752
Number of pounds of dynamite used,	352,876
Number of horses and mules,	2,125
Number of steam boilers,	940
Number of pumps,	286
Capacity in gallons per minute,	235,420
Number of steam engines of all classes,	465
Total horse power,	28,862
Number of electric dynamos,	1
Voltage,	107
Number of air compressors,	21
Number of air locomotives,	2

Remarks on Fatal Accidents.

While this report shows 26 per cent. fewer fatal accidents for the year as compared with 1897, yet many of them should not have occurred. The grim reaper death is always an unwelcome visitor under any conditions, and especially so when one is killed while engaged at any description of service. For the purpose of showing how 32, or nearly 60 per cent. of the fatal accidents occurred, I have, during the year, carefully noted the causes, and I trust sufficiently intelligently to show to those acquainted with the details of anthracite coal mining, who are responsible for the 32 deaths, and number them as they are reported on Table No. 4.

No. 3. Edward C. Davis, a miner, working in Senandoah City colliery, fatally injured January 5 and died on the 12th.

Davis voluntarily assumed the duty of running a car out of a breast, in the absence of the regular car runner, who was running a car out of a neighboring breast, and in doing so, got on the wrong side of car to put the sprags in the wheels and was squeezed between the car and timber leg. The cause of his death was said by the attending physician to have been appendicitis.

No. 4. Patrick Larkin, a miner working in Packer No. 4 colliery, killed 11th of January. He had fired a shot in a breast and after waiting a short time returned to dress off. The shot, however, did not displace the coal, and he commenced to pick and bar out the shattered surroundings when a fall took place killing him. The proper and safe method would have been to drill another hole and blast the coal down.

No. 5. Stephen Jorick, an outside laborer, in stripping pit Honey Brook No. 5, killed January 12. This man with others was loading a car when a stone about 4 pounds in weight rolled down the bank, striking him on the head fracturing his skull. The pit boss, a countryman of his own (an Italian), was present at the time of the accident and told him to get out of the way, but Jorick seemed astonishingly stupid or did not realize the approaching danger, as he did not follow his companion to a place of safety.

No. 7. John Davis, a driver, working in Buck Mountain colliery, was fatally injured on January 12 and died January 26. Davis got on the upper side of gangway and was squeezed between the car and platform. Had he kept on the gutter side where there is plenty of room, he would not have been injured.

No. 9. Joseph Slofta, a miner working in Primrose colliery, killed January 28. This man had fired a shot and returned to face of breast to put coal on the sheet iron. His "butty" told me that he advised Slofta to bar the coal down which afterwards fell and killed him.

No. 11. William Walacavage, breaker platform man, working at West Shenandoah colliery, smothered to death January 31. This man went into the stove coal pocket to shovel the coal back, but did not notify the car loader who was loading railroad cars, and Walacavage was not missed until his body appeared at the lip of the chute.

No. 13. Wililam Gorman, an inside laborer, working in Mahanoy City colliery, killed January 31. This man was killed by a fall of coal on gangway through the neglect of the miners in not timbering the work as they advanced, and such was the verdict of the coroner's jury.

No. 14. Albert Crouse, a miner, working in North Mahanoy colliery, killed February 9. Crouse, with three others was retimbering a gangway which had been squeezing for some time and which necessitated the suspension of all other work in this slope, until the squeeze had been arrested. Crouse went to the surface for timber and after loading it, put the car on rope, pushed it over the knuckle, and jumped on the loaded car of timber, and when nearing the bottom of slope was killed by a car which ran down the slope. He left the switch open at the top of slope and the car which ran down was being pushed to the shop for repairs.

No. 18. Mike Moyer, a miner, working in Turkey Run colliery, killed March 21. Moyer put dynamite on a piece of coal to break it down but it failed. His partner advised him to blast it down with powder, but he rather preferred to use the pick, and while so engaged a fall of coal took place, killing him instantly.

No. 19. Michael Corrigan, driver in Ellangowan colliery, killed March 25. Corrigan was taking a trip of empty cars in and the switch boy misplaced the tongues, causing the cars to leave the straight track in tunnel and squeezing him between the cars and timber.

No. 23. Morris Fitzgerald, car runner at top of plane No. 1 bottom split Maple Hill colliery, killed May 11. The mule driver came out to the top of plane with a trip of loaded cars; he sat down and allowed Fitzgerald to handle the mules and at the same time sprag the cars, and in doing the work of both he fell under the cars and was instantly killed.

No. 24. John Williams, car loader, outside at Packer No. 4 colliery, fatally injured on June 2, and died June 3. He was lowering railroad cars from under the breaker, and jumping from car to car, missed his footing and fell to the ground, the cars running over him.

No. 27. George Zarmotsky, a miner, working in Oneida No. 1 slope, Oneida colliery, killed June 15. This man was killed in a heading, the vein pitching 62 degrees. I found the props on upper side of heading were not stood at the proper angle to withstand the thrust. I also found a slip running diagonally across the pitch, which caused the coal below this slip to press heavily against the props, displacing them, and the coal suddenly gravitating downward by weight completely covered the man and he was instantly killed.

No. 32. Anthony Smolskus, a laborer in William Penn colliery, killed June 22 by a fall of top rock in gangway. The miner did not put timber up when instructed by the fire boss, Philip Jones, to do so. I found on the day of my examination that the timber had been sent in the day previous to the accident, and the only reason given me by the miner was that he thought it would stand all right for another shift.

No. 36. Peter Yanskalis, a miner, working in Packer No. 4 colliery, killed on the 8th of July by a fall of top rock. His partner in the contract testified at the inquest that he told deceased to prop the place and he replied that it was all right, and not working on that side of the breast, he raised no objections to Yankales' decision. It was quite evident to me that the top should have been supported by propping.

No. 37. Frank Santes, a miner, working in Shenandoah City colliery, killed July 8 by a fall of top rock. Santes fired a shot under a ledge of rock and returned to dress off the loose coal. He evidently, from the testimony given at the inquest, did not examine the overhanging rock, but went under it to work when it fell on him.

No. 43. George Motsee, an outside car runner at Park No. 2 colliery, killed July 20. Was engaged running cars down a gravity road from slope to breaker and jumped on between the cars, and in doing so stumbled and fell, the cars running over him.

No. 45. William Gunther, a miner, working in Lawrence colliery, was fatally burned on the 22d of July by an explosion of gas and died from his injuries. He lighted a squib with a naked lamp and fired the gas. In this section of the colliery the men all work with safety lamps.

No. 49. Bartley J. Flannery, a miner, working in Packer No. 2 colliery, was killed on the 25th of July. Flannery was engaged drilling a hole when the top rock fell on him. I made an examination of the place where the accident occurred and found two very prominent dislocations or slips, and a smooth seam from which the pieces fell, showing conclusively that had the top been examined it would have given evidence of being ready to fall.

No. 52. William Smith, a miner, working in Primrose colliery, was killed August 2. Smith went to work in this colliery for a day in place of a man who was sick. Mr. O'Donnell, the foreman, was not aware Smith was in the colliery until being notified of his death. A shot had been fired in the breast, Smith and his "butty," Anthony Sockalusky, proceeded to put the loose coal down to the gangway. Sockalusky saw that timbering was necessary and advised Smith to stand two props. He refused, saying, "Me only work one day here; stand props to-morrow," and while putting coal on the sheet iron, a fall of rock occurred, killing Smith instantly.

No. 62. Patrick Barrett, a loader, working in the Schuylkill section of North Mahanoy colliery, killed September 12. Barrett was loading a car on the gangway from breast No. 22. The miners fired a shot in breast and a lump of coal was hurled down a distance of 85 feet, killing Barrett. Joseph Moushisky testified that no warning had been given to the neighboring workmen that a shot was to be fired.

No. 74. William Zoughka, a miner working in Park No. 3 slope, Park No. 2 colliery, was killed September 29. The breast where this man was working was nearing the outcrop of the vein. Coal very slippery and easily mined. A shot had been fired which displaced a great deal of coal, and also exposed three water cracks from three to four inches in width, which were filled with sand and fine gravel. Zoughka and his partner were loading a car when a fall of coal occurred, killing him instantly. If the men had put up two props which were lying within twenty feet of the face of their work this accident would not have occurred.

No. 82. Francis Kull, a laborer, working in Buck Mountain colliery, was killed October 6. This young man was laboring for Patrick Cole in the West Skidmore gangway, Third lift, which carries a false top. Cole was told to take this false top or "clod" down, but, according to his own statement, he thought he could load another car. Cole was also seriously injured.

No. 86. Edward Smith, bottom man, working in the Schuylkill section of the North Mahanoy colliery, was fatally injured on the 11th of October and died on the 19th. Smith attempted to uncouple cars at the bottom of the slope while they were in motion, and was squeezed between the cars. His skull was fractured.

No. 89. Steve Samulskie, a miner, working in Ellangowan colliery, was killed October 18. This man was working in breast No. 34 east Lottom split gangway, Fifth lift. Mike Serlock was driving a heading from breast No. 33 to connect with breast No. 34, and fired a shot in the heading which blew through, killing Samulskie. The evidence given at the inquest proved that Serlock gave no warning that he was about to fire.

No. 95. Matt Astrinsky, a miner, working in Knickerbocker colliery, was killed the 8th of November. This man lighted a shot and went to a place of safety. The blast did not explode as soon he thought it should have, and thinking that it had missed fire, he went back to face of breast and when near the face, the shot exploded, killing him instantly.

No. 96. Charles Johnish, a miner, but working as laborer in a gangway in No. 3 slope, Park No. 2 colliery, was killed November 9. This man was killed by a fall of coal at face of east gangway, west subterraneous slope. A turnout was being constructed in the gangway timbered with a thirteen-foot collar. A large opening, such as a turnout which is made in coal, requires to be timbered as soon as the required distance is excavated, and especially so where the coal is found to be disintegrated with slips. Also, in openings made for turnouts the top coal is more liable to settle down on the timbers, and often breaks down close up to the face. So that extra precaution should be taken not to allow any loose overhanging coal between face and last timber. This accident occurred under such conditions.

No. 99. William Collighan, a slate picker boy, working in Packer No. 4 breaker, was killed on the 14th of November. This boy, having no coal in his chute, rose from his seat to take a lunch, and while eating he went over to a belt pulley and amused himself by putting crusts of bread between the pulley and the belt. In doing so his hand was caught, throwing him on the revolving shaft. William Crane, his companion, cautioned Collighan against doing this.

No. 100. Benjamin Potes, a laborer working in St. Nicholas colliery, was fatally injured on the 17th of November and died on the 24th. This man was making a charge of powder with his lamp on his cap when a spark from the lamp fell into the powder cartridge, fearfully burning him.

No. 102. William Yonkus, a miner, working in Primrose colliery, killed on the 28th of November. Yonkus lighted two shots; one exploded, but the other did not, and thinking it had missed fire, he went back to relight it. He had just reached the face of breast when the second blast exploded, killing him instantly. The fault was in lighting two shots at the same time.

No. 106. Joseph Sanduske, a gangway laborer working in Suffolk

colliery, was killed on the 3d of December. This man was killed by a fall of slate from high side of gangway. The miners, Victor and Ignus Capinski, did not secure the side of the gangway with props. The fire boss visited this gangway about 11 o'clock in the forenoon and told the miner to timber, which he promised to do, but instead of doing so, he kept working in the face.

No. 123. Jacob Ketzer, a laborer, working in Tunnel Ridge colliery, was killed on the 27th of December. Ketzer was employed in assisting to timber the tender slope. Tanner, the man in charge, sent Ketzer to the surface to put the boat on the rope. A platform was built across the slope on which to stand while putting up a set of timber. Ketzer rode down the slope on the boat to about eight feet from the platform when the signal was given the engineer to stop lowering which was obeyed. Ketzer was told to get out and come down on the platform; instead of doing as he was told he jumped from the boat on to the platform, broke through and rolled down a distance of over 230 feet on a pitch of 60 degrees.

Mill Creek Coal Company.

Compressed Air Haulage at Buck Mountain Colliery.

New Boston, Pa., March 25, 1898.

Early in 1897 it was decided, that owing to the long hauls, to adopt compressed air locomotives at Buck Mountain colliery. The extremely long gangways made transportation very expensive, and we could not get the coal out fast enough to supply the slope. Then, too, the accidents to mules were becoming very numerous.

The material was all received in about five weeks after the order went in, and in five weeks more the long pipe was laid and one locomotive was in operation. Placing the pipe was rather slow work owing to the many bends necessary down the steamway and along the gangways. Since installing the plant it has given entire satisfaction, and everything has worked smoothly since and including the first trial. The locomotives can, if desired, do about double the work they are now doing.

The plant consists of a "Norwalk" three stage compressor, 20x24 inch steam cylinder, 14½ inch intake, double acting air cylinder compounded with two smaller cylinders. It has a capacity of 375 cubic feet of free air per minute, the air being compressed to 700 pounds.

The pipe line, diameter 4 inches, passes down the steamway to the third level, thence to the slope, and from there down the slope to the fourth level gangways. There it branches east and west, and

up two breasts to the third level. On the fourth level there is a charging station at the bottom of the slope, and at one end of the inside turnout of each side. On the third level, east, the line is continued 2,200 feet to the inside turnout where there is a charging station. There is also a charging station at the slope bottom and one on the inside turnout, west. The pipe was made by the American Tube and Iron Company, and tested to 1,500 pounds pressure. The joints are made with extra heavy sleeves, counterbored to allow for caulking. There is a number of flanged joints on the line, placed at intervals where the bends would not permit the pipe to be screwed into the sleeves.

These flanges are extra heavy and made male and female, a lead gasket being used. Total length of pipe line is 9,600 feet, which has a capacity of about 800 cubic feet.

The locomotives were made by H. K. Porter & Co. The gauge of track is 42 inches; cylinders, 7 inch diameter by 14-inch stroke; wheel base, 5 feet 3 inches; height, 5 feet 2 inches; Length over bumpers, 19 feet; weight, about 8 tons. The tanks are 17 and 15 feet long, and their capacity is 130 cubic feet. The pressure usually carried is from 500 to 550 pounds.

The rail used weighs 30 pounds, except in the third level, east gangway, where the road has been relaid with 50 pound rails. This size makes an excellent track and greatly reduces the wear and tear on the locomotives. The other roads are ordinary gangway roads, and in places wet and muddy, showing that while good roads are desirable it is not absolutely necessary to go to the expense of relaying every road in order to adopt mechanical haulage.

The locomotive on the third level has 5,100 feet to run, each way, on the east side, and makes this round trip in 30 to 40 minutes; after making the trip it crosses over the slope to make a trip of 2,500 feet, each way, on the west. It makes this round trip in 12 to 15 minutes. This locomotive hauls the cars to turnouts to the east and west from the slope, from which points, mules haul to the faces of the gangways and back to the turnouts. On the east side two charges are necessary; on the west side one for the round trip. The grade is from .5 to 4.5 per cent., averaging .75 per cent. in favor of the load. This locomotive delivers 150 cars per day of ten hours to the slope, equivalent to the work of 15 mules.

The locomotive on the fourth level has 3,000 feet to run each way, on the east and on the west side. It does the entire work, no mules whatever being used. On the east side the locomotive hauls the empty cars to a turnout, runs into the face of the gangway light; bumping up the cars loaded by the miner; pulls them out to the turnout, and then pushes the empties into the breasts; comes back to the turnout and takes the loaded cars to the bottom; and makes

the round trip in 35 minutes. After bringing a trip out of the east side it crosses over the slope to make a trip to the west side and does the same thing there, making the round trip in 30 minutes. It takes two charges to each round trip. The grade is from .5 to 3.1 per cent, averaging 1 per cent. in favor of the load. This locomotive delivers 130 loaded cars to the slope, per day of ten hours, and does the work of 12 mules. The locomotive has ample capacity to bring out to the bottom 300 cars per day, and would, were it not for the delay in waiting for the cars to be loaded, and shifting the cars around the turnouts. If we had mules in the faces of the gangways to collect the cars, it would bring out that number easily.

Our mine cars weigh 3,400 pounds empty and about 10,120 pounds loaded (assuming three gross tons of stuff in each car), and are hauled in trips of 12 which can be increased to 20 if required.

The mule exceeds its first cost in feed, harness, attendance, etc., every year, leaving out the likelihood of an epidemic which occasionally prevails. Of course, there is a likelihood of a "smash up" with the locomotives, too, which will cost a considerable amount of money; but the annoyance from delays, caused through balky mules, is overcome by the locomotive, and this, in itself, is a saving of a considerable amount of money, in course of time. It will be noticed in the table that the saving between the two powers is equal to 52.3 per cent. in favor of the locomotives, and the saving in the investment per year is 27.7 per cent.

F. C. JONES,
Superintendent.

"Mules Displaced."

Third level,	15 at \$110	\$1,650 00
Fourth level,	12 at 110	1,320 00
Total,	27	\$2,970 00

Operating Expenses, Mule Power.

	Per Year of 180 Working Days.	
	Per day.	Per year.
Third Level.		
Depreciation and interest on 15 mules, at 16 per cent. life time estimated at 10 years is equal to 10 per cent. of first cost,	\$1 47	\$264 00
Feed, harness, attendance, etc., 15 mules at 30 cents day,	9 12	1,642 50
Three drivers at \$1.70 day,	5 10	918 00
Three patchers at \$1.33 day,	3 99	718 20
Total,	\$19 68	\$3,542 70
Fourth Level.		
Depreciation and interest on 12 mules at 16 per cent.,	\$1 17	\$211 20
Feed, harness, attendance, etc., 12 mules at 30 cents day,	7 30	1,314 00
Four drivers at \$1.70 day,	6 80	1,224 00
Four patchers at \$1.33 day,	5 32	957 60
Total,	\$20 59	\$3,706 80
Total both levels,	\$40 27	\$7,249 50

Operating Expenses, Compressed Air Locomotives.

	Per Year of 180 Working Days.	
	Per day.	Per year.
Interest on plant, 6 per cent.,	\$4 56	\$820 41
Depreciation, repairs and renewals, 5 per cent.,	3 78	681 87
Steam for compressor, about 100 H. P., at 1.8, including coal, labor, interest and depreciation on boiler plant, etc.,	1 80	324 00
Compressor engineer (machine is in hoisting engine house, no extra pay to engineer),		
Compressor, oil,	16	28 80
Locomotives, oil,	25	45 00
Two locomotives engineers, at \$1.66 day,	3 32	597 60
Four locomotives patchers, at \$1.33 day,	5 32	957 60
Total both levels,	\$19 19	\$3,455 28
One-half to each level,	\$9 59	\$1,727 64

Total cost of plant, \$13,673.43.

Tons of Stuff Hauled per Day.

	Cars.	Tons.
Third level,	150	450
Fourth level,	130	390
Total,	280	840

Comparative Cost Between Mules and Air Locomotives.

Levels.	Mules.		Locomotives.		Saving.			
	Day (dollars).	Ton (cents).	Day (dollars).	Ton (cents).	Day (dollars).	Year (dollars).	Ton (cents).	Per cent.
Third,	19 68	4.37	9 59	2.13	10 09	1,815 06	2.22	51.2
Fourth,	20 59	5.27	9 59	2.46	11 00	1,979 16	2.82	53.4
Total,	40 27	4.79	19 18	2.28	21 09	3,794 22	2.51	52.3

Saving per year on total investment, 27.7 per cent.

Daily Tons, per Mile.

	Levels.		Total.
	Third.	Fourth.	
Empty cars in and out,	290.2	224.2	514.4
Load out (net),	286.9	221.6	508.5
Total (gross),	577.1	445.8	1,022.9

Cost per Ton, per Mile.

Levels.	Mules.		Locomotives.		Saving.	
	Gross (cents).	Net (cents).	Gross (cents).	Net (cents).	Gross (cents).	Net (cents).
Third,	3.41	6.85	1.66	3.34	1.748	3.51
Fourth,	4.619	9.291	2.151	4.327	2.468	4.964
Total,	3.937	7.92	1.875	3.771	2.062	4.148

MILL CREEK COAL COMPANY.
Cost of Compressed Air Plant, Buck Mountain Colliery.

Locomotives,	Two air locomotives,		\$5,500 00	.....
	Extra fittings,		5 00	.....
Air line,	Six charging stations,	\$360 00		\$5,505 00
	9,647 feet 4 inch pipe,	2,894 10		
	Flanges, valves, etc.,	381 69		
Labor on line,	Machinery squad,	\$456 70	\$3,635 79	
	Inside: Laying pipe, widening gangways, roads, timber, etc.,...	541 58	998 28	
Compressor,	One compressor,	\$2,880 00		4,634 07
	Gauges for same,	56 00		
	Wooden tank,	72 00		
	Fittings and supplies,	62 04		
	Labor erecting,	56 04		
Compressor house,	Labor and material,		\$3,126 08	
Steam line to compressor, ..	492 feet 5 inch street pipe,	\$124 42	255 80	
	Labor and fittings,	28 11		
			152 53	
Total cost,				3,534 41
				\$13,673 48

Recapitulation.

Machinery and material,	\$12,379 89
Labor,	1,293 59
Total,	\$13,673 48

TABLE I.—Showing Location, etc., of Collieries in the Sixth Anthracite District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent	Postoffice Address.	Name of Railroad to Mine.
16	Bear Ridge,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
17	Boston Run,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
20	Drager,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
14	Ellangowan,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
35	Grand Mammoth,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
19	Gilberton,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
36	Hammond,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
23	Indian Ridge,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
15	Knickerbocker,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
27	Kobhnor,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
8	Mahanoy City,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
13	Maple Hill,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
7	North Mahanoy,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
11	St. Nicholas,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
12	Suffolk,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
54	Shenandoah City,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
15	Turkey Run,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
57	Wear Ridge,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
26	Wear Shading loath,	P. & R. Coal and Iron Co.,	Schuylkill,	John Veitte,	Pottsville,	P. & R.
23	Wheeler No. 2,	Lehigh Valley Coal Company,	Schuylkill,	William A. Lathrop,	Wilkesbarre,	L. V.
32	Packer No. 5,	Lehigh Valley Coal Company,	Schuylkill,	William A. Lathrop,	Wilkesbarre,	L. V.
31	Packer No. 4,	Lehigh Valley Coal Company,	Schuylkill,	William A. Lathrop,	Wilkesbarre,	L. V.
54	Packer No. 5,	Lehigh Valley Coal Company,	Schuylkill,	William A. Lathrop,	Wilkesbarre,	L. V.
5	Primrose,	Lehigh Valley Coal Company,	Schuylkill,	Gomer E. Jones,	Audens Reid,	C. R. R. of N. J.
1	Honey Brook No. 4,	Lehigh and Wilkesbarre Coal Co.,	Schuylkill,	Gomer E. Jones,	Audens Reid,	C. R. R. of N. J.
2	Honey Brook No. 5,	Lehigh and Wilkesbarre Coal Co.,	Schuylkill,	Gomer E. Jones,	Audens Reid,	C. R. R. of N. J.
3	Park No. 2,	Lentz & Co.,	Schuylkill,	Edward Reese,	Park Place,	L. V.
37	Silver Brook,	Silver Brook Coal Company,	Schuylkill,	James Long,	Silver Brook,	L. V.
39	Onelda,	Cross Creek Coal Company,	Schuylkill,	Luther C. Smith,	Drifton,	D. S. & S.
33	William Penn,	Stockey and Conyngham,	Schuylkill,	William H. Lewis,	Sharf P. O.,	Pennsylvania.
29	Keilways Run,	Thomas Coal Company,	Schuylkill,	Thomas Baird,	Shenandoah,	P. & R.
51	Lawrence,	Lawrence Coal Company,	Schuylkill,	William J. Miller,	Frackville,	P. & R.
24	Lawrence,	Lawrence Coal Company,	Schuylkill,	John C. Gehrmis,	Frackville,	P. & R.
18	Cambridge,	Cambridge Coal Company,	Schuylkill,	Mathon Gasper,	New Boston,	P. & R.
1	Burnace,	Mill Creek Coal Company,	Schuylkill,	T. D. Jones,	New Boston,	Pennsylvania.
18	Cambridge,	Cambridge Coal Company,	Schuylkill,	T. D. Jones,	New Boston,	Pennsylvania.
1	Burnace,	Mill Creek Coal Company,	Schuylkill,	T. D. Jones,	New Boston,	Pennsylvania.
38	Vulcan,	Mill Creek Coal Company,	Schuylkill,	T. D. Jones,	New Boston,	Pennsylvania.

TABLE I.—Continued.

Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
Carson Washery,	Carson Coal Company,	Schuylkill,	H. E. Kissinger,	Audenreid,	C. R. R. of N. J.
Star Washery,	Audenreid Coal Company,	Schuylkill,	John G. Scott,	Audenreid,	C. R. R. of N. J.
Stoddart Washery,	Stoddart Coal Company,	Schuylkill,	J. J. Hollenbeck,	Pottsville,	C. R. R.
Girardville Washery,	B. N. Bertolet & Co.,	Schuylkill,	B. N. Bertolet,	Girardville,	P. & E.
Brookwood Washery,	Brookwood Coal Company,	Schuylkill,	Henry Meyers,	1438 S. Penn Sq., Phila.,	P. & E.

Numbers showing location of mines on district map.

TABLE II.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, etc., in the Sixth Anthracite District for the year ending December 31, 1898.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employees.	Railroad shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs of powder used.
Bear Ridge,	Schuylkill,	171,990	29,902	2,586	193,502	141	480	.....	2	556
Beaman Run,	Schuylkill,	116,362	12,896	.....	184,258	140	327	.....	.....	1,200
Draper,	Schuylkill,	125,414	28,154	341	285,507	130	459	.....	3	2,371
Elliangowan,	Schuylkill,	234,146	28,153	.....	284,100	138	1,038	.....	3	9,168
Girard Mammoth,	Schuylkill,	79,007	18,383	626	284,100	131	771	.....	5	2,712
Gilberton,	Schuylkill,	179,991	36,893	1,542	141,556	169	1,469	.....	.....	4,832
Hammond,	Schuylkill,	156,715	24,726	4,583	137,419	137	1,469	.....	.....	2,832
Indian Run,	Schuylkill,	153,045	12,562	7,089	133,384	133	563	.....	1	4,252
Knickerbocker,	Schuylkill,	296,906	21,900	7,065	298,291	137	736	.....	2	4,855
Kobinor,	Schuylkill,	115,658	19,864	.....	95,794	129	483	.....	1	2,704
Mahany City,	Schuylkill,	139,023	26,891	22,942	90,090	138	501	.....	3	3,637
Maple Hill,	Schuylkill,	17,434	17,434	.....	358,829	140	1,110	.....	4	10,896
North Mahanoy,	Schuylkill,	299,831	34,866	1,670	194,765	137	896	.....	5	5,652
St. Nicholas,	Schuylkill,	189,169	30,662	.....	128,313	137	529	.....	4	3,274
Sudook,	Schuylkill,	240,896	19,989	185	219,314	138	723	.....	.....	6,894
Swanton,	Schuylkill,	195,831	34,180	47,196	144,445	136	627	.....	3	4,519
Tunnel Run,	Schuylkill,	127,420	7,890	.....	119,830	129	455	.....	1	2,697
Tunnel Ridge,	Schuylkill,	250,756	34,315	.....	255,748	136	906	.....	6	5,042
West Shenandoah,	Schuylkill,	159,758	11,051	15	109,682	131	432	.....	2	3,492
Mahany Jig House,	Schuylkill,	160,555	19,792	.....	139,877	118	100	.....	.....	1,005
Packet No. 1,	Schuylkill,	195,559	26,872	1,682	187,681	142	371	.....	1	2,015
Packet No. 2,	Schuylkill,	169,888	29,272	1,246	140,614	168	405	.....	3	6,151
Packet No. 3,	Schuylkill,	99,258	15,033	42	78,488	168	405	.....	2	1,852
Packet No. 4,	Schuylkill,	143,607	10,382	4,837	130,378	166	580	.....	6	3,024
Prinrose,	Schuylkill,	290,684	22,058	2,907	297,401	148	748	.....	5	5,885
Park No. 2,	Schuylkill,	290,069	19,244	625	239,096	148	480	.....	1	3,033
Silver Brook No. 2,	Schuylkill,	149,681	17,934	1,729	131,747	244	358	.....	3	4,103
Buck Mountain,	Schuylkill,	159,099	12,626	.....	146,473	146	336	.....	3	4,573
Tuacan,	Schuylkill,	233,551	44,737	2,414	186,400	169	722	.....	1	6,086
Honey Brook No. 4,	Schuylkill,	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE II.—Continued.

Names of Colleries.	County.	Total productions in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad shipments in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs of powder used.
Honey Brook No. 5.	Schuylkill.	233,536	43,946	4	189,589	179	778	2	7	4,744
Oneida.	Schuylkill.	258,892	35,430	2,351	221,111	174	615	1	1	5,220
William Penn.	Schuylkill.	242,043	37,022	1,602	203,419	199	869	2	6	5,816
Kehleys Run.	Schuylkill.	71,983	2,650	387	68,946	170	261	.....	.....	1,565
Lawrence.	Schuylkill.	113,591	18,000	1,888	94,063	212	430	1	2	841
Cambridge.	Schuylkill.	27,101	369	1,313	25,519	163	89	.....	.....	900
Furnace.	Schuylkill.	43,356	2,064	222	41,070	182	132	3	1	1,060
Stoddart Washery.	Schuylkill.	36,51	1,366	.....	34,825	146	18	.....	.....	.....
Brook Washery.	Schuylkill.	46,437	1,570	.....	44,325	146	18	.....	.....	.....
Star Washery.	Schuylkill.	41,337	1,575	.....	42,762	137	123	.....	.....	.....
Gardville Washery.	Schuylkill.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carson Washery.	Schuylkill.	19,829	24	.....	19,805	137	100	.....	.....	.....
Total.	.....	6,513,155	\$15,350	90,296	5,607,509	46,467	20,159	54	72	132,752

*Water hoisted in tanks.

†Average for the district, 150 days.

TABLE II.—Continued.

Names of Collieries.	County.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse power.	Number electric dynamos.	Voltage.	Number air compressors.	Number air locomotives.
Bear Ridge,	Schuylkill,	9,678	72	47	14	10,040	8	565	.....	.....	.....	.....
Brecon Hill,	Schuylkill,	18,183	47	13	8	71,509	6	320	.....	.....	.....	.....
Dresser,*	Schuylkill,	20,659	52	10	.....	2,400	8	1,320	.....	.....	.....	.....
Ellangowan,	Schuylkill,	8,967	101	13	.....	5,980	11	825	.....	.....	.....	.....
Girard Mammoth,	Schuylkill,	2,081	48	25	10	8,000	5	190	.....	.....	.....	.....
Gilberton,*	Schuylkill,	49,542	51	15	.....	2,400	8	1,543	.....	.....	.....	.....
Hammond,	Schuylkill,	9,139	68	39	6	5,845	5	340	.....	.....	.....	.....
Indian Ridge,	Schuylkill,	2,159	54	9	.....	2,640	11	665	.....	.....	.....	.....
Knickerbocker,	Schuylkill,	20,414	56	32	3	3,680	7	725	.....	.....	.....	.....
Koblenz,*	Schuylkill,	2,361	48	23	10	5,250	12	683	.....	.....	.....	.....
Mahoney City,	Schuylkill,	4,369	58	33	11	5,090	11	480	.....	.....	.....	.....
Maple Hill,*	Schuylkill,	8,237	91	31	.....	2,000	9	170	.....	.....	.....	.....
North Mahanoy,	Schuylkill,	5,767	88	16	9	13,080	13	1,200	.....	.....	.....	.....
St. Nicholas,	Schuylkill,	10,769	64	28	.....	4,250	6	340	.....	.....	.....	.....
Suffolk,	Schuylkill,	9,522	64	27	3	3,440	3	292	.....	.....	.....	.....
Shenandoah City,	Schuylkill,	16,033	57	20	.....	4,800	4	320	.....	.....	.....	.....
Turkey Run,	Schuylkill,	1,919	57	15	.....	1,800	6	578	.....	.....	.....	.....
West Shuylkill,	Schuylkill,	14,902	104	12	14	1,080	10	1,450	.....	.....	.....	.....
West Shenandoah,	Schuylkill,	1,033	43	16	5	6,950	5	530	.....	.....	.....	.....
Mahanoy Jig House,	Schuylkill,	.....	.....	17	.....	.....	.....	.....	.....	.....	.....	.....
Packer No. 1,	Schuylkill,	18,912	39	13	11	3,131	29	960	.....	.....	.....	.....
Packer No. 2,	Schuylkill,	3,225	46	27	11	3,118	31	1,080	.....	.....	.....	.....
Packer No. 3,	Schuylkill,	3,920	41	27	7	2,028	20	1,080	.....	.....	.....	.....
Packer No. 4,	Schuylkill,	3,100	56	32	7	3,605	23	1,280	.....	.....	.....	.....
Packer No. 5,	Schuylkill,	4,023	70	9	13	5,260	34	1,314	.....	.....	.....	.....
Primrose,	Schuylkill,	1,274	103	43	14	1,200	35	2,760	.....	.....	.....	.....
Park No. 2,	Schuylkill,	1,268	29	5	13	11,560	8	1,552	.....	.....	.....	.....
Silver Brook No. 2,	Schuylkill,	2,220	36	22	.....	4,500	5	370	.....	.....	.....	.....
Buck Mountain,	Schuylkill,	2,412	36	22	.....	2,500	2	150	.....	.....	.....	.....
Vulcan,	Schuylkill,	24,722	63	22	3	2,500	10	810	.....	.....	.....	.....
Honey Brook No. 4,	Schuylkill,	3,122	63	22	.....	2,500	10	810	.....	.....	.....	.....
Honey Brook No. 5,	Schuylkill,	3,122	63	22	.....	2,500	10	810	.....	.....	.....	.....
Onetta,	Schuylkill,	3,953	86	39	21	11,847	25	2,288	.....	.....	.....	.....
									1	107		

TABLE II.—Continued.

Names of Collieries.	County.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse power.	Number electric dynamos.	Voltage.	Number air compressors.	Number air locomotives.
William Penn.	Schuykill,	10,500	84	58	24	11,650	27	1,473	.....	.....	.....	.....
Kehleys Run,	Schuykill,	11,900	29	24	4	2,647	6	275	.....	.....	.....	.....
Lawrence,	Schuykill,	25,000	40	34	8	1,777	7	620	.....	.....	.....	.....
Cambridge,	Schuykill,	2,800	8	3	1	180	3	105	.....	.....	.....	.....
Furnace,	Schuykill,	1,600	11	11	3	.....	3	303	.....	.....	.....	.....
Stoddart Washery,	Schuykill, .....	.....	12	5	.....	1,200	10	132	.....	.....	.....	.....
Brookwood Washery,	Schuykill, .....	.....	5	5	.....	1,200	4	96	.....	.....	.....	.....
Star Washery,	Schuykill, .....	.....	1	4	.....	1,601	11	152	.....	.....	.....	.....
Glar Washery,	Schuykill, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carson Washery,	Schuykill, .....	.....	2	3	3	130	8	125	.....	.....	.....	.....
Total, .....	.....	352,876	2,125	940	286	235,420	465	23,862	1	107	21	2

There are no electric locomotives in use.

TABLE III.—Showing the number of employes at each colliery in the Sixth Anthracite District, during the year 1898.

Names of Collieries.	Occupations of Persons Employed Inside.							Occupations of Persons Employed Outside.							Grand total inside and outside.
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, book-keepers and clerks.	All other employes.		Total outside.
Bear Ridge,	1	3	49	37	22	7	108	230	1	8	32	111	96	250	480
Boston Run,	1	1	39	14	19	1	79	155	1	1	19	79	66	172	327
Draper,	1	6	86	35	27	3	121	282	2	4	19	92	58	177	459
Ellangowan,	2	10	289	248	49	9	100	698	2	9	21	196	408	340	1,068
Girard Mammoth,	1	1	69	15	16	2	41	145	1	1	15	59	45	126	271
Gilberton,	1	1	122	37	21	2	110	300	8	8	28	126	100	276	596
Hammond,	1	5	100	90	34	10	103	338	13	9	25	103	71	262	562
Indian Ridge,	3	4	157	86	93	7	98	374	3	9	26	196	107	563	766
Knickerbocker,	1	6	183	69	93	5	48	314	3	7	21	191	47	169	483
Kohinoor,	2	9	188	62	11	95	299	999	12	6	20	118	53	292	501
Mahanoy City,	2	41	371	130	66	17	141	738	19	12	55	209	126	372	1,110
Maple Hill,	2	4	219	147	41	19	133	566	2	8	22	171	125	330	506
North Mahanoy,	2	4	74	96	22	4	136	337	6	6	13	93	78	192	529
South Mahanoy,	1	6	235	111	22	13	122	510	2	7	24	79	98	213	723
Suffolk,	2	5	123	82	39	14	106	371	1	1	22	138	84	256	627
Shenandoah City,	1	3	126	56	19	8	69	282	2	5	10	93	61	173	455
Turkey Run,	2	7	209	103	54	22	154	552	3	10	24	216	98	354	906
Tunnel Ridge,	1	4	129	31	20	6	65	256	2	3	16	97	72	196	482
West Shenandoah,	1	3	54	86	10	4	33	191	1	1	3	57	34	100	100
Mahanoy Jig House,	1	4	139	96	16	5	82	343	1	9	14	53	61	140	331
Packer No. 1,	1	4	81	15	17	3	58	239	1	8	14	73	96	164	307
Packer No. 2,	1	4	120	82	20	4	108	311	1	10	17	131	106	269	580
Packer No. 3,	1	6	136	107	44	13	174	475	1	11	17	75	75	174	509
Packer No. 4,	2	1	129	36	44	5	77	271	1	15	19	199	34	373	748
Primrose,	1	1	129	36	21	3	27	212	1	9	22	72	35	146	358
Part No. 2,	1	1	147	32	10	2	10	204	1	7	12	72	32	132	336
Black Mountain,	1	1	33	25	10	2	14	87	1	8	14	165	4	210	403
Yukon,	1	1	33	25	10	2	14	87	1	7	12	72	32	132	336
Silver Brook No. 2,	2	1	147	32	10	2	10	204	1	8	14	165	4	210	403
Yukon,	1	1	33	25	10	2	14	87	1	7	12	72	32	132	336
Honey Brook No. 4,	3	3	136	77	38	8	66	329	1	10	37	132	211	393	722

TABLE III.—Continued.

Names of Collieries.	Occupations of Persons Employed Inside.							Occupations of Persons Employed Outside.								
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, book-keepers and clerks.	All other employes.	Total outside.	Grand total inside and outside.
Honey Brook No. 5,	1	4	118	56	18	7	41	245	1	12	52	112	3	353	533	778
Onelda,	4	1	194	19	31	18	69	335	2	.....	21	119	1	137	280	615
William Penn,	1	4	243	69	22	10	181	530	2	.....	33	151	5	130	339	869
Keheys Run,	2	1	63	29	10	4	30	139	1	6	12	39	2	42	122	261
Lawrence,	1	4	84	65	14	8	55	231	1	10	30	106	1	50	199	430
Lambidge,	1	1	26	14	3	.....	8	52	1	2	4	18	1	11	37	89
Quincy,	1	1	18	19	5	.....	20	64	1	2	4	18	1	24	68	132
Brookwood Washery, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Star Washery, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Girardville Washery,* .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carson Washery, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	54	140	4,717	2,389	877	257	2,837	11,271	61	291	758	4,249	107	3,421	8,888	20,159

*Made no returns.

TABLE III.—Continued.

Numbers of Days Worked Each Month in Breaker.

Names of Collieries.	Numbers of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Bear Ridge,	9.75	10.50	9.75	9.00	6.75	9.75	10.50	12.00	15.75	14.60	18.50	18.00
Boston Run,	9.75	10.15	9.75	6.00	6.75	9.50	10.50	11.75	15.75	15.05	18.10	17.80
Draper,	9.75	10.05	9.75	6.00	6.20	9.10	10.50	11.85	15.50	15.00	18.50	17.50
Ellangowan,	9.30	9.75	8.75	5.65	6.75	9.75	10.50	11.20	14.30	14.20	18.00	17.75
Girard Mammoth,	9.50	10.50	9.60	6.00	6.45	9.75	9.75	11.75	15.30	13.10	14.80	17.00
Gilberton,	9.00	10.50	9.75	5.10	6.00	9.75	10.50	12.00	15.40	14.50	18.35	17.10
Hammond,	9.60	9.55	9.75	5.85	6.75	9.75	10.50	12.00	15.60	14.35	16.10	17.20
Indian Ridge,	9.05	10.30	9.75	5.75	6.75	8.50	10.30	11.65	14.00	12.60	18.10	16.10
Knickerbocker,	9.40	10.30	9.10	4.80	6.35	9.75	10.30	12.00	15.60	13.15	18.30	16.10
Kohlhoor,	9.45	10.45	9.75	5.50	6.75	9.75	9.60	11.75	15.10	13.90	18.00	16.35
Matanoy City,	9.50	10.40	9.75	5.50	6.75	9.75	10.50	11.75	15.10	14.75	18.40	17.75
Maple Hill,	9.50	10.40	9.75	5.50	6.75	9.75	10.50	11.55	14.95	13.90	17.85	17.40
North Mahanoy,	9.75	10.50	9.75	5.65	6.75	9.75	10.50	11.55	14.90	13.80	18.05	17.10
St. Nicholas,	9.75	10.50	9.75	5.55	6.25	9.75	10.50	11.15	15.40	13.80	18.05	17.10
Suffolk,	9.65	10.05	9.75	5.65	6.75	9.75	10.50	11.20	15.20	14.00	18.05	16.90
Shenandoah City,	9.75	10.45	9.75	6.00	6.75	9.40	10.50	11.40	15.15	12.45	15.70	18.20
Turkey Run,	9.60	10.45	9.75	5.75	6.75	9.75	10.50	11.60	15.00	12.50	18.00	17.55
Tunnel Ridge,	9.20	9.65	9.75	5.75	6.75	9.75	10.50	11.75	14.20	12.65	15.85	15.50
West Shenandoah,	12.50	13.30	11.05	7.25	8.00	12.90	19.00	16.15	19.60	18.90	23.35	16.40
Mahanoy Jig House,	11.40	14.50	9.30	6.50	8.00	9.00	17.30	14.70	17.30	23.80	22.50	18.00
Packer No. 2,	12.80	14.80	8.00	6.00	7.60	12.00	18.60	14.90	19.50	24.00	22.00	18.70
Packer No. 3,	12.00	13.50	7.10	6.90	6.90	11.00	18.50	14.10	19.40	22.30	26.10	15.00
Packer No. 4, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Packer No. 5, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Primrose,	8.80	13.20	7.50	6.00	8.90	11.00	17.50	14.80	18.50	23.00	22.20	19.10
Park No. 2,	9.80	10.90	7.60	6.00	8.90	9.40	14.60	11.50	18.50	20.00	20.00	16.50
Buck Mountain,	8.60	8.90	4.30	4.30	4.30	8.90	11.10	17.10	19.70	18.60	18.00	17.50
Yucca, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver Brook No. 2,	19.30	21.80	19.40	13.80	13.50	11.80	18.20	20.70	16.90	21.60	23.10	18.90
Honey Brook No. 4,	20.00	12.10	9.20	9.50	10.60	11.00	13.90	12.90	14.70	20.60	18.20	16.60

Names of Collieries.

TABLE III. --Continued.

Number of Days Worked Each Month in Breaker.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Honey Brook No. 5,	19.40	12.50	13.80	11.00	11.20	13.00	15.40	13.70	14.20	19.80	18.30	17.20
Florida,	13.00	9.00	10.00	7.00	11.00	15.00	13.00	19.00	19.00	22.00	20.00	16.00
Wabash, Penn.,	17.60	19.00	15.80	11.00	11.10	9.30	15.60	16.75	18.10	21.45	21.75	21.50
Kablow Run,	10.50	10.25	10.25	9.00	15.00	16.25	13.00	14.00	18.25	19.25	16.00	18.50
Lawrence,	15.20	16.40	15.00	11.20	11.80	16.20	15.90	19.40	21.80	21.70	23.70	23.20
Cambridge,	14.00	15.50	12.30	9.30	9.50	12.90	14.80	13.00	14.20	14.70	16.40	17.00
Furnace,	15.00	18.00	16.20	9.60	8.50	10.50	11.10	13.00	19.00	19.50	21.70	20.25
Stoddart Washery,	11.60	14.30	12.30	7.60	8.50	7.50	†	†	†	†	13.80	19.50
Brookwood Washery,	11.00	8.00	13.00	10.00	11.00	11.00	9.00	12.00	11.00	14.00	16.00	17.00
Star Washery,	12.20	12.80	14.20	6.90	5.40	9.20	11.50	4.20	14.60	16.90	18.80	10.80
Girardville Washery,*	11.50	11.70	8.90	7.90	.....	.....	12.20	12.60	17.00	14.80	18.20	16.80
Carson Washery, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*Made no returns.

†Breaker burned.

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Sixth Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 5,	Edward C. Davis,	Miner,	40	M.	1	2	Shenandoah City,	Schuylkill,	Squeezed between car and timber leg, and died on the 19th; Doctor stated he died from apoplexy produced from injury; Davis was putting in springs to lower car down, but got on wrong side of car, but it was not his duty to do this work; a runner for that purpose was running another car down at the time of the accident.
11,	Patrick Larkin,	Miner,	42	M.	1	8	Packer No. 4,	Schuylkill,	Coal fell on him after firing a shot; lived 20 minutes after the injury.
12,	Stephen Jonck,	Outside laborer, ..	60	M.	1	.....	Honey Brook No. 5 Stripping,	Schuylkill,	Skull fractured, causing instant death, by a piece of rock about 4 pounds rolling down bank of stripping pit.
12,	John Davis,	Driver,	19	S.	.....	.....	Buck Mountain,	Schuylkill,	Squeezed between cars and platform; got on wrong side of gangway; died on the 10th.
28,	Joseph Shofta,	Miner,	31	M.	1	1	Primrose,	Schuylkill,	Killed by a fall of coal; did not make Walaacavage examination after firing.
31,	Wm. Walaacavage,	Platform breaker man.	20	S.	.....	.....	West Shenandoah,	Schuylkill,	Walaacavage was put in stove coal pocket to shovel coal back, when the car loader started to load a railroad car; putting him down among the coal where he was smothered.
31,	William Gorman,	Laborer,	27	S.	.....	.....	Mahanoy City,	Schuylkill,	Killed by a fall of coal; coronor's inquest held on the 2d February; the jury's verdict was that Wm. Gorman came to his death through the neglect of the miners not timbering the work as they advanced.
Feb. 5	Albert Krouse,	Miner,	38	M.	1	2	North Mahanoy,	Schuylkill,	Killed while riding down No. 3 slope on a loaded car of timber which is strictly forbidden by the officials, as well as being contrary to law.
Mar. 7,	Joseph Fluk,	Miner,	40	M.	1	8	William Penn,	Schuylkill,	Killed by a fall of coal.
21,	Mike Meyer,	Miner,	29	S.	.....	.....	Turkey Run,	Schuylkill,	Killed by a fall of coal.

TABLE IV.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Mar. 25.	Michael Corrigan,	Driver,	24	S.	.....	.....	Eilangowan,	Schuylkill,	Killed by being caught between end of car and timber; a switch was misplaced by the man attending to this work, causing the cars to jump the track.
28.	William L. Thomas,	Miner,	45	M.	1	4	North Mahanoy,	Schuylkill,	While putting up a prop a piece of coal fell from face of breast, killing him instantly.
May 11.	Morris Fitzgerald,	Car runner,	27	M.	1	2	Maple Hill,	Schuylkill,	Fell under cars and was instantly killed; the regular driver allowed him to drive the mules.
June 2.	John Williams,	Car loader,	24	S.	.....	.....	Packer No. 4,	Schuylkill,	Leg crushed; railroad car ran over him; died on the 3d; while lowering cars from under breaker he was jumping from car to car.
14.	Christopher Algeir,	Driver,	26	S.	.....	.....	Honey Brook No. 5,	Schuylkill,	Smothered; he went up chute to start battery when the loose sand, rock and water which had accumulated from the heavy rain the previous day rushed down and smothered him before he could be rescued.
15.	George Zarmotsky,	Miner,	23	S.	.....	.....	Oneida (No. 1 Slope).....	Schuylkill,	Killed by a fall of coal in heading.
16.	Joseph Alushes,	Miner,	37	M.	1	1	Knickerbocker,	Schuylkill,	Killed by a fall of rock at face of breast.
22.	Thomas Meaher,	Fireman (boiler),	27	S.	.....	.....	Park No. 2,	Schuylkill,	Fatally injured by a boiler explosion, and died on the 23d; the boiler plates appeared to be in condition and were examined a few weeks before the accident occurred; the boilers were insured; we had expert testimony at the inquest; the boilers were testified to be in good condition.
22.	John Morrell,	Fireman,	37	M.	1	7	Park No. 2,	Schuylkill,	Fatally scalded by the same boiler explosion; died on the 25th.
22.	Anthony Smolekus,	Laborer,	25	S.	.....	.....	William Penn,	Schuylkill,	Killed by a fall of top rock in gangway; the miner did not put up timber as the work progressed.
July 8.	Peter Yanskalis,	Miner,	39	M.	1	1	Packer No. 4,	Schuylkill,	He was preparing to stand a prop when a piece of top slate fell, killing him instantly.

8.	Frank Santes,	Miner,	27	S.	.....	Shenandoah City,	Schuykill,	Fatally injured by a piece of false top; died same day.
14.	George Pilling,	Miner (contra'op),	51	M.	1	4 Packer No. 4,	Schuykill,	Killed by a fall of coal.
20.	George Moxsee,	Car runner,	37	S.	.....	Park No. 2,	Schuykill,	Run over by a mine car, outside on gravity road; he jumped between the cars; killed instantly.
22.	William Guinther,	Miner,	45	M.	1	6 Lawrence,	Schuykill,	Fatally burned by an explosion of gas and died from his injuries; lighted a squib with a naked lamp; safety lamps are to be used absolutely.
25.	Carl Weggan,	Driver,	22	S.	.....	Maple Hill,	Schuykill,	Fatally injured by falling in front of loaded cars; died in Miners' Hospital on the 28th.
25.	Bartley J. Flannery, ..	Miner,	72	M.	1	5 Packer No. 2,	Schuykill,	Fatally injured by a fall of top slate; died on the 26th.
Aug.	William Smith,	Miner,	27	S.	.....	Primrose,	Schuykill,	Killed by a fall of rock.
18.	John Morgan,	Slate picker,	15	S.	.....	Buck Mountain,	Schuykill,	Killed by having been caught in sprocket wheel of jir.
Sept.	George Cutlass,	Miner,	30	S.	.....	Maple Hill,	Schuykill,	Fatally injured by a fall of coal; died same day.
12.	Patrick Barrett,	Loader,	50	S.	.....	North Mahanoy,	Schuykill,	Fatally injured by coal flying from shot; died on his way to hospital.
24.	August Crogle,	Stable man,	53	M.	1	7 Ellangowan,	Schuykill,	Fatally injured and died from his injuries same day; he was struck by a piece of timber while assisting to take it off the log.
26.	Joseph Trogallis,	Driver,	19	S.	.....	Packer No. 4,	Schuykill,	Killed instantly; fell under cars.
28.	Samuel Gradwell,	Miner,	30	M.	1	3 West Shenandoah,	Schuykill,	Fatally injured by a fall of coal; died 30th November.
29.	William Zoughka,	Miner,	45	M.	1	Park No. 2,	Schuykill,	Killed by a fall of coal.
6.	Francis Kull,	Laborer,	24	S.	.....	Buck Mountain,	Schuykill,	Killed by a fall of top slate.
11.	Edward Smith,	Bottom man,	22	M.	1	1 North Mahanoy,	Schuykill,	Fatally injured and died on the 19th; skull fractured by being bumped between cars.
Sept.	Mike Kuldick,	Laborer,	25	S.	.....	North Mahanoy,	Schuykill,	Fatally injured and died on the 14th October; collar fell on him while assisting to put it up.
18.	Steve Samulskie,	Miner,	25	S.	.....	Ellangowan,	Schuykill,	Killed instantly by coal flying from shot.
20.	Patrick Shupe,	Miner,	38	M.	1	2 Silver Brook No. 2,	Schuykill,	Killed by a fall of coal.
Nov.	Adam Kshup,	Miner,	38	M.	1	Furnace,	Schuykill,	Killed by a fall of coal and rock.
8.	Walter Lubovylskite, ..	Laborer,	32	M.	1	6 Furnace,	Schuykill,	Killed by a fall of coal and rock.
8.	Matt Astrunsky,	Miner,	30	S.	.....	Knappoogher,	Schuykill,	Instantly killed by a blast.
9.	Charles Johnish,	Miner,	30	M.	1	Park No. 2,	Schuykill,	Killed by a fall of coal at face of gang-way.
14.	William Collighan,	Slate picker,	14	.....	.....	Packer No. 4,	Schuykill,	Killed by having been caught on line shaft in breaker.
17.	Benjamin Potes,	Laborer,	30	S.	.....	St. Nicholas,	Schuykill,	Fatally burned by powder; died 24th.
28.	William Yonkus,	Miner,	31	M.	1	1 Primrose,	Schuykill,	Killed going back to a shot.
Dec.	Joseph Sanduski,	Laborer,	24	S.	.....	Suffolk,	Schuykill,	Killed by a fall of slate.
June	John McCutcheon,	Miner,	60	M.	1	4 Indian Ridge,	Schuykill,	Fatally injured riding to work in a car; died November 29.
Nov.	Joseph Allsavage,	Door boy,	17	S.	.....	Mahanoy City,	Schuykill,	Fatally injured; kicked by a mule; died December 19.
Dec.	And. Pitcavitch,	Miner,	48	M.	1	4 Vulcan,	Schuykill,	Fatally burned by an explosion of gas; died December 27.

TABLE IV.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Collery.	County.	Nature and Cause of Accident in Brief.
Dec. 19,	Frank McAndrew,	Driver,	20	S.	.....	.....	Shenandoah City,	Schuylkill,	Fatally injured between mule and car; fell on the 29th.
27,	John Purtyko, .....	.....	19	S.	.....	.....	Honey Brook No. 4,	Schuylkill,	Fell from breast platform and a piece of coal rolled down on him and fractured his skull; killing him instantly.
27,	Jacob Ketzler, .....	.....	28	S.	.....	.....	Tunnel Ridge,	Schuylkill,	Assisting at timbering slope and jumped on platform from car, a distance of 9 feet, and broke the plank, rolled down the new extension of slope a distance of 320 feet, and was instantly killed.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Sixth Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 4,	George Williams,	Pump engineer,	21	S.	Frimrose,	Schuylkill,	He was listening to the action of pump at top of column pipe when a piece of ice fell from the slush trough, driving the lamp picker which he had in his cap into his head.
5,	John Asuafsky,	Outside laborer,	28	M.	Maple Hill,	Schuylkill,	His buttty threw a bar to him which he failed to catch which punctured his raiment.
18,	John Botosh,	Miner,	32	M.	William Penn,	Schuylkill,	Leg fractured by a fall of coal.
20,	Frank Roselena,	Outside laborer,	36	M.	Honey Brook No. 5 Strip-ping.	Schuylkill,	Small bone in leg and shoulder fractured; a lump of clay rolled down stripping bank and in getting away he stumbled and fell, the clay rolling over him.
27,	John Bremen,	Breaker tipman,	27	S.	William Penn,	Schuylkill,	Leg fractured; squeezed between cars.
28,	John Gavera,	Laborer,	26	S.	Buck Mountain,	Schuylkill,	Leg fractured by a fall of top clod.
28,	Charles Andercavage,	Laborer,	28	S.	Gilberton,	Schuylkill,	Hip fractured; collar fell on him.
29,	Harry Fisher,	Laborer,	32	M.	Mahanoy City,	Schuylkill,	Ankle broken; while timbering a piece of slate rolled on his leg.
Mar. 16,	Peter Dillman,	Miner,	40	M.	Cambridge,	Schuylkill,	Back severely injured by a fall of top rock.
18,	Anthony Galenas,	Miner,	38	M.	Gilberton,	Schuylkill,	Thigh bone broken by a fall of coal and rock.
30,	Tim Carlin,	Slate picker,	18	S.	William Penn,	Schuylkill,	Leg fractured; stumbled over slate box.
27,	John Dempsey,	Chute starter,	50	M.	Knickerbocker,	Schuylkill,	Hind leg broken by an explosion of dynamite while on legs.
May 4,	Michael Boyle,	Driver,	19	S.	Honey Brook No. 5 Strip-ping.	Schuylkill,	Very serious laceration of leg; car jumped the track, jamming his foot between rail and bumper of car.
June 2,	William Sands,	Miner,	40	M.	William Penn,	Schuylkill,	Eye lost and otherwise seriously injured; he lighted two shots, one exploded and thinking the other had missed fire he went back, when the second shot exploded with the above result.
20,	Stephen Kovanetz,	Oiler,	22	S.	Oneida,	Schuylkill,	Leg fractured (compound); caught by breaker belt.

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
June 22.	Michael Foley,	Miner,	32	S.	Tunnel Ridge,	Schuylkill,	Hip dislocated and seriously broken by a fall of coal.
July 6.	James Mallia,	Slate pleker,	19	S.	Packer No. 5,	Schuylkill,	Leg broken, caught between belt and wheel; each leg was well lanced off.
1.	William Lynch,	Miner,	34	M.	Gilberton,	Schuylkill,	Burned about the body and legs by powder; according to the statement of Lynch he found some fuse lying in a heading which he thought was of no use; after preparing two cartridges he ignited a piece of the fuse and a spark fell into the powder.
5.	Frank Palarlo,	Laborer,	27	S.	Honey Brook No. 1 Stripping,	Schuylkill,	Leg fractured by a fall of rock from side of stripping.
12.	Mich. Boneberger,	Scrapper boy,	21	S.	Maple Hill,	Schuylkill,	Head bruised and hand broken; caught in scraper line.
18.	Anth. Sprafouskle,	Laborer,	27	S.	Gilberton,	Schuylkill,	Burned by an explosion of gas; the miner, Harry Reese, lighted a shot with a match, which caused the explosion.
18.	Harry Reese,	Miner,	51	M.	Gilberton,	Schuylkill,	Explosion of gas; the miner was slightly injured by a shot which he lighted, shot with a match, and was discharged instead of having been prosecuted.
21.	Harry Martin,	Miner,	40	M.	Mahanoy City,	Schuylkill,	Slightly burned by an explosion of gas; he went to face of breast with a naked lamp.
22.	Adam Cossacks,	Laborer,	23	M.	Lawrence,	Schuylkill,	Slightly burned at the same time as Wm. Gunther, who died.
22.	Thomas Edwards,	Miner,	22	M.	Tunnel Ridge,	Schuylkill,	Leg broken by a fall of coal.
Aug. 2.	William Becker,	Jig runner,	17	S.	Mahanoy City,	Schuylkill,	Leg seriously injured by bolt of scraper line; before doing the repairs; he should have stopped the machinery; these were his instructions.
2.	Charles Belding,	Miner,	40	M.	North Mahanoy,	Schuylkill,	Leg broken; coal rolled on him from face of breast.
22.	Michael Peel,	Miner,	45	M.	North Mahanoy,	Schuylkill,	Face and hands burned by an explosion of gas.
22.	Chas. Rublinsky,	Miner,	28	S.	North Mahanoy,	Schuylkill,	Face and hands burned by an explosion of gas.

27.	William Frantz,	Miner,	45	M.	William Penn,	Schuykill,	Back severely injured by a fall of coal.
31.	Thomas Matthews,	Driver,	19	S.	Indian Ridge,	Schuykill,	Arm cut off from under ears,
1.	Martin Zalusky,	Miner,	47	M.	Packer No. 2,	Schuykill,	Arm cut off from under ears, fall of coal.
5.	John Griner,	Outside teamster,	24	M.	Primrose,	Schuykill,	Abdomen badly torn; fell off his wagon.
7.	Alfred McKearnen,	Door boy,	15	S.	Honey Brook No. 4,	Schuykill,	Body badly bruised from jumping between cars.
19.	Martin Savaktis,	Miner,	29	S.	Packer No. 3,	Schuykill,	Severely burned by powder; spark fell from his lamp.
21.	Anthony Flaherty,	Miner,	40	S.	Packer No. 2,	Schuykill,	Slightly burned by an explosion of gas.
21.	Pat. Crane,	Miner,	48	M.	Packer No. 2,	Schuykill,	Slightly burned by an explosion of gas.
22.	Hugh Gaughan,	Outside laborer,	27	S.	Packer No. 5,	Schuykill,	Slight fracture of pelvis bone; kicked by a mule.
23.	Fred. Komoh,	Driver,	19	S.	William Penn,	Schuykill,	Compound fracture of arm; fell and car ran over him.
26.	Frank Humes,	Miner,	22	S.	Tunnel Ridge,	Schuykill,	Slightly burned by an explosion of gas.
26.	Thomas Phillips,	Miner,	41	M.	Tunnel Ridge,	Schuykill,	Slightly burned by an explosion of gas.
28.	Joseph Pekonks,	Miner,	30	S.	Packer No. 2,	Schuykill,	Shoulder severely bruised; fall of coal.
1.	William McGovern,	Carpenter,	38	M.	Packer No. 5,	Schuykill,	Leg fractured; fell from trestle.
1.	Andrew Sadufskie,	Miner,	31	S.	Park No. 2,	Schuykill,	Leg and hand severely cut by a fall of coal.
3.	William Shumski,	Laborer,	28	S.	Honey Brook No. 5,	Schuykill,	Leg fractured by a fall of coal.
4.	Joseph Bushевич,	Miner,	43	M.	Draper,	Schuykill,	Slightly burned by an explosion of gas; used a naked light.
4.	James Zimmerman,	Miner,	36	M.	Draper,	Schuykill,	Severely cut on head, and back and ribs broken by a fall of coal.
5.	Charles Moore,	Miner,	35	M.	Park No. 2,	Schuykill,	Severely cut on head, and back and ribs broken by a fall of coal.
6.	Patrick Cole,	Miner,	45	S.	Buck Mountain,	Schuykill,	Severely squeezed about breast and back by a fall of coal.
6.	William Zelaskie,	Miner,	35	M.	Packer No. 5,	Schuykill,	Seriously injured by coal flying from a shot.
7.	Alex. Moliski,	Miner,	35	M.	Honey Brook No. 5,	Schuykill,	Back partially dislocated by a rush of coal.
7.	Mart. Eane,	Repairman,	26	M.	Maple Hill,	Schuykill,	Back severely bruised and torn; bumped between cars.
14.	Michael Alotto,	Miner,	40	S.	Mahanoy City,	Schuykill,	Back severely bruised by a fall of coal.
18.	Joseph Lookes,	Miner,	45	S.	Ellangowan,	Schuykill,	Leg fractured by a fall of coal.
18.	John Saylor,	Laborer,	42	M.	Shenandoah City,	Schuykill,	Leg fractured; rock bank dumper fell on him.
8.	Dom. Ruthcofskie,	Laborer,	50	M.	Shenandoah City,	Schuykill,	Face and hands burned by an explosion of gas.
9.	Jas. Ruthcofskie,	Miner,	42	M.	Shenandoah City,	Schuykill,	Side and arm torn; fell against scraper line.
26.	Harry McDonald,	Car loader,	24	S.	Packer No. 3,	Schuykill,	Leg fractured by a fall of clod.
30.	Andrew Boran,	Miner,	44	M.	Buck Mountain,	Schuykill,	Loss of eye sight; went back to a shot.
29.	John Platoon,	Miner,	30	M.	Furnace,	Schuykill,	Leg fractured; car fell on him.
29.	Peter Kelly,	Plane man,	28	S.	Bear Ridge,	Schuykill,	Body severely bruised by a fall of coal.
6.	Michael Drumblak,	Laborer,	25	M.	Indian Ridge,	Schuykill,	Body severely bruised by a fall of top rock.
8.	Thomas Birkett,	Laborer,	25	M.	Packer No. 4,	Schuykill,	Back severely bruised by a fall of top rock.
8.	Henry Szonziusky,	Laborer,	25	M.	Packer No. 4,	Schuykill,	Back severely bruised by a fall of top rock.
17.	George Downess,	Laborer,	21	S.	Ellangowan,	Schuykill,	Frozen ashes fell on him, breaking his leg.
19.	Anthony Salvadora,	Laborer,	40	M.	Tunnel Ridge,	Schuykill,	Hands and face burned by an explosion of gas.

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Dec 19,	William Edwards,	Fire boss,	55	M.	Tunnel Ridge,	Schuylkill,	Hands and face burned by explosion of gas. Edwards was removing gas from a chute with a small hand fan, bringing the gas down on his naked lamp, burning himself and Salvadoro.
19,	John Steck,	Car loader,	26	S.	Bear Ridge,	Schuylkill,	Arm and collar bone broken; caught between a railroad car and post of coal chute under breaker.
20,	Stiney Downess,	Chute boss,	24	M.	Ellangowan,	Schuylkill,	Arm fractured by a piece of slate falling on him from breaker elevator buckets.
20,	William Ralavige,	Miner,	24	S.	Packer No. 3,	Schuylkill,	Hands and face burned by powder.
20,	Charles Subritskie,	Laborer,	26	M.	Indian Ridge,	Schuylkill,	Back cut and severe gash on thigh by a fall of coal.
24,	Andrew Manzie,	Laborer,	20	S.	North Mahanoy,	Schuylkill,	Arm fractured; caught in fuel scraper line while cleaning dirt from under it.

SEVENTH ANTHRACITE DISTRICT.

(NORTHUMBERLAND, COLUMBIA, SCHUYLKILL AND DAUPHIN COUNTIES.)

Shamokin, Pa., February 28, 1899.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor to present herewith my report as Inspector of Coal Mines for the Seventh anthracite district for the year ending December 31, 1898.

It contains tables and statistics showing location of collieries, total number of tons mined and shipped, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc.

The total production of coal in tons for the year 1898 was 5,074,834 tons, against 5,108,948 tons in 1897, a decrease of 34,114 tons. The total shipment was 4,331,093 tons in 1898, against 4,377,761 tons in 1897, a decrease of 46,668 tons.

Forty-six fatal accidents occurred, being the same number as occurred in 1897; there were 112 non-fatal accidents, being a decrease of seven from the year 1897.

The general condition of the collieries in this district is good. The ventilation is ample; several new fans were erected during the year. The necessary improvements are going on from time to time.

Mine Foremen's Examinations.

The annual examination of applicants for mine foreman's certificates was held at Pottsville, Pa., on June 17 and 18, 1898.

The following constituted the board of examiners: Edward Brennan, Mine Inspector, Shamokin; Andrew Robertson, coal operator, Pottsville; Adam Bachman, miner, Ashland; Jacob Fleming, miner, Excelsior.

The following were recommended for mine foreman certificates: Evan John, W. J. Ramsey, Sagon; John Costello, Locust Dale; Benjamin Griffiths, Mount Carmel; Thomas Thomas, Locust Gap; Daniel D. Phillips, Wiconisco; Enoch Edmunds, W. H. Roughton, Harry Simmons, Shamokin; Patrick Kennedy, Ashland; Reuben J. Ball, Centralia; Hugh Breslin, Wilburton.

Respectfully submitted,

EDWARD BRENNAN,

Mine Inspector.

TABLE A—Comparative Statement of Fatal Casualties from Various Causes which Occurred During the Years 1896, 1897 and 1898.

	1896.	1897.	1898.
Falls and rushes of coal and slate,	31	25	19
Mine cars and machinery,	19	7	7
Explosion of blasting material,	3	1	1
Premature explosions,	3	3	4
Explosions of fire damp,	4	1	9
Kicked by mules,	1	1	.....
Falling down chutes, manways and breasts,	4	3	4
Boiler explosions,	6	.....	.....
Miscellaneous,	8	6	2
Total,	76	46	46

TABLE B—Showing Number of Tons of Coal Mined by Each Company, Number of Fatal Casualties and Number of Tons Mined for each Fatality.

	Tons mined.	Fatalities.	Tons mined per fatality.
Philadelphia and Reading Coal and Iron Company,	2,073,777	14	148,127
The Union Coal Company,	316,817	11	74,256
Mineral Railroad and Mining Company,	446,076	7	63,725
Summit Branch Coal Company,	347,131	4	86,783
Lykens Valley Coal Company,	330,329	2	165,165
Midvalley Coal Company,	263,709	3	67,903
Lehigh Valley Coal Company,	126,799	.....	126,799
Miscellaneous,	730,196	5	145,836
Total,	5,074,834	46	.....

TABLE C—Showing the Comparisons of Non-Fatal Casualties for the Years 1896, 1897 and 1898.

	1896.	1897.	1898.
Falls of coal and roof,	34	36	27
Explosion of fire damp,	19	11	18
Mine cars and machinery,	31	19	31
Explosions of blasting material,	3	7	1
Premature explosions of shots, .....	.....	9	11
Kicked by mules,	1	4	.....
Falling down chutes, manways and breasts,	2	7	4
By coal flying from shots, .....	.....	6	2
Miscellaneous,	16	20	15
Total,	106	119	112

TABLE D—Showing Comparison of the Quantity of Coal Shipped, the Estimated Quantity used and sold at the Collieries, and the Total Production for the years 1896, 1897 and 1898.

	1896.	1897.	1898.
Quantity of coal shipped,	4,975,827	4,377,761	4,331,093
Quantity of coal used and sold at collieries,	618,822	731,187	743,741
Total,	5,594,649	5,108,948	5,074,834

TABLE E—Showing General Comparisons Between the Years 1896, 1897 and 1898.

	1896.	1897.	1898.
Number of persons employed,	20,195	19,670	19,557
Number of tons of coal mined per life lost,	73,614	111,064	110,322
Ratio of employes per life lost,	266	428	425
Number of tons of coal mined per person injured,	52,780	42,932	45,311
Tons of coal mined per employe,	277	259	260

TABLE F—Showing the number of Persons Employed by the Several Companies and the Number of Fatalities.

	Number of employes.	Number of fatalities.
Philadelphia and Reading Coal and Iron Company,	7,384	14
The Union Coal Company,	3,474	11
Mineral Railroad and Mining Company,	2,090	7
Summit Branch Coal Company,	1,849	4
Lykens Valley Coal Company,	1,125	2
Midvalley Coal Company,	830	3
Lehigh Valley Coal Company,	846	.....
Miscellaneous,	2,759	5
Total,	19,557	46

TABLE I.—Showing Location, etc., of Collieries in the Seventh Anthracite District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
22	Burnside,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
23	Bear Valley,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	Penna.
24	Huck Ridge,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
25	Henry Clay,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
27	Big Mountain,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
30	Sterling,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
34	North Franklin,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
14	Alaska,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
11	Reliance,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
13	Locust Gap,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
12	Locust Spring,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
10	Monitor,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
9	Merriman,	Phila. & Reading Coal and Iron Co.,	Northumberland,	John Veith,	Pottsville,	P. & R.
3	Keystone Jig,	Phila. & Reading Coal and Iron Co.,	Columbia,	John Veith,	Pottsville,	P. & R.
2	Bast,	Phila. & Reading Coal and Iron Co.,	Columbia,	John Veith,	Pottsville,	P. & R.
3	North Ashland,	Phila. & Reading Coal and Iron Co.,	Schuylkill,	John Veith,	Pottsville,	P. & R.
1	Preston No. 2,	Phila. & Reading Coal and Iron Co.,	Columbia,	John Veith,	Pottsville,	P. & R.
16	Pennsylvania,	The Union Coal Company,	Schuylkill,	John Veith,	Pottsville,	P. & R.
38	Richards,	The Union Coal Company,	Northumberland,	John L. Williams,	Shamokin,	N. C.
21	Hickory Swamp,	The Union Coal Company,	Northumberland,	John L. Williams,	Shamokin,	N. C.
29	Hickory Ridge,	The Union Coal Company,	Northumberland,	John L. Williams,	Shamokin,	N. C.
25	Cameron,	Mineral Railroad and Mining Co.,	Northumberland,	Francis H. Kohlschaker,	Shamokin,	N. C.
22	Lake Fidler,	Mineral Railroad and Mining Co.,	Northumberland,	Francis H. Kohlschaker,	Shamokin,	N. C.
25	Colbert,	Shippas M. Riegler & Co.,	Northumberland,	Robert A. Quinn,	Shamokin,	N. C.
8	Mount Carmel,	J. Lengdon & Co., Incorporated,	Northumberland,	Thomas M. Riegler,	Mount Carmel,	Pa. R.
18	Excelsior,	Excelsior Coal Company,	Northumberland,	Harry S. Gay,	Shamokin,	Pa. R. R.
19	Corbin,	Excelsior Coal Company,	Northumberland,	Andrew Roberston,	Shamokin,	Pa. R. R.
17	Enterprise,	Enterprise Coal Company,	Northumberland,	Andrew Roberston,	Shamokin,	P. & R.
19	Girard,	Girard Coal Company,	Northumberland,	W. L. Connel,	Seranton,	P. & R.
15	Natale,	Pittsburg Trust Company, Receiver,	Northumberland,	Alex. E. Law,	Mount Carmel,	L. & Pa.
37	Natale,	Natale Anthracite Coal Company,	Northumberland,	W. A. Kittis, Jr.,	Natale,	P. & R.
35	Williamstown,	Summit Branch Coal Company,	Dauphin,	J. M. Williams,	Lykens,	Pa. R. R.
36	Short Mountain,	Lykens Valley Coal Company,	Dauphin,	T. M. Williams,	Lykens,	Pa. R. R.
6	Lozan,	Lehigh Valley Coal Company,	Columbia,	W. A. Lathrop,	Wilkesbarre,	L. V.
5	Centralia,	Lehigh Valley Coal Company,	Columbia,	W. A. Lathrop,	Wilkesbarre,	L. V.

4	Big Mine Run,	Lehigh Valley Coal Company,	Schuylkill,	W. A. Lathrop,	Wilkesbarre,	L. V.
	Locust Run,	Lehigh Valley Coal Company,	Columbia,	W. A. Lathrop,	Wilkesbarre,	
	Continental,*	Lehigh Valley Coal Company,	Columbia,	W. A. Lathrop,	Wilkesbarre,	
	Reno,	Lehigh Valley Coal Company,	Columbia,	W. A. Lathrop,	Wilkesbarre,	
	Montana,	Lehigh Valley Coal Company,	Columbia,	W. A. Lathrop,	Wilkesbarre,	
	Bellmore,	Lehigh Valley Coal Company,	Columbia,	W. A. Lathrop,	Wilkesbarre,	
	Warrior Ridge,*	Lehigh Valley Coal Company,	Columbia,	W. A. Lathrop,	Wilkesbarre,	
24	Rora Outage,	Lehigh Valley Coal Company,	Northumberland,	H. Mathewson,	Shamokin,	P. & R.
39	Columbus No. 2,	W. A. & White,	Northumberland,	F. E. White,	Mount Carmel,	L. V.
7	Midvalley No. 1,	Midvalley Coal Company,	Columbia,	F. E. Snyder,	Wilburton,	L. V.
	Midvalley No. 2,	Midvalley Coal Company,	Columbia,	T. E. Snyder,	Wilburton,	L. V.

*Abandoned.

TABLE II.—Gives the number of tons of coal mined in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Seventh Anthracite District for the year ending December 31, 1898.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad shipment in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs of powder used.
Burnside.....	Northumberland	305,134	17,322	7,567	180,295	136	698	1	2	3,899
East Valley.....	Northumberland	190,055	18,814	243	120,917	135	444	.....	.....	3,466
Huck Ridge.....	Northumberland	60,685	18,500	252	44,332	139	203	.....	.....	412
Henry Clay.....	Northumberland	.....	.....	.....	.....	.....	1,426	.....	.....	8,475
Big Mountain.....	Northumberland	332,248	37,015	24,747	270,485	139	.....	.....	.....	.....
Sterling.....	Northumberland	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Franklin.....	Northumberland	135,470	11,653	1,791	122,025	134	422	.....	.....	2,481
Alaska.....	Northumberland	180,700	12,755	131	176,314	134	660	.....	.....	6,629
Reliance.....	Northumberland	119,866	19,229	8,404	92,172	128	471	.....	.....	3,011
Locust Gap.....	Northumberland	153,889	25,031	1,538	128,327	137	420	.....	.....	6,637
Locust Spring.....	Northumberland	142,219	12,549	286	128,383	140	581	.....	.....	3,457
Monitor.....	Northumberland	39,473	5,829	6	33,638	125	162	.....	.....	872
Merriam.....	Northumberland	16,125	16,122	.....	.....	.....	23	.....	.....	.....
Fords.....	Columbia	161,681	19,377	2,901	139,318	129	585	.....	.....	1,046
Easton.....	Columbia	164,298	30,175	.....	.....	.....	577	.....	.....	992
East.....	Schuylkill	105,227	20,533	4,532	84,161	134	338	.....	.....	947
North Ashland.....	Columbia	114,345	23,121	.....	91,224	140	364	.....	.....	46
Preston No. 3.....	Schuylkill	289,557	26,779	6,097	206,684	159	975	.....	.....	8,795
Pennsylvania.....	Northumberland	334,411	24,185	491	309,765	159	1,295	.....	.....	11,823
Richards.....	Northumberland	94,293	5,552	814	87,927	136	653	.....	.....	2,816
Hickory Swamp.....	Northumberland	148,526	23,526	1,159	123,841	151	551	.....	.....	3,686
Hickory Ridge.....	Northumberland	392,533	43,892	13,111	245,620	181	1,440	.....	.....	10,524
Cameron.....	Northumberland	143,543	18,257	1,524	125,762	137	650	.....	.....	3,558
Luke Fidler.....	Northumberland	64,141	4,335	1,040	58,706	156	265	.....	.....	1,554
Colbert.....	Northumberland	140,353	6,883	1,192	132,477	170	370	.....	.....	2,320
Mount Carmel.....	Northumberland	28,141	20,000	1,487	57,253	94	485	.....	.....	3,809
Esch.....	Northumberland	15,114	3,864	.....	120,000	171	387	.....	.....	1,875
Eschmor.....	Northumberland	153,285	3,800	1,090	151,466	171	222	.....	.....	3,125
Corbin.....	Northumberland	.....	.....	.....	.....	.....	485	.....	.....	4,152
Enterprise.....	Northumberland	133,428	21,600	300	111,828	119	485	.....	.....	.....

Girard,	82,134	3,500	629	79,005	180	316	1	1	1,910
Natalie,*	347,131	81,766	6,560	258,864	270	1,049	4	13	4,199
Williamstown,	330,329	47,216	11,369	271,713	271	1,425	2	6	3,424
Short Mountain,	27,723			27,723	87	150		1	961
Logan,	68,925	6,279	1,900	60,745	91	505			1,652
Centralia,	80,151	2,275	2,753	25,122	74	175		1	159
Big Mine Run,						14			
Coast Run,†						1			
Continental,†									
Edinboro,									
Montana,†						1			
Bellmore,†									
Morris Ridge,†									
Royal Oak	24,636	3,840	1,332	19,474	162	116	1		535
Columbus No. 2,	27,318	1,017	3,010	23,291	152	137			800
Northumberland,									
Midvalley No. 1,									
Midvalley No. 2,	203,769	11,669	817	191,281	152	839	1	1	5,084
Columbia,									
Total,	5,074,834	634,052	109,689	4,331,093	\$5,122	19,657	46	112	115,119

*Not in operation.

†Pumping station.

‡Abandoned.

\$Average for district, 147 days.

TABLE II.—Continued.

Names of Collieries.	County.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse power.	Number electric dynamos.	Voltage.	Number electric locomotives.	Number air compressors.	Number air locomotives.
Burnside,	Northumberland	20,430	82	15	3	2,400	6	285	.....	.....	.....	.....	.....
Bear Valley,	Northumberland	2,878	55	11	3	2,530	4	205	.....	.....	.....	.....	.....
Buck Ridge,	Northumberland	3,550	16	24	3	1,600	4	370	.....	.....	.....	.....	.....
Henry Clay,	Northumberland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Big Mountain,	Northumberland	27,879	186	13	21	13,230	16	1,105	.....	.....	.....	.....	.....
Big Spring,	Northumberland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Franklin,	Northumberland	15,347	57	8	2	1,600	7	365	.....	.....	.....	.....	.....
Alaska,	Northumberland	3,135	83	24	6	4,575	8	640	.....	.....	.....	.....	.....
Reliance,	Northumberland	1,473	49	8	3	4,275	9	608	.....	.....	.....	.....	.....
Locust Gap,	Northumberland	1,655	49	7	3	3,680	4	700	.....	.....	.....	.....	.....
Locust Spring,	Northumberland	6,596	68	15	1	4,330	4	700	.....	.....	.....	.....	.....
Monitor,	Northumberland	1,812	19	16	1	4,800	4	415	.....	.....	.....	.....	.....
Merriam,	Northumberland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Potts,	Columbia	42,286	53	10	2	4,600	6	1,045	.....	.....	.....	.....	.....
Keystone Jig,	Northumberland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bast,	Schuylkill	25,139	61	47	6	6,680	8	485	.....	.....	.....	.....	.....
North Ashland,	Columbia	2,606	34	41	10	7,640	5	253	.....	.....	.....	.....	.....
Preston Col.,	Schuylkill	24,259	43	20	4	5,250	4	380	.....	.....	.....	.....	.....
Richards,	Northumberland	32,475	94	30	11	4,871	23	1,115	.....	.....	.....	.....	.....
Hickory Swamp,	Northumberland	17,940	99	14	10	17,590	12	2,340	.....	.....	.....	.....	.....
Hickory Ridge,	Northumberland	5,596	48	12	5	2,700	8	300	.....	.....	.....	.....	.....
Cameron,	Northumberland	3,669	51	19	11	2,680	10	630	.....	.....	.....	.....	.....
Lake Fidler,	Northumberland	23,791	126	28	16	14,351	15	2,716	.....	.....	.....	.....	.....
Cobert,	Northumberland	12,878	50	16	11	.....	.....	.....	.....	.....	.....	.....	.....
Mount Carmel,	Northumberland	1,175	31	11	1	174	3	150	.....	.....	.....	.....	.....
Nelson,	Northumberland	18,275	57	14	13	10,580	29	1,300	.....	.....	.....	.....	.....
Excelsior,	Northumberland	9,100	52	32	6	1,200	14	490	.....	.....	.....	.....	.....
Corbin,	Northumberland	2,540	19	10	3	1,100	6	210	.....	.....	.....	.....	.....
Enterprise,	Northumberland	6,857	50	28	7	2,885	9	472	.....	.....	.....	.....	.....
Natalie,	Northumberland	10,250	20	2	6	2,000	8	270	.....	.....	.....	.....	.....
Williamstown,	Dauphin	12,334	116	91	26	12,000	20	2,561	.....	.....	.....	.....	.....

Short Mountain,	8, 013	151	64	37	13, 883	3	3, 198	2	400	3	.....
Logan,	1, 659	11	4	4	1, 170	2	550	.....	.....	.....	.....
Central,	6, 310	64	9	5	3, 609	26	1, 200	.....	.....	.....	.....
Big Mine Run,	64	22	1	2	715	2	210	.....	.....	.....	.....
Locust Run, † .....	.....	.....	16	4	2, 700	1	130	.....	.....	.....	.....
Continental, † .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reno, † .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montana, † .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bellmore, † .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morris Ridge, † .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Royal Oak,	1, 800	6	2	2	225	4	300	.....	.....	.....	.....
Columbus No. 2,	1, 000	8	4	2	250	3	100	.....	.....	.....	.....
Midvalley No. 1, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Midvalley No. 2,	47, 600	63	13	12	7, 192	15	3, 955	.....	.....	.....	.....
Total,	419, 901	2, 015	730	280	168, 506	343	32, 891	4	650	5	.....
											1

*Not in operation.

†Pumping station.

‡Abandoned.

§Average for district, 147 days.

Girard,	1	4	97	46	12	2	47	209	1	2	7	39	56	107	316
Natale,	6	5	337	95	49	8	169	689	2	18	55	118	186	580	1,449
Williamstown,	6	4	290	162	105	23	205	794	2	18	31	136	140	331	1,195
Short Mountain,	1	1	53	34	12	1	23	124	1	4	7	13	13	26	150
Logan,	4	4	128	40	21	1	91	286	1	13	21	69	108	219	505
Centralla,	1	1	12	38	7	1	56	56	1	3	2	50	63	119	175
Big Mine Run,	1	1	1	2	1	1	2	7	1	1	4	1	3	7	14
Locust Run, †	1	1	1	2	1	1	2	7	1	1	4	1	1	1	1
Continental, †	1	1	1	2	1	1	2	7	1	1	4	1	1	1	1
Reno, †	1	1	1	2	1	1	2	7	1	1	4	1	1	1	1
Montana, †	1	1	1	2	1	1	2	7	1	1	4	1	1	1	1
Montgomery,	1	1	1	2	1	1	2	7	1	1	4	1	1	1	1
Morris Ridge, †	1	1	1	2	1	1	2	7	1	1	4	1	1	1	1
Royal Oak	1	1	51	4	6	2	50	11	1	2	5	13	16	39	116
Columbus No. 2,	1	1	65	4	8	2	10	30	1	1	3	20	20	47	137
Midvalley No. 1,	3	3	281	134	35	4	25	485	3	15	34	135	152	345	836
Midvalley No. 2,	3	3	281	134	35	4	25	485	3	15	34	135	152	345	836
Total,	16	138	5,960	2,039	928	305	3,039	12,484	47	266	639	3,147	2,887	7,073	19,567

*Not in operation.

†Pumping station.

‡Abandoned.

TABLE III.—Continued.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Burnside,	10.00	9.70	9.75	5.50	8.25	13.50	14.55	10.25	8.90	11.80	16.45	17.05
Bear Valley,	9.85	9.75	9.45	5.75	8.25	12.90	15.00	10.65	9.30	10.85	16.50	16.90
Back Ridge,	9.90	10.40	9.75	5.90	8.25	13.30	15.00	10.40	11.50	10.85	16.45	17.15
Henry Clay,												
Big Mountain,	10.20	10.00	9.75	5.75	8.25	13.15	15.00	11.15	9.70	12.55	16.75	16.45
Sterling,												
North Franklin,	10.00	9.75	9.75	5.75	8.25	12.45	14.60	10.25	8.85	12.00	17.30	15.30
North Ashland,	9.50	9.60	9.75	6.00	6.75	9.75	10.50	11.75	14.25	13.50	17.25	16.55
Raiska,	9.70	10.25	9.75	5.70	6.75	9.20	10.50	10.75	13.20	12.30	15.10	15.30
Locust Gap,	9.75	10.00	9.75	5.75	6.75	9.75	10.50	11.90	12.60	15.00	17.80	16.40
Locust Spring,	9.75	10.30	9.75	6.00	6.75	9.75	10.50	12.00	15.00	13.00	18.00	17.00
Monitor,	9.50	9.65	8.75	6.00	6.75	9.35	9.40	11.75	13.00	10.95	14.30	14.50
Merriman,												
Potts,	9.75	9.10	9.75	5.75	6.75	9.75	10.50	11.90	12.40	12.00	15.95	16.40
Keystone Jig,												
Bast,	9.75	9.55	9.40	6.00	6.75	9.75	10.50	11.75	14.25	12.30	17.50	16.90
North Ashland,	9.10	10.50	9.75	6.00	6.75	9.75	10.50	12.00	14.25	15.45	18.00	18.30
Preston No. 3,	9.40	10.50	9.75	6.00	6.75	9.20	13.50	12.00	19.00	19.95	18.50	17.55
Pennsylvania,	9.50	13.50	8.75	6.00	8.00	9.50	13.00	12.00	16.00	16.00	20.25	14.25
Richards,	9.50	13.50	8.75	7.25	8.00	9.00	13.50	13.00	20.00	20.30	20.25	14.25
Hickory Swamp,	5.00	14.25	8.00	7.50	8.00	9.00	12.50	13.00	15.30	13.50	16.25	13.75
Hickory Ridge,	12.00	14.00	9.25	7.50	8.00	9.00	12.00	13.00	18.15	19.50	17.50	11.50
Cameron,	14.40	17.10	10.20	8.00	9.00	9.00	16.40	16.50	18.15	22.50	20.85	18.50
Luke Fidler,	5.50	11.00	11.60	7.75	7.80	9.00	12.50	13.75	17.30	17.95	20.75	17.55
Colbert,	15.20	16.70	10.50	9.20	8.40	11.00	14.90	14.10	14.30	13.80	13.10	14.10
Mount Carmel,	13.10	12.50	10.70	7.60	10.30	15.20	17.20	11.00	17.40	19.40	18.50	17.00
Nellson,	14.25	16.00	10.25	8.00	10.40	16.50	18.70	12.40	11.80	5.10	20.10	20.15
Excelsior,	11.90	10.90	11.60	7.00	11.00	18.00	20.60	14.70	12.99	14.10	14.60	19.20
Corbin,	13.60	12.80	13.00	7.50	11.00	13.70	15.00	13.70	14.10	17.30	17.30	19.30
Enterprise,	10.20	9.00	9.50	5.70	8.40	13.70	15.00	19.10	10.70	10.70	14.90	1.50

Girard,	17.20	13.30	7.80	10.50	9.98	12.60	16.80	17.50	18.40	19.70	18.90	17.30
Natale,*	23.00	23.00	21.00	21.50	25.00	26.00	21.00	26.00	16.80	22.00	23.15	22.80
Williamstown,	23.00	22.25	20.00	23.00	25.00	26.00	22.00	25.80	16.00	21.80	22.30	23.50
Short Mountain, .....	.....	.....	.....	.....	.....	.....	.....	2.30	18.80	23.80	22.80	19.50
Logan, .....	.....	.....	.....	.....	.....	.....	.....	5.70	18.90	23.80	22.80	19.50
Centralia, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Big Mine Run,	11.20	13.00	10.20	6.50	6.50	11.80	.....	.....	.....	.....	.....	.....
Lacust Run,† .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Continental,† .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montana,† .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belmore,† .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morris Ridge,† .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Royal Oak, .....	.....	.....	.....	.....	8.80	15.40	14.50	13.80	9.40	10.40	16.90	14.80
Columbus No. 2,	12.60	8.90	7.50	6.50	6.90	8.60	14.70	12.80	17.40	19.20	19.30	18.50
Midvalley No. 1, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Midvalley No. 2,	9.80	11.00	6.70	6.20	6.00	8.60	14.00	10.20	15.00	23.00	22.60	18.50

*Not in operation.
 †Pumping station.
 ‡Abandoned.

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Seventh Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 4.	Lucas Huminaok,	Miner,	40	M.	1	1	Excelsior,	Northumberland,	Fall of top coal.
12.	Robert Penman,	Engineer,	35	M.	1	1	Pennsylvania,	Northumberland,	Fall of top slate.
13.	Anthony Dillon,	Miner,	35	M.	1	1	Girard,	Northumberland,	Fell down manway.
15.	Thomas Farrell,	Miner,	27	M.	1	1	Williamstown,	Dauphin,	Fall of rock.
16.	André Szwanski,	Miner,	24	M.	1	1	Hickory Ridge,	Northumberland,	Fall of top coal.
21.	Frank Vozzo,	Laborer,	38	M.	1	1	Richards,	Northumberland,	Flying piece of coal from premature shot.
Feb. 21.	Frank Vozzo,	Laborer,	40	M.	1	2	Big Mountain,	Northumberland,	Fall of top coal.
Mar. 19.	Charles Keegan,	Driver,	15	M.	1	1	Royal Oak,	Northumberland,	Fell off car while riding up slope.
23.	William Roberts,	Driver,	15	M.	1	1	Bast,	Schuylkill,	Fell under moving mine car.
Apr. 14.	Lamberte Joavand,	Laborer,	30	M.	1	1	Pennsylvania,	Northumberland,	Fall of coal.
18.	Harry Omior,	Bottom man,	19	M.	1	1	Preston No. 3,	Schuylkill,	Leg mashed; fell under mine car.
22.	John Macles,	Miner,	37	M.	1	1	Richards,	Northumberland,	Premature explosion of shot.
25.	Cyrus S. Parfit,	Miner,	28	M.	1	1	Short Mountain,	Dauphin,	Shot fractured; ran into another miner's blast.
June 2.	George Uhl,	Loader boss,	36	M.	1	1	Potts,	Columbia,	Caught between timbers and mine cars.
27.	Paul Eaquel,	Miner,	26	M.	1	1	Big Mountain,	Northumberland,	Fall of coal.
30.	Mathias Burgund,	Miner,	26	M.	1	1	Sterling,	Northumberland,	Fall of top slate.
July 6.	Joseph Gaudin,	Shine picker,	16	M.	1	1	Locust Spring,	Northumberland,	Fell under screen; died July 1.
17.	Joseph Gaudin,	Miner,	26	M.	1	1	Richards,	Northumberland,	Buried by a rush of loose coal.
19.	Joseph Paulrick,	Miner,	42	M.	1	4	Locust Gap,	Northumberland,	Hit on chin by a piece of coal.
22.	Charles Jenkins,	Miner,	41	M.	1	1	Henry Clay,	Northumberland,	Fall of top slate.
Aug. 3.	Wm. W. Thompson,	Miner,	36	M.	1	4	Williamstown,	Dauphin,	Burned and head crushed by explosion of gas.
6.	Chas. Raudenbush,	Miner,	49	M.	1	5	Williamstown,	Dauphin,	Burned by an explosion of gas.
17.	Anthony Doneyok,	Miner,	33	M.	1	1	Hickory Ridge,	Northumberland,	Fall of top coal.
18.	Joseph Crudefske,	Laborer,	27	M.	1	1	Richards,	Northumberland,	Fall of top rock.
26.	John Jekovich,	Miner,	35	M.	1	2	Pennsylvania,	Northumberland,	Fell under mine cars.
Sept. 9.	Renard Bressler,	Switchman,	16	M.	1	1	Burnside,	Northumberland,	Fell under mine cars.
21.	Thomas Peart,	Fire boss,	35	M.	1	1	Amerson, No. 2,	Columbia,	Burned by an explosion of gas.
30.	Andrew Collessor,	Car oller,	47	M.	1	1	Short Mountain,	Dauphin,	Knocked under moving mine car.
Oct. 4.	Josiah Werner,	Miner,	44	M.	1	2	Alaska,	Northumberland,	Fell of top slate.
28.	Peter Folan,	Miner,	44	M.	1	1	Alaska,	Northumberland,	Fall of top rock; died November 5.
Nov. 1.	Charles Egan,	Miner,	41	M.	1	7	Cameron,	Northumberland,	Fall of top rock; died November 5.
3.	Edward Tolan,	Miner,	31	M.	1	1	Midvalley No. 1,	Columbia,	Knocked down breast by coal; died November 25.

17.	Andrew Yeso,	38	M.	1	2	Richards,	Northumberland, ..	Struck on head by timber.
20.	David Griffith,	45	M.	1	1	Midvalley No. 1, ..	Columbia,	Fall of top clod.
21.	Enoch Barbaskie,	29	S.	1	1	Alaska,	Northumberland, ..	Fall of top slate.
25.	Thos. H. Jones,	27	S.	1	1	Williamstown, ..	Dauphin,	Fell down slope.
26.	Simon Smith,	13	S.	1	1	Preston No. 3, ..	Schuylkill,	Explosion of gas, died December 23.
30.	Clyde Reppard,	30	M.	1	1	Richards,	Northumberland, ..	Explosion of gas, killed by fall of slate.
36.	Alex. Zaluski,	26	M.	1	1	Excelsior,	Northumberland, ..	Neck broken by fall of slate.
15.	Joseph Swanchic,	35	M.	1	1	Colbert Fidler, ..	Northumberland, ..	Killed by a fall of clod.
17.	I. W. Thomas,	17	M.	1	1	Luke Fidler,	Northumberland, ..	Explosion of gas.
17.	P. Sheratski,	37	M.	1	1	Luke Fidler,	Northumberland, ..	Explosion of gas.
17.	James Shively,	37	M.	1	1	Luke Fidler,	Northumberland, ..	Explosion of gas.
24.	Levis Zicuski,	41	M.	1	2	Luke Fidler,	Northumberland, ..	Explosion of gas.
24.	Frank Shatuski,	41	M.	1	2	Luke Fidler,	Northumberland, ..	Explosion of gas.
24.	Michael Moore,	34	S.	1	1	Preston No. 3, ..	Schuylkill,	Explosion of dynamite caps.
29.	Timberman,							

Dec.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Seventh Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan.	4. Andrew Zippy,	Car pusher,	27	M.	Midvalley No. 2,	Columbia,	Leg broken by falling under mine car.
	5. William Minnich,	Miner,	31	M.	Mount Carmel,	Northumberland,	Head and face hurt by premature blast.
	6. Frank Felesick,	Slate picker,	31	M.	Reliance,	Northumberland,	Feel in chute and broke collar bone.
	7. James Langan,	Fireman,	47	M.	Preston No. 3,	Schuylkill,	Rib broken; fell against pipe.
	10. James Tait,	Laborer,	68	M.	Williamstown,	Dauphin,	Arm broken; caught between belt and pulley.
	12. Peter Romanoski,	Miner, .....	.....	.....	Reliance,	Northumberland,	Ran into lagging, fracturing rib.
	18. Andrew Frase,	Miner,	37	M.	Big Mountain,	Northumberland,	Head cut by fall of coal legs.
	27. William Allen,	Miner,	30	S.	Williamstown,	Dauphin,	Blacked by explosion of gas.
	27. Israel Coles,	Miner,	47	M.	Williamstown,	Dauphin,	Burned by explosion of gas.
	31. Joseph Nedzick,	Miner,	48	M.	North Franklin,	Northumberland,	Left leg injured by fall of coal.
Feb.	1. Stany Vesulsky,	Miner,	58	M.	Enterprise,	Northumberland,	Back bruised by fall of coal.
	2. Edmund Vesulsky,	Miner,	29	M.	Big Mountain,	Northumberland,	Eye injured by flying piece of coal.
	2. Lincoln Campbell,	Bottom man,	40	M.	Big Mountain,	Northumberland,	Arm and body hurt by timber falling on him.
	2. John E. Taby,	Miner,	35	M.	Big Mountain,	Northumberland,	Head cut and shoulder bruised by fall of rock.
Mar.	4. John Deboas,	Laborer,	22	S.	Richards,	Northumberland,	Bruised and cut by falling on hoisting rope.
	7. John Rabusky,	Miner,	30	M.	Hickory Ridge,	Northumberland,	Leg broken by fall of top coal.
	9. Stany Snella,	Miner,	48	M.	Big Mountain,	Northumberland,	Foot hurt by fall of slate.
	9. John Bumbal,	Loader,	36	M.	Pennsylvania,	Northumberland,	Spine between wagon and rib.
	14. Gust. Mervine,	Bottom man,	30	S.	Richards,	Northumberland,	Ankle hurt by piece of coal rolling down slope.
	16. John Eowman,	Miner,	43	M.	Williamstown,	Dauphin,	Ribs broken, shoulder and face hurt by premature shot.
	16. Joseph Bellines,	Miner,	40	M.	Pennsylvania,	Northumberland,	Face severely injured by premature shot.
	16. John Graeff,	Miner,	27	M.	Big Mountain,	Northumberland,	Back injured by fall of rock.
	1. John Leshinski,	Miner, .....	.....	.....	Big Mountain,	Northumberland,	Leg broken by fall of slate.
	2. Stany Mawasick,	Miner,	45	M.	Corbin,	Northumberland,	Face and hands burned by explosion of gas.
	2. A. L. Jefferson,	Driver, .....	.....	.....	Alaska,	Northumberland,	Two ribs broken and arm hurt; struck by prop.
	4. John Drollatski,	Miner, .....	.....	.....	Sterling,	Northumberland,	Leg broken; caught between buggy and prop.
	7. Israel Derk,	Rockman,	53	M.	North Franklin,	Northumberland,	Face crushed by lever breaking.
	7. Lloyd Adams,	Driver, .....	.....	.....	Reliance,	Northumberland,	Face aged between wagons and chute.
8. Frank Miller,	Miner,	27	S.	Pennsylvania,	Northumberland,	Hands and face burned by explosion of gas.	

8.	Stany Smoogen,	Laborer,	.....	.....	Nelson,	.....	Northumberland,	.....	Ankle broken by fall of top slate.
9.	Charles Faust,	Miner,	.....	S. M.	Cameron,	.....	Northumberland,	.....	Face and body cut by explosion of blast.
11.	Joseph Butkle,	Miner,	.....	37	Nelson,	.....	Northumberland,	.....	Leg broken by fall of top rock.
14.	Joseph Butkle,	Miner,	.....	37	Midvalley No. 2,	.....	Columbia,	.....	Leg broken by piece of coal rolling down slope.
24.	Joseph Demattio,	Miner,	.....	25	Pennsylvania,	.....	Northumberland,	.....	Face burned by explosion of gas.
30.	Mathew J. Williams,	Laborer,	.....	19	Short Mountain,	.....	Dauphin,	.....	Head cut by falling down roadway.
5.	Thomas Scully,	Fireman,	.....	30	Excelsior,	.....	Northumberland,	.....	Leg broken by falling under dirt dumper.
14.	Chas. Havershine,	Miner,	.....	28	Cameron,	.....	Northumberland,	.....	Head bruised by falling down roadway.
18.	Chas. Cameron,	Driver,	.....	43	Excelsior,	.....	Northumberland,	.....	Hip broken; squeezed between wagons.
29.	Frank Lucas,	Miner,	.....	35	Richards,	.....	Northumberland,	.....	Fell down with a prop, breaking collar bone.
3.	John Lincoskie,	Miner,	.....	28	Richards,	.....	Northumberland,	.....	Hip and ankle hurt by falling down breast.
14.	John Challenger,	White picker,	.....	14	Williams,	.....	Dauphin,	.....	Congested ligament bone in leg broken.
16.	Joshua Savage,	Laborer,	.....	50	East,	.....	Northumberland,	.....	Arm broken by falling on leg broken.
21.	Leonard Surtin,	Laborer,	.....	50	Henry Clay,	.....	Northumberland,	.....	Arm broken by scap and face cut.
27.	John Szurek,	Miner,	.....	47	Mount Carmel,	.....	Northumberland,	.....	Arm broken by runaway car.
16.	Thomas Stanton,	Miner,	.....	18	Hickory Ridge,	.....	Northumberland,	.....	Arm broken by falling into ditch.
16.	Edward Challenger,	Slate picker,	.....	15	Burnside,	.....	Northumberland,	.....	Burned with powder on face and breast.
22.	Frank Hoover,	Laborer,	.....	18	Williamstown,	.....	Dauphin,	.....	Jaw bone broken; struck by a drill.
22.	James Fahy,	Laborer,	.....	18	Enterprise,	.....	Northumberland,	.....	Leg broken by falling on breaker screen.
22.	Roger Dixon,	Laborer,	.....	25	Short Mountain,	.....	Dauphin,	.....	Foot broken by loaded car running over it.
27.	Edward Dugan,	Laborer,	.....	25	Locust Gap,	.....	Northumberland,	.....	Arm broken by fall of top rock.
7.	John Muir,	Top man,	.....	21	Lake Fidler,	.....	Northumberland,	.....	Arm broken; caught against timber with car.
16.	Chas. Droburskie,	Assistant boss,	.....	50	Nelson,	.....	Northumberland,	.....	Leg crushed at knees by bumping wagons.
23.	Al. Fetterolf,	Miner,	.....	31	Cameron,	.....	Northumberland,	.....	Leg broken by falling on timber.
26.	Joseph Steele,	Miner,	.....	62	Locust Spring,	.....	Northumberland,	.....	Leg broken; head, back and arm bruised by fall of coal.
1.	Fred. Glover,	Miner,	.....	39	Midvalley No. 2,	.....	Columbia,	.....	Leg broken; caught between mine car and gangway door.
2.	Geo. Kessler,	Miner,	.....	39	Midvalley No. 2,	.....	Northumberland,	.....	Leg broken by piece of coal flying from shot.
2.	Michael Punch,	Miner,	.....	20	Cameron,	.....	Northumberland,	.....	Skull fractured and one eye destroyed; premature blast.
6.	Lewis Evans,	Driver,	.....	23	Richards,	.....	Northumberland,	.....	Hurt internally by falling off a building.
9.	John Madok,	Miner,	.....	48	Williamstown,	.....	Dauphin,	.....	Burned by explosion of gas.
11.	William Feeley,	Miner,	.....	40	Williamstown,	.....	Northumberland,	.....	Leg broken; caught between dumpers of mine cars.
17.	Peter Kerstetter,	Laborer,	.....	17	Hickory Ridge,	.....	Northumberland,	.....	Head and leg broken by fall of top coal.
19.	Patrick Whalen,	Laborer,	.....	28	Midvalley No. 2,	.....	Columbia,	.....	Head cut and arm broken by premature blast.
19.	Geo. McElwee,	Miner,	.....	28	North Franklin,	.....	Northumberland,	.....	Leg broken by prop falling on it.
8.	William O'Neill,	Repairman,	.....	24	Big Mine Run,	.....	Northumberland,	.....	Arm crushed; caught in screen cogs.
13.	Alex. Soviskie,	Miner,	.....	24	Preston No. 3,	.....	Schuykill,	.....	Hand blown off by premature blast.
15.	Anthony Rooney,	Miner,	.....	25	Girard,	.....	Northumberland,	.....	Leg broken by premature blast.
19.	Frank Sincavage,	Miner,	.....	36	Hickory Swamp,	.....	Northumberland,	.....	Leg broken by piece of coal rolling down slope.
24.	Henry C. Schwalm,	Repairman,	.....	40	Richards,	.....	Northumberland,	.....	Burned by explosion of gas.
29.	Wm. Neyman,	Miner,	.....	40	East,	.....	Northumberland,	.....	Leg broken by gangway collar rolling on it.
29.	Joseph Tederovick,	Laborer,	.....	25	Richards,	.....	Northumberland,	.....	Leg crushed by fall of slate.
			.....		Williamstown,	.....	Dauphin,	.....	Arm broken by fall of coal.
			.....		Hickory Swamp,	.....	Northumberland,	.....	Foot, head and breast hurt by premature shot.
			.....		Hickory Swamp,	.....	Northumberland,	.....	Face, head and breast hurt by premature shot.

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Oct.							
3.	Robt. B. Wardrop,	Driver,	22	S.	Pennsylvania,	Northumberland, ...	Foot mashed by wagons running over it.
4.	Peter Sparto,	Miner,	35	M.	Pennsylvania,	Northumberland, ...	Leg broken by fall of coal.
5.	Mike Cairn,	Miner,	33	M.	Mount Carmel,	Northumberland, ...	Hip bruised by fall of top coal.
6.	Jacob Omilor,	Miner,	36	M.	Locust Spring,	Northumberland, ...	Foot broken by a fall of coal.
7.	Daniel O. Jones,	Miner,	36	M.	Short Mountain,	Dauphin,	Hands and face burned by explosion of gas.
8.	Dennis Cavanaugh,	Miner,	47	S.	Short Mountain,	Dauphin,	Hands and face burned by explosion of gas.
11.	John Ogonic,	Miner,	41	S.	Short Mountain,	Dauphin,	Hands and face burned by explosion of gas.
11.	George Moyle,	Miner,	35	M.	Midvalley No. 1,	Columbia,	Leg crushed by fall of rock.
11.	John Whalen,	Laborer,	28	M.	Locust Spring,	Northumberland, ...	Body, legs, hands and face hurt by premature blast.
15.	Anthony Kennedy,	Miner,	50	M.	Midvalley No. 2,	Columbia,	Head hurt by premature blast.
15.	Oscar Emmens,	Miner,	28	S.	Midvalley No. 2,	Columbia,	Head hurt by premature blast.
15.	Joseph Weyna,	Laborer,	25	S.	Henry Clay,	Northumberland, ...	Leg broken, cart wheel ran over it.
21.	Herbert Mort,	Slate picker,	25	S.	North Franklin,	Northumberland, ...	Left arm fractured; unknown cause.
21.	Francis Ogarah,	Loader,	22	S.	Richards,	Northumberland, ...	Ribs broken; squeezed between car and timber; used; fell off car and caught by spreader.
28.	James Fritz,	Driver,	37	S.	Mount Carmel,	Northumberland, ...	Face and hands burned by explosion of gas.
31	Felix Miscavage,	Miner,	37	M.	Richards,	Northumberland, ...	Face and hands burned by explosion of gas.
Nov.							
2.	Matt Garskie,	Miner,	39	M.	Pennsylvania,	Northumberland, ...	Face and hands burned by explosion of gas.
2.	Henry J. Shoemaker,	Laborer,	22	S.	Short Mountain,	Dauphin,	Leg fractured; caught by mine cars.
7.	Owen Riley,	Miner,	40	M.	Logan,	Columbia,	Leg bruised by fall of coal.
8.	John Bendle,	Miner,	36	M.	Williamstown,	Dauphin,	Ankle dislocated by jumping off moving cars.
10.	John Tyson,	Miner,	40	M.	Nelson,	Northumberland, ...	Hurt by fall of slate.
16.	John Smith,	Laborer,	24	S.	Pennsylvania,	Northumberland, ...	Arm broken; caught between dumpers.
16.	Joseph E. Travis,	Miner,	24	S.	Williamstown,	Dauphin,	Leg broken by fall of slate.
19.	Michael Pole,	Car loader,	26	S.	Pennsylvania,	Northumberland, ...	Squeezed between car and platform.
22.	Lameca Monchanel,	Miner,	28	S.	Richards,	Northumberland, ...	Burned by explosion of gas.
22.	Thomas M. Trags,	Miner,	28	S.	Richards,	Northumberland, ...	Burned by explosion of gas.
27.	Thomas M. Trags,	Miner,	28	S.	Monitors,	Northumberland, ...	Burned by explosion of gas.
27.	Richard Moncharno,	Rockman,	29	S.	Richards,	Northumberland, ...	Head and arms burned by explosion of gas.
29.	Anthony Mosloski,	Miner,	36	M.	Excelsior,	Northumberland, ...	Leg broken by a fall of coal.
29.	John Travis,	Miner,	26	M.	Preston No. 3,	Northumberland, ...	Face, hands and back burned by explosion of gas.

28.	Oscar Ayers,	Driver,	16	S.	Mount Carmel,	Northumberland, ...	Arm and rib broken; caught by mine cars.
29.	Patrick Heaton,	Door boy,	16	S.	Colbert,	Northumberland, ...	Hand cut off by falling under mine cars.
30.	Lester Malick,	Miner,	45	M.	Richards,	Northumberland, ...	Leg broken by fall of coal.
1.	William Yost,	Spragger,	22	S.	Nellson,	Northumberland, ...	Arm broken; fell under mine wagons.
2.	Irwin Ney,	Miner,	22	S.	Sprussle,	Northumberland, ...	Hurt by premature blast.
3.	Hugh Ney,	Miner,	22	S.	Midvalley No. 2,	Columbia,	Foot and ankle hurt; fell under mine cars.
4.	John Duffe,	Miner,	28	S.	Williamstown,	Northumberland, ...	Leg broken by fall of coal.
11.	Richard Sparnel,	Miner,	28	S.	Mount Carmel,	Northumberland, ...	Face and hands burned by explosion of gas.
22.	Richard Sparnel,	Miner,	55	M.	Mount Carmel,	Northumberland, ...	Face and hands burned by explosion of gas.
29.	William Smith,	Door boy,	17	S.	Williamstown,	Dauphin,	Arm broken; caught between car bumpers.
30.	John McNamara,	Miner,	35	M.	Williamstown,	Dauphin,	Face and hands burned by explosion of gas.



EIGHTH ANTHRACITE DISTRICT.

(SCHUYLKILL COUNTY.)

Pottsville, Pa., March 3, 1899.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor of herewith presenting my annual report as Inspector of Mines of the Eighth anthracite district for the year ending December 31, 1898.

The total production of coal for the year was 4,158,651 tons, which is 147,571 tons less than the total production for the year 1897. The shipments, including the local sales, were 3,679,508 tons, which is 171,869 tons less than the shipments for the year 1897.

The number of fatal accidents during the year was 37, which is one less than for the year 1897. I am sorry to say that during the year there have been two serious accidents in my district. The first, at Kaska-William colliery on May 26, by which six men lost their lives by water breaking in from old workings; the bodies of William Morgan, William Derr and Peter Durkin, three of the victims, have not yet been recovered. The work of reopening the workings, which were greatly damaged by the rush of water, has been going on since the accident occurred, but there has not been the progress made that should have been. The extent of the damage to the lower workings cannot yet be determined, and it is hard to say at this writing, when the bodies will be recovered and the workings restored.

I have not found any reason to change my opinion that this accident, which caused the loss of six valuable lives and the destruction of a large amount of property, was the result of inexperienced management.

Another accident occurred at the No. 8 colliery of the Lehigh Coal and Navigation Company, by which four lives were lost at one time, by an explosion of hydrogen gas, the result of water running on a large body of fire, while they were fighting a mine fire. An explosion of this kind, during the progress of a mine fire, is not an unusual thing, yet few, if any, have occurred on such a large scale as to cause any loss to life.

It is but just to state that in this case the officials used every pre-

caution for the safety of the men while fighting the fire, and were always present with them when any danger was anticipated.

Aside from these two accidents, those due to the usual causes were greatly reduced, and while the number is one less than for the preceding year, the result would have been much more satisfactory had the two above named not occurred.

In regard to the collieries, I will say that the majority of them are in good condition. Others that have caused some annoyance in the beginning of the year are somewhat improved. I send with this a report of a board of arbitrators which has decided a case of vital importance to the safety of mine workers and the protection of property in this district, where sudden outbursts of large quantities of explosive gas frequently occur, and which is not provided for in the mine laws. While this report of the arbitrators only legally affects the colliery in question, yet it fairly establishes a precedent based on the opinions of practical men who are familiar with the conditions existing, that it is unsafe for the main upcast airway to be used for any other purpose than as an outlet for the foul air and gases generated in the mine.

As the year 1898 has practically been the first year of the existence of the Bureau of Mines in connection with the Department of Internal Affairs, it may be proper in this report to say that while I consider its creation an improvement in the right direction, and while some good has been done, yet it cannot be expected that the work of bringing its operations to perfection can be accomplished in the first year of its trial. My thanks are due to Mr. Robert Brownlee, Chief of the Bureau of Mines, for his assistance and the valuable advice rendered on several important occasions during the past year.

Yours very respectfully,

JOHN MAGUIRE,
Inspector of Mines.

Summary Eighth Anthracite District, 1898.

Tons of coal produced,	4,158,651
Tons of coal used at mines for steam and heat,	479,143
Tons of coal sold to local trade and used by employes,	89,194
Railroad shipments of coal in tons,	3,590,314
Tons of coal produced by washeries, which are included in total production,	95,806
Number of fatal accidents,	37
Number of non-fatal accidents,	119
Number of wives left widows,	26

Number of children left fatherless,	94
Number of persons employed,	12,965
Total number of days worked,	6,611.1
Number of kegs of powder used,	63,699
Number of pounds of dynamite used,	519,460
Number of horses and mules,	1,294
Number of steam boilers,	596
Number of pumps, all classes,	245
Capacity in gallons per minute,	86,493
Number of steam engines, all classes,	337
Total horse power,	36,493
Number of air compressors,	12
Tons of coal produced per fatal accident,	112,396
Tons of coal produced per each employe,	320 $\frac{3}{4}$

Improvements Made at Collieries during 1898.

Lytle Colliery.

The new shaft which was started in 1897 had reached a depth of 1,630 feet on December 31, 1898, having cut through several seams of coal. The Diamond vein was cut at one thousand feet below the surface, and is six feet thick having a south dip of 62 degrees. An inside slope has been sunk on the Four-foot vein 321 feet below the Fourth lift, and a tunnel started at that depth to be driven to the Primrose vein. A new plane was made on the Billy vein 700 feet long above the Fourth lift.

Oak Hill Colliery.

The south tunnel at the bottom of the shaft, of Fifth lift, has been continued from the White Ash vein to the Primrose vein, cutting the Holmes vein 186 feet from the White Ash, and the Primrose vein 124 feet from the Holmes. The Primrose vein is in good condition, 12 feet thick, dipping 41 degrees south.

St. Clair Colliery.

The new slope which they started to sink in 1897 has reached a depth of 1,500 feet from the surface, and is evidently near the basin. Gangways are being turned at that point.

Pine Hill Colliery.

The slope was sunk 275 feet below the water level on the Buck Mountain vein, which is in fair condition, and gangways are being

worked east and west. A new fan 20 feet in diameter, driven by a direct acting engine with 20-inch cylinder and 30-inch stroke, has been erected, which improves the ventilation.

Williams Colliery.

At this colliery there appears to be a difference of opinion as to the identity of the seams of coal being worked. The vein on which the slope was reopened and sunk deeper, was called the Spohn by the Second Geological State Survey. Later developments have caused the operators to think it is not the Spohn, and, for want of something better, have named the next underlying vein, which, in my report for 1896 was called the Tracy, the "Smyth vein." In 1897 the tunnel was continued and at 260 feet cut a vein about seven feet thick which they have named the "Griffith," the above veins all having a south dip. During the year 1898 the tunnel has been continued, and, at 159 feet from the south dip of the Griffith, cut the same vein three and one-half feet thick, having a north dip of 70 degrees, and, at 164 feet from the north dip of the Griffith, cut the Smyth again 8 feet thick, on north dip of 70 degrees. The tunnel is being continued in north dipping measures. A new ventilating fan 20 feet in diameter, driven by a direct acting engine, with 16-inch cylinder and 20-inch stroke, has been installed on the Smyth vein on the south dip.

Greenwood Colliery.

An inside slope, single track, which was started 165 feet east of the water level tunnel, has been sunk eastward across the pitch on a dip of 32 degrees, on the "D" vein to a depth of 305 feet, and a gangway turned to the east. A new ventilating fan 12 feet in diameter, driven by a direct acting engine with 9-inch cylinder and 12-inch stroke, has been put in operation near the mouth of the water level tunnel.

Lehigh Coal and Navigation Company.

At the No. 8 colliery, a slope 47 yards deep below the water level gangway has been completed, from which gangways are being driven to work the chain pillar below the water level gangways on the Mammoth vein.

At the No. 10 colliery a trial slope in the top bench of the Mammoth vein has been sunk to a depth of 422 feet below the present or second lift slope level. At 380 feet below the Second lift a test tunnel has been driven south for 305 feet.

At the No. 11 colliery a steam mine locomotive has been installed to haul the coal from the west side to the foot of the shaft. A sep-

arate air split is being arranged for the road used by the locomotive.

Improvements Made by the Philadelphia and Reading Coal and Iron Company.

West Brookside Colliery.

In the No. 3, No. 5 vein slope, the robbing of the pillars in the Eighth lift below water level was finished and the pumps were taken out of that slope on February 15, 1898, the water being allowed to raise to a point where it would run to the No. 4 slope. To get rid of this water, a duplex pump made at the company's shops, having a 36-inch cylinder, 12-inch plungers, and 4-foot stroke, with 16-inch column pipe, was placed in the No. 4 slope. The sinking of the No. 4 slope overlying the No. 3, No. 5 vein slope, has been continued and is now down to the Ninth lift.

The East Brookside No. 4 vein slope has been completed to the level of the No. 5 vein slope.

Lincoln Colliery.

The tunnel connecting the Sixth lift of No. 1 vein slope and the Sixth lift of the No. 2 vein slope has been completed, which is 915 feet long. A tunnel is being driven from the No. 2 vein to cut the Nos. 3, 4 and 5 veins, and is now 400 feet in. A new pair of hoisting engines made at the company's shops have been placed on the No. 1 slope to hoist from the Sixth lift, having 24-inch cylinders, 48-inch stroke, and drum 7 feet 8 inches in diameter, direct acting.

Phoenix Park No. 3 Colliery.

An additional ventilating fan, 15 feet diameter, with direct acting engine, 14-inch cylinder, 18-inch stroke, has been placed on a new air hole east of the slope, which adds 65,000 cubic feet of air to the ventilating current.

Eagle Hill Colliery.

The new air shaft has been completed from the surface to the Fourth lift Primrose vein gangway, the depth being 634½ feet.

Glendower Colliery.

The tunnel from the Daniel vein 181 feet long to the Buck mountain vein at the top of the No. 2 plane has been completed, and a slope made from the surface to that level on the Buck Mountain vein. A road has been laid along the surface to haul the coal from the slope to the breaker.

Wadesville Colliery.

The old shaft was sunk 97 feet deeper, bringing it to the level of the bottom of the new shaft. A tunnel has been driven connecting the sumps of the two shafts. In the new shaft a tunnel has been driven on the west side to the Mammoth and Skidmore veins, and is being driven on to the Buck Mountain vein. An overhead air tunnel is also being driven to these veins. A new ventilating fan, 21 feet diameter, all made of iron, has been installed, and a new breaker is in course of erection.

New Colliery Being Opened.

A new colliery is being opened by the Woodside Coal Company on the site of the old Rohersville colliery in Foster township, which was abandoned many years ago. A double track slope, having a grade of 29 degrees, is being sunk on the Buck Mountain vein, which had not been worked at the old colliery. A drift gangway is also being driven on the Buck Mountain vein, also a drift is being driven on the "Billy vein," which is about four feet thick under the Daniel vein, which has been worked out, the dividing slate being only 20 inches thick. A new breaker is in course of erection.

Collieries Abandoned During 1898.

The mining of coal was stopped at the Thomaston colliery in March, and, after the loose coal had been taken out, the pumps and machinery were all taken out and the colliery abandoned and allowed to fill with water.

The Pine Forest colliery, Buck Mountain vein workings, and the Holmes and Orchard vein workings in the Primrose vein slope, were also stopped in March, the machinery taken out, and the colliery abandoned. The shaft workings were abandoned several years ago.

The Palmer washery was burned on the night of March 8, 1898, and has not been reconstructed.

The Manhattan washery was stopped in January, 1898, and was abandoned and torn down shortly after that time.

Mine Fire.

On August 31, 1898, fire was discovered in breast No. 24, on the west plane level, Mammoth vein, at the No. 8 colliery, operated by the Lehigh Coal and Navigation Company. The breast had been finished for some time, having been driven up about 118 feet, where it ran at the face and was supposed to have run up to the level above. It was full of loose coal, the vein being about

56 feet thick, and having an average pitch of about 41 degrees. After drawing some coal out at the battery, it was found that there was a great deal of fire in the breast, and men commenced to reopen the inside manway of breast No. 23, and also to drive a chute up in the centre of the pillar between breasts Nos. 23 and 24. These chutes were driven up 116 feet, and a heading was driven to No. 24, when it was found that the breast had run in the top of the vein, leaving some of the bottom coal, and that the fire had reached that point. At the same time a cross-cut was being driven with all speed possible on the level above, or east plane level from the "Crack" vein to the Mammoth vein, at a point above the breast on fire, and a line of 4-inch pipe was being laid from the surface to this point, so that the water could be put on the fire from above. The bottom of breast No. 24 was sealed as closely as possible to prevent air from getting to the fire, and work on the short or west plane stopped. On September 28, the cross-cut on the east plane level, which had been driven 40 feet through slate and rock and 30 feet of solid coal, with branch headings of 45 and 57 feet respectively into the gob at the top of the No. 24 breast, had reached a point where it was thought advisable to put the water on. A dam had been built on the gangway inside of the cross-cut, which was filled from the pipes, and held about 210,000 gallons of water. On the above evening, after the workmen had all left the mine, except those working at the fire, the sluice of the dam was opened, and the water caused to run through the headings and into the opening made in the gob at the top of No. 24 breast. After the water had run for some time, there was a slight explosion, but no damage was done by it. The water had passed over considerable fire as it was scalding hot when it reached the foot of the shaft, about one thousand yards from the bottom of No. 24 breast. On September 30 fire was discovered in breast No. 23, west plane level. On that evening the dam full of water was again emptied onto No. 24 breast, but this time there was no explosion, and the water was not as hot as it was the first time. The headings on the east or long plane level were then driven to cover the top of No. 23 breast, and on the nights of October 3, 5, 6, 7 and 8, a dam full of water was let off each night. The men in the day time, when the water was not running in, were employed at extending the headings, so as to change the course of the water as much as possible. During this time there had been no explosions and the water was getting cooler each time until on the eighth of October its temperature was but slightly above the normal, and no heat was found in the headings which had been driven. This cooling process had caused the gases from the fire, which, when heated, had risen to the highest points and out of reach, to drop

down, so that it was necessary to tighten the batteries above the gangway and to connect pipes to them leading to the outlet airway, to carry the gas off, so that it would not feed in to where the men were working and make them sick. After the dam had been emptied on October 8, it was decided not to let any more water in until the heading had been driven to the top slate of the vein over No. 23 breast, which was reached during the forenoon of October 13, and fire was found at that point. Instead of waiting until night to run the water on, it was decided to stop the colliery at noon on that day, and, after all the workmen had been sent out, except those engaged in driving the headings and turning the water in, to run the water from the dam down the new opening. The water was turned on slowly for about twenty minutes, then the sluice was opened to its full capacity. The inside foreman, Evan G. Evans, was close to the mouth of the cross-cut watching the water going in, while the other men were scattered along the gangway outside, some getting their dinners, others smoking and chatting while waiting for the dam to be emptied, so that they could return to work in the headings. After the water had been turned on full force, there were several slight explosions, of which the men took no notice. Then there was a heavy explosion, which blew out some of the gangway timber, near where the men were waiting, and also blew out several of the batteries in the chutes above the gangway, and the lights used by the men. Evan G. Evans, the inside foreman, being the closest to the cross-cut, was severely burned on the face and hands. James Powell, a miner, had his collar bone broken, and eight others were slightly injured, but they all succeeded in making their way out. When help arrived, it was found that Thomas Smith, fire boss; William Cook, William Reese and John Ranick, miners, were dead, having been smothered by the gases from the fire which dropped quickly onto the gangway after the batteries had been blown out. When the first dam of water was emptied on the fire, the precaution was taken to have all the men out of the way for fear of an explosion or other accident. Messrs. Thomas M. Whildin, the general inside foreman, and Baird Snyder, the assistant superintendent, were present with the men at each time the dam was emptied, except on this one occasion, when they were on their way to the colliery, expecting to get there before the water was turned on. The men who were killed and injured were about 360 feet back from where the water was going into the breast from the face of the heading, and as there had been no explosions of any account up to this time, thought they were safe at that distance away. Had they been 100 feet farther out, none would have been injured. The damage caused by the explosion was quickly repaired and chutes driven up the pitch to try to get above the fire or find how far the

fire had gone up. On October 29 it was found that there was a large fire above the east or long plane level, when it was decided to flood the mine. On Sunday, October 30, the water of Panther creek was turned into the shaft, and continued until December 5, when the water had raised 549 feet up the shaft. The hoisting of the water out of the shaft again began on the afternoon of December 5, and on December 31 had been lowered 103 feet.

Kaska-William Colliery Disaster.

On May 26, 1898, Wm. Morgan, a loader boss, Wm. Derr, a pump runner, Martin Molochus, Peter Durkin, Vindle Proboiski and Paul Katsouski, laborers, met their death at the Kaska-William colliery, operated by the Dodson Coal Company, by water breaking in from old workings which had been abandoned many years before. A tunnel was being driven from the Seven-foot vein on the shaft level, south. The tunnel men were working by night, and the laborers were loading the stuff by day. The tunnel men had cut the bottom of the Orchard vein during the night of the twenty-fifth, with the last round of shots fired, but had not gone into the face of the tunnel after firing, so that they did not know that the vein had been cut. The fire boss, in making his rounds in the morning, discovered that the vein had been cut, and so reported to the inside foreman, who took some men with him and drilled a hole in the vein about six feet long to find its thickness. During this time the laborers above named were engaged in loading the stuff that had been cut by the shots fired during the night before. The colliery was idle on the twenty-sixth, and no men were at work in the inside slope, which is about 360 feet deep below the shaft level, the tunnel being 400 feet west of the top of the slope. About 11 o'clock in the forenoon, Wm. Morgan, who was working near the top of the slope, was let down the slope by Thomas Hawkins, the fire boss, to feed the mules, and Wm. Derr, the pump runner, who had been up the slope during the forenoon, was let down by Hawkins about 12 o'clock noon, to go to the pump. Hawkins remained at the top of the slope, expecting them to return soon, and was waiting to hoist them up. Between 12 o'clock and 1, the water broke in at the Orchard vein, which had been cut at the face of the tunnel. Hawkins heard the water coming and retreated toward the bottom of the shaft, and on the way met Mr. Flannigan, the inside foreman, who had been at the pump room at the bottom of the shaft, getting his dinner. They attempted to get back to the slope, but the water was rising rapidly at the bottom of the shaft, and they had to retreat up the shaft. The water rose to the roof at the bottom of the shaft, cutting off all communication with the inside slope, and the tunnel where the water had come

from. The steam pipes were broken by the rush, and the pumps at the bottom of the shaft were stopped. The water from the shaft was hoisted by tanks until the 28th, when one of the pumps was reached and started, the second pump being started the following day. On May 30 the shaft was clear of water and the work of clearing up the debris began. The top of the inside slope was closed, also the gangway between the top of the slope and the tunnel. The timber and track in the hoisting slope had all been washed down the slope, and the workings below were filled with water to within 166 feet of the top of the slope. The pump slope which is 75 feet west of the hoisting slope, was filled tight with stuff that had been washed out from the tunnel. The hoisting slope was retimbered down to the water, and the pumping of water out of it began on July 22. In the meantime, the cleaning up of the gangway from the top of the slope toward the tunnel was being done and the first body was found buried in the debris on the night of July 2, and the second body on July 9. The mouth of the tunnel was reached July 14, and the third body found on July 27 in the gangway west of the tunnel. The face of the tunnel was reached on August 16, when it was found that the old gangway on the Orchard vein, from which the water had come, was about 15 feet on a pitch of 50 degrees above the top of the tunnel. The body of the fourth man who was in the tunnel was not found and had evidently been washed down the slopes, along with a mule and three mine cars that were on the shaft level when the water broke in. The Orchard vein slope, from which this water broke in, had been abandoned many years ago and was caved in at the surface. In the latter part of 1896 the company began to reopen it and on February 10, 1897, got down to the water, which was 185 feet from the top of the slope. The water was being pumped out, but the slope being full of debris, it went down slowly and was finally stopped. On November 13, 1897, Mr. Thos. C. Reese, superintendent of the colliery, called at my office in regard to letters I had written to him on the 8th and 11th about the bad condition of the ventilation, and before leaving told me they were going to drive a tunnel from the Seven-foot vein on the shaft level to the Holmes and Primrose veins, then drive holes up on these veins to the tunnel, that had been driven from the upper lift of the old Orchard vein slope and tap the water at that level, so that this lift of the Holmes and Primrose could be worked, leaving the lower lift of the Orchard unworked. I immediately got out the Geological Section, which was the only section in my possession, and which showed that the Orchard vein did not come down to the level of the proposed tunnel, so that it would not be of any use to drive the tunnel any farther than the Primrose vein if the section was correct; and, if it was not correct, it would be of no use, as the Orchard vein had been already worked. As this

plan was perfectly feasible, I could raise no objections, and considered it would not need much watching until the Primrose vein had been cut and the holes were being driven up the pitch, and only then after they had been driven up a couple of hundred feet, as there was ground enough above that to allow for any inaccuracy in the elevations which the Geological Section had marked as only estimated, and which could not be relied upon. During the following week I noticed an advertisement in the "Daily Republican," of Pottsville, inviting proposals to drive the tunnel, from the Seven-foot vein to the Primrose vein, and on November 20, a contractor called at my office with a proposal for driving the tunnel, and wanting my opinion as to prices. This proposal also plainly stated that the tunnel was to be driven from the Seven-foot to the Primrose vein, and with the advertisement agreed exactly with the plan that had been talked of in my office. I visited the colliery on January 13, 1898, and found the tunnel had been started two days before, and had been driven in ten feet. I visited the colliery again on January 31, but was not in the tunnel on this visit. On March 23 I again visited the colliery, and was in the tunnel which had just cut the bottom of a vein, which I supposed to be the Holmes, and which it afterwards proved to be. During these visits, nothing was said of any change of plan or intention to drive the tunnel farther than the Primrose vein. After the water had broken in on May 26th, I found that the tunnel had been driven beyond the Primrose vein and had cut the Orchard vein, which had come down below the level of the tunnel, instead of making a basin above, as the Geological Section had shown. That the Geological Section was not correct was plainly apparent after the Holmes vein had been passed and when the Primrose vein had been reached, and the tunnel continued, it was plain that the Orchard could be cut on this level, and the superintendent had been expecting it to be cut for several days before. Yet, knowing this, he failed to take the ordinary precautions which were necessary for the safety of the lives and property under his charge. On the day before the accident, an official of the Lehigh Coal and Navigation Company, from which the colliery is leased, knowing that the tunnel was being driven, but not knowing how far it was intended to go, wrote to the superintendent, Thos. C. Reese, telling him that there was a section in that office which showed that the Orchard workings were nearly down to the level of the tunnel, and advising him that it were best to take no chances, but to keep a drill hole ahead after going in 570 feet. This letter was received by Reese in the morning, before the accident occurred, but the tunnel was in farther than 570 feet and the vein had been cut. Reese went into the tunnel about 11 A. M., along with Inside Foreman Flanigan, and told him of receiving a queer letter, but did not say what it was about. The boss la-

lover, it seems, had been in the habit of firing any holes left unfired by the tunnel men, during the day shift. That morning there had been a top hole left unfired. The contractor said he had put the blasting battery in the box and locked it before he left that morning, the boss laborer also having a key to the box. After the accident the blasting battery was found washed out near the pump room with the wires attached. The box in which it was kept has not been found yet, so that it is evident that after Reese and Flanigan left the tunnel, the boss laborer had fired this top hole, and no doubt put powder in the hole that had been drilled to test the vein and fired that also, which broke the barrier of coal between the tunnel and the water. This barrier had held the water back for ten or eleven hours, after the tunnel men had fired during the night, and both Reese and Flanigan testified that when they were in the tunnel last, an hour before the water broke in, there was no sign of water more than usual, and even at that late hour, after receiving the warning, had the men been taken out or prevented from firing until flank holes had been driven on both sides and up the pitch, the accident could have been averted, as the coal between the tunnel and the old gangway would have held the water, if no blasting had been done. An inquest was held on September 5th and the jury rendered a verdict that "the accident occurred through the misleading maps and drafts whereby six men had lost their lives by drowning." At this inquest, the superintendent, Thos. C. Reese, stated to the jury that he had asked the Inspector, when he had told him of the intention to start the tunnel, whether it would be necessary to keep a drill hole in advance, and that the Inspector had said it was not, and that all inquiry possible had been made in regard to finding the depth of the old Orchard workings, and from what he could learn, the slope was not as deep as the tunnel. In regard to keeping a drill hole ahead from the time the tunnel was started, nothing was said about it at the time, but had I been asked I certainly would have said that it was not necessary to keep a hole ahead until the Primrose vein had been reached, and had the tunnel been stopped at the Primrose vein, as I was informed it would be by the superintendent, and by the printed notices, it is plain that there would have been no necessity for a drill hole ahead, and the accident would not have occurred in the tunnel at least. That proper inquiry had not been made as to the old Orchard vein workings was evident from the letter received by the superintendent on the morning of the accident, which proved conclusively that such information was available, also showing that the Orchard vein workings were near the level of the tunnel, if it had been sought. There were also sections in possession of other mining engineers showing the same thing, from whom no information was asked. Even the company's engineer, who might

have constructed a section as the veins were being cut in the tunnel, which would have shown the error in the Geological Section and very nearly the true position of the old workings, was not consulted other than to give a line for starting the tunnel.

I send with this report a sketch showing the ground plan of part of the colliery from the bottom of the shaft eastward to the tunnel from the bottom split of the Mammoth vein, on which the inside slope is sunk; also the gangway westward on the top split from the top of the inside slope to the tunnel driven south to the Orchard vein where the water broke in. The connections from the mouth of this tunnel to the pump rooms at each side of the shaft are also shown with the tidal elevations of the bottom of the shaft, top and bottom of the inside slope, and the south end of the tunnel and old gangway above. The Red Ash slope which is on the Orchard vein and the old workings from this slope on the Orchard, Primrose and Holmes veins, from which the water came, are shown by dotted lines, as taken from the colliery maps, indicating that their position could only be shown approximately. However, it can be seen by this sketch that the supposed position of the lower gangways on the Orchard vein was very close to its true position, as the end of the tunnel is close to the old gangway, the difference of level between the bottom of the tunnel and the bottom of the old gangway being less than 20 feet. I also send on the same sheet a cross section of the veins from the bottom split of the Mammoth vein at the bottom of the shaft to the Orchard vein as cut at the face of the south tunnel. This section shows in heavy lines the position of the veins as they have been cut by the tunnel with the old Orchard vein gangway a few feet above the south end. The dotted lines show the position of the Orchard, Primrose and Holmes veins, as shown on cross section line No. 15 of the Second Geological Survey, from which it can plainly be seen that if the Geological Section had been correct it would have been useless to drive the tunnel further than the Primrose vein, as it would have reached the land line before any workable coal of any account was cut. It can also readily be seen that after the Holmes and Primrose veins had been cut, any person possessed of ordinary knowledge of mining and a tape line and clinometer could readily have seen that the geological section was not correct, and knowing this, would have taken some precautionary measures for the protection of life and property.

I do not hesitate to say plainly that this disaster was caused by the misrepresentation and incompetent management of the superintendent in charge, whose previous training was not of such a character as to qualify him to take charge of a colliery of this kind. The condition of the colliery had been poor for two years before this accident, as is evidenced by records of my visits which have been frequent, and by correspondence relating thereto.

Injunction Proceedings.

In order to enforce compliance with the mine law and on account of the dangerous condition of the mine workings of the Marion colliery, which is situated in East Norwegian township, and is operated by the Marion Coal Company, of which Mr. J. N. Rice, of Scranton, is President, I was compelled to apply to the courts for an injunction to restrain the company from working or operating the colliery until the danger was removed and the mine law complied with. The Marion Coal Company had been in possession of and operating this colliery for about two years prior to June, 1898, during which time the work of mining was carried on in a most reckless manner, regardless of the requirements of the mine law, and under the worst kind of management, the consequences of which were that no attention was being paid to anything pertaining to ventilation, and the general condition of the colliery being neglected, it was soon in a bad condition. During these two years I had made many visits to the colliery and had many times called the attention of the superintendent and the inside foreman to the bad condition of affairs, and had several times requested that portions of the work be stopped until it could be properly ventilated and placed in proper condition to work. These requests were not only not complied with, but no attention or answer was given to my written communications, and the mine laws were being completely ignored, so that it was evident that only by an appeal to the courts could the laws provided for the health and safety of the workmen be enforced.

On May 17, after a consultation with Mr. Robt. Brownlee, Chief of the Bureau of Mines, about the condition of the colliery, we called on S. H. Kaercher, attorney-at-law, and arranged with him to bring the matter before the court, provided no attention was paid to the complaint which was made by the Inspector at that time, a copy of which was sent by our attorney to the President of the company. A meeting was arranged for May 21st, at which Dr. Rice promised to have the matters complained of attended to with all possible speed. However, nothing was done except to continue on trying to work with the existing, self-inflicted difficulties unchanged, and the condition of the colliery was becoming more unsafe through neglect and incompetence, and the interference of the Doctor, who, knowing nothing about mining, had peculiar ideas of his own as to how things should be done, and was periodically visiting the mines and insisting on the bosses carrying out his orders, regardless of any mine laws and their knowledge that they were doing wrong by so doing. I again visited the colliery on June 13, and found it in a deplorable condition. There was practically no ventilation where the miners were working and most of the working places con-

tained explosive gas. The Lewis vein slope, which was the only place where men could be lowered into or hoisted from the mine, was in bad condition as to timbering. The track was in such bad condition that the loaded cars were frequently leaving it, which prevented much business from being done, and there was danger of closing the slope by knocking out the timbers. The cars were leaving the track when the men were being lowered and hoisted, and many of them had been pulled up over 900 feet with the cars jolting over the sills and scraping the timber, greatly endangering their lives. The workings of the Big Tracy vein on the third or "gate level," which covered a large area, were nearly filled with explosive gas and in danger of being ignited by the pump men and others in the upcast. On getting out of the mine I immediately notified the President and superintendent that I would apply for an injunction to stop the working of the colliery until the danger was removed and the mine laws complied with, at the expiration of twenty hours' notice, as required by law, and at once with my attorney I began to prepare the necessary papers, asking for an injunction, the specific charges in which were:

"That the said Marion colliery is a mine generating explosive gases and is operated by a slope sunk on the Lewis vein, which said slope is used for hoisting and lowering the men employed and the coal mined at the said colliery. That the said Lewis vein is connected with the Little Tracy vein, and an airhole in said latter vein is used as the main upcast airway, and as a pump way in said mine.

"That the slope at said colliery in said Lewis vein is nearly 1,200 feet in length and is the only way by which workmen can be lowered or hoisted to and from their working places. That the said slope is in a very dangerous condition for the greater part of its length by reason of unsound timbers, the timbering not having been properly set when the slope was reopened, and there is constant danger of the timbers breaking, falling out and endangering the lives of the men and boys employed in the said mines in passing up and down said slope.

"That by reason of the faulty construction of the roadway or track in said slope, in the Lewis vein, the cars frequently jump the tracks while passing up and down, thus endangering the lives of the workmen; that there is imminent danger of knocking out the timbers, breaking the ropes, chains and other appliances, and of closing the slope while the men are engaged at their work.

That the defendants have neglected to provide adequate ventilation in said mine or colliery, as required by sections 3 and 4 of article 16 of the Anthracite Mine Law, approved the second day of June, 1891, (P. L. 176), and through said neglect, dangerous and noxious gases have accumulated to the injury of the health and to the great danger of the lives of the men and boys employed therein. That

the workings of the Big Tracy vein on what is known as the Third lift or gate level, covering an area of several acres, are nearly filled with explosive gas, which is liable to be forced into the main upcast airway, which is also used as a pumpway, and is liable to be ignited by the pumpmen and others working therein, thus greatly endangering the lives of the men and boys employed in the underground workings of said colliery.

"That by reason of the inadequate ventilation of said mine or colliery, the said mine is not in a fit state for the men to work therein, and the said mine is dangerous to health and lives of said workmen.

"That your orator has from time to time given notice to the said Abednego Reese, superintendent of said colliery, to put said mine or colliery in a safe and proper condition by securing the proper ventilation thereof, and by retimbering the main slope on the said Lewis vein, but he has refused and still does refuse to comply with said requests.

"Wherefore, your orator asks for equitable relief, etc."

On June 17 an order granting a preliminary injunction was issued by the Hon. O. P. Bechtel, judge of common pleas, and the colliery was stopped, and Monday, June 20, fixed for a hearing on the motion to continue or dissolve the injunction. The hearing began on the 20th of June, before the Hon. R. H. Koch, A. L. J., and was continued on the 21st, and finished on the 22d. In the meantime a large force of men was being employed night and day to remove the gas from the workings. Some of them, after being in the mine all night, removing gas, were brought into court during the day to swear that there had never been any dangerous bodies of gas in the mine and that the mine was perfectly safe. Expert (?) witnesses, whom I doubt had ever had anything to do with the slope before, were brought to examine the Lewis vein slope, and, notwithstanding that many of the timbers were from 25 to 30 degrees below a right angle, and had to be held in place by other timbers, swore that the slope was in good condition and better than the average slope of other regions, of which they professed to be familiar, and, although many of the timbers were shattered and torn by the cars jumping the track, swore the track was perfect and could not be improved upon. While some of the workmen fearlessly told the truth, many were afraid of losing their work and swore that they considered the mine safe to work in. Notwithstanding the desperate efforts to prove that the mine was safe, the honorable court continued the injunction and the large force of men was kept on to repair the airways and remove the gas, until on July 1, the company made application to have the injunction modified so as to allow them to work a part of the mine which they claimed to have ventilated, but did not want to work the whole mine,

as there were some places not ready. They also claimed that the Big Tracy workings were clear of gas. The court then appointed Mr. David J. Price, as a disinterested party to visit and examine the mine in company with the Inspector and superintendent and make a report of its condition as far as ventilation was concerned. This examination was made on the 1st and 2d of July. The Big Tracy vein workings were found to be clear of gas but the work of ventilating the lower workings had not been completed far enough to warrant them being started. On July 8, the Inspector, in company with Mr. Edward Brennan, Inspector of Mines for the Seventh anthracite district, and Mr. Isaac Waters, Inspector for the Philadelphia and Reading Coal and Iron Company, made a careful examination of the timbering and track of the Lewis vein slope and found that while some little timbering had been done in the slope it was yet in a bad condition. The track which had been sworn to as being perfect, had not been touched, and was in a very bad condition to attempt to hoist a wagon of coal over, much less lower and hoist men, some of the rails not having a spike to hold them for their whole length, but were hanging together by the fish plate bolts, the track out of gauge in many places and in others one rail higher than the other. That this state of affairs should have been found nearly four weeks after the injunction proceedings were begun was an outrage on the parties whose money was invested, as well as those whose lives were placed in jeopardy by having to ride up and down the slope. As soon as this was pointed out to the officials, a large party of men were put to work to repair the track and were kept on night and day, Sunday included, to get it ready to start to work on Monday morning, July 11, when permission was granted by the court to work part of the colliery, the Inspector designating the number of men to work in each gangway until the balance of the work could be got ready, provided the defendant pay the expenses so far incurred, which was done. Work was continued in repairing the airways and on August 15, application having been made to have the injunction removed, after an examination by the Inspector, the honorable court issued the following order:

“And now, August 15, 1898, both parties to the above action being present at Chambers and agreeing, the motion to dissolve the preliminary injunction granted on the 17th of June, 1898, is made absolute, without prejudice, however, to the right of either side to proceed to final hearing, and with leave to the complainant at any time before final decree, for cause shown, to apply to the court to have the injunction heretofore granted, reinstated.”

(Signed.)

By the Court,
RICHARD H. KOCH,
A. L. J.

The colliery started to work again in full force on August 16, the ventilation of the lower levels being ample if they were attended to, and kept up to the working faces as they were being advanced.

At the same time that the injunction proceedings began, the Inspector also preferred charges against the superintendent, Abednego Reese, James Smith, the inside foreman, and John H. Russell, fire boss, as being negligently guilty of an offence against the provisions of the sixth paragraph of section 2 of article 10, of the Anthracite Mine Law, whereby a dangerous accident might have resulted to the persons employed at said mine or colliery, and warrants were issued for their arrest. These cases were brought before the court at the conclusion of the hearing of the injunction case on June 22. The defendants plead guilty and requested to have the charges withdrawn, agreeing to pay the costs, and would promise the court that hereafter they would comply with the mine law. The Inspector agreeing to this, the Hon. Richard H. Koch, A. L. J., issued the following order:

"And now, June 22, 1898, the defendants within named appeared before me in open court and agreed to comply with the mine laws of this Commonwealth, whereupon the prosecutor withdrew the charge and the defendants were discharged."

The prosecution of these officials was the result of their neglect to comply with the mine law, for which in many instances they were directly responsible, and which could not be charged to their superiors, and, to impress on them that while not wishing to interfere with their duty to their employer, they also had a duty to perform to the State and to the men under their charge, whose health and safety they were responsible for.

Arbitration.

At the Marion colliery, shortly after it had been taken possession of by the Marion Coal Company, the ventilating fan was connected to the top of the Little Tracy vein slope to avoid repairing the upcast airway which is in the Little Tracy vein west of the slope, and was then being used. This arrangement caused this slope to be the main upcast, and caused the pumps and pumpmen to be in the return airway, the air current in which was traveling at a very high velocity, and was liable to be charged with explosive gas at any time. I objected to this arrangement, as I did not consider it safe for the men working in the lower lifts, as there have been many instances on record in this region where sudden outbursts of gas are frequent, where explosions have occurred by the gas being ignited in the upcasts or return airways, where safety lamps were being used, resulting in loss of life and great destruction to property. No

attention was paid to these protests, but in the early part of the year the pumps were taken out of the Lewis vein slope and with steam and column lines were placed in the upcast, also the wire rope used for hoisting from an inside slope was run down this airway from an engine placed on the surface, which necessitated additional men being kept in the upcast at all times to attend to repairs. Three new lifts were also being prepared to start work in the Lewis vein, which was gaseous, and which would increase the danger in the upcast, which was the only second opening to the mine. I wrote to the superintendent several times, protesting against it, and requesting that the proper airway be repaired, which would not require a very great outlay of money, so that the pumpmen and others could be kept out of the return. No attention having been paid to these protests or answer made to any communications, I wrote to the President of the company, demanding that the unsafe conditions be remedied. He considered it perfectly safe, and as there is nothing in the mine law to prevent pumps or anything else being placed in the main upcast of a gaseous mine, wrote me the following letter, requesting me to settle by arbitration, and appointing his arbitrator:

The Marion Coal Company,
Mines at Pottsville, Pa.,
Scranton, Pa., June 11, 1898.

Mr. John Maguire, Mine Inspector Eighth District, Pottsville, Pa.:

Dear Sir: Your communication of June 7 at hand and contents carefully noted. Since I first became aware of your objection to the location of the pumping plant at the Marion colliery, I have given the matter very serious consideration. Notwithstanding all you say in your communication, I am still of the opinion that it is much safer and better for the health and comfort of the men employed therein than if it would be located in the downcast. I have also sought the advice of a large number of thoroughly competent mine foremen and have not yet found one whose opinion coincided with yours.

Yesterday I took the general superintendent of a mine which is noted as being the most gaseous of any in the United States, and probably in the world, through the Marion colliery. After going over the matter carefully, he fully coincided with my view that the present location of the pumping plant is the proper one. In his opinion it is absolutely safe and should remain in its present position.

This being a matter not covered by the mine law, I assume that you will have no objection to leaving it to arbitrators as provided in cases where the Mine Inspector and the owner disagree as to any matter not covered by the mine law.

I have therefore chosen Mr. John B. Law, of Pittston, Pa., as my arbitrator. If you will kindly appoint an arbitrator, they will appoint a third man and will settle this matter without any further trouble.

(Signed.)

Very truly,

J. N. RICE,
President.

Having had Mine Inspectors William Stein and Edward Brennan to make an examination with me of this return airway, they coinciding with my opinion, and knowing that I would be sustained by any thoroughly practical board of arbitrators, I at once agreed to arbitrate, and replied by the following letter, naming my arbitrator:

June 15, 1898.

Mr. J. N. Rice, President of the Marion Coal Company, Scranton, Pa.:

Dear Sir: Your letter of the 11th inst. received last evening and contents noted. In regard to your request that the question as to whether it is safe and proper that the main upcast of a gaseous colliery should also be used as a pumpway, with the pumpmen midway in said upcast and in an air current traveling at a very high velocity, which is liable to be charged with explosive gas at any time, said upcast being in close proximity to large bodies of gas, be submitted to arbitrators. Your letter also names Mr. J. B. Law, of Pittston, Pa., as your arbitrator. In reply I will say that I am willing to arbitrate this question as to the upcast being used as a pumpway, and name Mr. Matthew Beddow, of Minersville, Pa., as my arbitrator, and would suggest that Messrs. Law and Beddow meet at Pottsville, on Saturday next, 18th inst., to choose the third man. Said arbitration to be independent of the injunction proceedings now pending.

Yours truly,

JOHN MAGUIRE,
Inspector of Mines.

The arbitrators met and after several consultations finally decided on the selection of Mr. Edward Reese, of Park Place, superintendent for Lentz & Co., as the third arbitrator. The arbitrators, after making a thorough examination of the upcast airway and its surroundings, agreed on the following report, which speaks for itself, as to the able manner in which they covered the ground:

To John Maguire, Mine Inspector, Eighth Anthracite District,

Marion Coal Company, J. N. Rice, Esq., President:

Gentlemen: We, the undersigned arbitrators selected to decide the point at issue between Mr. John Maguire, Inspector of Mines

for the Eighth anthracite district, and J. N. Rice, Esq., President of the Marion Coal Company, to wit:

“As to the safety and propriety of using the main upcast airway of the Marion colliery, in East Norwegian township, Schuylkill county, Pennsylvania, as a rope way for an underground slope and for a pump way,” report as follows:

That on the 29th day of July, 1898, in company with Mr. John Maguire and Mr. Abednego Reese, the superintendent of the Marion Coal Company, we carefully examined the upcast airway of the Marion colliery in which we found the velocity of the the return air to be not less than 800 feet per minute; we also find the renewal of pulleys and making the necessary repairs, etc., requires the constant care of at least one person. We further find that to run and care for the pumps in this airway will require the constant attention of a pumpman day and night, and to make repairs to the pumps and steam and column lines will require the presence of several men in addition to the pumpman, as the necessity may require.

The only means of egress from the pumps stationed in this airway are up to the fan a distance of over 600 feet on an average pitch of about 30 degrees, or down on the same pitch a distance of about 300 feet and out by way of the main hoisting slope, which is in the Lewis vein. The main upcast airway of this colliery is in the Little Tracy vein, and besides being the only second opening to the colliery, is the only place of escapement for all the gas generated in this mine, which, in addition to the present four workable lifts on the Lewis vein, includes several worked out or abandoned lifts of the Lewis, Little and Big Tracy veins, the main portion of which are now inaccessible, and therefore cannot be properly examined. Having inspected and examined the main upcast airway, we returned to Pottsville and met at the office of Mr. John Maguire, the Mine Inspector, where, after a careful examination of the maps of the Marion colliery, and having carefully examined the Mine Inspector's report of this district in reference to the terrific outbursts of gas which so frequently occur in the deep mines of this region, we decided, that by reason of the close proximity of this airway to the old and abandoned workings, and the liability of outbursts of explosive gas in the deep or new workings of this colliery, that the return air in the upcast is liable to become explosive at any time.

Whereas: In view of the above facts, we unanimously find that it is not safe or proper, even with safety lamps, to use the main upcast airway of the Marion colliery as a pumpway or ropeway for an underground slope, with the conditions existing at the time that the examination of the same was made, and would suggest that the Marion Coal Company enlarge the return airway of the Tracy vein

sufficiently to properly ventilate the colliery without using the present Tracy slope.

During the progress of this work, we recommend that the colliery be allowed to continue working, providing the velocity of the air in the portion of the Tracy slope traveled by the pump men be reduced to below 450 feet per minute.

The colliery officials are to use due diligence in prosecuting the work of reopening and enlarging the Tracy vein return airway, the time to be allowed for the completion of same to be not greater than three months from the date of this notice.

Respectfully yours,
JNO. B. LAW,
MATTHEW BEDDOW,
EDWARD REESE,
Arbitrators.

Pittston, Pa., August 15, 1898.

Shortly after this report was made, work was started to repair and enlarge the air hole on the Little Tracy vein, west of the slope, as recommended by the arbitrators, and could have been completed by November 1, but in the meantime there had been two changes made in superintendents, and the work, when near completion, was allowed to stand. On visiting the colliery on December 29, I found it yet unfinished and nothing being done at it, and that the Big Tracy vein workings on the third lift were again full of explosive gas which was feeding out into the main upcast in which the pumpmen were still working.

I was again compelled to notify the officials not to allow any work to be done in the lower levels until the source of danger was removed and the airway completed.

This notice to stop mining, however, was not necessary at that time, as the lower levels, through extraordinary bad management and the bad arrangement of pumps were flooded with water, and coal was being brought from other collieries to keep the boilers warm.

The examination of candidates for certificates as mine foreman and assistant mine foreman for the Eighth anthracite district was held at Pottsville in June, 1898.

The examining board was composed of Thomas Doyle, superintendent; David Lucker and Frank Larkin, miners, and John Maguire, Mine Inspector.

The following were recommended to the Secretary of Internal Affairs for certificates of qualification:

George Minnichbach, Pottsville, and Anthony Barrett, St. Clair, as mine foremen.

Francis Reilly, Branchdale; William Bevan, St. Clair; Thomas Hobin, Glen Carbon; James Curry, Middleport; Zach. Ansbach, Silver Creek; John Rejan, Pottsville, as assistant mine foremen.

Table Showing the Number of Each Class of Employes in the Eighth Anthracite District in 1898.

Inside.	
Inside foremen,	57
Fire bosses,	102
Miners,	3,246
Miners' laborers,	1,456
Drivers and runners,	518
Door boys and helpers,	190
All other employes,	2,228
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Total inside in 1898,	7,797
Total inside in 1897,	8,212
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Decrease inside in 1898,	415
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Outside.	
Outside foremen,	51
Blacksmiths and carpenters,	225
Engineers and firemen,	527
Slate pickers,	2,062
Superintendents and clerks,	81
All other employes,	2,222
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Total outside in 1898,	5,168
Total outside in 1897,	5,280
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Decrease outside in 1898,	112
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Classification of Fatal and Non-Fatal Accidents for 1898.

Cause of Accidents.	Fatal, inside.		Non-fatal, inside.		Total, inside and outside.
	Fatal, inside.	Fatal, outside.	Non-fatal, inside.	Non-fatal, outside.	
Explosion of gas,	23		24		27
Explosion of blasts,	3		5		8
Explosion of powder,	1		1		1
Falls of coal,	3		19		22
Falls of slate and rock,	3		14		20
Falling down chute, manways and slope,	3		1		4
Smothered by gas after an explosion,	4				4
Suffocated on burning ash bank,	1				1
Smothered by rush of coal in chute,	1				1
Smothered by coal in bin in breaker,		1			1
Kicked by a mule,	1		2		3
Caught between cage and timber,	1		1		2
Drowned by a rush of water from old working,	6				6
By mine cars and dumpers,	1		11	6	18
By railroad cars,		1			1
By machinery,		1		7	8
By flying coal from cars in slope,	1				1
By flying coal from blasts,			4		4
Miscellaneous,			8	16	24
Total,	33	4	90	29	156

Nationalities of those Killed and Injured in 1898.

	Killed.	Injured.	Total.
Americans,	13	49	62
Germans,	2	11	13
English,	2	5	7
Irish,	5	11	16
Welsh,	3	12	15
Hungarians,	9	13	22
Poles,	3	12	15
Austrian,		4	4
Italians,		2	2
Total,	37	119	156

Names of Collieries where Fatal Accidents Occurred.

	Inside.	Outside.	Total.
West Brookside, No. 3 slope,	1		1
West Brookside, No. 4 slope,	1		1
West Brookside, East slope,	2		2
Eagle Hill,	1		1
Silver Creek,	2		2
Wadesville,	1		1
Lehigh Coal and Navigation, No. 8 colliery,	4		4
Lehigh Coal and Navigation, No. 11 colliery,	2		2
Morsha,	3	1	4
Kaska-William,	8		8
Greenwood,	1		1
West Lehigh,	1		1
Albright,	1	1	2
Marion,	2	1	3
Williams,	1	1	2
Pine Hill,	2		2
Total,	33	4	37

TABLE I.—Showing Location, etc., of Collieries in the Eighth Anthracite District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Post-office Address.	Name of Railroad to Mine.
47	West Brookside,	Phila. & Reading C. & I. Co., ..	Schuylkill,	R. C. Luther Gen'l Supt.,	Pottsville,	P.
43	Lincoln,	Phila. & Reading C. & I. Co., ..	Schuylkill,	John Veith, Mining Supt.,	Pottsville,	P.
46	Good Spring,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
40	Otto,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
38	Phoenix Park No. 3,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
23	Thomaston,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
29	Richardson,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
30	Glendower,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
14	Pine Forest,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
13	Eagle Hill,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
11	Silver Creek,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
21	Wadesville,	Phila. & Reading C. & I. Co., ..	Schuylkill,	.....	Pottsville,	P.
3	L. C. & N., No. 8 colliery,	Lehigh Coal & Nav. Co.,	Schuylkill,	W. D. Zehner, Supt.,	Landsford,	C.
4	L. C. & N., No. 9 colliery,	Lehigh Coal & Nav. Co.,	Schuylkill,	Bard Snyder, Jr., As. Sup.,	Landsford,	C.
2	L. C. & N., No. 11 colliery,	Lehigh Coal & Nav. Co.,	Schuylkill,	.....	Landsford,	C.
2	L. C. & N., No. 12 colliery,	Lehigh Coal & Nav. Co.,	Schuylkill,	.....	Landsford,	C.
25	York Farm,	Lehigh Valley Coal Co.,	Schuylkill,	.....	Landsford,	C.
19	Morea,	Dodson Coal Co.,	Schuylkill,	W. A. Lathrop, Gen. Sup.,	Wilkes-Barre,	L. V.
10	Kaska-William,	Dodson Coal Co.,	Schuylkill,	William Leckie, Supt.,	Wilkes-Barre,	L. V.
16	St. Clair,	St. Clair Coal Co.,	Schuylkill,	E. L. Bullock, Gen. Supt.,	Moresa,	L. V.
5	Greenwood,	Bedall Bros.,	Schuylkill,	Elmer E. Evans,	Audensreid,	P. & R.
6	East Lehigh,	Dunkleberger & Shepp,	Schuylkill,	E. L. Bullock, Gen. Supt.,	Pottsville,	P. & R.
7	West Lehigh,	Dunkleberger & Shepp,	Schuylkill,	Thomas C. Reese, Supt.,	St. Clair,	P. & R.
31	Oak Hill,	Leisenring & Co.,	Schuylkill,	Richard R. Williams,	Tamaqua,	C. R. R. of N. J.
34	Apple,	Lyle Coal Co.,	Schuylkill,	M. A. Gerber,	Tamaqua,	C. R. R. of N. J.
32	Albright,	Albright Coal Co.,	Schuylkill,	John Young,	Duncott,	P. & R.
20	Marlton,	Marlton Coal Co.,	Schuylkill,	Walter Leisenring,	Minersville,	P. & R.
26	Ellsworth,	Duncott Bros.,	Schuylkill,	Arthur Kennedy,	Minersville,	P. & R.
18	Roberts,	Roberts Coal Co.,	Schuylkill,	L. S. Watres,	Pottsville,	P. & R.
22	Howard,	E. C. White & Co.,	Schuylkill,	John H. Davis,	Pottsville,	P. & R.
15	Mt. Hope,	Mt. Hope Coal Co.,	Schuylkill,	Richard White,	Hazleton,	P. & R.
48	Williams,	Williams Coal Co.,	Schuylkill,	S. D. Kneer,	Pottsville,	P. & R.
27	Past Rider,	East Ridge Coal Co.,	Schuylkill,	E. F. Williams,	Pottsville,	P. & R.
35	Pine Hill,	Pine Hill Coal Co.,	Schuylkill,	E. M. Jones,	Minersville,	P. & R.
				Richard J. Wren,	Minersville,	P. & R.

TABLE I.—Continued.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Post-office Address.	Name of Railroad to Mine.
44	Lorberry.	Lesch, Moore & Co.,	Schuylkill.	Simon Moore,	Tremont,	P. & R.
52	Little Diamond,	F. J. Simons,	Schuylkill.	F. J. Simons,	Schuylkill Haven,	P. & R.
7	Tell,	Gorman, Campion & Co.,	Schuylkill.	Edward Gorman,	Tuscarora,	P. & R.
9	Tuscarora,	Slattery Bros.,	Schuylkill.	Daniel Slattery,	Tuscarora,	P. & R.
23	Jonestown,	Joseph R. Whims,	Schuylkill.	Joseph R. Whims,	St. Clair,	P. & R.
49	Junco,	Reynolds & Whims,	Schuylkill.	James J. Whims,	St. Clair,	P. & R.
50	Woodside,	Woodside Coal Co.,	Schuylkill.	E. W. Jones,	Minersville,	P. & R.
53	Wolf Creek Washery,	Stoddard Coal Co.,	Schuylkill.	J. I. Hollenbeck,	Pottsville,	P. & R.
12	Palmer Washery,	Layler & McTurk,	Schuylkill.	P. J. Kelly,	Silver Creek P. O.,	P. & R.
17	Broad Mountain Washery,	Eagan & Whims,	Schuylkill.	Jas. J. Whims,	St. Clair,	P. & R.
45	Kalmia Washery,	P. R. C. & I. Co.,	Schuylkill.	R. C. Luther,	Pottsville,	P. & R.
36	Manhattan Washery,	Manhattan Coal Co.,	Schuylkill.	Martin Otterbein,	Pottsville,	P. & R.

TABLE II.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Eighth Anthracite District, for the year ending December 31, 1898.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad shipments in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.
West Brookside,	Schuylkill	401,226	24,685	.....	371,531	195.8	1,302	4	11
Lehigh,	Schuylkill	228,562	20,931	2,965	204,726	196.9	680	.....	6
Good Spring,	Schuylkill	142,214	11,227	2,126	128,551	174.9	450	.....	7
Otto,	Schuylkill	143,492	40,714	1,164	101,614	131.3	471	.....	1
Phoenix Park No. 3,	Schuylkill	68,296	11,507	690	56,099	130.7	295	.....	3
Thomaston,	Schuylkill	48,285	7,842	318	40,425	51.7	613	.....	1
Richardson,	Schuylkill	118,503	19,320	379	98,794	133.8	316	.....	6
Glendower,	Schuylkill	119,178	23,437	269	95,512	135	440	.....	3
Pine Forest,	Schuylkill	18,639	2,933	712	14,394	27	586	.....	3
Eagle Hill,	Schuylkill	179,580	26,300	1,159	132,021	132.5	396	.....	2
Silver Creek,	Schuylkill	253,536	53,473	2,150	226,411	133.1	101	2	1
Wadesville,	Schuylkill	16,371	16,150	181	.....	.....	116	1	1
Moble Creek,	Schuylkill	914,351	11,681	3,526	198,740	163.1	207	4	7
Lehigh Coal and Navigation, No. 8 colliery,	Schuylkill	100,700	17,836	4,638	107,896	168.8	553	.....	3
Lehigh Coal and Navigation, No. 11 colliery,	Schuylkill	193,334	13,130	3,958	176,246	163.3	443	2	.....
Lehigh Coal and Navigation, No. 6 colliery,	Schuylkill	95,723	8,658	.....	17,065	38.2	31	.....	.....
York Farm,	Schuylkill	95,976	12,319	23,978	59,679	165	360	.....	7
Blackwood,	Schuylkill	669	.....	387	282	.....	4	.....	.....
Morosa,	Schuylkill	243,083	22,000	733	220,350	214	520	4	5
Kaska-William,	Schuylkill	88,874	20,565	783	67,546	167	207	8	2
St. Clair,	Schuylkill	145,403	13,362	1,566	130,565	146	473	.....	13
Greenwood,	Schuylkill	86,252	3,606	6,535	76,657	216	182	1	2
East Lehigh,	Schuylkill	6,259	176	2,129	4,003	229	25	.....	.....
West Lehigh,	Schuylkill	23,222	1,065	4,152	17,975	224	70	1	.....
Oak Hill,	Schuylkill	177,422	18,250	1,155	158,017	168	702	.....	2
Lyle,	Schuylkill	291,625	34,634	2,480	256,511	236	702	.....	11
Albright,	Schuylkill	15,267	1,616	.....	13,651	215	223	.....	4
Marion,	Schuylkill	52,246	25,530	1,472	25,294	212	290	2	6

TABLE II.—Continued.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad shipments in tons of coal.	Number days worked.	Number persons employed.	Number fatal accidents.	Number non-fatal accidents.
Ellsworth.	Schuykill.	23,795	2,000	179	21,526	201	65	.....	.....
Roberts.	Schuykill.	82,739	2,500	.....	30,239	158	87	.....	1
Howard.	Schuykill.	24,186	2,555	240	21,391	189	101	.....	.....
Mt. Hope.	Schuykill.	61,063	5,000	5,477	59,586	159	151	.....	.....
Williams.	Schuykill.	81,019	2,320	2,993	78,106	153	283	.....	.....
East Ridge.	Schuykill.	88,137	4,860	50	83,287	125	300	.....	.....
Pine Hill.	Schuykill.	33,908	4,236	473	28,245	181	185	.....	.....
Lorberry.	Schuykill.	37,295	1,540	1,305	36,445	171	159	.....	.....
Little Diamond.	Schuykill.	14,410	1,000	300	13,455	75	55	.....	.....
Del.	Schuykill.	10,384	90	551	13,370	132	41	.....	.....
Del.	Schuykill.	10,384	300	551	9,743	154	23	.....	.....
Schastopol.	Schuykill.	7,202	.....	6,802	.....	254	23	.....	.....
Jugular.	Schuykill.	7,004	81	66	6,917	127	22	.....	.....
Woodside.	Schuykill.	10	.....	10	.....	127	74	.....	.....
Total.	.....	4,062,845	477,045	88,921	3,486,879	6,221.1	12,863	37	116
Wolf Creek Washery.	.....	75,219	1,840	261	73,118	204	42	.....	.....
Palmer Washery.	.....	2,883	60	.....	2,823	12	32	.....	.....
Broad Mountain Washery.	.....	16,588	150	12	16,366	174	26	.....	.....
Kalmia Washery.	.....	241	48	.....	193	.....	2	.....	.....
Manhattan Washery.	.....	905	.....	.....	905	.....	.....	.....	.....
Grand total.	.....	4,158,651	479,143	89,194	3,550,314	6,611.1	12,965	37	119

*Not in operation; colliery filled with water.

TABLE II.—Continued.

Names of Collieries.	County.	Number kegs of powder used.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse power.	Number air compressors.
West Brookside,	Schuylkill	6,764	44,771	121	49	28	1,940	27	5,024	4
Lincoln,	Schuylkill	4,911	31,100	72	34	14	3,690	14	1,082	3
Good Spring,	Schuylkill	4,700	10,174	33	24	7	2,200	17	1,105	1
Otto,	Schuylkill	4,67	22,265	43	24	8	2,500	15	1,231	1
Phoenix Park No. 3,	Schuylkill	652	2,906	37	18	8	950	5	463	1
Thomaston,	Schuylkill	634	30,480	38	23	9	1,660	13	848	1
Richardson,	Schuylkill	1,675	9,028	71	23	9	2,215	8	1,380	1
Pine Forest,	Schuylkill	525	313	13	13	10	1,400	9	1,902	1
Eagle Hill,	Schuylkill	2,286	10,540	55	26	10	1,300	12	2,952	1
Silver Creek,	Schuylkill	3,611	8,607	66	14	4	1,800	8	3,963	1
Wadesville,	Schuylkill	27	18,105	8	10	4	1,800	8	3,963	1
Middle Creek,	Schuylkill	600	23,599	46	14	4	364	12	570	1
Lehigh Coal and Navigation, No. 8 colliery,	Schuylkill	1,600	13,323	89	39	10	8,343	8	353	1
Lehigh Coal and Navigation, No. 10 colliery,	Schuylkill	1,500	10,411	61	21	6	2,140	11	410	1
Lehigh Coal and Navigation, No. 11 colliery,	Schuylkill	940	3,600	22	15	6	2,160	11	475	1
Lehigh Coal and Navigation, No. 12 colliery,	Schuylkill	904	19,949	22	27	13	3,330	11	1,200	1
York Farm,	Schuylkill	.....	.....	.....	.....	.....	.....	.....	.....	.....
Blackwood,	Schuylkill	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morea,	Schuylkill	3,167	28,250	60	38	10	5,000	25	2,016	1
Kaska-William,	Schuylkill	605	15,640	15	16	9	6,500	9	1,110	1
St. Clair,	Schuylkill	3,605	7,226	20	11	10	2,537	25	680	1
Greenwood,	Schuylkill	1,650	3,750	14	8	5	1,200	8	215	1
East Lehigh,	Schuylkill	136	550	3	1	1	.....	3	56	1
West Lehigh,	Schuylkill	880	2,500	10	4	1	100	4	95	1
Oak Hill,	Schuylkill	6,054	17,100	23	22	6	5,000	12	2,000	1
Lytle,	Schuylkill	6,024	77,700	59	29	18	8,000	8	1,242	1
Albright,	Schuylkill	585	39,775	24	11	8	5,333	10	542	1
Wright,	Schuylkill	615	1,078	23	6	9	3,500	9	3,000	1
Filbert,	Schuylkill	.....	.....	.....	.....	.....	.....	.....	.....	.....
Roberts,	Schuylkill	438	5,200	6	7	2	300	2	110	1
Howard,	Schuylkill	432	.....	.....	.....	.....	.....	.....	.....	.....
Mt. Hope,	Schuylkill	1,800	12,150	18	13	3	1,200	10	293	1

TABLE II.—Continued.

Names of Collieries.	County.	Number kegs of powder used.	Number pounds of dynamite used.	Number horses and mules.	Number steam boilers.	Number of pumps, all classes.	Capacity in gallons.	Number of steam engines of all classes.	Total horse power.	Number air compressors.
Williams,	Schuykill,	2,326	7,350	21	4	4	1,500	5	700	.....
East Ridge,	Schuykill,	3,400	3,000	26	3	3	1,100	8	450	.....
Pine Hill,	Schuykill,	1,931	7,750	15	3	3	300	4	320	1
Leahurst,	Schuykill,	825	1,600	10	1	1	150	3	160	.....
Little Diamond,	Schuykill,	220	250	2	1	1	500	3	100	.....
Blair,	Schuykill,	475	850	4	1	1	250	2	60	.....
Tuscarora,	Schuykill,	650	500	6	1	1	.....	1	40	.....
Sehatopol,	Schuykill,	25	100	10	1	1	.....	1	40	.....
Jugular,	Schuykill,	3	100	4	1	1	.....	1	55	.....
Woodside,	Schuykill,	169	450	3	1	1	.....	1	55	.....
Total, .....	.....	63,669	519,460	1,287	587	241	83,943	331	36,298	12
Wolf Creek Washery,	Schuykill, .....	.....	.....	2	6	2	1,750	2	100	.....
Palmer Washery,	Schuykill, .....	.....	.....	5	1	1	800	2	40	.....
Broad Mountain Washery,	Schuykill, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kalmia Washery,	Schuykill, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manhattan Washery,	Schuykill, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grand total, .....	.....	63,669	519,460	1,274	596	245	86,493	337	36,493	12

*Not in operation; colliery filled with water.

No electric dynamos, electric or air locomotives in use.

TABLE III.—Showing the number of employees at each colliery in the Eighth Anthracite District, during the year 1898.

Names of Collieries.	Occupations of Persons Employed Inside.										Occupations of Persons Employed Outside.									
	Occupations of Persons Employed Inside.					Total Inside.					Occupations of Persons Employed Outside.					Total Outside.				
	Inside foreman or mine boss.	Five bosses.	Miners.	Miners' laborers.	Drivers and runners.	Doorboys and helpers.	All other employes.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, bookkeepers and clerks.	All other employes.	Total outside.	Grand total inside and outside.					
West Brookside.	7	1	322	205	59	32	285	912	18	40	144	3	182	340	1,302					
Lincoln	4	1	121	144	23	7	130	562	9	29	70	66	66	178	680					
Good Spring.	1	1	156	42	13	1	18	578	0	24	86	68	68	157	450					
Otto.	1	1	118	13	13	0	18	575	1	14	64	2	2	82	471					
Phoenix Park No. 3.	1	4	102	22	8	0	17	192	4	12	44	1	71	96	675					
Thomaston.	1	6	166	47	20	15	174	405	2	4	98	0	71	96	675					
Richardson.	1	1	72	14	12	13	14	190	1	16	56	46	128	316	1,066					
Glendon.	1	4	89	30	21	6	71	222	1	17	84	106	106	218	440					
Pine Forest.	4	4	149	31	12	1	61	227	4	16	81	65	169	396	596					
Eagle Hill.	5	1	182	23	21	5	111	349	8	18	129	88	247	596	888					
Shelby.	1	1	286	78	28	4	210	618	1	23	168	130	333	951	1,302					
Silver Creek.	1	11	8	19	2	0	13	41	1	6	16	51	75	116	116					
Wadesville.	1	1	8	19	2	0	13	41	1	6	16	51	75	116	116					
Middle Creek.	1	1	14	13	5	6	71	112	1	8	19	46	2	2	2					
Lehigh Coal and Navigation, No. 8 colliery.	1	6	88	57	31	14	133	338	1	8	23	98	85	215	553					
Lehigh Coal and Navigation, No. 10 colliery.	1	6	81	52	31	9	101	263	1	8	19	80	70	178	443					
Lehigh Coal and Navigation, No. 11 colliery.	1	1	109	43	2	2	12	16	1	6	6	6	8	18	31					
York Farm.	3	1	109	43	2	2	9	232	1	9	12	46	3	57	360					
Blackwood.	1	1	51	64	21	5	59	243	1	15	50	81	152	271	4					
Morea.	1	1	28	26	12	3	59	124	1	3	14	26	13	37	267					
Kaska-William.	1	2	79	100	13	7	38	232	1	14	70	83	130	241	473					
St. Clair.	1	1	44	18	8	2	32	110	1	1	5	31	42	82	192					
Greewood.	1	1	7	7	1	0	9	9	1	1	1	6	16	25	25					
East Lehigh.	1	1	21	6	5	2	2	37	1	3	15	2	10	33	70					
West Lehigh.	1	1	143	39	20	8	18	233	1	7	13	88	46	159	32					
Oak Hill.	4	6	172	82	27	4	142	434	1	18	32	90	124	268	702					
Lytle.	1	1	72	12	6	1	22	117	1	5	10	43	46	107	224					
Albright.	1	1	70	23	13	3	55	185	1	7	13	19	57	105	280					
Marion.	1	1	70	23	13	3	55	185	1	7	13	19	57	105	280					

TABLE III.—Continued.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
West Brookside,	26.7	16.2	11.7	8.1	10.8	18	21.6	19.8	16.2	14.8	19.2	18.7
Lincoln,	20.7	16	11.7	8.1	10.8	17.7	21.6	19.8	16.2	14.9	19.5	18.9
Good Spring,	20.7	16.2	11.7	7.2	8.1	11.7	12.6	13.3	15.3	15	21.6	21.3
Otto,	9.75	10.5	8	5.7	6.75	9.25	9.75	11.25	12.75	12.5	16.3	18
Phoenix Park No. 3,	9.75	10.5	12.75	18.75	6.75	9.75	10.5	10	10.5	12.75	17.25	17.2
Richardson,	9.75	9.8	14.75	18.75	6.75	9.75	10.5	11.95	12.75	12.75	17.25	17.75
Richardson,	9.75	10.5	9.75	6	6.75	9.75	10.5	11.25	12.75	12.75	17.25	17.75
Glendover,	9.75	10.5	9.75	6	6.75	9.75	10.5	11.25	12.75	12.75	17.25	17.75
Pine Forest,	9.75	10.5	9.75	6.1	6.1	9.75	10	11.3	12.4	12.6	17.1	17.9
Eagle Hill,	9.75	10.5	9.75	5.5	6.1	9.75	10.5	11.25	12.75	12.6	17.25	17.1
Silver Creek,	9.75	10.5	9.2	5.75	6.1	9.75	10.5	11.25	12.75	12.6	17.25	17.1
Wadesville,												
Middle Creek,												
Lehigh Coal and Navigation, No. 8 colliery,	15.7	9.8	9.9	10.5	9.1	14	13.6	17.9	17	16.4	16.4	18.8
Lehigh Coal and Navigation, No. 10 colliery,	16	9.4	9.7	10.8	7.9	13.6	14.8	17.4	15.5	19	18.1	16.6
Lehigh Coal and Navigation, No. 11 colliery,	15.5	9	9.8	10.6	8.5	13.3	14.1	17.5	14	17	18.4	15.5
Lehigh Coal and Navigation, No. 12 colliery,	17.2	10.6	10.4									
York Farm,	12.1	11.8	33.8	12.6	14.7	14.3	12.3	13.7	16	15.2	11.1	17.3
Blackwood,												
Morse,	19.8	18	15.8	11.4	11.4	17.3	18.2	18.2	20	19.7	21.7	22.8
Kappa, William,	13.5	10.8	10.8	17.2	16.5	17.3	18.2	18.2	23.5	20.5	18.5	18.5
Star Clair,	13.5	12.45	10.85	17.2	16.5	17.3	18.2	18.2	23.5	20.5	18.5	18.5
Greenwood,	19.8	14.2	15.5	16.8	15.2	18.4	17.6	19.5	17.5	21.4	16.95	19.5
East Lehigh,	22.5	19.2	19.2	16.8	13	17	15	20	21	20	21	22.5
West Lehigh,	20	18	23	13	13	17	15	20	21	20	23	25
Oak Hill,	11	14	20	13	13	17	15	20	21	20	23	25
Lytle,	11	14	12	7	7	12	14	17	20	17	18	19
Albright,	17.5	7.3	16.5	13.15	16	16	17.3	18.95	17.2	18.3	18.3	17.5
Albright,	20	21	18	11	10	17	18	20	17	18	23	22
Marion,	8		17	26	22	15	18	26	20	24	18	18

TABLE III. —Continued.

Names of Collieries.	Number of Days Worked Each Month in Breaker.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Ellsworth,	18	25	12	12.1	16.5	18	19	20	18.5	21	21	21
Roberts,	15.7	14.4	11.1	11.9	12.8	11.5	12.8	13.4	14.7	14.5	14.7	10.6
W. H. Hill,	12.5	13.6	16.4	9.6	14.2	17.6	16.4	14.7	15.1	19.4	19.4	20.4
McHone,	16.75	17.25	16	7.5	7	9	12	12.5	12.5	13	17	18.5
Williams,	13.1	11.15	10.75	6.75	7.5	10.75	14.3	13.05	14.25	14.25	16.05	17.35
East Ridge,	8.8	12.25	9.1	6.7	8.1	9.5	10.65	10.85	12.5	12.6	13.05	13.45
Pine Hill,	6.3	23.8	16.5	11.1	13.75	11.45	11.45	12.5	12.6	12.6	12.6	13.45
Lorberry,	44.8	13.3	13.4	13.2	14.5	15.8	15.7	17.2	14.6	14.6	16.3	16
Little Diamond,	29	23	23	19	19	19	10	11.5	13	13	17	16
Bell,	9.5	11.4	9	7	9.75	13	13	15	16	16	17	16
Tuscarora,	9	11	12	7	9.75	13	13	15	16	16	17	16
Sebastopol,	21	20	21	21	15	20	29	24	23	23	23	24
Jugular,	10	10	8	10	8	10	11	10	10	10	14	19
Woodside,	10	10	8	10	8	10	11	10	10	10	14	19
Total,	17	15.5	7.9	9.3	13.55	26.05	24.6	23.3	17	18.7	16.8	16.8
Wolf Creek Washery,	34.7	17	15.5	7.9	9.3	13.55	26.05	24.6	23.3	17	18.7	16.8
Palmer Washery,	7	5	21	15	18	21	17	9	7	14	6	6
Broad Mountain Washery,	24	22	21	15	18	21	17	9	7	14	6	6
Kalmia Washery,	24	22	21	15	18	21	17	9	7	14	6	6
Manhattan Washery,	24	22	21	15	18	21	17	9	7	14	6	6
Grand total,	17	15.5	7.9	9.3	13.55	26.05	24.6	23.3	17	18.7	16.8	16.8

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Eighth Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 20,	Richard Gray,	Miner,	34	M.	1	4	Silver Creek,	Schuylkill,	Leg broken by falling down chute; died January 20.
Mar. 7,	Sam. Göbbar,	Driver,	30	M.	1	1	Morea,	Schuylkill,	Jaw broken; kicked by a mule; died March 14.
7,	Sol. Bixler,	Miner,	36	M.	1	1	West Brookside,	Schuylkill,	Badly injured by a fall of slate; died March 8.
15,	James O'Donnell,	Laborer,	43	M.	1	6	Wadesville,	Schuylkill,	Killed in new shaft; caught between cage and shaft.
21,	Albert Buff,	Miner,	34	M.	1	5	Kaska William,	Schuylkill,	Killed by an explosion of shot while removing tamping.
23,	John Shadinski,	Miner,	30	S.	1	3	Kaska William,	Schuylkill,	Killed by a fall of coal.
25,	Winfield G. Barnhart,	Fire boss,	29	M.	1	3	Albright,	Schuylkill,	Killed by slate falling in slope while he was riding up.
May 5,	John Kay Batdorf,	Bottom man,	22	S.	1	1	Pine Hill,	Schuylkill,	Fell into sump after an explosion of gas and was drowned.
7,	Adam Luscaidze,	Laborer,	34	S.	1	1	Marion,	Schuylkill,	Killed by a fall of rock.
11,	James Ward,	Miner,	37	M.	1	4	L. C. & Nav. No. II,	Schuylkill,	Severely injured by falling down manway; died May 12.
13,	Frank Stapleton,	Miner,	29	M.	1	2	West Lehigh,	Schuylkill,	Killed by falling down manway.
26,	William Morgan,	Loader boss,	27	M.	1	2	Kaska William,	Schuylkill,	Drowned by water breaking in from old workings.
26,	William Derr,	Pump runner,	18	S.	1	2	Kaska William,	Schuylkill,	Drowned by water breaking in from old workings.
26,	Martin Molochus,	Laborer,	27	M.	1	2	Kaska William,	Schuylkill,	Drowned by water breaking in from old workings.
26,	Peter Durkin,	Laborer,	24	M.	1	1	Kaska William,	Schuylkill,	Drowned by water breaking in from old workings.
26,	Vindie Probyvsky,	Laborer,	40	M.	1	4	Kaska William,	Schuylkill,	Drowned by water breaking in from old workings.
26,	Paul Katskoutski,	Laborer,	22	S.	1	1	Kaska William,	Schuylkill,	Drowned by water breaking in from old workings.
June 20,	John Liechlitner,	Miner,	52	M.	1	7	West Brookside,	Schuylkill,	Killed by a fall of slate.
Aug. 8,	Andrew Bauer,	Miner,	30	M.	1	2	Pine Hill,	Schuylkill,	Killed by premature explosion of a blast.
Aug. 11,	William Reed,	Loader,	22	S.	1	2	West Brookside,	Schuylkill,	Killed by being caught between wagons and chute.

TABLE IV.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made	Widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Sept. 14,	John Trattara,	Car loader,	21	S.	1	1	4	Morsa,	Schuylkill,	Killed by being caught between car and breaker timber.
21,	Philip Miller,	Miner,	40	M.	1	1	4	Pine Hill,	Schuylkill,	Burned by explosion of gas; died October 5.
26,	Daniel Gldea,	Starter,	30	S.	1	1	2	L. C. & Nav. No. 11,	Schuylkill,	Killed by premature explosion of dynamite.
13,	Thomas Smith,	Pire boss,	42	M.	1	1	2	L. C. & Nav. No. 8,	Schuylkill,	Smothered by gases from mine fire after an explosion of hydrogen gas.
13,	Wm. R. Reese,	Miner,	46	M.	1	1	5	L. C. & Nav. No. 8,	Schuylkill,	Leg broken by fall of coal; died November 20.
13,	William Cook,	Miner,	36	M.	1	1	3	L. C. & Nav. No. 8,	Schuylkill,	Killed by an explosion of gas.
13,	John Ranick,	Miner,	36	M.	1	1	2	L. C. & Nav. No. 8,	Schuylkill,	Struck by flying coal at bottom of slope; died November 5.
15,	John Priestosh,	Miner,	36	M.	1	1	2	Morsa,	Schuylkill,	Suffocated on burning ash bank.
31,	James McIntyre,	Miner,	39	M.	1	1	10	Marion,	Schuylkill,	Smothered in chute by rush of coal.
Nov. 4,	Steve Gravo,	Miner,	34	M.	1	1	1	Williams,	Schuylkill,	Killed by a fall of slate.
13,	William Welsh,	Ash man,	21	S.	1	1	6	Marion,	Schuylkill,	Killed by being caught by revolving shaft at foot of coal.
19,	Bernard Higgins,	Starter,	38	M.	1	2	2	Greenwood,	Schuylkill,	Killed by a fall of rock.
19,	Wash Kaminsky,	Laborer,	40	M.	1	1	6	Morsa,	Schuylkill,	Smothered in rice coal bin.
Dec. 3,	William Hood,	slate picker,	14	S.	1	1	2	Albright,	Schuylkill,	
13,	Thomas McDonald,	Miner,	50	M.	1	1	12	Silver Creek,	Schuylkill,	
14,	John Grim,	Laborer,	48	M.	1	1	4	West Brookside,	Schuylkill,	
23,	Montgomery Leib,	State picker,	14	S.	1	1	1	Williams,	Schuylkill,	

TABLE V.—List of non-fatal accidents that occurred in and about the Mines of the Eighth Anthracite District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 4.	Peter Dunbuskey,	Laborer,	30	S.	Richardson,	Schuylkill,	Arm broken by door of mine car falling on him.
7.	Joseph Yarraskie,	Laborer,	18	S.	Sebastopol,	Schuylkill,	Leg broken by stone striking it.
7.	Wm. Sickinger,	Laborer,	18	S.	West Brookside,	Schuylkill,	Nose broken and face cut by flying coal from shot.
11.	Wm. Foreman,	Laborer,	53	M.	West Brookside,	Schuylkill,	Leg broken by plank falling on it.
12.	Geo. Austy,	Miner,	40	S.	Albright,	Schuylkill,	Injured by premature explosion of blast.
18.	Wm. Fisher,	Laborer,	20	S.	Lincoln,	Schuylkill,	Back injured by a fall of coal.
24.	John Hoffmann,	Laborer,	34	M.	Lincoln,	Schuylkill,	Leg injured by empty car running over it.
27.	Chas. Fregals,	Miner,	25	S.	Lytie,	Schuylkill,	Leg broken; caught between pole and tump of coal.
29.	Robt. Thomas,	Driver,	18	S.	Roberts,	Schuylkill,	Injured by falling down slope.
31.	Rich. Confair,	Pump man,	27	M.	Lytie,	Schuylkill,	Burned by explosion of gas.
Feb. 2.	Wm. H. Long,	Miner,	46	M.	Good Spring,	Schuylkill,	Leg broken by a piece of slate falling on it.
2.	Mich. Pasher,	Laborer,	27	M.	Richardson,	Schuylkill,	Finger mashed by a piece of coal falling on it.
2.	Jas. Farrara,	Miner,	35	S.	Eagle Hill,	Schuylkill,	Ankle bone broken by a piece of slate falling on it.
4.	Wm. Carl,	Topman,	22	M.	West Brookside,	Schuylkill,	Small bones of foot broken by a piece of timber falling on it.
7.	Paul Besner,	Loader,	26	S.	Richardson,	Schuylkill,	Hand and face burned by explosion of gas.
7.	Arch Hughes,	Boss loader,	27	S.	Richardson,	Schuylkill,	Slightly burned by explosion of gas.
7.	Geo. Ballinger,	Loader,	28	M.	Richardson,	Schuylkill,	Hands and face burned by explosion of gas.
9.	Jos. Beslingnick,	Miner,	26	M.	Schuylkill,	Schuylkill,	Burned and scalded between dumpers.
11.	Jerman Mattusa,	Laborer,	26	S.	York Farm,	Schuylkill,	Injured by a fall of coal.
16.	Jacob Kivoage,	Laborer,	24	S.	Silver Creek,	Schuylkill,	Head and hand injured by a fall of slate.
21.	David Shade,	Miner,	38	M.	Oak Hill,	Schuylkill,	Foot mashed by a fall of coal.
25.	Wm. Nye,	Miner,	33	M.	Good Spring,	Schuylkill,	Burned by explosion of gas.
25.	John Myers,	Miner,	23	M.	Good Spring,	Schuylkill,	Burned by explosion of gas.
26.	Allen F. Keller,	Carpenter,	30	M.	Lytie,	Schuylkill,	Leg broken; a chain slipped and pipe fell on him.
Mar. 2.	Geo. Morgan,	Engineer,	18	S.	Wolfe Creek Washery, ..	Schuylkill,	Knee cap broken and leg cut; stepping over engine in motion.

TABLE V.—Continued.

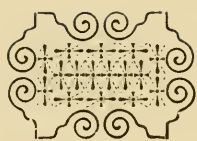
Date of accident.	Name of Person.	Occupation.	Age.	Marrd or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Mar.	2. David Edwards,	Miner,	54	M.	St. Clair,	Schuykill,	Head and jaw injured by a prop falling on it.
	3. John Y. Hughes,	Miner,	56	M.	St. Clair,	Schuykill,	Hip dislocated by a prop rolling off a car.
	11. Geo. Lutza,	Laborer,	38	M.	M. Morea,	Schuykill,	Leg broken by a derrick pole falling on it.
	11. Christ. Newell,	Miner,	33	M.	Glendower,	Schuykill,	Jaw broken by a fall of coal.
	21. Peter Skipsavage,	Miner,	27	M.	Glendower,	Schuykill,	Face and hands burned by an explosion of powder.
	21. Jacob Neice,	Miner,	55	M.	Phoenix Park No. 3,	Schuykill,	Leg broken by a fall of coal.
	25. Thomas Shell,	Laborer,	20	S.	West Brookside,	Schuykill,	Arm broken by a piece of slate falling on it.
	29. Walter Leib,	Door boy,	16	S.	Williams,	Schuykill,	Collar bone and two ribs broken; caught between wagon and door.
Apr.	4. Walter Kielin,	Laborer,	18	S.	Silver Creek,	Schuykill,	Nose broken, picked up by a piece of timber.
	4. Hamilton Doll,	Miner,	31	M.	Lincou,	Schuykill,	Leg broken by being struck by a piece of timber.
	6. John Brooks,	Pump man,	25	S.	Greenwood No. 13,	Schuykill,	Foot fractured; caught between plunger and stuffing box.
	18. Monroe Miller,	Miner,	28	S.	Good Spring,	Schuykill,	Leg fractured by a piece of slate falling on it.
	20. Wm. H. Bowman,	Carpenter,	25	S.	Lytle,	Schuykill,	Thumb sawed off; using circular saw.
	26. John Kolt,	Miner,	35	S.	Lytle,	Schuykill,	Badly injured by a fall of coal.
	27. Isaac Brassington,	Driver,	19	S.	St. Clair,	Schuykill,	Severely injured; caught between wagon and roof.
	21. Condy Maloy,	Miner,	35	S.	L. C. & Nav. No. 10,	Schuykill,	Arm broken; log fell on him.
May	3. Michael Shlotta,	Bottom man,	23	S.	Mt. Hope Stripping,	Schuykill,	Hand and head injured; engineer hoisted without the signification of gas.
	5. Emanuel Frank,	Miner,	25	M.	Pine Hill,	Schuykill,	Body severely injured by premature explosion of blast.
	9. John Childs,	Miner,	46	M.	Marion,	Schuykill,	Hand severely injured by a fall of coal.
	9. William Ryan,	Miner,	40	S.	Richardson,	Schuykill,	Body severely injured; caught between cage and timber.
	9. Ewan Davis,	Inside foreman,	50	M.	Wadesville Shaft,	Schuykill,	Leg broken; caught between coal and prop.
	11. James Cummings,	Miner,	26	S.	Oak Hill,	Schuykill,	Collar bone fractured and head cut by a fall of coal.
	20. Chas. Golomdusky,	Miner,	29	M.	York Farm,	Schuykill,	Burned by gas, slight.
	21. Frank Carl,	Miner,	26	M.	York Farm,	Schuykill,	

June	21.	Anthony Pappert,	.....	.....	36	M.	York Farm,	.....	Schuylkill,	Burned by gas, slight.
	21.	John Hahner,	.....	.....	23	M.	York Farm,	.....	Schuylkill,	Hands, face and arms severely burned by gas.
June	21.	John Macklow,	.....	.....	36	M.	York Farm,	.....	Schuylkill,	Burned by gas, slight.
	21.	John Miter,	.....	.....	30	M.	York Farm,	.....	Schuylkill,	Burned by gas, slight.
	26.	Dominick Will,	.....	.....	22	S.	Lytle,	.....	Schuylkill,	Knee injured; bumped between cars.
	1.	John Jenkins,	.....	.....	20	S.	West Brookside,	.....	Schuylkill,	Severely injured by premature explosion of blast.
	2.	Chas. Sauret,	.....	.....	40	M.	Phoenix Park No. 3,	.....	Schuylkill,	Arm broken and shoulder dislocated by a fall of coal.
	7.	John Redgick,	.....	.....	37	M.	St. Clair,	.....	Schuylkill,	In fall of coal, caught between car and prop.
	12.	Benj. F. Pelecamp,	.....	.....	32	S.	St. Clair,	.....	Schuylkill,	Scalded; plug blew out of boiler tube.
	16.	Edward Hyslop,	.....	.....	45	M.	Eagle Hill,	.....	Schuylkill,	Leg broken by a fall of slate.
	18.	Patrick Copeland,	.....	.....	19	S.	Albright,	.....	Schuylkill,	Body injured; fell under cars.
	18.	Patrick Lanston,	.....	.....	30	S.	Phoenix Park No. 3,	.....	Schuylkill,	Leg broken by a fall of coal.
27.	James Bambrick,	.....	.....	36	S.	Good Spring,	.....	Schuylkill,	Head and face injured; struck by coal from shot.	
July	28.	James McMullen,	.....	.....	22	S.	Broad Mount,	.....	Schuylkill,	Scalded by steam; stay bolt blew out.
	29.	Thos. Parry,	.....	.....	23	M.	Thomaston,	.....	Schuylkill,	Ankle broken by falling off roof of engine house.
	6.	Geo. H. Althey,	.....	.....	26	S.	Good Spring,	.....	Schuylkill,	Leg broken by a piece of coal falling on it.
	6.	Samuel Kellar,	.....	.....	52	S.	West Brookside,	.....	Schuylkill,	Injured by a fall of slate.
	7.	David Clocker,	.....	.....	43	M.	St. Clair,	.....	Schuylkill,	Collar bone fractured by car jumping off dump.
	7.	Geo. Katchmarik,	.....	.....	28	M.	Morea,	.....	Schuylkill,	Burned by an explosion of gas.
	7.	Robert Tray,	.....	.....	17	S.	Marion,	.....	Schuylkill,	Leg injured by car leaving carriage at dump.
	7.	Thos. Coady,	.....	.....	40	M.	Lytle,	.....	Schuylkill,	Foot broken by a piece of timber falling on it.
	18.	Joseph Hahn,	.....	.....	61	M.	Glendower,	.....	Schuylkill,	Three ribs broken; bell wire broke and he fell against cars.
	18.	Howard Maul,	.....	.....	23	S.	Albright,	.....	Schuylkill,	Body injured; caught between car and chute.
Aug.	19.	Alex. Muscavage,	.....	.....	33	M.	Marion,	.....	Schuylkill,	Head and leg injured by a fall of bone.
	20.	John Davis,	.....	.....	45	M.	Lytle,	.....	Schuylkill,	Injured by a fall of coal.
	21.	Harry Balabridge,	.....	.....	16	S.	Morea,	.....	Schuylkill,	Hand injured; caught in sprocket wheel.
	22.	Monroe Baechler,	.....	.....	26	S.	Lincoln,	.....	Schuylkill,	Face and neck severely injured; caught between wagon and chute.
	26.	Joseph Burcott,	.....	.....	33	M.	Morea,	.....	Schuylkill,	Arm injured; fell over car into ditch.
	26.	Rich. Peters,	.....	.....	16	S.	Morea,	.....	Schuylkill,	Arm broken by jumping from platform.
	26.	Geo. Dadds,	.....	.....	29	M.	St. Clair,	.....	Schuylkill,	Back badly injured by a fall of bone.
	8.	Edgar Lewis,	.....	.....	17	S.	Lytle,	.....	Schuylkill,	Leg broken; clothing caught by a revolving shaft.
	27.	James Morse,	.....	.....	17	S.	Otto,	.....	Schuylkill,	Leg broken by a piece of slate falling on it.
	28.	Michael Farrel,	.....	.....	24	S.	West Brookside,	.....	Schuylkill,	Severely injured by a fall of coal.
Sept.	29.	Wash Gruler,	.....	.....	27	M.	St. Clair,	.....	Schuylkill,	Leg broken; struck by a rope at head of plane.
	31.	Wm. S. Morgan,	.....	.....	45	S.	L. C. & Nav. No. 10,	.....	Schuylkill,	Leg broken by a piece of slate rushing down chute by a fall of coal.
	3.	Anthony Wynosky,	.....	.....	38	M.	Silver Creek,	.....	Schuylkill,	Leg broken by a fall of coal.
Oct.	10.	Charles Fowick,	.....	.....	30	M.	St. Clair,	.....	Schuylkill,	Skull fractured; struck by coal flying from shot.
	1.	Chas. Behr,	.....	.....	44	M.	Greenwood,	.....	Schuylkill,	Severely injured; struck by coal flying from blast.

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or Single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Oct. 2.	John Williams,	Door tender,	14	S.	St. Clair,	Schuylkill,	Arm broken; slipped on rail and fell.
4.	John Higgins,	Driver,	26	S.	St. Clair,	Schuylkill,	Badly injured on stomach; kicked by a
6.	Andrew Palko,	Loader,	24	M.	Silver Creek,	Schuylkill,	muscle and rib broken; caught between cars.
13.	John Gallagher,	Miner,	36	M.	L. C. & Nav. No. 8,	Schuylkill,	Burned by an explosion of hydrogen gas.
13.	James Powell,	Miner,	49	M.	L. C. & Nav. No. 8,	Schuylkill,	Collar bone broken; explosion of hydrogen
13.	James Rodgers,	Miner,	35	M.	L. C. & Nav. No. 8,	Schuylkill,	gas.
13.	Thomas L. Smith,	Miner,	38	M.	L. C. & Nav. No. 8,	Schuylkill,	Foot injured; explosion of hydrogen gas.
13.	Thomas Evans,	Miner,	30	M.	L. C. & Nav. No. 8,	Schuylkill,	Face burned; explosion of hydrogen gas.
13.	Wm. Evans,	Miner,	21	M.	L. C. & Nav. No. 8,	Schuylkill,	Leg injured; explosion of hydrogen gas.
13.	Wm. Evans,	Miner,	21	M.	L. C. & Nav. No. 8,	Schuylkill,	Back injured; explosion of hydrogen gas.
13.	Evans G. Evans,	Inside foreman,	36	M.	L. C. & Nav. No. 8,	Schuylkill,	Face and hands burned; explosion of hy-
14.	John Krebs,	Breaker roller,	19	S.	St. Clair,	Schuylkill,	drogen gas.
24.	Wm. Fishburn,	Laborer,	23	S.	Albright,	Schuylkill,	Right foot mashed; caught in rolls.
25.	James Devine,	Miner,	47	M.	West Brookside,	Schuylkill,	Right hand blown off; removing tamping
29.	John Winter,	Top man dump,	28	M.	St. Hope,	Schuylkill,	from a hole.
31.	John Smitzer,	Repairsman,	30	S.	Marion,	Schuylkill,	Leg injured; caught by a car wheel.
31.	James Pauff,	Miner,	28	M.	Marion,	Schuylkill,	Burned by explosion of gas, and leg cut
5.	Coburn Pauff,	Topman,	36	M.	West Brookside,	Schuylkill,	by flying debris.
7.	Mich. Kastolani,	Laborer,	34	M.	West Brookside,	Schuylkill,	Burned by explosion of gas.
10.	Anthony Alkno,	Miner,	27	S.	Wolfe Creek Washery,	Schuylkill,	Leg broken; fell under wagon.
16.	Simon Cavletski,	Miner,	30	S.	Silver Creek,	Schuylkill,	Arm broken and body injured; pushed into
21.	Thos. Haughney,	Miner,	30	M.	West Brookside,	Schuylkill,	conveyors by a fall of dirt.
23.	Wm. White,	Miner,	42	M.	Kaska William,	Schuylkill,	Head injured by a piece of slate falling
28.	Phillip Kelp,	Breaker boy,	16	S.	St. Clair,	Schuylkill,	on him.
1.	Harry Bowden,	Miner,	25	S.	Lytle,	Schuylkill,	Burned by gas.
6.	Andrew Rentz,	Spragger,	30	S.	Silver Creek,	Schuylkill,	Back injured by a fall of slate.
8.	Richard Egan,	Laborer,	29	S.	West Brookside,	Schuylkill,	Head injured; squeezed between collars.
9.	Andrew Harmon,	Dirt loader,	25	M.	L. C. & Nav. No. 10,	Schuylkill,	Leg broken; caught by a fall of coal.
							Burned by an explosion of gas.
							Leg broken; caught by dirt dumper.

8.	John McKenzie,	laborer,	40	M. Kaska Williams,	Schuylkill, .....	.....	Collar bone dislocated by fall of coal.
10.	Thomas McKernan,	Miner,	50	M. Marion,	Schuylkill, .....	.....	Back severely injured by fall of bone.
19.	Joseph Long,	Lodger DCSS,	24	M. Lincoln,	Schuylkill, .....	.....	Arm badly crushed by an empty car run-
23.	Phillip Schwilaski,	Outside laborer, ..	48	M. West Brookside,	Schuylkill, .....	.....	ning over it.
21.	William Rehner,	Driver,	28	M. Lincoln,	Schuylkill, .....	.....	Leg broken by a stone rolling on it.
							Head and body badly injured by falling under moving cars.



BITUMINOUS MINE DISTRICTS.



FIRST BITUMINOUS DISTRICT.

(ALLEGHENY, FAYETTE, GREENE, WASHINGTON AND WESTMORELAND COUNTIES.)

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I respectfully submit my annual report as Inspector of Mines for the First Bituminous coal district for the year ending December 31, 1898.

The total production of coal as reported by the operators, to this office, was 8,909,339 tons, being an increase of 2,450,139 tons over that of the year 1897. I am sorry to report an increase of 20 fatal and 20 non-fatal accidents over those of the previous year.

Two explosions of firedamp occurred in the district, resulting in the loss of nine lives. A detailed statement of them will be found in the description of the Manown and Umpire mines. In reporting the non-fatal accidents, I have made note of them as they were transmitted to this office.

The usual tables will be found in the body of the report, also a brief description of each mine in the district, together with a table showing as far as possible the number of days worked at each mine during each month of the year.

Exclusive of the charges against the Umpire mine officials, eight other suits were entered for violation of the act of May 15, 1893, relating to bituminous coal mines.

John Kelley and Isaac Bumberger were charged with causing the death of James H. Currie, who was killed by flying coal which was thrown through a rib from a blast fired by the above named persons. In investigating this accident, I found that immediately preceding the firing of the shot, Bumberger stood on the road opposite a cut-through between the room occupied by Currie and the one occupied by Kelley and Bumberger, and cried "fire," and without waiting for an answer, the shot was fired, resulting as stated above.

Being of the opinion that they did not comply with Rule 63, of the "Rules, General and Special," which among other things says, "sufficient warning shall be given when about to fire a blast, to all persons who might be endangered thereby," I made information against Kelly and Bumberger before Squire D. O. Lambert, of Coal Centre,

but the cases were dismissed, as his honor held that the rule made no provision for any specific method of warning.

Elijah Dainty, mine foreman of Vesta mine No. 1, was charged with making false reports in the mine foreman's report book and also for failing to remove the source of danger after the fire boss had reported the same to him.

Another case was that of James Craig, fire boss at the Eclipse mine, who was charged with making false reports in the fire boss report book, and failing to examine the mine as required by the act of May 15, 1893, relating to bituminous coal mines. The cases were compromised on payment of costs which amounted to \$16.00 and \$17.30 respectively.

Joseph Parton, mine foreman of the Rostraver mine, paid costs to the amount of \$4.20 for opening rooms in advance of the last break through in violation of the bituminous mine act.

Alonzo Evans, Isaac Watkins and James Jenkins, drivers in the above named mine, paid the same amount for using impure oil as an illuminant.

Mining Statistics.

Number of mines in the district,	79
Number of mines operated during the year,	69
Number of tons, run of mine, of coal mined,	8,909,339
Number of tons of coal shipped,	8,826,696
Tons of coal used for steam and heat in and about the mines,	57,412
Sold to local trade and used by employes,	25,231
Number of days worked,	12,473½
Number of persons employed in and about the mines,	9,720
Number of kegs of powder used,	23,005
Number of pounds of dynamite used,	1,690
Number of steam boilers,	168
Number of horses and mules,	670
Number of mine locomotives,	10
Number of fatal accidents,	42
Number of non-fatal accidents,	110
Number of tons of coal produced per each fatal acci- dent,	212,127
Number of tons of coal produced per each non fatal accident,	80,994
Number of wives made widows,	25
Number of children left fatherless,	72
Number of persons employed per each fatal accident,	231
Number of persons employed per each non-fatal acci- dent,	89

Table showing the Causes of Fatal and Non-Fatal Accidents.

	Fatal.	Non-fatal.
By falls of slate,	19	45
By falls of coal,	3	12
By falls of roof coal,	3	9
By explosions of gas,	9	4
By falling from tippie,	1	..
By being run over by a railroad car,	1	..
By blast through rib,	2	2
By fall of rock,	2	3
By being struck by a post,	1	5
By a fall of roof,	1	4
By cars, .....	..	14
By mining machines, .....	..	3
Miscellaneous, .....	..	9
Total,	42	110

While the general condition of the ventilation and drainage of the mines in the district is fair, there was, at the time of my last visit, some mines which required improvement so as to conform with the act of May 15, 1893, relating to bituminous coal mines. When I found such conditions existing, I gave such instructions as was deemed necessary to have the above named act complied with, and in this connection I am pleased to say that, in a great measure, quite an improvement has been made.

Respectfully yours,

HENRY LOUTTIT,

Inspector of Mines.

Monongahela, Pa., March 6, 1899.

Mines on the Monongahela River.

Little Redstone. General condition of mine on my last examination, fair.

Gallatin. On my last visit to this mine I found the ventilation and drainage below the requirements of the law. The cause, in part, which produced the former was that a door which was located on the main entry to course the air into the return had been broken down by a dilly trip. An emergency door had been placed near the mine entrance, but at that time it was somewhat out of repair, thus allowing no less than 8,550 cubic feet of air to enter the return without reaching the working faces. The slope mentioned in my report for 1897 has been completed, thus giving the mine legal means of egress.

Cliff, Abe Hays, Stonesburg, Stockdale and Vesta No. 3 were idle the entire year.

Rostraver. When I made the last examination of this mine they were employing three machine men, sixty-five loaders, twenty-four pick men, seven drivers and seven other persons. Cubic feet of air at outlet, 17,640.

Cincinnati. General condition of mine, fair.

Caledonia. When I made the last examination the mine was in fair condition. The greater part of the mine has been abandoned, and the coal which remains will be taken out through the Champion mine and passed over the latter's tippie.

Black Diamond. The mine was in a satisfactory condition when last inspected.

Camden. Mine was in fair condition both as regards ventilation and drainage. Cubic feet of air in circulation at inlet, 25,400. Cubic feet of air in circulation at outlet, 58,400.

Christinia. Not in operation when last visited.

Catsburg. Cubic feet of air at inlet, 50,020; at outlet, 43,640. Number of persons employed, 156. Condition of ventilation and drainage, satisfactory.

Banner. When I examined this mine, I found the ventilation very unsatisfactory. I suggested that cause of complaint be removed and I have since been informed that my suggestions have been complied with. Condition of drainage, satisfactory.

Apollo. General condition of ventilation and drainage, fair.

Eclipse. When last visit was made, there were employed 115 persons, classified as follows: 90 loaders, 8 machine men, 10 drivers and 7 other persons. Entries being driven, 6. While making an examination I found firedamp in greater or lesser quantities on a number of falls. It seems that these falls had not been examined by the fire boss for some time, although the Fire Boss Record Book showed that he had "examined the mine and finds it clear of explosive gas." After due consideration of the matter, I made information against the fire boss for not examining the mine as required by law and also for making false entries in the "report book." At the hearing which followed, the case was compromised upon the payment of the costs by the defendant, which amounted to \$17.30.

Baumont. Condition of mine, as regards ventilation and drainage, fair as to the former, but the latter, in parts of the mine, required improvement.

New Eagle. The condition of this mine was satisfactory when last inspected.

Coal Centre. Condition of ventilation and drainage, fairly good.

Vigilant. Quantity of air entering the mine, 36,000 cubic feet. Other air measurements were taken on entries 18, 19, 23 and 25. Num-

ber of persons employed inside, 162. In parts of the mine, the ventilation and drainage were not up to the legal requirements.

Rock Run. Mine not in operation when visited.

Old Eagle. When last examined the mine was found in fairly good condition.

Fox. In operation 177 days during the year. Persons employed in and about the mine, 63. General condition of mine, satisfactory.

Fulton. This mine has had a precarious existence for a number of years. It has been leased by quite a number of persons, who, after producing a few thousand tons of coal, vacated. On the 23d, of February, 1896, the tittle was carried away by high water and ice. In the latter part of 1898 it was leased by Barton & Son, who built a temporary tittle and operated the mine for a short time with varied success. It is now idle.

Ella. General condition of mine, fair.

Blyth. In operation 259 days. Number of persons employed, 196.

The air current here is continuous and is such as to be a matter of complaint. The drainage, in parts of the mine, is also unsatisfactory.

Amity, Buffalo and Anchor. Each of these mines were found in fairly good condition when I made the last examination.

Walton, Upper and Lower. At the time of my last visit the latter mine was not in operation, but the former was in fairly good condition.

Mongah. General condition, satisfactory.

Milesville. In fair condition as regards drainage; ventilation satisfactory.

Umpire. This mine is located near Brownsville. It is a drift opening and ventilation is produced by a boiler furnace and a six-foot Murphy fan, the latter being placed on the top of a shaft, which is 140 feet deep. On the 23d of September an explosion of firedamp occurred in this mine which resulted in the death of eight persons, as follows: John Cartwright, miner, aged 50 years; William Pritchard, miner, aged 50 years; Robert Davidson, miner, aged 45 years; John Haiston, miner, aged 35 years; James Hall, miner, aged 27 years; John Bennett, driver, aged 22 years; Salem Haiston, miner, aged 22 years, and Henry Hager, driver, aged 17 year. The location of the explosion was on entry 10, and so that the reader can form an intelligent idea of the matter, it is necessary to state that two entries known as Nos. 9 and 10 are driven parallel, the lower part of the former entry having been cut off, it was necessary to take the coal from the upper part through a "break through" onto entry 10 and thence to the double parting over the track of No. 10. Opposite this break through, on No. 10, is located room 13. On the fall of this room as well as those of rooms 12, 14 and 15, firedamp was known

to exist since September 17, as on this date Fire Boss Henry Farrer reported to Mine Foreman James Broderick that he had found gas on the falls, but it seems that the latter was trusting to luck, as no effort was made on his part to remove the danger.

On the morning of the explosion John Bennett and Henry Hager, drivers in 9 and 10 entries respectively, moved their trips (two cars each), to a point near the entrance of the aforesaid break through on both entries, and for some unknown cause, Bennett left his trip on entry 9 and passed through the break through onto entry 10, where his body was found, near where the turn rails of the track leading from 9 entry joined those of 10. Hagers' body was found in the entrance of room 13 with that of Bennet's mule, the head of each being toward the face of room. John Cartwright's body was found near room 14. Each of these bodies showed the effect of the flame—the others did not show any burns, which proves that they lost their lives through concussion or suffocation, or both. The bodies of the others were found between rooms 14 and 16.

Now we have reached a point where we can only surmise how this unfortunate affair occurred. As stated heretofore, the body of Hagen, with that of Bennett's mule, was found in the entrance of room 13. The question is, how did they get there? After taking into consideration all the circumstances connected with this explosion, I have come to the conclusion that immediately preceding the igniting of the gas, Bennet passed through the said break through to 10 entry and while holding a conversation with Hager, a fall, on which the body of Bennett was found, took place on 10 entry. This caused a current of air to strike the cars of Hager's trip, part of which was forced into room 13, causing part of the gas to reach 13 entry, where it fired on one of their naked lights. After becoming ignited, the flame struck Bennett's mule, which in its frenzy broke loose from the trip of cars to which it was hitched and ran through the break through on 10 entry and into the entrance of room 13. If this supposition is not correct, why did not the mule pass down 10 entry—the usual road for him to travel? Now, it is evident that the question will be asked, How is it that the body of Hager was found in the room? My opinion of the matter is that he was carried there by the mule, as the position of the body would indicate. If Hager was in the room previous to the explosion, he would have been thrown out by the force of the same, as were posts which had been set in mouth of room. It has been suggested that Hager stepped into the entrance of room 13 to escape from the fall which took place on the entry and that his naked light fired the gas. I cannot accept this theory for the reason stated above.

Some falls on the entry had given trouble previous to this, as on March 3 I received a message from a committee of miners employed

at the mine to come and make an examination of some falls on 10 entry, as firedamp was present on them to such a degree as to make it extremely dangerous. I visited the mine on March 5 and found gas present on the falls of rooms 3, 4, 5, 6 and 7 in such quantities as to verify the views expressed by the miners' committee. After making the examination, I had a conversation with Mr. John D. Simpson, superintendent of the mine, in regard to the removal of the danger that menaced the mine, and in addition to this, I wrote the company as follows:

Monongahela, Pa., March 5, 1898.

Messrs Umpire Coal Co., Brownsville, Pa.:

Dear Sirs: On a visit to your Umpire mine to-day I found that some rooms had fallen in on entry 10; on these falls firedamp was present in such quantities as to make it extremely dangerous to persons who had to pass the entrance to them. Your attention is respectfully called to article 5, section 1 of the act of May 15, 1893, relating to bituminous coal mines, which says among other things that "all mines generating firedamp shall be kept free of standing gas in all working places and roadways. No accumulation of explosive gas shall be allowed to exist in the worked out or abandoned parts of any mine when it is practicable to remove it, and the entrance or entrances to said worked out and abandoned places shall be properly fenced off, and cautionary notices shall be posted upon said fencing to warn persons of danger."

To comply with the above it is necessary to remove the gas mentioned above, which I hope you will do on receipt of this letter. However, I suppose you have made arrangements ere this, to remove the gas, as per verbal suggestion. Please let the writer hear from you in regard to the matter and oblige.

Yours very truly,

HENRY LOUTTIT,

Inspector of Mines.

On March 7 I received information that my suggestions had been complied with.

On the tenth of May I made a general examination of the mine and among other places examined were the falls previously mentioned, but I could find no indication of gas on any of them. The rooms that caused the disaster on September 23d were working at the time of my visit, having afterwards caved in, consequently the trouble of March 5 had nothing to do with the explosion of September 23.

The investigation to place the blame was very thorough, 356 8x14 inch pages of typewritten matter being taken. After hearing the evidence, the following verdict was rendered by the coroner's jury:

Verdict.

Brownsville, September 28, 1898.

"We find that John Bennett came to his death by an explosion of gas in entry No. 10 of the Umpire mine on Friday the 23d of September, 1898, between the hours of 7 and 9 A. M., and our verdict is that had the proper mine officials, whose duty it was to remove the danger that was known by them to exist, fulfilled their duty, the accident would not have happened, and this is our finding."

P. F. SMITH,

Coroner.

Jurors.

E. L. MOOREHOUSE,	(Seal.)
W. N. FISHER,	(Seal.)
JOHN A. ROBINSON,	(Seal.)
W. L. LENHART,	(Seal.)
F. F. CHALFANT,	(Seal.)
H. E. LEONARD,	(Seal.)

In conclusion, I wish to state that on a visit to the mine previous to March 5, (the date of visit made by request of miners' committee), the mine was practically safe, no firedamp having been found on the falls at that time.

Washington. The drainage in parts of this mine is in very unsatisfactory condition; the ventilation, however, is fair, except in the new portion of the mine.

Crowthers. The general condition of this mine is satisfactory.

Chamomi. In operation 304 days during the year. Number of persons employed, 159. The ventilation and drainage was, at the time of my last visit, in very unsatisfactory condition.

Allequippa. On my last visit to the mine, I found the general condition as regards the ventilation and drainage fair.

Crescent. The mine consists of ten butts and two face headings. Number of persons employed, 171, classified as follows: 145 miners, 9 drivers, 2 trappers and 15 other persons.

Ivill. Owing to a large body of firedamp being present in abandoned workings of this mine, I, under date of October 14, notified Inspectors Blick, Connor and Callaghan to visit and examine the mine in company with the writer. On the 18th of October we made an examination of the mine and it being agreed that there was immediate danger, we addresses the following letter to the superintendent, Mr. Harry P. Jones:

Monongahela, Pa., October 18, 1899.

Mr. Harry P. Jones, Superintendent Ivill Mine, Monongahela, Pa.:

Dear Sir: You are hereby notified that in pursuance of the pro-

visions of article 11, section 1, of the act of May 15, 1893, relating to bituminous coal mines and providing for the lives, health, safety and welfare of persons employed therein, we the undersigned Mine Inspectors, upon notice from the Inspector in charge of this district, proceeded to the Ivill mine on Tuesday, October 18, 1898, and made an examination and full investigation thereof, and agreed in the opinion that there is immediate danger to the lives of the persons there employed, by reason of large accumulations of explosive gas to such an extent that it is jeopardizing the lives of persons employed therein, and in our judgment it is imperative that the operations of said mine shall cease forthwith until said danger be removed and the mine put in a safe condition for persons to work therein. Therefore we ask that you immediately cease operation in said mine. Refusal on your part to comply with this request will necessitate the immediate application to the court by the undersigned for an injunction to restrain operations at said mine, as provided for in article 11 of act mentioned aforesaid. And you are further notified not to permit or allow any person or persons to work or remain in said Ivill mine except persons employed in removing the danger named above, and that no light other than a locked safety lamp be permitted or allowed to be used by any person or persons in removing said danger.

Witness our hands this 18th day of October, 1898.

(Signed:)

HENRY LOUITT,

First District.

CHAS. CONNOR,

Fifth District.

JAMES BLICK,

Seventh District.

BERNARD CALLAGHAN,

Ninth District.

On receipt of the above letter, operations at the mine ceased, and the necessary work was immediately commenced to comply with its provisions. On the 28th of October I received information from the management of the mine that they had removed the dangers complained of and requested me to visit the mine, so that if I were satisfied, operations at the mine could be resumed. Not feeling like taking this responsibility, I had Inspectors Blick, Connor and Callaghan to again visit and examine the mine, the result of this visit being the following letter, which is self explanatory:

Monongahela, Pa., October 31, 1898.

Mr. Harry P. Jones, Superintendent of Ivill Mines, Monongahela, Pa.:

Dear Sir: We, the undersigned Mine Inspectors, have this day visited the Ivill mine, and we find the danger that existed in the mine

at our previous visit, October 18, 1898, is now removed, and we consider it safe to resume and continue operations as long as present conditions are maintained, but should the mine hereafter be found to be in a dangerous condition you will at once notify the Inspector of the district of the fact and take all necessary precautions to insure the safety of your employes.

Yours very truly,

(Signed.)

HENRY LOUTTIT,
CHAS. CONNOR,
JAMES BLICK,
BERNARD CALLAGHAN,

Active operations were commenced at the mine the day following the date of letter which the above is a copy. Subsequently I examined that part of the mine where the danger previously existed and was of the opinion that as long as the present conditions were maintained, there need not be any reason for other action to be taken.

Champion. Not in operation on my last visit.

Coal Bluff. Drainage fair. Ventilation required improvement in parts of the mine. In operation 122 days during the year. Number of persons employed in and about the mine, 182.

Clipper. Ventilation fair; drainage, however, required improvement in the new part of the mine; this cannot be perfected, but it can be made better than it is at present.

Albany. General condition of mine fair. Air measurements taken, inlet, outlet, entries 5, 7, 13, 9 and 15. Number of persons employed inside, 159.

Alice. This is a new drift opening located on the east side of the river nearly opposite the borough of Stockdale. It is owned and operated by the Tide Coal Company, of Pittsburg, Pa. The interior of the mine is not sufficiently advanced for a general description, so I will leave this part for a future report. The outside improvements—actual and prospective—consist of a 25-foot Guibal ventilating fan, running at present, driven by an engine of 100 horse power. The haulage plant is of the endless rope system, with traction wheels seven feet in diameter, of five grooves each. The rope is of steel one and one-eighth inches in diameter, driven by a pair of engines capable of developing 200 horse power. The engine and boiler house is of steel set on brick piers, covered with corrugated iron and roofed with slate; size, 30x80 feet. The crusher is of the two-process variety with rollers four feet in diameter and four feet long, with inserted tool steel teeth, each roller containing 324 teeth driven through steel gearing by an engine of 100 horse power. The electric plant is under the same roof as the haulage plant; the generator is of 250 volts, and is driven by a 15½x16 inch engine. The

tipple is double decked, all machinery being located on the lower deck. A cross over dump is in use, made by the Phillips Mine Supply Company, of Pittsburg, Pa.

Hilldale. Air measurements taken, inlet, outlet, entries 3, 6 and Risher. The ventilation and drainage is not up to the legal requirements, in parts of the mine.

Tremont. General condition of the ventilation, fair. Drainage, in parts, not in satisfactory condition.

Fawcett. In operation 170 days during the year. General condition of mine satisfactory.

Vesta No. 1. On one of my visits to this mine I found firedamp on one of the falls in such a quantity as to be dangerous should a naked light come in contact with it, as it was likely to do at any time, as persons were passing the entrance to the place frequently. On examining the fire boss' record book I noticed that this gas had been reported as being present on the fall since the 10th of October, the date of my visit being the 26th. This book shows that the danger was reported each day from the former date, up to and including the latter, 16 days in all. The following record appears on the mine foreman's report book, viz.: "I have removed all dangers reported by the fire boss, as far as practicable." Signed, Elijah Dainty, Mine Foreman. Being convinced that the above record was not borne out by the facts in the case, I made information against Mine Foreman Elijah Dainty before Alderman W. P. Warne, of Monongahela, charging him with neglecting to remove dangers after they had been reported to him by the fire boss and also for making false reports in the Mine Foreman's Record Book. The cases were compromised by the defendant paying the costs, which amounted to \$16.00.

Fayette City. In operation 270 days. General condition of drainage, fair. Ventilation requires improvement in parts of the mine.

Riverville. General condition of mine fair. Number of persons employed in and about mine, 113. Entries being driven, 3.

Bunola. On each visit to this mine I had to call the attention of the management to the condition of the mine as regards ventilation and drainage, and, while improvement has been made, there is still room for more.

Snow Hill. Not in operation when last visit was made. Previous visit found the mine in fair condition.

Stony Hill. Number of persons employed, 87, as follows: 78 miners, 5 drivers, 2 day men, and 2 other persons. This mine has been so worked in the past that it is nearly impossible to perfect either the ventilation or drainage. The present royalty is about exhausted.

Knob. This mine gives employment to 10 machine men, 90 loaders, 9 drivers and 11 other persons. Mine consists of 6 butts and two main face headings. The method of working the coal is prac-

tically the single entry system. The air current is split into two divisions.

Climax. General condition of mine, fair.

Little Alps. In operation 214 days. Number of persons employed in and about the mine, 55. The coal is nearly exhausted, and very little new work is being opened.

Mines Located on the Pittsburg and Wheeling Division of the Baltimore and Ohio Railroad.

Hackett. On my last visit the ventilation in some parts of this mine was inadequate. Improvidence in blasting by some of the workmen so permeated the atmosphere of the mine as to make it very unhealthy to breathe. I called the attention of the operator to the matter and the effect was a decided improvement. The mine is now idle owing to financial trouble of the operators.

Snowden. At the time of my last visit, the ventilation and drainage required improvement.

Eclipse. General condition of ventilation, fair. The drainage, however, required improvement.

Eclipse. General condition of ventilation, fair. The drainage, however, required improvement.

Anderson, Gastonville Nos. 1 and 2. These mines were idle the entire year.

Nottingham. Mine in operation only 17½ days during the year. Was idle when visited.

Germania. When last examined the mine was in a very unsatisfactory condition as regards ventilation. In the early part of the year the plant passed into the hands of the Boyle Brothers Coal Company, who removed the ventilating fan to their Hackett mine, and then attempted to produce ventilation for the Germania mine by the use of a fire basket, the result being a failure. The attention of the superintendent was called to the matter and he promised to remove the cause of complaint, but before anything of a practical nature could be done, the mine ceased operations.

Mines on the Monongahela Division of the Pennsylvania Railroad.

Charleroi. The general condition of this mine was satisfactory.

Allen. In operation 175 days during the year. Number of persons employed, 85. The coal is almost exhausted and no new work is being opened up.

Courtney. General condition of mine, fairly good.

Shoenberger. This mine was, on my last visit, in fairly good condition. The mine, during the year, has been extended to the "second bill." Among other improvements made since the first of January was the building of a furnace to ventilate the workings in the "second

hill," and the erection of a 12-foot ventilating fan at the "first hill" to furnish air to the openings lying north of the main entries. The workings lying south of the main entry are ventilated by the "grate surface" mentioned in my annual report for 1897.

Acme. Among other improvements made at this mine during the year was the installation of a haulage plant of the endless rope system. The distance which it operates is about 8,400 feet. The machinery for operating the rope is located at the mine mouth and consists of a pair of 80 horse power engines coupled to a pair of grooved drums through compound gearing; the compounding of the gearing is done to enable the engines to run at an economical rate of speed when the rope runs at a very slow speed, which is in this case about 90 feet per minute. The whole machine is contained on a set of heavy housings bolted to a foundation of brick laid in cement. The boiler is of the horizontal return tubular type. The rope is seven-eighths inch in diameter, goes in one pit mouth, passing all the side headings, returns by way of the other side of the mine, passing all side headings, and returning by another mouth to the tippie and thence to the engines, making a complete circuit of 8,400 feet. All the cross headings are operated by this rope by a system of latches; the cars are passed over the rope at the mouth of each heading and are attached to the rope at that point. The mine cars are hauled by mules only in the cross headings, and when brought to the main headings are attached to the rope by hand grips in trains of any convenient number. The capacity claimed for this haulage plant over the present road is about 2,000 tons per day of eight hours. This machine was built by the Robinson Machine Company, Monongahela, Penna.

Fidelity. General condition of mine, satisfactory.

Mines on the Belle Vernon Division of the Pittsburg and Lake Erie Railroad.

Cleveland. On my last examination I found the ventilation and drainage in very unsatisfactory condition in parts of the mine. The condition of the roads was also such as to give cause for complaint. I called the attention of those in charge to the matter and the result was a marked improvement.

Arnold. General condition of ventilation satisfactory; drainage in parts of the mine required improvement.

Somers No. 2. This is a new drift opening situated on the line of the Speers Branch of the Pittsburg and Lake Erie Railroad near its present terminus. This road is about two miles in length. It had been projected for a considerable period of time, and finally has been built for the purpose of tapping the field of coal belonging to the J. H. Somers Fuel Company, which contains about 2,500 acres. The

main body of this coal is 1,000 acres, which is partially separated from the auxiliary 1,500 acres by a ravine. The 1,000 acre tract is opened on the face with three main entries which will have an ultimate length of 6,000 feet. The first pair of butt entries to the west of the main entries break out to daylight at the dividing ravine, from the other side of which three main entries on the butts will continue to the western boundary of the field, a distance of 5,900 feet from the main face entries. Owing to the partial division of the field, two fans will be required, although the coal will all be delivered to the same tippie, which is already built. A 15-foot Brazil fan directly connected and driven by steam, has been erected at the pit mouth of the 1,000 acre tract. With the general system of working which is in view and the spacious airways which are being driven, this will give ample ventilation for many years. Preparations are now in progress for the installation of a fan of equal size on the 1,500 acre tract. This fan will be driven by electricity, and, if necessary, can eventually be used to assist the fan first installed; as the two parts of the mine will have an underground connection within a year. The general system of this development is the three-entry system for all main entries, and all butt entries except a few very short ones which will soon be finished. Fifty-foot pillars are left between all entries. One stone overcast has been built and it is intended to make all permanent ones either of that material or of brick. Of the three main entries in the 1,000 acre tract, the middle one is driven 12 feet wide to be used exclusively as an airway and a traveling way. The entries parallel with this are driven 9 feet wide and will both be laid with 40-pound steel rails and used as motor ways. In the 1,500 acre tract the middle one of the main entries is the motor way. The entire lay-out of the mine is planned with referense to electrical haulage.

Rooms are turned 33 feet apart and driven on sights 21 feet wide, leaving a 12-foot rib which, wherever possible, will be drawn. The management proposes to drive every room to its destination and have its rib withdrawn inside of a year from the time of the beginning of the room and give 90 per cent. of the coal in place as the minimum of their expectations.

The coal is undercut by electrical machines, three of which are now in use. The current used is direct at 250 volts and is generated by a 100 K. W. Morgan-Gardner generator belt driven by a Skinner engine. Steam is furnished by a 150 horse power tubular boiler. Another boiler of similar capacity is in place ready for foundations. The power house is 50x80 feet, built of brick and designed with referense to future power requirements. The tippie is built of wood with one Phillips cross-over dump, with room for another. Ground at this development was first broken April 1, 1898. The first cutting by machinery was done May 1, 1898, power being carried through the

company's No. 1 mine and across country a total distance of one and one-half miles. Ten thousand feet of entries have been driven, rooms developed and the mine brought up to a daily capacity of 1,000 tons run-of-mine.

Arnold No. 2. This is a shaft opening. No coal as yet has been shipped.

North Webster. When I last visited this mine the ventilation and drainage required improvement.

Manown. On the twenty-second of March an explosion, resulting in the death of Mitro Turko, miner, and the severe burning of Alexander Dundgeon and William Wilson, driver and hooker-on, respectively, occurred at this mine. On investigating this accident, I found that previous to the explosion a machine man, William Wilson, and his helper, made a hole through room No. 2 to No. 3, and when they withdrew the machine, gas followed, and fired in one of their naked lights. This was immediately followed by the main body of gas which had accumulated in room No. 3 becoming ignited, the flame of which reached quite a distance on entries 33 and face, Dundgeon being at work on the former entry and Wilson on the latter near the mouth of 33. At the time of the explosion, Turko was at work at the face of his room, No. 6, and before he could reach a place of safety he was overcome by the afterdamp. His body was found near the neck of his room on some debris which had been dislodged by the force of the explosion.

The fireboss, Ernest Meyer, admitted that he had not examined the the entrance to room No. 3 on the morning of the twenty-second, but intended to return and do so later. An inquest was held and a verdict returned charging Fire Boss Meyer with criminal negligence. The case is in the hands of the proper authorities for adjustment.

Sheppler. When last visited the ventilation and drainage of this mine were inadequate. Have since been informed that a marked change for the better has been made in this connection.

Description of Fatal Accidents.

On January 5, at the Allequippa mine, George Woods, a miner, was instantly killed by fall of roof coal. Wood was 60 years of age and leaves a widow.

George Hackamakie, Finlander, a loader after machines, was fatally injured at the Knob mine, on January 14, by a blast through a rib. He died at the Cottage Hospital at Connellsville on January 19. The deceased was 19 years of age and single.

James H. Currie, American, a loader after machines, was instantly killed at Eclipse (river) mine on January 26, by coal flying from a shot which blew through the rib. Deceased, with his brother Murt, worked

together in room 35, entry 18. In room 34 John Kelly and Isaac Bumberger were employed, and just previous to the accident had put in a hole for the purpose of firing a butt shot. When about ready to fire, Bumberger went to the cut-through between the two rooms, which was about 30 feet from the face, and called "fire" twice in quick succession. Without waiting for an answer, Kelly fired the shot, the result being the death of Currie. Currie was aged 22 years and single.

Alexander Budeny, Polander, a loader after machines, was instantly killed by a fall of slate in the Arnold mine January 31. Deceased was 25 years of age and single.

On February 12, Michael Mazyik, Slav, miner, was fatally injured in the Climax mine by a fall of slate. The deceased was 57 years of age and left a wife and three children.

Peter Sholes, Norwegian, a loader after machines, was so seriously injured in Eclipses (river) mine by a fall of slate February 22, that death resulted on March 9. Sholes was a single man. I am not informed of his age.

George Simpson, American, day hand, was injured in Eclipse (railroad) mine March 2 by a fall of roof. He died three hours later.

Charles Polis, Slav, a loader after machines, was instantly killed in Little Redstone mine on March 4 by a fall of slate. Polis was considered somewhat careless in working under slate, he frequently having to be warned. He was 46 years of age and left a wife and four children.

John Knight, a miner, was injured by a fall of roof coal in Walton's upper mine on March 8 and died on March 14.

William Hays, colored, miner, was instantly killed in Hackett mine March 17 by a fall of slate. The deceased and William Thomas, at the time of the accident, were working in room 11, entry 9. On the morning of the above date they had fired a shot in the "tight" but it did not throw any coal. A shot was then put in as an angle one. This exposed quite a quantity of slate. Under this, which was without supports, the deceased worked the greater part of the day. Thomas told Hays to put a post under the slate during the day but this he did not do. About 4.30 P. M. Thomas noticed that the slate was very dangerous and told Hays to come from under it. Hays not doing so, Thomas caught hold of him and pulled Hays out, but he (Hays) immediately went under it again, the result being that it fell and crushed his life out. Hays was 24 years of age and left a widow.

Mitro Turko, a loader after machines, aged 53 years, was suffocated by afterdamp in Manown mine March 22. A more extended account of this accident will be found in another part of this report. Turko left a wife and six children.

Joseph McFeeley, American, miner, was instantly killed in Vesta No. 1 mine by a fall of coal and slate on March 29. The deceased left a wife and seven children.

William Hakin, a scraper after machines, was instantly killed April 27, by a fall of slate in Albany mine. Hakin was 20 years of age and single.

Charles Mahorn, miner, aged 21 years and single, was fatally injured April 30, by a fall of coal in Coal Centre mine.

Andrew Turko, a loader after machines, was instantly killed in Manown mine June 24 by a fall of slate. Deceased was 28 years of age and single.

Alfred Blatchford, miner, aged 34 years, was instantly killed in Vesta No. 1 mine by a fall of rock. The deceased left a wife and four children. This accident occurred on June 24.

Andrew Jacus, loader after machines, was instantly killed June 27 by a fall of slate, in Arnold mine. Deceased was 27 years of age and single.

Leon Krenetcher, employed as a miner at the Vigilant mine, was instantly killed on June 28 by a fall of rock. Krenetcher left a wife and one child.

On July 11 John Goery, a loader after machines, was instantly killed in Knob mine by a fall of slate. Goery left a wife and two children.

Peter Rafferty, a miner, aged 54 years and single, was fatally injured July 11, in Cincinnati mine, by a fall of roof. He lived about six days after being injured.

August 18 Adam Livingstone, aged 40 years, employed as riverman at the Anchor mine, was instantly killed by falling from the tipple. Deceased left a wife and eight children.

At Acme mine, on September 1, Paul Cokan, a miner, aged 42 years, was instantly killed by a fall of slate. Cokan left a wife and two children.

Frank Kober, a miner, aged 40 years, was fatally injured September 8 in Somers No. 2 mine by fall of slate. Deceased left a wife and four children.

John Bennett, Salem Haiston, John Haiston, Robert Davidson, James Hall, John Cartwright, Henry Hager and William Pritchard were instantly killed September 23 in Umpire mine by an explosion of firedamp. For more definite information in regard to this accident, see description of Umpire mine.

By a fall of slate in Climax mine September 24 John Jushaush, a miner, aged 24 years, was instantly killed. Deceased left a wife and four children.

October 3 Edward Lawson, a loader after machines, was instantly

killed in Shepllar mine by a fall of slate. Lawson was 30 years of age and single.

Charles Mota, loader after machines, was instantly killed October 3, in Tremont mine, by a fall of slate. Mota left a wife and one child.

John Schavitch, loader after machines, was killed at Manown mine on October 4 by a fall of slate. Deceased was a single man.

George Ketchner, a loader after machines, aged 30 years, and employed at the Catsburg mine, was killed by a fall of slate October 21. Ketchner left a wife and one child.

John McLaughlin, loader after machines, aged 46 years, was fatally injured in Bunola mine October 28 by a fall of slate. McLaughlin left a wife to mourn his loss.

Zachariah Powell, loader after machines, aged 48 years, was instantly killed by being struck by a post in the Knob mine, November 30. Powell left a wife and four children.

December 17, Henry Wind, aged 26 years, a laborer, was killed at the Tremont mine by being run over by a railroad car; left a wife and two children.

Michael Barrett, loader after machines at Cleveland mine, was fatally injured by a fall of slate on December 19. Barrett left a wife and one child.

On December 26 Robert Gastkill and William Black, Americans, miners, aged 17 and 45 years respectively, were instantly killed by a fall of slate in Umpire mine. Gastkill was a single man; Black left a wife and five children. It is not known positively what time this accident occurred, as the bodies were not discovered until about 6 o'clock P. M., at which time they were in such condition as to indicate that life had been extinct for some time. From this it is inferred that the accident occurred between the hours of 11.30, the the driver hauled a car from their room, and one o'clock P. M. On the day of the accident the mine ceased operations at noon for the "want of coal."

The non-arrival at the proper time of Gastkill and Black at their homes caused alarm, and to ascertain the cause of their absence William Eicher and son entered the mine, and upon reaching the pumping station, informed William Wheeler, the pumper, in regard to the matter; the party then proceeded to the place in which Gastkill and Black worked. In the room they found a quantity of slate down in the middle of the road, and some down at the face of the room. They concluded that something serious had happened, but instead of making themselves sure, they left the room and informed others of the matter. John Pierce and Robert Roher then visited the room and found the bodies of Gastkill and Black under the slate.

TABLE I.—Showing location, etc., of collieries in the First Bituminous District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
51	Anchor.	A. G. & J. E. Leonard.	Fayette.	J. E. Leonard.	Roscoe	Pa. R. R.
41	Arnold No. 1.	Johnson Coal Mining Company.	Fayette.	J. H. Moorefield.	Fayette City.	Pa. R. R.
42	Arnold No. 2.	Johnson Coal Mining Company.	Fayette.	J. H. Moorefield.	Fayette City.	Pa. R. R.
43	Albany.	Snowdon & Gould.	Fayette.	William Seddon.	Brownsville.	Pa. R. R.
44	Albany.	Stokekate Coal Company.	Washington.	Charles W. Braznell.	Monarch.	Pa. R. R.
45	Albany.	Union Coal Company.	Washington.	Charles W. Braznell.	Monarch.	Pa. R. R.
46	Anderson.	D. M. Anderson.	Washington.	D. M. Anderson.	Venetia.	B. & O.
47	Anderson.	D. M. Anderson.	Washington.	D. M. Anderson.	Venetia.	B. & O.
48	Abe Hays.	Abe Hays Coal Company.	Fayette.	John H. Wilson.	Fayette City.	Pa. R. R.
49	Apollo.	C. Juttie & Co.	Fayette.	John H. Wilson.	Fayette City.	Pa. R. R.
50	Allequippa.	Bailey, Wilson & Co.	Allegheny.	W. W. Wilson.	Dravosburg.	Pa. R. R.
51	Amity.	S. S. Crump & Son.	Allegheny.	S. S. Crump.	Dravosburg.	Pa. R. R.
52	Amity.	S. S. Crump & Son.	Allegheny.	S. S. Crump.	Dravosburg.	Pa. R. R.
53	Banola.	Tide Coal Company.	Fayette.	W. S. Gibson.	California.	Pa. R. R.
10	Banner.	Banola Mining Company.	Allegheny.	G. T. Cook.	Banola.	Pa. R. R.
38	Blyth.	A. Dempster.	Washington.	James Parnham.	Shire Oaks.	Pa. R. R.
23	Black Diamond.	Blyth Coal Company.	Washington.	T. C. Conell.	Dunlevy.	Pa. R. R.
63	Beaumont.	W. H. Brown Sons.	Washington.	James Loutitt.	Monongahela.	Pa. R. R.
11	Bertha.	Pursglove & Gordon.	Washington.	Samuel Pursglove.	West Brownsville.	Pa. R. R.
12	Bertha.	Pursglove & Gordon.	Washington.	Samuel Pursglove.	West Brownsville.	Pa. R. R.
13	Coal Bluff.	Coal Bluff Mining Company.	Washington.	B. H. Taylor.	Coal Bluff.	Pa. R. R.
14	Coal Bluff.	Coal Bluff Mining Company.	Washington.	B. H. Taylor.	Coal Bluff.	Pa. R. R.
15	Cliff.	C. Juttie & Co.	Washington.	John McMinimy.	Courtney.	Pa. R. R.
16	Cliff.	C. Juttie & Co.	Washington.	John McMinimy.	Courtney.	Pa. R. R.
20	Catskill.	Catsburg Coal Company, Limited.	Washington.	Harry F. Jones.	Monongahela.	Pa. R. R.
29	Coal Centre.	F. J. Forsyth & Co.	Washington.	T. F. Forsyth.	Coal Centre.	Pa. R. R.
48	Clippert.	Clippert Coal Company.	Washington.	T. S. Briggs.	Allempont.	Pa. R. R.
50	Coal Centre.	Mingo Gas Coal Company.	Washington.	T. A. Watson.	Courtney.	Pa. R. R.
17	Courtney.	T. J. Wood.	Washington.	G. W. Roberts.	Elco.	Pa. R. R.
35	Cheltonia.	T. J. Wood.	Washington.	G. W. Roberts.	Elco.	Pa. R. R.
34	Champion.	Charleroi Coal Works.	Washington.	Jesse K. Johnston.	Charleroi.	Pa. R. R.
51	Charleroi.	California Coal Company.	Washington.	Thomas Underwood.	California.	Pa. R. R.
62	Crescent.	George Lysle Sons.	Allegheny.	E. M. Thomas.	Camden.	Pa. R. R.
55	Camden.	Smith & Co.	Fayette.	Joseph Cartwright.	Brownsville.	Pa. R. R.
67	Climax.	Tide Coal Company.	Fayette.	W. S. Gibson.	California.	Pa. R. R.
68	Climax.	Tide Coal Company.	Fayette.	W. S. Gibson.	California.	Pa. R. R.
69	Climax.	Clippers Company.	Fayette.	L. M. Schouder.	Fredricktown.	Pa. R. R.
37	Cleveland.	J. H. Schouder.	Fayette.	L. M. Schouder.	Belle Vernon.	Pa. R. R.
36	Christiana.	S. W. Schroder.	Allegheny.	William Schroder.	Elizabeth.	P. & L. E.
56	Eclipse River.	Eclipse Coal Company.	Washington.	D. T. Stambaugh.	Monong.	Monon.
76	Eclipse Railroad.	Osbourne, Seager & Co.	Washington.	P. T. Stambaugh.	Venetia.	B. & O.

TABLE I.—Continued.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
29	Ella	Ella Coal Company.	Westmoreland.	A. E. Speakman.	Sunny Side.	P. & L. E.
43	Fayette City.	Samuel O'Neill, attorney.	Fayette.	James O'Neill.	Fayette City.	P. & L. E.
31	Faircett.	Equitable Coal Company.	Westmoreland.	Joseph Blower.	Webster.	P. & L. E.
68	Fox.	Fox Coal Company.	Washington.	George W. Dale.	West Brownsville.	Monon.
52	Fidelity.	Fidelity Coal Company.	Washington.	Henry E. Kinlock.	Roscoe.	B. & O.
73	Germania.	J. E. Boyle.	Washington.	H. H. Boyle.	Hackett.	B. & O.
72	Gastonville.	Pitts and Chicago Gas Coal Co.	Allegheny.	George W. Schluderberg.	Pittsburg.	P. & L. E.
74	Gallatin.	Ivill Coal Company.	Washington.	W. H. Ivill.	Manown.	P. & L. E.
14	Hackett.	J. I. Boyle.	Washington.	R. H. Boyle.	Hackett.	B. & O.
9	Hilldale.	Hilldale Mining Company.	Washington.	J. E. Lidstone.	Elmora.	B. & O.
21	Ivill.	James Jones.	Washington.	James Jones.	Monongahela.	Pa. R. R.
67	Knob.	Knob Coal Company.	Washington.	S. H. Bask.	West Brownsville.	Pa. R. R.
45	Little Alps.	Little Alps Coal Company.	Fayette.	J. T. Jones.	Monarch.	Pa. R. R.
38	Little Lidstone.	Little Lidstone Coal Company.	Fayette.	Robert Jenkins.	Sunny Side.	Pa. R. R.
59	Milesville.	Youghiogheny Gas Coal Company.	Allegheny.	Lute Hornicle.	Manown.	P. & L. E.
19	Manown.	W. H. Brown Sons.	Allegheny.	James Louttit.	Manown.	P. & L. E.
70	Mongah.	Webster Gas Coal Company.	Westmoreland.	Wm. Emsheld.	Webster.	P. & L. E.
34	North Webster.	Henry Florsheim.	Washington.	Henry Florsheim.	Pittsburg.	B. & O.
18	Nottingham.	New Eagle Coal Company.	Washington.	James Louttit.	Monongahela.	Monon.
16	Old Eagle.	W. H. Brown Sons.	Allegheny.	Harry P. Jones.	Monongahela.	P. & L. E.
33	Rostraver.	James & John H. Jones.	Allegheny.	Thomas Watkins.	Camden.	Pa. R. R.
5	Rock Run.	Mrs. S. C. Snowgrass.	Washington.	E. M. Raycraft.	Fredricktown.	Pa. R. R.
70	Riverville.	Riverville Coal Company.	Allegheny.	W. P. Schullerberg.	Pittsburg.	B. & O.
71	Snowden.	Pitts and Chicago Gas Coal Company.	Washington.	W. P. Schullerberg.	Allegheny.	Pa. R. R.
55	Somers No. 2.	James Jones.	Westmoreland.	Joseph Underwood.	Rose, Iron.	Pa. R. R.
50	Stony Hill.	Alps Coal Company.	Fayette.	Charles Bradford.	Coal Centre.	Pa. R. R.
32	Sheplar.	Charles Bradford & Co.	Westmoreland.	Wm. Young.	Shepplar.	P. & L. E.
35	Sheplar.	Sheplar Gas Coal Company.	Washington.	J. B. Small.	Monongahela.	Pa. R. R.
36	Sheplar.	Shoenberger Coal Company.	Fayette.	S. B. Graham.	Belle Vernon.	P. & L. E.
37	Sheplar.	John A. Wood & Son.	Washington.	John D. Simpson.	Brownsville.	Pa. R. R.
65	Tremont.	Umpire Coal Company.	Washington.	R. B. Drum.	California.	Pa. R. R.
23	Vesta No. 1.	Vesta Coal Company.	Washington.	R. B. Drum.	California.	Pa. R. R.
53	Vesta No. 2.	Vesta Coal Company.	Washington.	R. B. Drum.	California.	Pa. R. R.
54	Vesta No. 3.	Vesta Coal Company.	Washington.	R. B. Drum.	California.	Pa. R. R.
57	Vesta No. 4.	Vesta Coal Company.	Washington.	R. B. Drum.	California.	Pa. R. R.
59	Vigilant.	California Coal Company.	Allegheny.	John A. Powell.	California.	Pa. R. R.
8	Walton, Upper Mine.	Jos. Walton & Co., Incorporated.	Allegheny.	D. W. Phillippi.	Jones Station.	Pa. R. R.
7	Walton, Lower Mine.	Jos. Walton & Co., Incorporated.	Allegheny.	D. W. Phillippi.	Jones Station.	Pa. R. R.
46	Washington.	Flint & Co.	Fayette.	L. E. Flint.	Pittsburg.	Pa. R. R.

TABLE II.—Continued.

Names of Collieries.	County.	Total production in tons of coal.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad and water shipments of coal in tons.	Number of days worked.	Number of persons employed.	Number of fatal accidents.	Number of non-fatal accidents.	Number kegs powder used.	Number pounds dynamite used.	Number horses and mules.	Number steam boilers.	Number mine locomotives.
Camden,	Allegheny,	112,820	700	550	111,570	143½	216	.....	1	.....	.....	17	.....	.....
Christina,	Allegheny,	48,617	150	50	48,417	118	124	.....	1	.....	.....	11	.....	.....
Climax,	Fayette,	46,685	325	150	46,210	206	69	.....	.....	450	.....	6	.....	.....
Charmouni,	Fayette,	290,094	1,235	.....	288,709	304	159	.....	1	1,500	.....	13	.....	.....
Crouthers,	Fayette,	54,644	.....	.....	54,644	245	55	.....	2	.....	.....	4	.....	.....
Cleveland,	Fayette,	300,000	3,000	.....	297,000	216	387	.....	1	2,000	50	24	.....	.....
Ella,	Westmoreland,	269,788	1,550	158	271,080	263	160	.....	6	.....	.....	13	.....	.....
Eclipse River,	Washington,	236,737	1,200	300	235,237	246¾	133	.....	2	.....	.....	16	.....	.....
Eclipse Railroad,	Washington,	122,147	2,069	.....	120,078	205	371	.....	1	56	1,400	15	.....	.....
Fayette City,	Fayette,	277,119	.....	840	274,054	270	261	.....	1	.....	.....	13	.....	.....
Fayetteville,	Westmoreland,	16,406	660	450	15,696	177	62	.....	.....	100	.....	3	.....	.....
Fidelity,	Washington,	13,035	.....	.....	13,035	177	62	.....	.....	175	.....	3	.....	.....
Germania,	Washington,	150,920	.....	1,482	148,873	275	118	.....	2	.....	.....	10	.....	.....
Gastonville,	Washington,	138,262	378	96	137,788	60	187	.....	3	.....	.....	9	.....	.....
Gallatin,	Allegheny,	56,000	.....	.....	56,000	132½	55	.....	1	75	.....	8	.....	.....
Hackett,	Washington,	30,781	270	50	30,461	200	185	.....	1	.....	.....	3	.....	.....
Hildale,	Washington,	245,624	450	1,000	244,174	226	189	.....	3	600	.....	12	.....	.....
Ivill,	Washington,	1,52,140	2,190	135	149,815	214	155	.....	.....	27	.....	5	.....	.....
Knob,	Fayette,	34,466	.....	20	34,446	209	189	.....	1	.....	.....	13	.....	.....
Little Alps,	Fayette,	237,574	900	573	236,665	146	100	.....	6	.....	.....	8	.....	.....
Little Redstone,	Allegheny,	20,300	500	500	19,800	146	100	.....	1	200	.....	3	.....	.....
Milesville,	Allegheny,	44,618	.....	.....	43,831	111	111	.....	.....	.....	.....	10	.....	.....
Monaca,	Allegheny,	127	.....	.....	127	111	111	.....	.....	.....	.....	6	.....	.....
North Webster,	Allegheny,	43,635	2,530	.....	41,105	166	138	.....	2	.....	.....	10	.....	.....
North Webster,	Washington,	83,982	845	680	82,905	172	1	.....	.....	.....	.....	4	.....	.....
Nottingham,	Washington,	6,786	125	.....	6,661	172	1	.....	.....	.....	.....	1	.....	.....
New Eagle,	Washington,	10,000	76	.....	9,924	158	212	.....	.....	.....	.....	10	.....	.....
Old Eagle,	Allegheny,	58,981	640	225	58,166	280	130	.....	1	400	.....	6	.....	.....
Rostraver,	Allegheny,	111,911	1,000	500	110,411	105	124	.....	3	500	.....	10	.....	.....
Rock Run,	Westmoreland,	40,867	450	450	40,417	105	124	.....	2	.....	.....	11	.....	.....
Riverville,	Allegheny,	54,412	215	540	63,654	214	113	.....	.....	310	50	5	.....	.....

Snowdon,	178,622	868	499	177,315	227	206	.....	3	.....	12	.....	2
Somers No. 2,	30,040	500	500	28,000	80	90	.....	1	.....	50	.....	1
Sheppard,	123,655	625	30	123,000	236	107	.....	1	.....	.....	.....	12
Westmoreland,	146,450	500	200	145,500	220	88	.....	1	.....	.....	.....	11
Fayette,	135,376	5,310	.....	130,066	177	168	.....	.....	.....	200	.....	5
Snow Hill,	14,506	.....	.....	14,000	.....	.....	.....	.....	.....	500	.....	1
Shoenberger,	194,007	2,326	.....	174,891	258	169	.....	1	.....	300	.....	3
Union,	174,007	2,326	.....	173,680	158	130	.....	1	.....	400	.....	6
Fayette,	478,338	8,797	2,099	467,442	237	230	.....	2	.....	2,400	.....	19
Umbreit, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Vesta No. 1, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vesta No. 2, † .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vesta No. 3, †	161,927	1,540	2,200	158,187	234	175	.....	1	.....	.....	.....	8
Vigilant,	158,624	2,071	.....	156,553	129	354	.....	1	.....	2,000	.....	2
Walton, Upper Mine, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Walton, Lower Mine, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Allegheny,	127,557	507	.....	127,080	227	147	.....	.....	.....	.....	.....	.....
Fayette, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	8,909,839	57,412	25,231	8,826,696	12,473½	9,720	.....	42	110	23,005	1,690	670
												168
												10

*Estimated.
†Idle all year.

TABLE No. 3.—Showing the number of each class of employes at each colliery in the First Bituminous District, during the year 1898.

Names of Collieries.	Occupation of Persons Employed Inside.										Occupation of Persons Employed Outside.										Grand total inside and outside.
	Occupation of Persons Employed Inside.										Occupation of Persons Employed Outside.										
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Superintendents, book-keepers and clerks.	All other employes.	Total outside.						
Anchor, No. 1.	1	1	126	16	10	2	2	142	1	1	2	1	1	5	11	153					
Arnold No. 2.	1	1	150	16	16	5	2	191						11	17	208					
Albany.	1	1	99	2	14	1	4	122	1	1	2	1	1	5	17	139					
Acme.	1	1	125	3	11			140						4	14	154					
Allen.	1	1	70	1	5			78						4	7	85					
Anderson.																					
Abe Hays.	1	1	170	5	9	3	13	198						1	21	219					
Appolo.	1	1	240	3	12	1	6	263	1	1	2	1	18	23	282						
Allequippa.	1	1	160	1	13	1	6	181	1	1	2	1	16	19	200						
Alice.	1	1	20	20	13	3	5	48					2	12	60						
Banola.	1	1	133	32	13	3	14	196	1	1	1	1	3	5	210						
Banner.	1	1	110	9	9	3	2	139	1	1	1	1	12	16	155						
Blyth.	1	1	170	9	9	3	2	186	1	1	1	1	6	10	196						
Black Diamond.	1	1	200	12	12	3	10	227	1	1	3	3	8	18	245						
Beaumont.	1	1	75	1	1	1	1	83					4	5	84						
Bufoola.	1	1	150	6	6	3	4	164	1	1	3	3	5	18	182						
Coal Bluff.	1	1	146	2	10	2	3	169	1	1	2	2	1	14	18						
Cincinnati.	1	1	146	2	10	2	3	169	1	1	2	2	1	14	18						
Cliff.	1	1	200	3	10	2	3	218					4	10	222						
Catsburg.	1	1	170	3	10	3	3	188	1	1	5	1	10	16	199						
Clayton.	1	1	48	3	30	3	2	87					5	8	92						
Courtney.	1	1	60	7	7	1	1	76	1	1	1	1	2	5	81						
Coalton.	1	1	60	7	8	1	1	77	1	1	1	1	2	6	82						
Champion.	1	1	100	8	8	1	1	113	1	1	1	1	3	6	119						
Charleston.	1	1	134	4	12	3	3	153	1	1	1	1	1	6	159						
Chesent.	1	1	150	9	9	1	14	176	1	1	1	1	1	8	184						
C Camden.	1	1	170	15	15	3	5	194	1	1	2	2	14	22	216						

TABLE III.—Continued.

Number of Days Worked Each Month During 1898.

Names of Collieries.	Number of Days Worked Each Month During 1898.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Anchor.....	11	13	20	19	15	19	12	10	18	15	18	19
Arnold No. 1.....	5	6	12.50	21	18	19.50	19	19	24	26	24	18
Arnold No. 2.....	93.50	20.50	18	16.50	24.50	23.25	1	16.50	18	19.50	24	22.75
Albany.....	15	7	11	24	22	24	11	13	18	21	22	19
Acme.....	14	7	10	19	19	20	12	16	16	15	17	10
Allen.....												
Anderson.....												
Abe Hays.....	24	22	21	25	26	24	23	23	22	26	26	26
Apollo.....	18.50	17.50	15.50	13	15	19	3	6.50	4	4.50	22	7
Allequippa.....	17.50	20	15.50	11	22	16	9	9.50	11	11	25.50	24
Amity.....												
Alice.....	21	24	26	20	25	26	20	21	24	20	25	19
Banola.....												
Banner.....	14.50	14.50	23	23.50	24.50	25	10	6	12	17	14	20
Bly.....	18	18	23	23.50	24.50	25	17	19.50	24.50	22	22.50	22.50
Black Diamond.....	10	12	12	15	16	17	6	10	12	15	16	10
Beaumont.....												
Buffalo.....												
Coal Bluff.....	21	19	18	16	19	19	23	23	16	14	23	24
Cincinnati.....												
Cliff.....												
Catsburg.....	23	19	23	22	17	15	24	25	15	19	25	25
Coal Centre.....	14.25	20.25	20	14.25	22.25	20.75	5.25	11.50	20.75	19.50	22.25	20
Clipper.....	20	16.50	14.50	13	22	16	6	16.50	13	16	23.50	14
Courtney.....	8.50	10.25	7.50	11	16	23.50	16.50	24	21.25	16	18.75	9.50
Caledonia.....	22	18	21	11	16	22	18	3				
Champion.....	22	19	22	11	11						15	24
Chick.....	21	17	25	12	22	26	23	26	23	23	22	23
Crescent.....	21	18	14	14	26	18	18	16	17	19	24	24
Camden.....	16	16	17	13	23	18	.50	2	6	2	14.50	13.50

TABLE No. 4.—List of fatal accidents that occurred in and ab out the mines of the First Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 5	George Woods	Miner	60	M.	1		Allegheny	Allegheny	Killed by a fall of roof coal.
14	George Hakmaki	Leader	19	M.			Washington	Washington	Instantly injured by a blast through rib.
16	James H. Currie	Miner	22	M.			Washington	Washington	Killed by a fall of roof coal.
31	Alexander Baddery	Leader	25	M.			Fayette	Fayette	Instantly killed by a fall of slate.
12	Michael Macvith	Miner	57	M.	1	3	Arnold	Fayette	Killed by a fall of slate.
22	Peter Shaler	Leader	27	M.	1		Eclipse	Washington	Fatally injured by a fall of slate.
27	George Simpson	Day hand	46	M.	1	4	Little Redstone	Fayette	Injured by a fall of roof coal.
4	Charles Pollic	Leader	56	M.	1	6	Walton, Upper	Allegheny	Fatally injured by a fall of roof coal.
17	John Knight	Miner	24	M.	1		Hackett	Washington	Instantly killed by a fall of slate.
18	William Hays	Miner	53	M.	1	7	Manown	Allegheny	Instantly killed by a fall of slate.
27	Mitro Turko	Leader	52	M.	1		Vesta No. 1	Washington	Suffocated by after-damp.
31	Joseph McFeeley	Miner	20	M.			Albany	Fayette	Killed by a fall of coal and slate.
31	William Madrn	Scrapper	30	M.			Coal Centre	Washington	Instantly killed by a fall of coal.
30	William Turk	Miner	23	M.	1	4	Manown	Allegheny	Instantly injured by a fall of coal.
24	Andrew Blachford	Miner	27	M.			Arnold	Fayette	Instantly killed by a fall of slate.
21	Andrew Jones	Leader	27	M.	1		Vigilant	Washington	Instantly killed by a fall of slate.
28	Leon Krenetner	Miner	48	M.	1	2	Knob	Washington	Instantly killed by a fall of slate.
11	John Gosry	Miner	48	M.	1	2	Cinchmati	Washington	Fatally injured by a fall of roof.
11	Peter Rafferty	Miner	54	M.	1	8	Anchor	Fayette	Instantly killed by falling off tippie.
18	Adam Lovingson	Miner	40	M.	1		Acme	Washington	Fatally injured by a fall of slate.
1	Paul Cohan	Miner	42	M.	1	4	Somers No. 2	Westmoreland	Fatally injured by a fall of slate.
8	Frank Kober	Miner	40	M.	1		Empire	Fayette	Killed by an explosion of fire damp.
23	John Bennett	Driver	22	M.			Empire	Fayette	Killed by an explosion of fire damp.
23	Salem Haistun	Miner	22	M.	1	2	Empire	Fayette	Killed by an explosion of fire damp.
23	John Halstan	Miner	35	M.	1		Empire	Fayette	Killed by an explosion of fire damp.
23	Robert Davidson	Miner	45	M.	1		Empire	Fayette	Killed by an explosion of fire damp.
23	James Hall	Miner	57	M.	1		Empire	Fayette	Killed by an explosion of fire damp.
23	John Carwright	Miner	17	M.	1		Empire	Fayette	Killed by an explosion of fire damp.
23	Henry Hagar	Driver	17	M.	1	7	Empire	Fayette	Killed by a fall of slate.
23	William Pritchard	Miner	50	M.	1	4	Empire	Fayette	Killed by an explosion of fire damp.
24	John Lushansh	Miner	24	M.	1		Climax	Fayette	Instantly killed by a fall of slate.
3	Edward Lawson	Leader	32	M.	1	1	Sheppard	Westmoreland	Instantly killed by a fall of slate.
3	Charles Moto	Leader	31	M.	1	1	Fayette	Fayette	Killed by a fall of coal.
4	John Schavitch	Leader	38	M.	1		Manown	Allegheny	Instantly killed by a fall of slate.

21.	George Ketcher,	Leader,	30	M.	1	1	Catsburg,	Washington,	Killed by a fall of slate.
23.	John McLaughlin,	Leader,	36	M.	1	1	Bunola,	Allegheny,	Fatally injured by a fall of slate.
29.	Zachariah Powell,	Leader,	42	M.	1	1	Knob,	Washington,	Killed by being struck by a post.
17.	Henry Wind,	Laborer,	28	M.	1	2	Washington,	Fayette,	Killed by being run over by a flat car.
19.	Michael Barnett,	Leader,	40	M.	1	1	Cleveland,	Fayette,	Fatally injured by a fall of slate.
25.	William Black,	Miner,	45	M.	1	4	Umple,	Fayette,	Instantly killed by a fall of slate.
25.	Robert Gastkill,	Miner,	17	S.	.....	.....	Umple,	Fayette,	Instantly killed by a fall of slate.

TABLE No. 5.—List of non-fatal accidents that occurred in and about the mines of the First Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 5.	Charles Emcolo.	Loader.	35	M.	Eclipse.	Washington.	Leg broken by a fall of slate.
5.	John Jacob.	Loader.	35	M.	Little Redstone.	Fayette.	Back injured and ribs broken by a fall of slate.
10.	John Brightwell.	Scraper.	35	M.	Fayette City.	Fayette.	Small bone of leg broken by machine board.
12.	P. T. Vaughan.	Miner.	50	M.	Tremont.	Fayette.	Injured in the groin by a fall of slate.
12.	William Hooker.	Scraper.	22	S.	Fayette City.	Fayette.	Slightly injured on head by a fall of slate.
14.	Simon Simberk.	Miner.	26	S.	Tremont.	Fayette.	Injured by a fall of slate.
16.	John Gilkey.	Driver.	20	S.	Caledonia.	Washington.	Injured by cars.
18.	Leifold Woodring.	Scraper.	27	S.	Fayette City.	Fayette.	Two ribs broken by a fall of slate.
18.	Garbo Morosha.	Miner.	42	M.	Little Redstone.	Fayette.	Leg broken and head cut by a fall of slate.
22.	James Mains.	Machine man.	25	S.	Anchor.	Fayette.	Slightly injured by a fall of roof coal.
22.	Henry Haley.	Machine man.	38	S.	Anchor.	Fayette.	Slightly injured by a fall of roof coal.
24.	James Finley.	Machine man.	35	S.	Tremont.	Fayette.	Hand broken by a fall of roof coal.
25.	John Mauskate.	Miner.	20	M.	Beaumont.	Fayette.	Leg broken by a fall of slate.
25.	Joseph Chambers.	Miner.	30	S.	Beaumont.	Washington.	Injured by cars.
25.	Andrew Penkoskey.	Miner.	16	S.	Allen.	Washington.	Slightly injured by falling off trestle.
13.	Robert Simpson.	Miner.	45	M.	Clippel.	Washington.	Injured on foot by post.
22.	William Furlong.	Miner.	64	M.	Clippel.	Washington.	Leg broken by a fall of slate.
24.	Andrew Gauslock.	Loader.	45	S.	Fayette City.	Fayette.	Toes injured by a fall of slate.
24.	John Farring.	Dumper.	23	S.	Ella.	Westmoreland.	Rib broken and otherwise injured by cars.
4.	Charles Evans.	Driver.	21	S.	Shoenberger.	Washington.	Leg broken by running into car.
5.	Joseph King.	Miner.	33	M.	Ella.	Westmoreland.	Bruised on body by empty cars.
10.	Edward Griffin.	Miner.	33	M.	Christina.	Allegheny.	Leg broken by a fall of slate.
10.	Frank R. Alms.	Miner.	33	M.	Kostraver.	Westmoreland.	Arm badly cut by fall of slate.
10.	Andrew Bowzlox.	Driver.	34	M.	Fayette City.	Fayette.	Three ribs broken and head hurt by being struck between cars and coal pillar.
11.	Methon Keemer.	Miner.	21	M.	Anchor.	Fayette.	Slight injury to head.
14.	James Bachan.	Loader.	11	S.	Fayette City.	Fayette.	Collar bone and rib broken by car.
15.	Joseph Baigt.	Miner.	26	M.	Elvth.	Washington.	Leg broken and collar bone injured by a fall of coal.
22.	William Wilson.	Driver.	18	S.	Manown.	Allegheny.	Injured by an explosion of fire damp.
22.	Alexander Dudgeon.	Driver.	26	M.	Manown.	Allegheny.	Injured by an explosion of fire damp.
29.	John Tracy.	Miner.	65	S.	Beaumont.	Washington.	Leg slightly injured by a fall of slate.

Apr.	4.	Joseph Bostover,	S.	Anchor,	Fayette,	Back injured by a fall of coal.
	10.	Thomas William,	40	M. Fayette City,	Washington,	Face and hands burned by an explosion of fire damp.
	11.	Hugh Kennedy,	25	M. Vesta No. 1,	Washington,	Leg broken by a fall of rock; afterwards amputated.
May	13.	John Fosner,	41	S. Catsburg,	Washington,	Compound fracture of the leg by a fall of roof coal.
	18.	George Larue,	60	S. Snowden,	Allegheny,	Slightly injured on back and foot by a fall of slate.
	20.	August Caulson,	24	S. Anchor,	Fayette,	Back injured by a fall of coal.
	22.	A. Aposta,	45	M. Anchor,	Fayette,	Leg broken by a fall of slate.
	26.	Samuel Gester,	50	M. Germania,	Washington,	Eye and face injured by a fall of roof coal.
	30.	Peter Manda,	45	M. Ella,	Westmoreland,	Leg broken by a fall of slate.
	6.	Jese Reynolds,	22	M. Snowden,	Allegheny,	Leg broken by a car running over it.
	7.	Michael Voslisko,	25	S. Ella,	Westmoreland,	Injured by a fall of slate.
	10.	John Kownacky,	35	S. Eclipse River,	Washington,	Injured by a fall of slate.
	11.	Joseph Taylor,	38	S. North Webster,	Westmoreland,	Leg broken by a fall of slate.
13.	Andrew Roberts,	35	S. Ella,	Westmoreland,	Leg injured by being cut by mining machine.	
June	13.	Edward Geroshey,	26	S. Ivill,	Washington,	Compound fracture of the left leg by a fall of coal.
	21.	George Slater,	37	M. Old Eagle,	Allegheny,	Injured by a fall of coal.
	26.	John Ray,	22	S. Rastron,	Westmoreland,	Leg broken by a fall of slate.
	28.	John Madebon,	22	M. Caladonia,	Washington,	Leg broken by a fall of slate.
	10.	Paul Antil,	23	S. Acme,	Washington,	Leg broken by a fall of slate.
	14.	Joseph Wallok,	28	S. Germania,	Washington,	Injured by fall of slate.
	15.	Thomas Lanning,	25	S. Umpire,	Fayette,	Wrist broken and jaw broken in two places by a fall of rock.
	15.	Henry Fragen,	35	M. Albany,	Fayette,	Leg broken by a fall of slate.
	16.	George Kelly,	41	M. Gallatin,	Allegheny,	Small bone in left leg broken by a fall of coal and slate.
	20.	William Hollie,	52	M. Amity,	Allegheny,	Injured internally by a fall of coal and slate.
	21.	William Wood,	59	S. Rock Run,	Allegheny,	Leg broken by a fall of coal.
	23.	M. Bart,	26	S. Edgely,	Washington,	Leg broken by a fall of coal.
	23.	John Davis,	30	S. Vesta,	Washington,	Leg broken by cars.
	25.	John Novotni,	30	M. Crotcheys,	Fayette,	Leg and leg broken by a fall of slate.
	25.	Leverly Resiskey,	30	M. Eodthe River,	Washington,	Leg broken in a fall of coal and slate.
27.	Vilom Pukel,	32	M. Arnold,	Fayette,	Leg broken and body bruised by a fall of slate.	
July	27.	Benjamin Foulks,	34	M. North Webster,	Westmoreland,	Face cut and cheek bone broken by being kicked by a mule.
	27.	George Mehok,	35	M. Hilldale,	Fayette,	Leg broken by a fall of coal.
	27.	Robert Eggerton,	34	M. Little Redstone,	Washington,	Two ribs broken by being struck by a post.
	3.	Mathew Swetreskey,	45	M. Arnold,	Fayette,	Leg broken by a fall of coal.
	13.	Francis Zebary,	41	M. Allen,	Washington,	Head cut and ankle sprained by a fall of coal.
	13.	Thomas Marshall,	48	M. Washington,	Fayette,	Head cut and back bruised by a fall of slate.
Aug.	15.	Matthew Johnson,	45	M. Eclipse,	Washington,	Jaw broken in two places, cheek bone broken and face bruised by falling slate.
	26.	Michael Kortona,	37	M. Allen,	Washington,	Leg broken by being struck by a post.
	3.	George Drennen,	30	M. Arnold,	Fayette,	Severely cut about the hips by mining machine.

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Aug.	16. Thomas Newell,	Miner,	43	M.	Stony Hill,	Fayette,	Injured by a fall of roof coal and rock.
	17. Michael Minshott,	Miner,	31	M.	Acmé,	Washington,	Leg broken by a fall of slate.
23.	Anton Flack,	Loader,	23	S.	Catsburg,	Washington,	Bruised leg and fractured ribs by a fall of slate.
	John Klish,	Loader,	29	S.	Catsburg,	Washington,	Leg fractured by a fall of slate.
	Anton Comoskey,	Loader,	46	M.	Catsburg,	Washington,	Hip bruised by cars.
	John Pecklenskie,	Loader,	40	M.	Catsburg,	Washington,	Head, side and back injured by a fall of slate.
	Victor Brown,	Loader,	18	S.	Alleghippa,	Allegheny,	Leg broken by a fall of slate.
Sept.	James Stett,	Miner,	37	M.	Crescent,	Washington,	Injured by blast through coal pillar.
	James Glazin,	Miner,	35	M.	Washington,	Washington,	Upper ribs broken by fall of roof.
	Reese Boyd,	Miner,	35	M.	Stony Hill,	Washington,	Upper ribs broken by fall of roof.
	Andrew Garrich,	Loader,	40	M.	Catsburg,	Washington,	Hip dislocated and otherwise injured by a fall of roof coal.
	George Cutler,	Miner,	20	S.	Chamouli,	Fayette,	Leg broken by a fall of slate.
Oct.	Frank Garrich,	Loader,	28	S.	Catsburg,	Washington,	Leg broken and otherwise injured by a fall of slate.
	William Hodgson,	Weigh master,	51	M.	Catsburg,	Washington,	Injured by being struck by timber while riding on dilly.
Nov.	Charles Quill,	Driver,	17	S.	Gallatin,	Allegheny,	Slightly injured by car.
	Joseph Sintifal,	Miner,	45	S.	Fidelity,	Washington,	Arm injured by a fall of slate; afterwards amputated.
	Walter Johnson,	Miner,	32	S.	Cincinnati,	Washington,	Injured by a dilly.
	Antonio Bill,	Miner,	38	M.	Gallatin,	Allegheny,	Injured by a fall of slate.
	Frank Prosser,	Machine runner,	32	M.	Franklin,	Washington,	Upper ribs broken by fall of roof coal.
	Frank Oyster,	Miner,	32	M.	Cynthians,	Fayette,	Thigh broken by cars.
	Andrew Bely,	Miner,	44	M.	Washington,	Fayette,	Injured by an explosion of fire damp.
	Samuel Kelly,	Miner,	47	M.	Eclipse Railroad,	Washington,	Three ribs broken by a fall of slate.
	David Davis,	Miner,	61	M.	Eclipse Railroad,	Washington,	Back injured by a fall of roof coal.
	Evan R. Richards,	Miner,	40	S.	Camden,	Allegheny,	Injured by a fall of slate.
	Joseph Stinger,	Miner,	30	S.	Eclipse,	Washington,	Leg broken by a fall of coal.
25.	Frank Vagilodi,	Miner,	25	M.	Rostraver,	Westmoreland,	Leg broken by car.
	John Gee,	Driver,	44	M.	Tremont,	Fayette,	Injured by being caught between car and rib.
26.	John Blakey,	Miner,	26	M.	Harold,	Allegheny,	Foot injured by mining machine.
	Bernardo Carutha,	Miner,	33	M.	Milleville,	Allegheny,	Back dislocated by a fall of slate.
	Stanley Blume,	Miner,	36	M.	Little Redstone,	Fayette,	Leg broken by a post.

Dec.	No.	Name	Driver	Age	Mine	Location	Cause of Injury	
	29.	John Cratty	Driver	45	M.	Black Diamond	Washington	Seriously injured by being kicked by a mule.
	1.	Antonio Rossini	Miner	35	W.	Black Diamond	Washington	Cut on face and head by a fall of roof coal.
	2.	Thomas Hodgson	Miner	36	M.	Coal Centre	Washington	Injured by a fall of slate.
	3.	Frank Hope	Miner	31	M.	Alleghenia	Allegheny	Small bone of leg broken by a fall of slate.
	4.	William Harrinson	Machine helper	25	S.	Eclipse Railroad	Washington	Foot injured by mining machine.
	5.	Harry Kistler	Miner	48	S.	Rock Run	Allegheny	Leg broken at ankle by a fall of slate.
	6.	Peter Velttykosko	Miner	48	M.	Snowdrift	Allegheny	Injured by a fall of slate.
	20.	John Kouzal	Miner	38	M.	Little Runstone	Fayette	Leg broken and head cut by a fall of rock.
	21.	John Kouzal	Miner	38	M.	Little Runstone	Fayette	Leg broken and head cut by a fall of rock.
	22.	John Kouzal	Miner	38	M.	Little Runstone	Fayette	Leg broken and head cut by a fall of rock.
	27.	John Bigelow	Miner	48	S.	Champion	Washington	Injured by a fall of slate.



Second Bituminous District.

(ALLEGHENY, INDIANA AND WESTMORELAND COUNTIES.)

Greensburg, Pa., February 14, 1899.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I have the honor to herewith submit my report as Inspector of Mines for the Second Bituminous District for the year ending December 31, 1898, in compliance with section II of article X of the Bituminous Mining Act, approved the 15th day of May, 1893.

The coal and coke trade has been somewhat improved during 1898. In 1897, the total production was 9,134,797 tons of coal and 2,505,350 tons of coke, while this year the production is 9,820,673 tons of coal and 3,049,537 tons of coke, showing an increase of 685,876 tons of coal and 544,187 tons of coke over the output of 1897. There has also been a small increase in the number of persons employed. In 1897 the number of persons employed was 12,272, in 1898 the number was 12,501, an increase of 229.

I am sorry to report an increase of nine fatal accidents over those of the previous year, there being a total of thirty. As a result of these fatalities ten wives were made widows and thirty-seven children fatherless. The non-fatal accidents also show an increase of fourteen over those of 1897. Of the fatal accidents one occurred outside of the mine, the unfortunate one being a child aged four and one-half years, an explanation of which appears in another part of this report.

At least ten of the fatal accidents might have been prevented, if the unfortunate persons themselves had exercised ordinary care. The others were unavoidable. The same may be said of the non-fatal accidents, quite a large proportion being due to carelessness on the part of the injured persons. The number of fatal and non-fatal accidents and their causes are set forth in the following table:

Classification of Accidents.	A	
	Fatal.	Non-fatal.
By mine wagons,	10	17
By falls of slate,	8	24
By falls of roof,	5	3
By smoke from a mine fire,	3	1
By falls of coal and slate,	2	2

	Fatal.	Non-fatal.
By falls of coal,	1	4
By railroad cars outside of mines,	1	1
By being struck by haulage rope, .....	..	4
By being struck by post, .....	..	3
By falls of "horseback," .....	..	2
By an explosion of powder, .....	..	1
By being struck by an overhead roller on incline, ..	..	1
By being caught by a revolving shaft, .....	..	1
By an explosion of gas, .....	..	1
By being caught under a cage, .....	..	1
Total,	30	66

Mine wagons have caused the greatest number of deaths and also comes second in the causes of non-fatal accidents, as shown in the above table. Fast and reckless driving, jumping on and off trips and careless handling of wagons, are some of the causes. The mine rules, if properly enforced, would remedy this to a great degree.

Falling slate comes next in the causes of fatal, and first in the non-fatal list. The slate in several mines in the district is very treacherous and at no time can it be depended upon.

I urge upon the miners to be very careful and keep it well posted until the proper time comes for taking it down, and then to take it down promptly and not put it off from time to time, as is sometimes done, which very often results in accidents. I urge the mine bosses to be vigilant in this matter.

Falls of roof come next; much care should be taken with the roof. It should be kept well posted at all times, by placing a post as soon as there is room for it and not putting it off until another wagon is loaded or something else of less importance is done. A careful examination should be made for slips, horsebacks and other defects in the roof. In this way many accidents would be avoided, and inasmuch as it is a matter of life and death with those engaged in mining, they ought not to complain or try to avoid taking these precautions.

A mine fire caused the loss of three lives, an explanation of which appears in another part of the report. Great care should be taken in mines where open lights are used to avoid such dangers, as they are more liable to occur in mines where these lights are used than in mines where locked safety lamps are used.

Much has been said and written in the past in regard to mine accidents, and as fatalities will have to be recorded as long as coal is mined, yet much depends upon the individual miner, whether the number will be few or many. Mine accidents are largely due to the imprudence of the persons injured, and failure on their part

to comply with the mine rules and to employ all necessary safeguards for their own protection. Mine officials can also have an important duty to perform in keeping accidents down to the minimum if they will but perform their duties faithfully, and see that the mine rules are complied with, and that proper discipline is enforced and maintained among the workmen under their charge.

During my official visits to each mine I have not failed to impress upon the workmen the importance of carrying out the provisions of the mining act relating to themselves, and also of strictly complying with the mine rules. I have tried to have them exercise a greater degree of prudence while at work. The mine officials are also being urged to see that the rules laid down in the mining law are more fully carried out, for if these were more closely observed, in my opinion the number of accidents could be greatly reduced.

Summary of Statistics, 1898.

Number of mines in the district,	73
Number of mines operated during the year,	66
Number of mines idle during the year,	7
Number of mines opened during the year,	1
Number of mines dropped from the report during the year,	2
Number of persons employed inside the mines,	9,383
Number of persons employed outside the mines,	3,118
Total number of persons employed,	12,501
Number of tons (2,000 pounds) of coal mined during the year,	9,820,673
Number of tons (2,000 pounds) of coal used for steam and heat,	167,057
Number of tons (2,000 pounds) of coal sold to local trade and used by employes,	105,250
Number of tons (2,000 pounds) of coal shipped during the year,	5,008,376
Number of tons (2,000 pounds) of coke produced during the year,	3,049,537
Number of tons of coal mined for each fatal accident,	327,355.7
Number of tons of coal mined for each non-fatal accident,	148,798+
Number of persons employed for each fatal accident,	416+
Number of persons employed for each non-fatal accident,	189+
Number of horses and mules in use,	1,095
Number of steam locomotives in use inside the mines,	5
Number of steam locomotives in use outside the mines,	28
Number of electric motors in use inside the mines,	2

Number of compressed air locomotives in use inside the mines,	1
Number of coke ovens in the district,	7,646
Number of kegs of powder reported as used in the mines,	559
Number of pounds of dynamite reported as used in the mines,	5,979
Number of steam boilers in use,	259
Number of fatal accidents during the year,	30
Number of non-fatal accidents during the year,	66
Number of wives left widows by fatalities,	10
Number of orphans by fatalities,	37
Number of days worked by all the mines during the year,	15,378 $\frac{3}{4}$
Average number of days worked by all the mines during the year,	233+

The business done at the mines during the year has increased considerably over that of last year, as is shown by the above statistics.

The coal tonnage would have been much greater if the operators had been supplied with railroad cars sufficient for the demand of their trade. Many of the mines have been idle quite a number of days owing to the lack of means of transporting their product.

I am glad to report that the majority of the mines in the district have been improved in their condition in a great many respects. The ventilation and drainage especially has received considerable attention with very gratifying results.

Two mines have been dropped from the report owing to the fact that they have not been in operation for several years and not likely to be soon, and one new mine was opened up during the year. Seven mines were idle the entire year.

The usual statistical tables, and a map showing the workings of the Latrobe Coal Company's mine, accompany this report. All of which is respectfully submitted.

C. B. ROSS,

Mine Inspector Second Bituminous District.

Description of Mines and Mine Improvements in the Second Bituminous District.

Mines on and Near the River Division of the Allegheny Valley Railroad.

Lucesco Drift.—Idle the entire year.

Braeburn.—This is a new drift mine in the Upper Freeport seam, which has here an average thickness of three feet eight inches. The

product is used for supplying steam and heat for a large steel plant which has been erected near the mine, and operated by the Braeburn Steel Company. Mine foreman, William Bean.

Valley Camp.—This is the first report I have made of this mine. It is a drift opening in the Lower Freeport seam. The product is used principally at a large brick works, which is located near by, and operated by the Kensington Brick Company. I visited this mine on June 9th, and found ten persons employed inside. This number being sufficient to bring it under the requirements of the law, I insisted that some artificial means be used to produce ventilation, also that a mine foreman be employed and placed in charge of the mine as required by An act relating to bituminous coal mines, approved May 15, 1893.

I was informed shortly afterwards by Mr. A. Thomas, the superintendent, that they had reduced the number of persons employed inside below ten and would not employ more than nine persons at any one time. This having been done, relieves me of any further jurisdiction over the mine at present.

Plum Creek Drift.—Is located near the terminus of the Plum Creek branch of the Allegheny Valley Railroad River Division.

The mine has been kept in very good condition during the year, both in regard to ventilation and drainage. The coal is all mined by hand and hauled by animal power to a siding outside of the mine, from whence it is hauled by a steam locomotive through two hills (from which the coal has been mined) to a main parting, and is there lowered down an incline by gravity to the lower tippie where it is loaded on the cars for shipment. Mine foreman, Robert Doak.

Sandy Creek Drift.—This mine was in very fair condition during the year. The quantity of air in circulation when last measured was 28,980 cubic feet per minute. The mining is all done by hand, and coal is hauled from the workings by animal power to a point outside, from whence it is hauled by a steam locomotive (through three hills from which the coal has been mined) to the head of an incline and then lowered by means of gravity to the foot of the hill. It is then hauled a considerable distance by animal power to the head of a second incline down which it is lowered by gravity to the tippie located in the valley below, where it is loaded on the cars for shipment. Mine foreman, Joseph Corbett.

Mines on and Near the Pittsburg Division of the Pennsylvania Railroad.

Weinman Drift.—Is a small mine employing on my last visit only nine persons inside.

Quantity of air in circulation at inlet 3,200 cubic feet per minute. The product is consumed by local trade. Mine foreman, Jacob Weinman.

Ocean Drift.—This mine has never at any time during the year employed more than nine persons. The product goes to supply the local trade. Mine foreman, Gottlieb Voegelé.

Hampton Drift.—The general condition of this mine has been very fair during the year. Quantity of air passing through the furnace when last measured, 16,800 cubic feet per minute.

The haulage is done by animal power from the workings to a point outside the mine, from whence the coal is lowered down an incline by means of gravity to the tippie where it is loaded on the cars for shipment. Mine foreman, Edgar Thompson.

Duquesne Drift.—The workings of this mine have been extended into the fifth hill. The coal is mined by hand and hauled by animal power to a point outside the mine from whence it is hauled by a steam locomotive (passing through four hills from which the coal has been formerly worked) to the head of an incline, down which it is lowered by gravity to the tippie and then loaded on cars for shipment. The general condition of the mine is fair. On my last visit the ventilating furnace was producing 25,000 cubic feet of air per minute, which was being fairly well distributed around the workings. Mine foreman, Mark James.

Spring Hill No. 2 Drift.—Has been kept in reasonably good condition. On my last visit I measured 44,000 cubic feet of air per minute passing out through the ventilating furnace; 23,400 cubic feet per minute of this quantity was used alone for clearing the smoke from a steam locomotive from the tunnel, through which the coal is hauled. The coal is hauled by this locomotive to the head of an incline outside the mine from whence it is lowered by means of gravity to the tippie.

The product is used principally for the coaling of engines on the Pennsylvania Railroad. Mine foreman, William B. Morris.

Oak Hill No. 4 Drift.—A new ventilating furnace has been built and an air shaft sunk at this mine during the year. I measured 55,360 cubic feet of air per minute in circulation at the outlet, which was being well conducted to the face of the workings. The ventilation and drainage throughout the mine were good. The coal is all mined by hand and hauled by animal power from the face of the workings to two side tracks, one on the north and the other on the south side of the mine, from whence it is delivered by the tail rope system of haulage to the head of an incline (outside the mine) down which it is lowered by means of gravity to the tippie, from which it is loaded on cars for shipment. Mine foreman, William P. Owens.

Larimer No. 4 Drift.—On my last visit to this mine I found the ventilation somewhat improved, but the quantity of air in circulation was not what it should have been, owing to the large area over which

the workings extend, and the number of splits of the air current now in use.

The large number of splits, (12), reduces the velocity in many entries near the face until it is not sufficient to keep them clear of the powder smoke given off by blasting. The improvement in the ventilation is caused by considerable work having been done in the main inlet air-way in removing falls, and enlarging the area and also by increasing the speed of the fan. The fan is placed near the mine mouth and has a considerable distance to force the air before it reaches the workings, and I am of the opinion that the ventilation will not be increased a great deal so long as the fan remains so far away from its work.

The coal in this mine is all mined by hand and hauled from the working faces to the bottom of the different butt entries, from whence it is delivered to the tippie outside by the endless rope system of haulage. Mine foreman, John Williams.

Penn Gas Coal Run Drift.—All the coal here is mined by pick, and delivered to the tippie outside by mule haulage. The mine is kept in very fair condition both in regard to ventilation and drainage. Mine foreman, William Rodgers.

Penn Gas No. 1 Shaft.—This mine has been kept in very favorable condition during the year. The quantity of air measured at the inlet on my last visit was 46,160 cubic feet per minute, which was well conveyed to the face of the workings. The tail rope system of haulage is used. Mine foreman, John Bolam.

Westmoreland Shaft.—The ventilation of this mine has been improved during the year by sinking three shallow air shafts near the head of the workings, which are used for inlets; new air courses have been driven and others are now being driven for the purpose of splitting the air current and improving the ventilation generally. On my last visit to the mine I measured 75,800 cubic feet of air per minute passing in at the inlets, which was carried to the face of the workings.

There are 21 coal cutting machines of the Harrison type—punchers—in use in this mine, also one of the chain cutter type, or what is known as the Jeffrey machine, has lately been introduced, all driven by compressed air. The endless rope system of haulage is used. Mine foreman, James Thompson.

Pleasant Valley Drift.—Has been kept in very fair condition during the year, both in regard to ventilation and drainage. Air in circulation when last measured, 17,360 cubic feet per minute passing at the inlets. This was well conveyed around the workings. The coal is all mined by hand and delivered to the tippie outside by mule haulage. Mine foreman, Joseph H. Powell.

Hempfield Slope.—The improvements at this mine during the year

consist of a new brick engine and boiler house 32x67 feet. One 125 horse power tubular boiler has been added to the plant; also one 20-inch by 30-inch first motion haulage engine has been erected outside the mine, which operates the tail rope system of haulage inside the mine, the ropes passing down a shallow shaft. These engines take the place of a pair of 12-inch by 14-inch geared engines formerly located in the mine. This tail rope system of haulage delivers the coal from a main parting near the workings to the bottom of the slope, from whence it is hauled to the tippie up the slope by the head line system of haulage, the grade being sufficient to allow the empty wagons to take the rope back.

The ventilation and drainage is in very fair condition. The quantity of air in circulation when last measured was 34,000 cubic feet per minute. Mine foreman, E. B. Davis.

Monastery Slope.—The general condition of this mine has been satisfactory during the year. Cubic feet of air in circulation when last measured, 38,400, which was well conveyed to the face of the workings. The haulage is done by the head and tail rope system. The product of the mine is all shipped by railroad, the manufacture of coke having been abandoned some years ago. Mine foreman, Peter Lowther.

Latrobe Coal Works Slope.—Has been kept in good condition during the year, both in regard to ventilation and drainage. On the evening of June 17, a fire occurred in this mine by which three men lost their lives and one was injured. The fire occurred in a drying room which had been prepared for those employed in the main dip and parallel entries (they being very wet), to change and dry their clothing, as described more fully in the account of the accident, given in another part of this report.

This mine has been free from explosive gas, none having been found, to my knowledge, until August 19th, when a small quantity was discovered in the main dip entry, caused by a small fall of roof forming an overhead pocket.

The gas was first discovered by M. C. Loughner, night driver, who caused the information to be communicated to his mine foreman the following morning. The mine foreman then came to my office and reported the same. I advised that a fire boss be employed at once to examine each place in the mine before the men were allowed to enter, as required by law, also that safety lamps be used in the part of the mine where gas was being generated. I am pleased to state that my advice was followed fully and completely, and without any hesitation.

A map of the mine workings accompanies this report. Mine foreman, Stephen Arkwright.

M. Saxman Shaft.—Was in fair condition, but is not beyond im-

provement in ventilation. Quantity of air in circulation when last measured, 16,360 cubic feet per minute. Mine foreman, John C. Dovey.

Loyalhanna Nos. 1 and 2 Shafts.—Has been found in very fair condition during the year, both in regard to ventilation and drainage. On my last visit I measured 69,300 cubic feet of air per minute passing in at the inlet, which was fairly well distributed around the workings. These mines are connected, and the one fan produces the ventilation for both. The tail rope system of haulage is in use in No. 1 mine. Mine foreman, E. W. Altman.

Pandora Shaft.—Very little work has been done at this mine during the year, but when last inspected it was in fair condition. Mine foreman, Enoch Rowley.

Derry Shaft.—Was found in very favorable condition when last inspected. I measured 63,000 cubic feet of air per minute passing in at the inlet, which was very well distributed to the workings. The electric system of haulage is in operation. Mine foreman, H. L. Henderson.

Atlantic Drift.—This mine is in fair condition. Quantity of air in circulation when last measured, 28,000 cubic feet per minute. The tail rope system of haulage is used. Mine foreman, John Baker.

St. Clair Slope.—On my last visit to this mine there was 24,990 cubic feet of air per minute passing through the furnace shaft, and the quantities of air as measured at and near the face of the different entries ranged from 4,680 to 7,560 cubic feet per minute. The haulage is by the tail rope system. Mine foreman, Richard Meagher.

Millwood Shaft.—The condition of this mine is fairly good both in regard to ventilation and drainage. The wooden cages which had been in use have been replaced by new ones built of steel, which are giving great satisfaction. Mine foreman, Thomas Thomas.

Lockport Drift.—This is a small operation in the Lower Freeport seam of coal, employing nine persons inside when last visited. The workings were in fair condition. George H. Richards was in charge of the mine.

Export Drift.—Located at the terminus of the Turtle Creek branch of the Pennsylvania Railroad. The condition of this mine was favorable when last inspected. The ventilation is by a 10-foot modified Guibal fan, which produced 58,800 cubic feet of air per minute, which was very well distributed around the workings. The endless rope system of haulage is used. Mine foreman, George Carroll.

Mines on and Near the Yonghiogheny Railroad, which runs from Irwin on the Pennsylvania Railroad to Sewickley, on the Baltimore and Ohio Railroad.

Penn Gas No. 2 Shaft.—This mine was found in fairly good condition on each visit during the year. The quantity of air passing at

the outlet when last measured was 72,800 cubic feet per minute, which was well carried up to the face of the workings. A new air compressor plant is being installed at this mine. Also coal cutting machinery is being introduced. Mine foreman, William Jamison.

Penn Gas No. 4 Drift.—Idle the entire year.

Mines on and Near the Manor Branch of the Pennsylvania Railroad.

Claridge Drift.—The ventilation of this mine has been improved during the year by the erection of a new ventilating fan of the Guibal type, 16 feet in diameter, with blades $6\frac{1}{2}$ feet wide, which is driven by an engine 12x16 inches coupled direct to the fan. On my last visit I measured 46,000 cubic feet of air per minute passing in at the inlet. This was being well distributed around the workings, and the general condition of the mine was fairly good. It has the endless rope system of haulage. Mine foreman, William Johnson.

Denmark Slope.—The mine was in fairly good condition. Inlet quantity of air when last measured, 38,880 cubic feet per minute. Quantities ranging from 3,000 to 11,400 cubic feet per minute were measured near the face of different entries. The coal is hauled up the slope by means of the endless rope system. Mine foreman, Edmund Whiteman.

Penn Manor Shaft.—Was in operation only 24 days during the year, but when last inspected was in fairly good condition. Mine foreman, Samuel Ferguson.

Mines on and Near the Alexandria Branch of the Pennsylvania Railroad.

Alexandria.—Is a drift opening, but the main part of the workings are now going to the dip. On my last visit I measured 51,200 cubic feet of air per minute passing in at the inlet, which was being circulated through the mine in two splits. The ventilation and general condition of the mine was in fairly good condition. System of haulage in operation, tail rope. Mine foreman, John McDonald.

Jamison Slope.—This mine is in reasonably good condition, both in regard to ventilation and drainage. Quantity of air in circulation when last measured, 26,000 cubic feet per minute.

There are five coal cutting machines in this mine, of the Ingersoll type—punchers—but on my last visit they were not being used to a very great extent, owing to the compressed air plant being too small to furnish power to drive them while the mine pumps are in operation, as the pumps are operated by compressed air from the same plant. Mine foreman, John A. Hart.

Mines on and Near the Unity Branch of the Pennsylvania Railroad.

Puritan Slope.—This mine is comparatively new, and has been kept in fairly good condition during the year. The ventilation is produced by a 20-foot Guibal fan, which on my last visit was producing 71,500 cubic feet of air per minute. New overcasts have been built and the air current is split into various parts of the mine, thereby improving the ventilation. Mine foreman, Edward E. Girod.

Hostetter Slope.—Has been kept in good condition both in regard to ventilation and drainage. Quantity of air in circulation when last measured, 60,560 cubic feet per minute. Mine foreman, George Eustis.

Whitney Slope.—Was found in good condition on each visit. Quantity of air in circulation when last measured, 61,950 cubic feet per minute. Mine foreman, Terrence Donmley.

S. H. Smith Drift.—This is a small mine located on the Ligonier Valley Railroad, near Latrobe, and has been kept in fairly good condition during the year. Air in circulation when last measured, 20,800 cubic feet per minute. Mine foreman, Daniel Craig.

Burrell Drift.—Is located on the West Penn Railroad east of Blairsville, in Indiana county. Nearly all of the product of this mine is used in coaling locomotives on the West Penn Railroad.

On my last visit to this mine I found it in splendid condition. An air shaft has been sunk and a ventilating furnace built, furnishing the means for producing a regular volume of air for the mine. I measured, near the furnace, 16,800 cubic feet of air per minute, which was well distributed around the workings. Mine foreman, Robert S. Snedden.

Mines on and Near the Indiana Branch of the Western Pennsylvania Division of the Pennsylvania Railroad.

Isabella Furnace Slope.—When last inspected, the condition of this mine was not so good as on former visits; in some instances the ventilation was not properly conducted to the face of the workings. I gave orders to stop these workings until the ventilation was carried up, which was done. Quantity of air in circulation, 26,400 cubic feet per minute. Mine foreman, Morris J. Lewis.

Graff Drift.—This is a small plant and has been kept in fairly good condition. A shallow air shaft has been sunk and a small ventilating furnace built. Mine foreman, William Hamer.

Maher No. 2 Drift.—The general condition of this mine was fairly good when last inspected. Quantity of air in circulation, 7,209 cubic feet per minute. Mine foreman, William Beveridge.

Smith's Drift.—Was found in fair condition when last inspected. Air in circulation, 12,760 cubic feet per minute. Mine foreman, Roy Girard.

Mitchell Drift.—Idle the entire year.

Graceton No. 1 Drift.—Idle the entire year.

Graceton No. 2 Drift.—On the evening of May 12th the large coal crusher and washer at this mine was destroyed by fire. This caused the mine to lay idle about five months, during which time a new crusher and washer were erected.

This opening is in the Lower Freeport seam and the product of the mine is principally used in the manufacture of coke. A self-acting incline by which the coal is lowered by means of gravity from a main landing in the mine to the outside near the tippie is in operation. The mine when last inspected was in fairly good condition, with 23,400 cubic feet of air per minute in circulation. Mine foreman, James McKechnan.

Mines on and Near the Southwest Branch of the Pennsylvania Railroad.

Greensburg No. 1 Drift.—The condition of this mine was satisfactory. Quantity of air passing at the inlet when last measured was 32,400 cubic feet per minute, which was well distributed around the workings. From 3,600 to 10,800 cubic feet per minute was measured at and near the face of the different entries. Mine foreman, David Clarke.

Central Slope.—The condition of this mine when last inspected was satisfactory. The quantity of air passing at the inlet was 40,760 cubic feet per minute, which was well conveyed to the face of the workings. Mine foreman, William I. Morgan.

South West No. 1 "A" and "B" Shafts.—These mines are in excellent condition, and close attention is given to every detail by those in charge. The tail rope system of haulage is in use. Mine foremen, John L. Duncan and John Whitfield.

South West No. 2 Slope.—This mine has been kept in good condition throughout the year. Mine foreman, William Howath.

South West No. 3 Slope.—Is in very good condition. Quantity of air in circulation when last measured, 39,420 cubic feet per minute. The tail rope system of haulage is used. Mine foreman, Robert Hare.

South West No. 4 Slope.—General condition is very good, and it is well ventilated in all parts of the workings. Mine foreman, Joseph Logan.

Mines Situated near the Terminus of the Scottdale Branch of the Pennsylvania Railroad and the Mt. Pleasant Branch of the Baltimore and Ohio Railroad.

Standard No. 2 Shaft.—This mine has been kept in good condition during the year. Quantity of air in circulation when last measured,

163,450 cubic feet per minute, and same was well distributed around the workings. Mine foreman, Robert Hay.

Standard Slope.—Idle the entire year.

Mines on and Near the Sewickley Branch of the South West Pennsylvania Railroad.

Mammoth Shaft and Slope.—These mines have been kept in good condition during the year. One fan ventilates both mines and was producing when last measured, 117,000 cubic feet of air per minute, which was fairly well conveyed to the face of the workings. Mine foreman, David P. Brown.

Noticeable among the improvements made by coke companies during the year 1898, is the changing of the haulage arrangements at the bottom of the Mammoth Shaft mine, owned and operated by the H. C. Frick Coke Company. Mr. J. P. K. Miller is the chief engineer of the above named company, and furnishes the following explanation of the changes made:

MAMMOTH IMPROVEMENTS.

Mammoth Works.—Consist of a slope and shaft operation, with the accompanying ovens and buildings. With regard to the mine workings the shaft is located on No. 15 face heading, 250 feet to the right of the main slope heading.

This heading is also continued below No. 15 face as the main shaft dip heading. The coal is brought to the shaft by tail rope haulage. The engines operating which were upon the surface, with ropes running through bore holes to the mine.

These bore holes were situated upon the main slope heading above No. 15 face heading and the trips were pulled up the main heading past No. 15 face, and then dropped into the shaft bottom landing, which was small and crooked. For a variety of reasons this arrangement had become unsatisfactory, and during the year 1898 the following improvement was planned and built:

Beginning on the main heading about 700 feet below the shaft, a curved heading was driven to the right and from this a heading curving to the left with a radius of 150 feet was driven, ending in the shaft bottom landing, 447 feet from, and in front of, the shaft.

The shaft bottom landing is straight and is double tracked for 447 feet from the shaft, and at this point is a knuckle between the ascending grade from the mines and a one per cent. grade descending toward the shaft. The shaft bottom landing and the approach to it, for a distance of 491 feet from the shaft toward the mine workings, are protected by stone and steel, the side walls being stone and the roof being steel "I" beams. Back of the shaft the heading turns to the

right and the same method of protection is used for a distance of 90 feet. The shaft timbering is supported by Carnegie steel "Z" bar columns, probably the first to be used in such a position.

The haulage engines have been placed back of the shaft, in an engine room of stone and steel, similar to the shaft bottom protection. The front of the engine room is 77 feet from the shaft, and is approached through a brick arch 29 feet long, opening from the stone side wall protection of the landing and through which ropes run.

The pulling rope runs between the guides, in the center of the shaft, to a bull wheel, 45 feet in front of the shaft, thence out into the mine, while the tail rope passes back of the guides, along the side of the landing, just below the roof beams and out into the mine.

The landing accommodates 45 wagons and in caging, the empty wagons are pushed off the cages by the full ones and running by gravity back of the shaft, they are automatically switched and return by a track around the side of the cage-way to a point 75 feet in front of the shaft.

From this point the empty track is straight and parallel to the loaded track, from which it is separated by a stone retaining wall. The empties are pulled up the track on a two per cent. grade to the knuckle by a small endless rope engine, which is placed in a room 50 feet in front of the shaft and protected in the same manner as the haulage engine room. This engine has a drum operated by a clutch so arranged that when the front empty wagon reaches the knuckle, the rope can be stopped until the trip is ready to be taken into the mine, without stopping the engine. The return rope of this haulage passes along the side of the landing, just below the roof beams.

Mutual No. 2 Drift.—Was in good condition when last examined, with 25,440 cubic feet of air per minute in circulation. Mine foreman, Frank Rodgers.

Mutual No. 3 Slope.—Was in favorable condition when last inspected. Quantity of air passing at the outlet, 9,200 cubic feet per minute.

Number of persons employed inside, eighteen.

New workings are being developed by working only the entries. The main entries have been pushed ahead and connected with the working of the United Mine, thereby avoiding the use of pumps in this mine, as the water will flow into the United Mine and be raised at the United pumping station. Mine foreman, Walter McDonald.

Strickler Slope.—This mine has been kept in fair condition during the year. The ventilation is ample for the requirements and is well carried up to the working faces. Mine foreman, Alexander Davenport.

Hecla No. 1 Shaft.—The trouble from soft bottom in this mine still continues in some parts of the pillar workings, but notwith-

standing this, the mine has been kept in fair condition both in regard to ventilation and drainage.

The air in circulation when last measured was 58,000 cubic feet per minute. There is no machinery in the mine, the hauling being done by animal power. Mine foreman, William Dean.

Hecla No. 2 Shaft.—The mine was in fair condition. The quantity of air in circulation when last measured was 68,000 cubic feet per minute, which was well distributed around the workings.

Coal is delivered from the workings to the shaft bottom by animal power. Mine foreman, William Snedden.

Calumet Shaft.—The condition of this mine has been good during the year. All parts of the workings were well ventilated, and received proper attention.

A bore hole has been drilled into the dip workings for the purpose of pumping the water through it to the surface. A large pump will be placed at this point. This will be a great improvement over the old method, as the water heretofore was all raised by way of the shaft. The latter method will reduce the length of the column pipe several feet. Mine foreman, James Eaton.

United Shaft.—This mine is in very good condition. The workings are well ventilated and receive proper attention. The coal is all hauled by animal power.

I have been informed by those in charge, that mechanical haulage will be introduced into the mine in the near future, but the system to be adopted has not yet been decided upon. Mine foreman, Patrick Reynolds.

Huhphreys Drift.—In good condition, both in regard to ventilation and drainage. The coal is hauled from the workings of the mine to the coke ovens by animal power. Mine foreman, Harry Gardner.

Marguerite Drift.—A ventilating furnace has been built in this mine during the year, which on my last visit was producing 11,970 cubic feet of air per minute. The general condition of the mine is fairly good. The coal is delivered from the face of the workings to the ovens by animal power. Mine foreman, Robert Gordon.

Mines on and Near the Hempfield Branch of the Southwest Pennsylvania Railroad.

Greensburg No. 2 Slope.—The pair of haulage engines size 10-inch by 12-inch geared, having become too small to perform the work satisfactorily, have been replaced by a pair of 16-inch by 30-inch first motion engines. The engine house has been enlarged and repaired to accommodate them. The tail-rope system of haulage is in use. The general condition of the mine has been satisfactory during the year. Mine foreman, John McIntyre.

Carbon Slope.—The general condition of this mine has been very good during the year, both in regards to ventilation and drainage. Quantity of air in circulation at inlet when last measured, 52,620 cubic feet per minute. The coal is mined by pick, and is hauled from the working faces by animal power to the main entry, from whence it is delivered to the bottom of the slope by a compressed air locomotive. Mine foreman, Joseph Weightman.

Arona Slope.—The general condition of this mine has been very good during the year. The ventilation is good in all parts of the workings. Mine foreman, William Nesbit.

Madison Slope.—This mine has been kept in fairly good condition. Quantity of air passing in at the inlet when last measured was 53,760 cubic feet per minute, which was very well conveyed around the workings. Mine foreman, James Duncan.

Ocean No. 1 Shaft.—The condition of this mine has been very favorable during the year. On my last visit I measured 125,600 cubic feet of air per minute passing in at the inlet, and good measurements were obtained near the face of the different entries. The system of working is double entry, except the main face entries, in which case three entries are driven. Six Harrison, and four Ingersoll mining machines driven by compressed air are in use. The hauling is all done by animal power at present, but preparations are being made to introduce the tail-rope system of haulage. Mine foreman, William Bainbridge.

Description of Fatal Accidents which Occurred in the Second Bituminous Mine Inspector's District of Pennsylvania during the Year 1898.

Joseph Desylvester, an Italian miner, was instantly killed in Plum Creek mine on January 20th by a fall of slate, in room pillar 23 on second No. 9 entry. He was working alone and it is supposed that he was knocking coal at the time, as he was found with a pick in his hand under the slate.

The mine foreman stated at the investigation that he was in the deceased's place about one-half hour before the accident happened and ordered him to set up a post. This he failed to do, hence the result.

After a careful examination of the place I am of the opinion that had he carried out the mine foreman's instructions the accident would not have occurred. The coroner held an inquest and a verdict of accidental death was rendered.

Deceased was 35 years of age and single.

Valiant Balah, a Polish miner, aged 24 years, and single, was instantly killed in South West No. 2 mine on March 8th, by a fall of roof. Balah was at work on No. 11 "Stump," 6 entry, south, when the acci-

dent occurred, and it is believed that he was drawing timber at the time. The mine foreman stated at the investigation that he was in Balah's place about two hours before the accident was supposed to have occurred and was informed by him that he intended to draw his timber, and he requested that he be allowed two wagons in order that he could get all the coal out. This the mine foreman agreed to, according to his statement. He also stated that he gave orders to Joseph Franks, who worked near by, to assist Balah in loading the wagons and in drawing the timber. He left with the impression that his orders would be carried out, but they were not, as Franks went home after the wagons were loaded, leaving Balah to draw the timber alone. Balah failing to arrive at home at the proper time, Andy Kozier, with whom he boarded, went in search of him and found his body lying under the fall.

John Milliron, an American miner, widower, aged 44 years, having three children, was instantly killed by a fall of coal, while at work on room pillar No. 12 on Jennings entry in the Isabella Furnace mine, March 12th, about 6.30 A. M.

Milliron was supposed to have been working on a stump of coal about ten feet back from the face of the pillar, as his body was found there by Noble Muir, who worked on 13 pillar, and also Charles Milliron and Wm. Cummings, who worked near by.

It is supposed that the roof fell on him before those who worked near by entered their places, as they did not hear the fall. After receiving the evidence of those who worked near by where the accident occurred, the coroner decided that it was an unavoidable accident and that a jury was not necessary.

William Friend, an American miner, aged 34 years, and single, was so seriously injured March 21st, in Madison mine by a fall of coal and slate that death resulted about two hours thereafter. The deceased was at work in room 26, off 8 entry, and at the time of the accident was "bearing in" when a slab of coal and slate fell upon him. An inquest was held and a verdict of accidental death rendered.

Paul Wisdos, a Hungarian miner, aged 25 years, and single, was instantly killed in the Whitney mine on March 22d by a fall of roof while at work on room pillar No. 10 on 7 Butt off 4 left face entry.

At the time of the accident he was engaged in mining a small stump of coal which had been left to help support the roof until they were ready to draw the timber, and while thus engaged the roof suddenly gave way, crushing the stump of coal and also the timber around it.

I was informed by Steve Maholick and John Martinsko, who worked with Wisdos, that he tried to escape but could not. They also stated that they both requested him to come away from the

stump in plenty of time to avoid the accident, but he would not. An inquest was held and the verdict was accidental death.

Henry Swabbar, a German miner, aged 42 years, a widower having one child, was so badly injured in the Mammoth slope mine on April 1st by being caught between a wagon and coal pillar that he died ten days later.

At the investigation I learned that the driver David Goodman had hauled two loaded wagons from the face of Swabbar's room and left them standing in the mouth of the room until he went into the room below for another wagon; on reaching the entry with this wagon he stopped it as usual, and on going to the mouth of Swabbar's room for the wagons he noticed them moving out of the room and Swabbar fast between the front wagon and coal pillar. He at once placed his back against the front wagon and stopped them, after which Swabbar was released. He had started the wagons in order to assist the driver and in doing so was caught.

I was informed that he walked home and showed no signs of being dangerously injured, and that he positively refused medical aid and walked about as though nothing serious was wrong until shortly before he died.

Thomas Maloney, Irish, a trip rider, aged 28 years, having a wife and two children, was instantly killed by being run over by a trip of empty wagons while at his regular work in Mammoth shaft mine on April 18th.

This accident happened on the main haulage road and as no one was present at the time it is not known how it occurred. Mahoney was considered a very careful man and had been employed as a trip rider about two years.

Charles Boreas, a Hungarian miner, aged 35 years, was instantly killed in the Calumet mine May 2d by a fall of coal and slate. He and Frank Bonoskey were working together on room pillar 29 off No. 8 entry. Boreas was drawing the post in order to make a fall, while Bonoskey was holding the lamps. Bonoskey stated that all the posts had been drawn except one, and he requested Boreas not to draw that one as the roof would fall on him. It appeared to be very dangerous. He paid no attention to the request, but took the ax and in attempting to draw it, was caught by the fall, as above stated.

A wife and one child survive him.

John O. Brown, an American miner, 14 years of age, was so seriously injured in the Penn Gas No. 2 mine May 3d by a fall of slate while at work with his father that he died a few minutes after the accident.

A sad accident occurred in the mines of the Latrobe Coal Company

on the night of June 17th, by which John Angerer, an Austrian miner, aged 25 years; Albert Pryblock and John Wilk, Polish miners, aged 25 and 27 years respectively, lost their lives by being suffocated by smoke from a fire which originated in a drying room about 700 feet from face of main dip entry. The main dip and parallel entries in this mine were very wet and the persons employed in them were compelled to travel about one and one-fourth miles after their work was done, facing a current of cold air.

This made it very uncomfortable and in order to overcome this a drying room was prepared by cutting a place in the pillar of coal on the main dip entry in which was placed a small oil stove. The day and night pumpers were in charge of this room and the persons employed in the entries were allowed to change and dry their clothes therein.

I was informed by the mine foreman that this was done in order to carry out a special request made by persons employed in said entries.

On the evening of June 17th, about 4 o'clock, the above named persons in company with Joseph March, went to work as usual, they being employed on the night turn. William Goodman, night driver, Joseph Waters and Joseph Rush, night pumpers, entered the mine as usual and on arriving at No. 12 entry they discovered smoke about 6.30 P. M. They were unable to pass through it to where the men were working and at once notified the mine foreman, who in company with others proceeded at once to the scene and commenced to battle with the smoke in order to rescue those beyond, and if possible reach the seat of fire and extinguish it.

I was notified of what had taken place and immediately started for the mine, arriving there about 10.30 P. M., and joined the rescuing party. It soon became evident that it would be necessary to reach the fire and extinguish it before we could get to where the men were working, as all access to these places was cut off by fire and smoke, the fire being on the main dip entry and the smoke therefrom was passing down the same and returning by way of the parallel entry.

Later we were joined by Mr. A. F. Downing, superintendent, and Peter Lowther, mine foreman, of the Monastery mine, who rendered valuable aid. The work of rescue was kept up during the night and on the morning of the 18th, about 5 o'clock, we had the fire well under control and proceeded to look for the men. Mr. A. F. Downing, superintendent of the Monastery mine, Mr. Peter Lowther, mine foreman of the same mine, Mr. Stephen Arkwright, mine foreman of the Latrobe mine, and myself, constituted the searching party. We went to the face of the dip entry and parallel where the men had been working, but they were not there. We then proceeded back, traveling the

parallel to main dip entry until we came to No. 13 "Butt" entry parallel. We traveled up this entry a short distance when we heard some one ahead of us. On arriving at the place we found Joseph March and John Angerer. March was still living. A short distance above we found Albert Pryblock, while John Wilk was found at the face of No. 13 "Butt" entry. The bodies were removed to the surface where medical aid was in waiting. March being still alive, was taken to his home and cared for, while the bodies of Angerer, Pryblock and Wilk were removed to the undertaker's where they were prepared for burial.

We then proceeded to ascertain, if possible, the cause of the fire, and the coal and slate which the fire caused to fall from the roof upon the stove were removed and the stove was found intact, the wick in the burner being practically level with the tube, which showed conclusively that the flame in the stove had been very small. Those in charge of the stove stated that it had not been filled with oil during the day.

After the stove and room had been carefully examined, the supposition of those present was that the fire was caused by some person or persons entering the said drying room with an open light (the employes all used open lights in this mine), which coming in contact with the clothing and not being noticed by the party or parties on leaving the said room, the fire spread to the coal.

A copy of the verdict of the coroner's jury is appended.

Westmoreland County, ss.

Inquisition indented and taken at Latrobe, in the County of Westmoreland aforesaid, on the 18th day of June, A. D. 1898, before me, J. B. Owens, coroner of the county aforesaid, upon the view of the bodies of John Angerer, Albert Pryblock and John Wilk, then and there lying dead, upon the oaths and affirmations of John V. Toner, L. W. Fogg, John C. Stockberger, P. C. Toner, C. C. Albert and George S. Owens, good and lawful men of the county aforesaid, who being duly sworn and affirmed diligently to inquire and true presentation make on behalf of the said Commonwealth, when, where, how and after what manner the said deceased came to their deaths, viewed the bodies of the said deceased and having heard the evidence, hereby certify and return upon their oaths and affirmations aforesaid that the said John Angerer, Albert Pryblock and John Wilk, came to their deaths by suffocation caused by the burning of the drying room in the mines of the Latrobe Coal Company. That the fire originated through the carelessness of some employe or employes not known to this jury, going through said drying room with lighted lamps on their or his head in violation of orders, and further we, the coroner and jury aforesaid, fully exonerate the Latrobe Coal Company from all responsibility for said accident.

In witness whereof, as well the said coroner, as the jurors aforesaid,

have to this inquisition set their hands and seals. Dated the day and year and at the place first above written.

J. B. OWENS, Coroner.
JOHN V. TONER,
L. W. FOGG,
JOHN C. STOCKBERGER,
P. C. TONER,
C. C. ALBERT,
GEORGE S. OWENS.

Neils Sonneg, a miner boy, aged 14 years, and of Swedish parentage, was instantly killed in Carbon mine on June 28th, by a fall of slate. He was at work with his father at the time.

James Tray, an Irish miner, aged 45 years, and having a wife and eight children, was instantly killed by a fall of slate on July 8th, while at work in his room in Larimer mine.

After a careful examination of the place, I am of the opinion that he took all possible means to protect himself. At the time of the accident it was supposed that he was trimming the "rib," as he was found near the same with pick in hand. I found the room in good condition, everything indicating that he was a good and careful miner.

Alexander Szezek, a Polish miner, aged 25 years, and married, but no children, was instantly killed by a fall of roof on July 30th, while at work in No. 1 "A" Shaft mine.

He was at work in company with Mike Kubulish, and was engaged in mining a small stump of coal preparatory to making a fall. Kubulish stated that there were two posts standing near the stump, but the roof suddenly fell crushing the posts and the stump of coal also the deceased.

B. Brindlinger, a German mine laborer, aged 68 years, and a widower, employed on the main haulage road in No. 1 "A" shaft, was instantly killed by being struck by a trip of loaded wagons on August 15th. Just how the accident occurred is not positively known, as no one was near at the time.

Mr. Wm. Ramsay, the superintendent, passed down the haulage road shortly before the accident and saw Brindlinger at No. 2 curve repairing a shieve. The supposition is that he fainted and fell on the road, as it was made known after the accident that he had for some time previous been subject to fainting spells when at home, but this was not known by any of the mine officials until after the accident occurred.

I was informed that he had been employed on the haulage road for about eight years.

Harry O'Heran, an Irish miner, aged 36 years, having a wife and two children, was so seriously injured by a fall of slate in Penn Gas No. 1 mine on August 23d that he died five hours later.

Rodi Vaurick, an Austrian miner, aged 22 years, and single, was injured August 22d in Oak Hill mine by a fall of slate which resulted in his death some twelve hours after.

John Hobret, a child aged 4½ years, of Polish parentage, was instantly killed by being run over by a train of empty coke cars on a side track at the Standard mines on August 24th.

Benjamin Clark, a Scotch miner, aged 41 years, and single, was instantly killed by a fall of roof while at work in the Standard mines on September 3d. Clark was engaged in drawing No. 4 "Butt" entry stumps off D right. He went to No. 11 room pillar where a younger brother and Daniel McCarthy were at work, and commenced to assist them in drawing their timber, and while so doing was caught, with the above stated result.

On September 9th Norman Barkley, an American trapper boy, aged 15 years, was so badly injured in the Oak Hill mine by being caught between a wagon and coal pillar that death resulted some twenty-four hours afterwards. This accident happened near the entrance to No. 4 "Butt" entry where the boy was engaged in trapping a door.

There was a shelter hole on the left side of the road for protection and safety while trips were passing. This it seems was used until this time, when he opened the door and remained on the narrow side. Shortly before the trip reached the door a wheel broke on the front wagon, causing it to leave the track. The driver, Samuel Blakely, seeing that the boy was in danger called to him to get away. He started, but failed, and the trip caught him, resulting as above stated.

Damon R. Barney, an American driver, aged 25 years, and single, was fatally injured in the Hecla No. 1 mine September 10th, by falling from an empty wagon and the wagon running upon him. His back was broken, and he was immediately sent to the West Penn Hospital at Pittsburg, where he died on October 18th.

Andrew Gall, a driver, a Slav, was instantly killed September 20th by being caught between a wagon and coal pillar in Puritan mine. Gall had brought a wagon from the face of No. 13 room on No. 2 Butt off 1st right face entry. On reaching the mouth of the room he stopped as usual to take the mule from in front of the wagon, as the grade on this entry is too heavy to allow the mules to go in front of the wagons.

Eli Gilson, aged 16 years, a trapper boy, stated at the investigation that he was standing near by at the time, and after Gall stopped the wagon he asked Gilson to unhook the mule and drive it into the room below. This he did, as he had often done before, and after he had driven the mule into the room below, Gall called to him asking if the mule was out of the way. He replied that it was. Almost immediately he heard Gall make a noise. He returned and found him fast

between the wagon and coal pillar, and the rear end of the wagon was off the track. Gall had placed himself between the rear end of the wagon and coal pillar on the low side of the road to push the wagon from the parting, and in attempting to do so he forced it off the track, with result as above stated.

Deceased was 33 years of age and leaves a wife and four children in his native country.

On September 23d James Torrence, an American driver, was instantly killed by a wagon running on him in No. 29 room on entry No. 12, in the Millwood shaft mines.

Just how the accident occurred is not positively known, as no one was present at the time. After a careful examination of the place, I am of the opinion that he was caught by a post which stood near the road side in the mouth of a cut-through, which caused him to fall from the end of the wagon. He left a wife and four children.

John Korabbin, a Slav miner, aged 43 years, having a wife and four children, was injured in Mammoth shaft mine, by being caught between a wagon and post while moving the wagon in his place of work. This accident occurred on August 23d, and at the time it was not considered serious. However, his injuries took a dangerous turn and he died on October 5th.

By a fall of slate in Penn Gas No. 1 mine on October 25th, Thomas Davis, a Welsh miner, was so seriously injured that he died while being taken home. He was 40 years of age and single.

On November 2d Bernard Mullen, an Irish miner, aged 45 years, and single, was so seriously injured at Alexandria mine by a fall of coal that death resulted some twenty minutes afterwards.

Charles Smith, an American trapper boy, aged 15 years, was fatally injured at the Pleasant Valley mine November 2d by being run over by a slate car outside the mine.

The deceased had finished his day's work and got on a slate car, which was on the rear end of a trip, to ride out. On reaching the outside, Smith stood upright on the wagon, which was cut loose from the trip near a switch used for a dirt dump. He jumped from the car and in front of it and before he could recover himself the slate car was upon him.

I was informed by persons who were near the car at the time that they tried to stop the car, but could not. He was removed to the Greensburg Hospital, where he died on the following day.

Harry McIntyre, an American driver, aged 30 years, and single, was so severely injured at the Monastery mine on November 11th that he died eight days after. At the time of the accident he was coming down No. 8 entry on the front end of his trip.

I was informed by the mine foreman that McIntyre stated to him

that the mule kicked him off the trip and in falling he was caught between the wagon and coal pillar, receiving injuries which resulted in his death.

Lindsay Pondexter, colored, a miner, aged 37 years, was so badly injured by a fall of slate in the Hampton mine on November 21st that he died seven days afterwards.

This accident happened in room 16 on 14 entry and at the time the deceased was engaged in "bearing in."

I was informed by James Joice, who assisted in removing the slate from him, that Pondexter stated on his way home that the accident was due to his own carelessness. He left a wife and two children.

TABLE I.—Showing location, etc., of collieries in the Second Bituminous District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
24	Alexandria,	Alexandria Coal and Coke Company.	Westmoreland.	John P. Donohoe	Goff,	Pa. R. R.
25	Arona,	Arona Gas Coal Company.	Westmoreland.	Harry F. Govard,	Darragh,	Pa. W. P.
29	Atlantic,	Atlantic Crushed Coke Company,	Westmoreland.	H. C. Burkett,	Greensburg,	Pa. R. R.
36	Burrell,	Burrell Coal Company,	Indiana.	Thomas Mabey,	Blairsville,	Pa. R. R.
2	Braeburn,	Braeburn Steel Company,	Westmoreland.	Charles Metcalf,	Braeburn,	A. V. P.
61	Calumet,	Calumet Coal Company,	Westmoreland.	R. O. Thomas,	Calumet,	Monon.
22	Clartide,	Clartide Gas Coal Company,	Westmoreland.	J. Howard Patton,	Greensburg,	S. W. P.
51	Carbon,	Carbon Coal and Coke Company,	Westmoreland.	Wm. M. Singer,	Greensburg,	Pa. R. R.
56	Central,	H. C. Frick Coke Company,	Westmoreland.	Charles Walters,	Feree,	Pa. R. R.
91	Denmark,	Manor Gas Coal Company,	Westmoreland.	A. P. Cameron,	Clartide,	Monon.
27	Duquesne,	Derry Coal and Coke Company,	Allegheny.	E. F. Saxman,	Latrobe,	Pa. R. R.
9	Export,	Westmoreland Coal Company,	Westmoreland.	W. L. Dixon,	15 Brushton ave., Pbg.	Pa. R. R.
12	Greensburg No. 1,	Greensburg Coal Company,	Westmoreland.	W. N. Humphreys,	Irwin,	Pa. R. R.
50	Greensburg No. 2,	Greensburg Coal Company,	Westmoreland.	Thomas L. Jones,	Greensburg,	Pa. R. R.
35	Graf,	Blairsville Coal Company, Limited,	Indiana.	Willis L. Graf,	Blairsville,	Pa. R. R.
33	Graceton No. 1,	McCreeary Coke Company,	Indiana.	Harry McCreeary,	Graceton,	Pa. R. R.
32	Graceton No. 2,	The Hecla Coke Company,	Westmoreland.	Thomas Laird,	South West,	S. W. P.
65	Hecla No. 1,	The Hecla Coke Company,	Westmoreland.	Thomas L. Jones,	Greensburg,	Pa. R. R.
59	Hecla No. 2,	Hempfield Coal Company,	Westmoreland.	John T. Rush,	Whitney,	Pa. R. R.
48	Hempfield,	Hosetter Connellsville Coke Co.,	Allegheny.	John S. Steward,	Edgewood Park,	Pa. R. R.
45	Hampton,	Hampton Coal Company,	Westmoreland.	John Y. Woods, Jr.,	Humphreys,	S. W. P.
2	Hughes,	Bessemer Coke Company,	Westmoreland.	W. C. Grist,	Blairsville,	Pa. R. R.
29	Isabella,	Isabella Furnace Company,	Westmoreland.	Thomas L. Jamison,	Greensburg,	Pa. R. R.
37	Jarlson,	Kohlberg Coal and Coke Company,	Westmoreland.	George H. Richards,	Lockport,	Pa. R. R.
23	Latrobe,	Bell Coal Company,	Westmoreland.	D. W. Jones,	Latrobe,	A. R. R.
25	Latrobe Coal Works,	Latrobe Coal Company,	Westmoreland.	Robert McClelland,	Loyalhanna,	Pa. R. R.
41	Loyalhanna No. 1,	Loyalhanna Coal and Coke Co.,	Westmoreland.	Robert McClelland,	Loyalhanna,	Pa. R. R.
42	Loyalhanna No. 2,	Loyalhanna Coal and Coke Co.,	Westmoreland.	Robert McClelland,	Loyalhanna,	Pa. R. R.
14	Larimer No. 4,	Westmoreland Gas Coal Company,	Westmoreland.	A. N. Humphreys,	Irwin,	Pa. R. R.
28	Millwood Shaft,	Millwood Coal and Coke Company,	Westmoreland.	E. B. Kimmell,	Millwood,	Pa. R. R.
53	Madison,	Madison Gas Coal Company,	Westmoreland.	Thomas Donohoe, Jr.,	Darragh,	S. W. P.
62	Mammoth Shaft & Slope,	H. C. Frick Coke Company,	Westmoreland.	Charles J. Coll,	Mammoth,	S. W. P.
67	Monastery,	H. C. Frick Coke Company,	Westmoreland.	A. F. Downing,	Latrobe,	Pa. R. R.
26	M. Saxman,	M. Saxman, Sr. & Co.,	Westmoreland.	Frank Klerman,	Latrobe,	Pa. R. R.

TABLE I.—Continued.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
34	Mitchell,	Indiana Coal Company,	Indiana,	Thomas Maher,	Blairsville,	Pa. R. R.
30	Maher No. 2,	Maher Coal and Coke Company,	Indiana,	M. E. Maggard,	United,	Pa. R. R.
55	Mutual No. 1,	H. C. Frick Coke Company,	Westmoreland,	M. F. Peckard,	United,	S. W. P.
56	Mutual No. 3,	H. C. Frick Coke Company,	Westmoreland,	M. F. Peckard,	Pleasant Unity,	S. W. P.
58	Marguerite,	Standard Connellsville Coke Co.,	Westmoreland,	Wm. S. Ranisay,	Mt. Pleasant,	Pa. R. R.
70-71	No. 1, A and B Sharts,	Standard Connellsville Coke Co.,	Westmoreland,	J. J. Fulch,	Mt. Pleasant,	Pa. R. R.
69	No. 2,	Standard Connellsville Coke Co.,	Westmoreland,	J. M. Whitelaw,	Alverton,	Pa. R. R.
67	No. 3,	Standard Connellsville Coke Co.,	Westmoreland,	J. M. Whitelaw,	Alverton,	Pa. R. R.
68	No. 4,	Standard Connellsville Coke Co.,	Westmoreland,	F. I. Kimball,	Herrinle,	S. W. P.
51	Oak Hill No. 1,	Ocean Coal Company,	Westmoreland,	T. B. De Armit,	Turtle Creek,	Pa. R. R.
50	Oak Hill No. 4,	N. Y. & Cleveland Gas Coal Co.,	Allegheny,	Gottlieb Voegele,	Wilkinsburg,	Pa. R. R.
4	Ocean,	Gottlieb Voegele,	Allegheny,	T. B. De Armit,	Turtle Creek,	A. V.
1	Phum Creek,	N. Y. & Cleveland Gas Coal Co.,	Allegheny,	John F. Wolf,	Irwin,	Pa. R. R.
18	Penn Gas No. 1,	Penn Gas Coal Company,	Westmoreland,	John F. Wolf,	Irwin,	Pa. R. R.
15	Penn Gas No. 2,	Penn Gas Coal Company,	Westmoreland,	John F. Wolf,	Irwin,	Pa. R. R.
12	Penn Gas No. 3,	Penn Gas Coal Company,	Westmoreland,	John F. Wolf,	Irwin,	Pa. R. R.
16	Penn Gas No. 4,	Penn Gas Coal Company,	Westmoreland,	John F. Wolf,	Irwin,	Pa. R. R.
17	Penn Gas Coal Run,	Penn Gas Coal Company,	Westmoreland,	Samuel Ferguson,	Twelve Creek,	Pa. R. R.
13	Pleasant Valley,	N. Y. & Cleveland Gas Coal Co.,	Westmoreland,	Robert Maclelland,	Harrison City,	Pa. R. R.
20	Penn Manor,	Penn Manor Shant Company,	Westmoreland,	John McFadyen,	Loyalhanna,	Pa. R. R.
40	Pandora,	Penn Manor Shant Company,	Westmoreland,	John McFadyen,	Loyalhanna,	Pa. R. R.
41	Portland,	Portland Coke Company,	Westmoreland,	John McFadyen,	Latrobe,	S. W. P.
43	R. H. Smith,	The Ligonier Coal Company,	Westmoreland,	Daniel Craig,	Latrobe,	S. W. P.
64	Strickler,	J. A. Strickler Coke Co., Limited,	Westmoreland,	J. A. Strickler,	Wilksburg,	S. W. P.
73	Standard No. 2,	H. C. Frick Coke Company,	Westmoreland,	Robert Ramsay,	Mt. Pleasant,	S. W. P.
72	Standard Slope,	H. C. Frick Coke Company,	Westmoreland,	Robert Ramsay,	Mt. Pleasant,	S. W. P.
55	Saint Clair,	Saint Clair Coal and Coke Co., L.,	Westmoreland,	W. A. Preston,	Bradenville,	Pa. R. R.
51	Smiths,	Robert Smith,	Indiana,	Robert Smith,	Blairsville,	Pa. R. R.
15	Sandy Creek,	N. Y. & Cleveland Gas Coal Co.,	Allegheny,	William Fisher,	White Ash,	A. V.
11	Spring Hill No. 2,	Spring Hill Gas Coal Company,	Allegheny,	E. W. Boyd,	Turtle Creek,	Pa. R. R.
60	United No. 1,	H. C. Frick Coke Company,	Westmoreland,	M. F. Peckard,	United,	S. W. P.
3	Valley Camp,	Restington Brick Company,	Westmoreland,	A. Thomas,	Whitfield,	S. W. P.
46	Whitney,	Restington Connellsville Coke Co.,	Westmoreland,	Whitney,	Whitney,	Pa. R. R.
13	Welkman,	Westmoreland Gas Coal Company,	Westmoreland,	W. N. Humphreys,	Irwin,	Pa. R. R.
6	Welkman,	Welkman Brothers,	Allegheny,	Jacob Welkman,	Wilksburg,	Pa. R. R.

Loyalhanna No. 2,	1	30	2	1	2	37	1	3	4	1	1	2	4	1	1	1	2	7	44
Larimer No. 4,	2	445	25	16	16	504	16	3	3	2	2	15	3	2	24	35	559	15	59
Millwood Shaft,	1	90	12	3	5	127	3	1	3	1	1	6	3	1	6	142	15	6	15
Madison,	1	185	12	5	8	211	5	4	3	1	1	21	4	1	21	232	11	21	232
Madison Shaft and Slope,	1	138	19	15	47	283	15	7	10	1	105	46	8	1	46	168	46	20	133
Monastery,	1	57	14	4	6	113	4	2	8	1	17	1	2	1	5	26	20	20	133
M. Saxman,	1	50	8	1	4	64	1	1	2	1	17	1	2	1	5	26	20	20	133
Mitchell,	1	27	3	1	1	31	1	1	2	1	31	1	2	1	2	33	2	2	33
Maher No. 2,	1	27	3	1	1	31	1	1	2	1	31	1	2	1	2	33	2	2	33
Mutual No. 2,	2	17	3	1	1	21	1	2	1	1	21	1	2	1	2	40	8	1	40
Mutual No. 3,	1	56	4	1	2	64	1	1	1	2	64	1	1	2	11	59	123	15	40
Marguerite,	1	329	21	2	33	390	2	7	16	3	298	10	35	308	698	308	698	114	241
No. 1 "A," and "B" Shafts,	1	103	12	1	9	127	1	2	3	9	60	2	46	114	241	241	114	70	185
No. 2,	1	85	7	1	20	115	1	2	7	44	44	2	74	70	185	185	74	70	185
No. 3,	1	69	6	1	5	83	1	1	2	2	42	1	21	68	151	151	21	68	151
No. 4,	1	280	32	11	21	358	11	4	6	3	358	3	10	27	385	385	10	27	385
Ocean No. 1,	1	364	27	14	13	359	1	3	2	2	359	3	17	26	385	385	17	26	385
Oak Hill No. 4,	1	8	1	10	6	261	10	3	2	2	261	3	2	5	8	13	5	8	13
Plum Creek,	1	233	14	5	14	289	5	1	4	2	289	1	4	25	32	283	25	32	283
Penn Gas No. 1,	1	288	28	6	14	350	6	1	4	3	350	1	23	30	311	311	23	30	311
Penn Gas No. 2,	1	288	28	6	14	350	6	1	4	3	350	1	23	30	311	311	23	30	311
Penn Gas No. 4,	1	109	14	4	5	134	4	2	2	2	134	2	7	10	144	144	7	10	144
Penn Gas Coal Run,	2	130	11	7	6	156	7	1	3	1	156	1	11	14	170	170	11	14	170
Pleasant Valley,	1	60	4	1	4	71	1	1	3	4	71	1	9	13	84	84	9	13	84
Penn Manor,	1	80	6	2	7	97	2	1	3	4	97	2	10	10	107	107	2	10	107
Pandora,	1	160	10	4	23	200	4	3	4	1	130	5	10	157	357	357	10	157	357
Puritan,	1	30	3	1	4	39	1	1	2	1	39	1	1	40	54	54	1	40	54
S. H. Smith,	1	38	4	1	2	46	1	1	2	2	46	1	3	8	54	54	3	8	54
Strickler,	1	270	22	14	38	349	14	7	8	1	197	4	30	251	600	600	30	251	600
Standard No. 2,	1	64	6	3	6	80	3	2	4	1	80	2	5	36	116	116	5	36	116
Saint Clair,	1	283	17	1	11	323	17	1	4	1	323	1	36	47	385	385	36	47	385
Saint Clair Slope,	1	110	15	6	16	180	6	1	7	1	180	1	17	101	251	251	17	101	251
Smiths,	1	106	8	1	10	128	8	3	5	1	128	3	64	75	203	203	64	75	203
Sandy Creek,	1	336	28	9	7	385	9	4	10	2	385	4	20	39	434	434	20	39	434
Spring Hill No. 2,	2	8	1	1	1	9	1	1	2	1	9	1	1	1	10	10	1	1	10
United No. 1,	1	106	8	1	10	128	8	3	5	1	128	3	64	75	203	203	64	75	203
Valley Camp,	1	336	28	9	7	385	9	4	10	2	385	4	20	39	434	434	20	39	434
Whitney,	1	106	8	1	10	128	8	3	5	1	128	3	64	75	203	203	64	75	203
Westmoreland,	2	8	1	1	1	9	1	1	2	1	9	1	1	10	10	10	1	1	10
Westman,	1	106	8	1	10	128	8	3	5	1	128	3	64	75	203	203	64	75	203
Total,	71	53,750	707	235	566	9,383	58	161	223	32	1,802	125	777	3,118	12,501	12,501	777	3,118	12,501

26	Loyalhanna No. 2	24	27	26	25	26	25	26	27	25	26	26	27	25	26	25	26
21	Larimer No. 4	20	27	26	25	26	25	26	27	25	26	26	27	25	26	25	26
21	Millwood Shaft	21	20	21	20	16	17	18	18	18	18	18	17	18	18	18	17
25	Madison	21	21	17	16	9	11	14	14	14	16	16	22	22	24	24	25
20	Mammoth Shaft and Slope	20	24	22	21	21	21	22	22	22	23	24	21	21	24	24	24
15	Monastery	15	16	14	15	12	11	15	17	15	13	17	15	16	26	26	26
22.50	M. Saxman	21.75	21.50	19.25	19.25	29.50	22	21	15.25	16.25	16.25	24	21	13.25	16.25	24	25.75
23	Michael	24	25	14	23	25	22	22	21	25	22	21	25	22	18	23	23
3	Mitford No. 2	3	36	36	31	32	32	32	32	32	32	32	30	32	32	32	35
3	Mitford No. 3	3	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
26	Marguerite	22	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
26	No. 1 "A" and "F" Shafts	24	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
26	No. 2	24	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
26	No. 3	24	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
26	No. 4	24	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
26	No. 4	24	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
23.50	Ocean No. 1	18.50	20	20	21	18.50	19	19	19	19	19	19	19	19	19	19	18
23.50	Oak Hill No. 4	23.50	26.50	25.50	23.50	28.50	24.50	24.50	24.50	25.50	25.50	23.50	24.50	23.50	24.50	23.50	26.50
26	Ocean	24	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
26	Plum Creek	24	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
26	Penn Gas No. 1	22.75	26	26	26	26	26	26	26	26	26	26	27	26	26	26	26
18	Penn Gas No. 2	16	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
18	Penn Gas No. 3	16	27	26	26	26	26	26	26	26	26	26	27	26	26	26	26
17	Penn Gas Coal Run	16	26	26	26	26	26	26	26	26	26	26	27	26	26	26	26
22	Pleasant Valley	10	20	22	21	21	21	21	21	21	21	21	21	21	21	21	21
12	Penn Manor	10	20	22	21	21	21	21	21	21	21	21	21	21	21	21	21
12	Pandora	10	20	22	21	21	21	21	21	21	21	21	21	21	21	21	21
25	Puritan	3	25	23	25	26	26	26	26	26	26	26	27	26	26	26	26
21	S. H. Smith	21	21	16.50	20.50	23	15.50	13.50	13.50	21.50	18.50	23	20	23	20	25	26
25	Strickler	23	24	24	24	22	22	22	22	22	24	26	24	25	24	25	25.50
21	Standard No. 2	20	22	22	20	21	22	22	22	22	21	24	24	24	24	23	23
18	Salnt Clair	15	20	20	19	8	8	7	7	7	11	11	11	11	15	22	22
16	Smiths	23	26	26	25	21	25	24	25	27	25	21	20	21	20	20	21
24.50	Sandy Creek	20	16	23.25	24.25	25	24.25	24.25	24.25	26.25	26.25	26.25	27	26	26	26	26
27.75	Union Hill No. 2	27	27	24.50	26.50	19	18.75	18.75	18.75	20.25	20.25	20.25	21	21	21	21	21
20	Valley Camp	18	23	21	20	21	21	22	22	22	22	23	23	23	26	24	24
20	Whitney	10	20	20	20	21	21	21	21	21	21	21	21	21	21	21	21
22	Westmoreland	22	27	26	21	18	18	18	18	18	18	18	18	18	18	18	18
25	Weinman	23	22	20	13	7	7	7	7	7	7	7	7	7	7	7	7
1,309.60	Total	1,180.35	1,367.20	1,328.55	1,215.60	1,188.15	1,180.50	1,215.65	1,233.35	1,291.25	1,395.80	1,470.75	1,470.75	1,470.75	1,470.75	1,470.75	1,470.75

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Second Bituminous District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.			Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
				M.	S.	W.					
Jan. 8,	Joseph Dasy/vester, . . .	Miner,	35	S.					Plum Creek,	Allegheny,	Instantly killed by a fall of slate.
Mar. 11,	William Botan,	Miner,	21	S.					South West No. 2,	Westmoreland,	Instantly killed by a fall of roof.
21,	William Friend,	Miner,	41	W.		3			Isabella Furnace,	Westmoreland,	Fatally injured by a fall of roof.
22,	Paul Wisdos,	Miner,	32	W.		2			Madison,	Westmoreland,	Fatally injured by a fall of coal and slate.
Apr. 1,	Henry Swalbar,	Miner,	42	W.		1			Whitney,	Westmoreland,	Fatally injured by a fall of roof.
18,	Thomas Mahoney,	Rope rider,	28	M.	1	2			Mammoth,	Westmoreland,	Fatally injured by being caught between a wagon and coal pillar.
May 2,	Charles Boreas,	Miner,	35	M.	1	1			Mammoth,	Westmoreland,	Instantly killed by being run over by a trip of empty wagons on haulage road.
17,	John O. Brown,	Miner,	35	M.	1	1			Calumet,	Westmoreland,	Killed by a fall of slate.
June 17,	John Agerer,	Miner,	35	M.	1	1			Penn Gas No. 2,	Westmoreland,	Instantly killed by a fall of slate.
17,	Albert Fryblock,	Miner,	25	M.	1	1			Latrobe Coal Works,	Westmoreland,	Suffocated by smoke from a mine fire.
18,	John Wilk,	Miner,	27	S.					Latrobe Coal Works,	Westmoreland,	Suffocated by smoke from a mine fire.
July 18,	Wells Sonner,	Miner,	14	M.	1	8			Carbon,	Westmoreland,	Instantly killed by a fall of slate.
20,	James Gray,	Miner,	45	M.	1	1			Larimer,	Westmoreland,	Instantly killed by a fall of slate.
30,	A. Szepak,	Miner,	25	M.	1	1			No. 1 'A' Shaft,	Westmoreland,	Instantly killed by a fall of roof.
Aug. 15,	E. Brundelger,	Mine laborer,	38	W.		4			No. 1 'A' Shaft,	Westmoreland,	Killed by being struck by a trip of loaded wagons on haulage road.
22,	Rod Vaurick,	Miner,	22	S.		2			Oak Hill No. 4,	Allegheny,	Fatally injured by a fall of slate.
23,	Harry O. Harn,	Miner,	36	M.	1	2			Penn Gas No. 1,	Westmoreland,	Fatally injured by a fall of slate.
23,	John Korablin,	Miner,	43	M.	1	4			Mammoth,	Westmoreland,	Fatally injured by being caught between post and wagon in his place of work.
24,	John Hobret,	Child,	4						Standard,	Westmoreland,	Instantly killed by being run over by rail-road cars outside the mine.
Sept. 3,	Benjamin Clark,	Miner,	41	S.					Standard,	Westmoreland,	Instantly killed by a fall of roof.
9,	Norman Backley,	Trapper boy,	15						Oak Hill No. 4,	Allegheny,	Fatally injured by being caught between a wagon and coal pillar.
10,	Damon R. Barney,	Driver,	25	S.					Hecla, No. 1,	Westmoreland,	Fatally injured by falling from an empty wagon, which ran on him.
20,	Andrew Gall,	Driver,	33	M.	1	4			Puritan,	Westmoreland,	Instantly killed by being caught between a wagon and coal pillar.
23,	James Torrence,	Driver,	21	M.	1	4			Millwood,	Westmoreland,	Killed by a loaded wagon running on him.
Oct. 25,	Thomas Davis,	Miner,	40	S.					Penn Gas No. 1,	Westmoreland,	Fatally injured by a fall of slate.

Nov. 2,	Bernard Mullen,	Miner,	45	S.	.....	Alexandria,	Westmoreland,	Fatally injured by a fall of coal.
2,	Charles Smith,	Trapper boy,	15	.....	.....	Pleasant Valley, ...	Westmoreland,	Fatally injured by a slate wagon running on him outside the mine.
11,	Harry McIntyre,	Driver,	30	S.	.....	Monastery,	Westmoreland,	Fatally injured by being caught between a wagon and coal pillar.
21,	Lindsay Polindexter, ..	Miner,	37	M.	1 2	Hampton,	Allegheny,	Fatally injured by a fall of slate.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Second Bituminous District for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 3.	August Potssa.	Miner.	54	M.	Central.	Westmoreland.	Ankle broken by fall of slate.
3.	Porter Pritchard.	Trip rider.	26	M.	Carbon.	Westmoreland.	Collar bone and two ribs broken by being caught between wagons while coupling them.
5.	Samuel Holder.	Miner.	18	M.	Sandy Creek.	Allegheny.	Leg broken by fall of slate.
8.	John Predawa.	Miner.	54	M.	Loyalhanna No. 2.	Westmoreland.	Leg broken internally; was squeezed between car and coal pillar.
10.	P. A. McWade.	Driver.	30	M.	Mammoth.	Westmoreland.	Injured internally; was squeezed between car and coal pillar.
12.	James Lackerby.	Miner.	50	M.	Westmoreland Shaft.	Westmoreland.	Shoulder blade broken by fall of slate.
28.	J. H. Wable.	Miner boy.	15	M.	Export.	Westmoreland.	Leg broken and knee crushed by fall of slate.
28.	Andy Farros.	Miner.	24	S.	No. 1 'A' Shaft.	Westmoreland.	Ribs fractured and back bruised by fall of slate.
Feb. 5.	David M. Anderson.	Weighman.	37	M.	Burrell.	Indiana.	Shoulder and arm injured by falling between moving railroad cars outside of mine.
7.	John Saxon.	Miner.	50	M.	Mutual No. 3.	Westmoreland.	Hands and face slightly burned by an explosion of powder.
21.	Jeshua Yutzy.	Weighman.	40	M.	Latrobe Coal Works.	Westmoreland.	Leg broken by being struck by a haulage rope.
25.	Samuel Klouse.	Trapper boy.	14	....	Export.	Westmoreland.	Arm broken by being caught between wagons.
Mar. 8.	Wm. Stapleton.	Machine scraper.	40	M.	Ocean No. 1 Shaft.	Westmoreland.	Two ribs broken by fall of coal and slate.
9.	Lawrie L. Garlow.	Boss driver.	27	M.	Madison.	Westmoreland.	Leg broken by being struck by haulage rope.
9.	Andy Roger.	Miner.	45	M.	Claridge.	Westmoreland.	Back broken by fall of coal.
16.	John Kosturko.	Machine loader.	32	S.	Ocean No. 1 Shaft.	Westmoreland.	Back slightly injured by fall of slate.
18.	George Checkovish.	Miner.	42	M.	Claridge.	Westmoreland.	Leg crushed, and injured internally by fall of slate.
21.	John Toback.	Miner.	42	M.	Standard Shaft No. 2.	Westmoreland.	Rib broken by fall of coal.
23.	Paul Kurkly.	Miner.	39	M.	Central.	Westmoreland.	Back injured by fall of roof.
31.	Martin Severn.	Miner.	33	M.	Larimer.	Westmoreland.	Leg injured by fall of slate.
Apr. 11.	Simon Rose.	Miner.	18	....	Penn Gas No. 2.	Westmoreland.	Leg broken and scalp wounded by fall of slate.
12.	Andrew Shuster.	Tippleman.	17	....	Denmark.	Westmoreland.	Arm fractured by being caught by a revolving shaft.

19,	John Phillis,	Miner,	29	M.	United,	Westmoreland,	Arm broken and injured internally by being caught between wagon and coal pillar.
30,	Harry Blythstone,	Driver,	21	S.	Manmoth,	Westmoreland,	Hip dislocated by being caught between Leg broken by fall of slate.
2,	Peter DePalva,	Miner boy,	16	M.	Oak Hill No. 4,	Allegheny,	Leg broken by fall of slate.
4,	John Ritson,	Miner,	35	M.	Ocean No. 1 Shaft,	Westmoreland,	Leg broken by fall of slate.
5,	Michael Ballock,	Miner,	45	M.	Penn Gas No. 2,	Westmoreland,	Ankle broken by fall of slate.
10,	Bert A. Zimeral,	Driver,	18	M.	Cak Hill No. 4,	Allegheny,	Hand injured by being run over by mine wagon, necessitating amputation.
11,	Frank Feeny,	Mine laborer,	34	M.	Manmoth,	Westmoreland,	Slightly injured about face and head by fall of slate.
13,	Bernard Mullin,	Miner,	46	S.	Alexandria,	Westmoreland,	Back, leg and foot injured by fall of "horseback."
18,	John Kirkpatrick,	Driver,	26	S.	Oak Hill No. 4,	Allegheny,	Thumb injured while coupling cars, necessitating amputation.
25,	Peter Milkutis,	Miner,	25	S.	Export,	Westmoreland,	Leg broken by being caught between leg and pillar.
31,	Joseph Benedict,	Trapper boy,	15	M.	Dennmark,	Westmoreland,	Ankle broken by being caught by a wagon.
13,	Peter McDonald,	Miner boy,	17	M.	Spring Hill,	Allegheny,	Small injured by being struck by an over-head roller on incline, outside of mine.
15,	John Eyring,	Miner,	27	M.	Carbon,	Westmoreland,	Leg broken by fall of coal and slate.
17,	Joseph March,	Miner,	29	M.	Latrobe Coal Works,	Westmoreland,	Injured at a mine fire.
25,	Charles Erhart,	Driver,	27	S.	Puritan,	Westmoreland,	Collar bone broken by being caught between wagons.
July 1,	Fountain Robinson,	Miner,	30	M.	South West No. 2,	Westmoreland,	Leg broken, head and back injured by fall of slate.
1,	Wm. P. Simpson,	Trip rider,	18	M.	Carbon,	Westmoreland,	Leg injured by being run over by mine wagon, necessitating amputation of leg.
6,	Ernest Seehoffer,	Driver,	19	M.	South West No. 4,	Westmoreland,	Bruised about body and injured internally by being run over by mine.
12,	Benjamin Clawson,	Miner,	40	M.	M. Soxman,	Westmoreland,	Leg broken by fall of slate.
22,	John Metye,	Driver,	38	M.	Hecia No. 2,	Westmoreland,	Two ribs broken, back and leg injured by wagon jumping the track.
30,	Shedrick Shakespear,	Miner,	30	M.	Greensburg No. 2,	Westmoreland,	Foot injured by being run over by mine wagon, necessitating amputation of two toes.
Aug. 4,	Charles Crusan,	Miner,	42	M.	Oak Hill No. 4,	Allegheny,	Thigh broken by fall of slate.
8,	William Johnson,	Driver,	22	S.	Penn Gas No. 2,	Westmoreland,	Slightly injured by explosion of gas.
20,	Wm. Harper, Sr.,	Miner,	52	M.	Oak Hill No. 4,	Allegheny,	Leg broken by fall of slate.
5,	John Linne,	Miner,	40	M.	Penn Gas No. 2,	Westmoreland,	Left leg broken, head and side bruised by fall of slate.
22,	Pauldy Carmock,	Miner,	41	M.	Central,	Westmoreland,	Left leg broken by fall of slate.
23,	John Boydell,	Miner,	35	M.	Millwood,	Westmoreland,	Leg broken by fall of slate.
5,	John McGill,	Driver,	29	S.	Central,	Westmoreland,	Collar bone broken by being caught between wagon and coal pillar.
12,	Johns Withershold,	Miner,	35	M.	Carbon,	Westmoreland,	Arm broken by fall of roof coal.
14,	Archie Kelly,	Mine laborer,	17	S.	Puritan,	Westmoreland,	Leg broken below knee by being struck by a haulage rope.
17,	J. R. Bailey,	Miner,	42	M.	Carbon,	Westmoreland,	Small bone of ankle broken by fall of coal.
20,	Augustus Berg,	Laborer,	37	M.	Claridge,	Westmoreland,	Leg crushed, necessitating amputation below the knee; caught between wagon and dump while assisting at dumping coal on tipple.

TABLE 5.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Oct. 26.	Tony Depavls,	Miner,	39	S.	Sandy Creek,	Allegheny,	Both legs broken above knee by fall of slate.
28.	A. W. Hughes,	Miner,	56	M.	Derry Shaft,	Westmoreland,	Leg broken below the knee by being struck by a post which he was drawing.
Nov. 1.	Patrick Kennedy,	Miner,	63	M.	Millwood,	Westmoreland,	Leg broken above ankle joint by a fall of slate.
2.	Mike Koloblorin,	Mine laborer,	25	S.	Mammoth,	Westmoreland,	Scalp wounded, and injured internally; caught under the cage while crossing shaft.
5.	Akello Sim,	Miner,	27	S.	No. 1 'E' Shaft,	Westmoreland,	Nose broken and left eye bruised; a fall of slate knocked a post out which struck him.
8.	Charles Heurock,	Miner,	44	M.	United,	Westmoreland,	Foot broken near ankle joint while drawing a post which fell on it.
14.	Kosso Freuda,	Miner,	40	M.	Jamison,	Westmoreland,	Head and leg cut, thumb cut and broken by fall of 'horseback' and coal.
Dec. 1.	John Carrothers,	Miner,	54	M.	Oak Hill No. 4,	Allegheny,	Seriously injured by fall of slate.
3.	Wm. Baker,	Miner,	20	S.	Sandy Creek,	Allegheny,	Leg broken by being caught between wagons while riding on them.
6.	David Hickey, Jr.,	Miner boy,	18	....	Madison,	Westmoreland,	Seriously injured by fall of coal.
9.	Wm. McMurry,	Mine laborer,	35	M.	Mammoth,	Westmoreland,	Thigh broken by being struck by haulage rope on curve.
20.	Mike Virgo,	Miner,	35	M.	Penn Gas No. 2,	Westmoreland,	Foot crushed by fall of slate, necessitating amputation.

THIRD BITUMINOUS DISTRICT.

(ARMSTRONG, BUTLER, CLARION, INDIANA, JEFFERSON, LAWRENCE,
MERCER, WESTMORELAND AND BEAVER COUNTIES.)

Mercer, Pa., February 8, 1899.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: In compliance with Section 2, Article X, of the Bituminous mining act, approved the 15th day of May, 1893, I hereby submit my annual report of the inspection of mines of the Third Bituminous district for the year ending December 31, 1898.

There has been a great reduction in the number of fatal accidents during the year; there were ten fatal casualties in the year 1897, but only three during 1898. This is certainly a very gratifying report. Two of the three accidents were, practically speaking, unavoidable, while the other one might have been prevented had ordinary care been exercised by the victim. In fact, the place where Morgan was injured was one of the safest to work in I ever saw in a mine. He received his injuries in a very unexpected manner, and at the time he sustained them it was thought that they were not of a very serious nature; however, he died in four days thereafter.

Although many of the mines were entirely idle for two or three months during the year, I find that the production of coal has increased by 363,783 tons over that of last year. The mines in Mercer county were idle for three full months, which was the result of a disagreement between the miners and mine operators as to the prices to be paid for mining in accordance with the Chicago agreement, and the mines in Butler, Lawrence and Beaver counties experienced much broken time from a similar cause.

The following table sets forth the number and causes of the fatal and non-fatal accidents during the year:

Classification of Accidents for 1898.	Fatal.	Non-fatal.	Widows.	Orphans.
Falls of roof,	3	9	2	14
Falls of coal,	7	3	3	3
By mine wagons,	3	3	3	3
Miscellaneous causes,	3	3	3	3
Total,	3	22	2	14

In the following table will be found a summary of the statistics gathered from the official returns sent to this office by the coal companies of the district for the year:

	1898.	1897.
Number of mines in the district in operation,	68	68
Number of miners (men and boys), employed in the district,	5,151	4,903
Number of "day men" employed inside of the mines, including mine foremen and trapper boys,	736	718
Number of "day men" employed outside of mines,	651	580
Total number of persons employed outside and inside of the mines,....	6,538	6,201
Number of short tons of coal produced,	3,761,085	3,400,302
Number of short tons of coal produced per fatal casualty,	1,253,695	340,030
Number of short tons of coal produced per non-fatal casualty,	170,958+	141,679
Number of persons employed per fatal casualty,	2,179	620
Total number of days the mines were in operation,	13,211 ⁸ / ₅	12,684
Average number of days the mines were in operation,	191.4	181.2
Average number of days for mines which were in operation one hundred or more days during the year,	211.2	195.4

It will be noticed by these statistics that there has been a general increase not only in the coal tonnage, but also in the number of persons employed, number of days worked, etc. There were two mines (Cannelton and Chestnut Ridge) exhausted, one (Jewell) abandoned, while there were three new mines (Maplewood, Virginia and Beaver No. 2) opened during the year, thereby leaving the same number of mines in the district as reported last year. The mines of the district have all been visited by me frequently during the year, and I believe that I have examined every working place (with but few if any exceptions) in the mines of this district, and have talked with the men working therein about the dangers which surround them while at work. I have personally urged upon all classes of workmen the great necessity of exercising the greatest degree of care and watchfulness and of their putting into use all known practical safeguards for their protection. I have also urged upon the mine foremen the necessity of strictly performing their whole duty and maintaining strict discipline among the men under their charge.

A brief description of the mines of the district, an article on the single entry system of working out the coal, a description of the fatal and non-fatal accidents, the usual statistical tables, etc., will appear in another part of the report.

All of which is respectfully submitted.

THOMAS K. ADAMS,
Inspector.

Modification of the Single Entry System of Extracting the Coal Seams and the Adoption of Fans Instead of Furnaces for Ventilating Purposes.

As a necessary evil, the single entry system of extracting the coal seam has been adopted at a very large number of the mines in this district. Its supposed cheapness has been the great consideration in favor of the adoption of this system and no amount of argument advanced to disprove of this erroneous method seems to have much effect on the mine managers who cling to the old methods of their forefathers, rather than fall in with the more modern and economic ones. If this system cannot be eliminated entirely, then the next best plan would be to offer some suggestions relative to its modification or improvement.

1st. I would suggest that wherever the single entry plan has been adopted, that the entry be driven to its boundary line, followed with an air course, before any rooms are allowed to be turned therefrom. This work being completed, then begin at the boundary line to extract all of the coal by sections worked on the retreating system. This can be done either by the pillar and room method, or by a modification of the long wall plan. By the adoption of this method squeezes would be avoided and efficient ventilation maintained at the face of the workings.

2d. If the above method was too long a step to take for a beginning, they could modify the plan and still make a great improvement on the present one, as follows: Drive the entry with a solid air course on one side of it as before mentioned, making cut throughs no oftener than the extreme limit of the law (as to distance) required, having said cut throughs so placed as to serve the purpose of a room neck when the coal would be taken from that side. As the entry was advancing turn rooms on one side of it only. Before turning any rooms, drive the entry at least one hundred feet. The rooms turned off the entry should be driven in complets or triplets, that is, the entry pillar should only be cut at such distances apart as to serve the purpose of a room neck and as an exit for the wagons to the entry for these groups of rooms, instead of cutting the entry pillar so many times or making a neck for each room. By this method the entry pillar would be strengthened very materially, thus avoiding annoying and expensive squeezes and insuring a greater volume of air at the face of the workings. The dimensions as to width and length of rooms and size of pillars would have to be determined by the surrounding natural conditions. After the coal had all been worked out on the one side of the entry, then the other side could be attacked beginning at the boundary line and working on the retreating system in limited sections until all of the coal was secured. This modification of the single entry system has in a limited way been tried and it has proven

to be very beneficial in insuring a greater degree of safety to the workmen, and much better sanitary conditions in the mines have been secured. With careful and methodical managers in charge of the mines there should not be any necessity for leaving any of the coal seam go to waste in them after all the narrow work has been driven and paid for. The system which prevails now at some of the mines in the district of carrying the room road up the center of rooms with the idea of not recovering the room ribs, thereby leaving at least from twelve to twenty-five per cent. of the coal seam go to waste is certainly an outrageous mining method. All room roads should be kept close to the room ribs with the view of extracting all of the coal. If improved methods of working out the coal seam were adopted and good drainage maintained, all room ribs (unless in a few exceptional cases) could be taken out safely and economically, especially would this hold true in mines where the coal seam lies above water level.

Ventilation.

In order to maintain good sanitary conditions in mines at all seasons of the year, even after a change in the system of working out the coal seam has been inaugurated, where air courses of large area have been driven and the great multiplicity of doors, which are now in use by reason of working by the single entry system eliminated, it is still necessary to substitute reversible fans in the place of furnaces at the mines in order to secure efficient ventilating powers. At present nearly all of the drift mines are ventilated by furnaces and in nearly all cases the furnace shafts are shallow with the top of them located on the side of the hill from fifty to sixty feet higher than the mouth of the drift openings or inlets, and owing to this difference of elevation between the two openings at some seasons of the year the natural forces (difference of pressure and other agencies) are acting entirely against the furnaces, thereby almost destroying or at least greatly reducing their efficiency. If, however, reversible fans were used, these natural forces could be utilized and made to assist, at all times, the mechanical power of the fans. If all these enumerated improvements were accomplished facts at the mines, there is still another important factor to be considered in connection with this problem in order to secure the beneficial results we all so much desire, and that is, the mine foreman. In order to obtain good results, the mine must be in charge of a conscientious, intelligent, active and methodical mine foreman, who shall attend strictly to duty, attend to all of the details of the mine, such as keeping a good supply of materials in the mine for necessary use; keeping the air courses and ditches clean, seeing that he brattices for guiding the air currents are kept in good condition and that strict

discipline is maintained among the men under his charge and that all rooms and entries are being driven according to plan. All this, however, cannot be done by the mine foreman sitting outside of the mine the greater part of the day, nor when he acts in the capacity of a mule driver or a weighmaster or by sitting around working out his plans on paper. Plans to be of any value must be executed, not sometime in the future, but when necessary. Very much depends on the mine foreman whether or not the mine is in a good, bad or indifferent condition.

Description of Mines.

Mines Situated along the Allegheny Valley Railroad in Armstrong and Clarion Counties.

There are eight mines along this railroad in active operation at the present time—three of which (Riverview, Pine Creek and Beale No. 2), have experienced much broken time during the year while the other five (Glen, Monarch, Catfish Run, Eagle and Mineral Ridge) have been in operation nearly full time. The Hardscrabble, Mahoning and Church Hill mines are not now in operation. The Beale No. 2, Glen and Pine Creek mines are opened on what is known as the Upper Freeport coal bed and the other five are opened on the Lower Kittanning seam. Both coal seams range in height from about three feet to three feet six inches. They are also overlaid with a very strong, compact strata, thereby insuring to the miners reasonably safe places in which to labor. The mining of coal in this region is all done by pick except at the Monarch mine, where two Sullivan mining machines have been put in operation to do part of the undercutting of the coal. The system adopted in working out the coal at these mines is that of single entry except at the Riverview and Monarch mines, where they are worked by the double entry plan. The furnace is the prevailing ventilating power in this portion of the district, except at the Riverview mine where a sixteen foot diameter fan is used for the purpose. Excellent sanitary conditions can be maintained in all of these mines at a very trifling cost per ton of coal produced. Nature has been lavish in her contributions towards making it possible for sanitary conditions to prevail at all times in these mines, provided the officials having charge of the mining operations have the necessary knowledge and will contribute their share to obtain this very desirable end by doing their duty. During my last visit to the mines in this region I found in all of them a lawful supply of air in circulation, with the distribution of it very good. The drainage in nearly all of these mines was faultless. During the summer months at such mines it requires extreme vigilance on the part of the officials in charge to keep the supply of air up to the legal requirements owing in a large measure to the natural forces

at that season of the year being against the ventilating furnace. This difficulty could be obviated by the operators substituting reversible fans for furnaces, as by this means the natural forces could be made to assist the artificial power at all seasons of the year. A detailed report of each mine in this region need not be given, as the conditions existing in each are almost identical only that the quantity of air circulating in each varies.

At the Glen mine a ventilating shaft sixty feet deep and five feet in diameter has been sunk and a six foot furnace has been built at the bottom thereof. The furnace at the time of my last visit was producing 24,000 cubic feet of air per minute.

At the Monarch mine a compressed air plant has been installed during the year and they have now two Sullivan coal cutting machines in operation.

At the Eagle mine the tail rope system of haulage has been adopted during the year. The coal is hauled from a station inside of the mine to the check house, a distance of 1,700 feet. This new power will effect quite a saving on the cost of haulage.

Mines Located on the Low Grade Division and Sligo Branch of the Allegheny Valley Railway.

There are still ten mines located in this division of the district some of which have experienced much broken time during the year while others have been operated very steadily. The Acme mine has not been in operation at all this year.

At the Avondale mine I found a sufficient quantity of air in circulation at the face of the workings, and the drainage was excellent.

At the Cherry Run mine while there was a sufficient quantity of air being produced at the inlet and outlet of the mine, yet its volume was not large enough at the face of the workings. This was caused, no doubt, by the return air course having been partially closed by falls of roof. Those in charge of the mine agreed to remedy the defects forthwith.

Diamond mine is a small operation. I measured a sufficient quantity of air at the ventilating furnace, yet the quantity was not large enough at the face of part of the workings. This defect is being remedied by the driving of new air courses and the making of improvements in the ventilating power. The drainage in this mine was excellent.

During my last visit to the Keystone Mine No. 2 I found it in much better condition than I did on the previous one. I found the air in much larger volume at the face of the workings and some improvements had been made to the hauling roads also. The ventilating furnace here has not power enough to produce sufficient air during

the summer months for such a mine, but in the winter season it will give more efficient results. I found a sufficient volume of air in this mine at my last visit.

Fairmount Mines Nos. 1 and 3, 2 and 4, are very large operations and extend over a very large area. The underground workings of these mines are all connected, and from the extreme side of the workings of Nos. 1 and 3 mine to the extreme boundary of No. 4 workings cover a distance of at least three miles. In the Nos. 2 and 4 mines I found ample ventilation in all parts and the greatest of care was being exercised by the underground officials to protect the lives and health of those employed therein. I did not find as large a volume of air in the Nos. 1 and 3 workings as I had found there on previous visits. The shortage of air at the face of the workings was caused no doubt by changing the course of the ventilation and the reversing of the fan. Much is being done to maintain good drainage in these mines. The total volume of air circulating in all of these mines was 84,000 cubic feet per minute. At No. 4 mine an additional air compressor has been added to the air compressor plant and eight more mining machines have been put in operation, making a total of fifteen machines now at work. Most of the coal produced here is being mined by these machines.

At the Oak Ridge mine much broken time was experienced during the summer months owing to the lack of trade. During my visits to this mine I measured a sufficient quantity of air in circulation but I found some of the hauling roads very muddy.

At the Carrier mine I measured a sufficient volume of air circulating in the inner workings. The drainage was reasonably good. A new ventilating furnace was built during the year.

Mines Situated in the Reynoldsville Region, Jefferson County.

There are eight mines in this region, all in operation. These mines are opened on the Lower Freeport coal seam.

Big Soldier Run and Sprague are the large coal producing mines in this division of the district. They have, practically speaking, been in operation full time during the year and have been giving employment to about 1,000 workmen of all classes. There are 262 coke ovens in full operation at this plant now, and they are producing a very good quality of coke from this coal seam. One fan, twenty-four feet in diameter, assisted by another small Clark fan and a furnace, produces the ventilation for both of these mines. The present ventilating appliances have not sufficient power to produce enough air for such mines and the sooner the company realizes this fact the better it will be for all concerned. The undercutting of the coal here is being done by mining machines which necessitates the blasting down of the coal at all hours of the day, thus fouling the air by

powder smoke to a very great extent. Instead of having fans which only produce from eighty to ninety thousand cubic feet of air per minute, one with a capacity of two hundred thousand cubic feet of air per minute will be required to keep the mine in a healthful condition. Although the lawful quantity of air was being produced here at the inlets, yet I cannot say that these two mines were well ventilated owing to the excessive amount of powder smoke that is allowed to be in them at all hours of the day. I find (in order to have efficient ventilation) there is too much open or broken work now at these mines, making it extremely difficult to properly ventilate all portions of them when such conditions exist. The company has done well along the lines of keeping these mines in reasonably healthful conditions in the past, but the older the mines get to be, the more difficult will it be to ventilate them properly. I trust that the mine officials will ever keep in view the sanitary conditions of the mines as well as that of keeping up the output of coal. The drainage of these two mines is very good.

At Hamilton mine, since my last report, mining machines have been introduced to undercut the coal. Although the mine has not been in operation very steadily during the year, it has been crowded with men, whereas about one-half of them could do all the work that is to be done. A six foot Clark fan has been erected to produce ventilation and an attempt is being made to construct two air splits, but for lack of material they were not completed at the time of my last visit. This fan has not the capacity to produce sufficient ventilation for such a large mine. In fact such a fan is not designed to do much work. They may ventilate the workings of a small mine wherein fewer than one hundred men are employed and the coal territory of very limited area, but they are practically useless for extensive operations.

Maplewood and Virginia mines are both new drift openings and are both operated by the Jefferson-Clearfield Coal and Iron Company, with John H. Bell as superintendent for both mines. John Ward is mine foreman at the Maplewood mine, while Peter Robertson acts in a similar capacity at the Virginia. The undercutting of the coal at both places is done by Harrison machines. There is an air compressor and two boilers at each mine. The coal is hauled by the tail rope system at each operation and the mines are ventilated by Clark fans and the treble entry system of ventilating and working out the coal has been adopted. The tipples, chutes and other outside structures at both places are all of a very substantial character. I found the mines in good condition both in regard to ventilation and drainage.

The Henry and Sherwood mines were both in very good condition in regard to ventilation and drainage.

Bloomington mine has been operated very unsteadily during the

year. I did not find it in operation at either of the last two visits I made. The company has erected a Stine fan, ten feet in diameter, and it was producing 30,000 cubic feet of air per minute and the most of it was being carried to the face of the workings in two splits. At the last examination I made of the mine I found it in excellent condition generally.

Mines Situated in Beaver and Lawrence Counties.

There are eleven mines in this division of the district and all are in active operation at present except the Penn, which has done no business since last February or March.

Thompson Run mine is in very good condition, except that the air current was not quite strong enough at the face of No. 4 butt entry. The lawful amount of air was measured near the face of the principal parts of the mine, however.

Sterling mine was very well ventilated. At one point in the workings the drainage was somewhat defective but this would be remedied a few days after my visit. The tail rope system of haulage has been introduced at this mine during the year.

The Butts Cannel Coal mine was in excellent condition both as regards ventilation and drainage.

At State Line mine there was a large volume of air being produced which was fairly well distributed to the different portions of the mine. Some of the air courses were not kept as clean as they might have been. This mine was reasonably well drained.

Mehard mine was in very fair condition. There was more than a sufficient volume of air being produced but much of it was lost through leakage at defective brattices before it reached the men at the face of the workings. The drainage except at one point of the mine was reasonably good. Some mud was allowed to accumulate on the hauling roads, however.

Excelsior No. 2 is a small operation. There are only a few acres of coal to be taken out of this opening. I found the mine very well ventilated. The main hauling road at one or two points was very muddy.

Rock Point mine was found in very good condition generally. The ventilation was in sufficient volume which was fairly well distributed to all parts of the mine. The drainage was good.

Beaver mines Nos. 1 and 2 were in excellent condition. A sufficient quantity of air was being produced in each mine and the air currents were being well conveyed to the face of the different workings. The drainage in each place was all that could be desired.

Mines Situated along the West Penn Railroad in Westmoreland and Armstrong Counties.

There are twelve mines, viz: Blackstone, Bagdad No. 2, West

Fean, Riverview, Leechburg No. 4, Pine Run, Avonmore, Beale No. 1, Kirkpatrick, Haddon, Kerr and Gilpin, located along this railroad. They are all opened on the same seam of coal (Upper Freeport) except the Avonmore mine, which is opened on the Pittsburg coal bed. The same general system (single entry plan) of working out the coal prevails at all of these mines except at the Avonmore, where the double entry system has been adopted. The power used at all of the mines for producing ventilation is the furnace. At eleven of these mines the existing natural conditions are all favorable to insuring safety to the workmen employed therein. At the Avonmore mine the natural conditions are unfavorable. In the former the seam is not thick and it has an excellent roof, while at the latter the seam is high and it is overlaid by a poor roof; however, owing to the extreme care taken by both miners and officials very few accidents occur in Avonmore mine. At all of these mines I found excellent sanitary conditions prevailing and the law being complied with. The only exception was possibly at the Beale Mine No. 1, where they were short of air at the face of the main entry but this defect has been remedied (I am informed) since my last visit to it. The company operating the Beale mine has sunk a new air shaft and built a furnace thereat, which is located near the very face of the workings. In fact the air shaft was about completed at the date of my last visit.

Mines Situated along the Bessemer, Pittsburg and Lake Erie Railroad and in other parts of Butler and Mercer Counties.

There are at present fourteen mines in operation in this part of the district. Enterprise mine, of Butler county, and Spears mine, of Mercer county, are not now employing a sufficient number of persons to bring them under the provisions of the mining act. The Chestnut Ridge mine has become exhausted, while the Stoneboro Mine No. 2 and Jewell No. 2 have been abandoned for the present at least. Much broken time has been experienced at the mines located here, owing to the long strike about the rate to be paid for mining. The companies have not yet fully recovered their former contracts which were taken from them during the strike.

Royle mine is now being operated under the provisions of the mining act. I found it being operated with about twenty-three persons. The quantity of air in circulation was up to the requirements of the law and the mine was excellently drained.

The Keystone mine was well ventilated except that the air was too far back from the face of one of the entries, which would be remedied forthwith. The drainage was very good.

Lake Erie mine was in very fair condition both in regard to ventilation and drainage.

Mizner mine had a sufficient quantity of air in circulation. Much of the air was lost through leakage before it reached the face of the workings. The total volume of air was being conveyed to the workings in two separate currents, whereas one current would have been more effective. Owing to the leakage of the air I found it weak at some of the inner workings. The drainage at one point was defective. This defect would be remedied forthwith.

The Stage mine was in excellent condition both in regard to ventilation and drainage.

The Standard mine was not in as good a condition as it should have been. There is plenty of air going into the mine but there is too much leakage of it and too many separate splits and in consequence the air is not strong enough at the face of the workings. The drainage in parts of the mine is not good.

The Claytonia was not being operated under the law at the time of my last two visits.

Black Diamond Nos. 1 and 2. I found both of these mines at my last visit in very good condition. There was a sufficient quantity of air in circulation in each mine which was being well distributed to the face of the workings. The drainage was good in both places.

In Pardoe mine there was a sufficient volume of air in circulation, but the current was not near enough to the face of the main entry. In other parts of the mine there was a very reasonable current of air flowing. The drainage was in fair condition for such a mine.

Hallyville mine has not been operated very steadily during the year. A shaft has been sunk at the face of the workings and it is utilized both as an air and pumping shaft. The ventilation has been improved materially by the sinking of this opening. The drainage is in reasonably good condition.

Stoneboro Mine No. 3. At my last visit I found it in much better condition than at my previous one. I measured nearly double the quantity of air in circulation at my latter than I did at the former examination. The drainage was much improved also. There was sufficient quantity of air in circulation in the mine.

At Hill mine there was a sufficient volume of air being produced, but too much of it was being lost through leakage before it reached the face of some of the workings. The drainage in one entry which will soon be finished was defective. The entry was wet and muddy. In other parts of the mine the drainage was very fair.

The Carver mine had a sufficient volume of air circulating which was being well conveyed to the face of the workings in two separate splits. Some of the hauling roads were wet and muddy owing to so much water flowing from the roof and sides of the entries, especially was this the case near the face of the workings.

TABLE I.—Showing location, etc., of collieries in the Third Bituminous District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Post-office Address.	Name of Railroad to Mine.
31	Acme	Acme Mining Co.,	Clarion,	J. W. Hill,	East Brady,	A. V.
32	Avondale	Avondale Mining & M'g Co.,	Clarion,	James Mitchell,	Lawsonham,	A. V.
33	Avonmore	Avonmore Coal and Coke Co.,	Armstrong,	L. W. Hicks,	Leechburg,	W. P. Div.
34	Big Soldier Run	Jellerson & Clearfield C. & I. Co.,	Jefferson,	John H. Bell,	Reynoldsville,	E. R. & P.
46	Beaver No. 1	Beaver Coal and Coke Co.,	Lawrence,	H. K. Hartsuff, Jr.,	Wampum,	Penna. Co.
49	Beaver No. 2	Beaver Coal and Coke Co.,	Lawrence,	H. K. Hartsuff, Jr.,	Wampum,	Penna. Co.
52	Black Diamond No. 1	Filler, Sutliff & Co.,	Mercer,	F. P. Filer,	Mercer,	P. B. & L. E.
53	Black Diamond No. 2	Filler, Sutliff & Co.,	Mercer,	F. P. Filer,	Mercer,	P. B. & L. E.
2	Beale No. 1	Joseph E. Beale & Co.,	Armstrong,	George Kneppshield,	Leechburg,	Penna.
6	Beale No. 2	Joseph E. Beale,	Armstrong,	E. H. Beale,	Lucceso,	Penna.
65	Blackstone	Lewis Coal Co.,	Westmoreland,	N. S. Hicks,	Leechburg,	Penna. Co.
64	Blackdog No. 3	Lagdad Coal and Coke Co.,	Westmoreland,	N. S. Hicks,	Leechburg,	Penna. Co.
43	Bloomington	Rembrandt Peale,	Jefferson,	John C. Wisnimore,	Reynoldsville,	E. R. & P.
19	Burts Cannel Coal	Burts Cannel Coal Co.,	Beaver,	George Gauld,	Beatsville, Ohio,	P. M. & C.
21	Carver	Samuel Kinsey,	Mercer,	F. P. Filer,	Mercer,	L. S. & M. S.
24	Catfish	Samuel Kinsey,	Butler,	Samuel Kinsey,	Claytonia,	A. V.
51	Cherry Run	Cherry Run Coal Co.,	Clarion,	C. J. Tighe,	Catfish,	A. V.
52	Cherry Run	Cherry Run Coal & Mining Co.,	Clarion,	E. N. Miller,	Huey P. O.,	A. V.
18	Compressing	Compressing Coal Co.,	Beaver,	J. W. Ganoce,	Ellwood City,	A. & W.
20	Diamond	Darlington Brick & Coal Co.,	Beaver,	Charles Jenkins,	Darlington,	P. M. & C.
47	Excelsior No. 2	J. W. Ganoce,	Clarion,	J. W. Ganoce,	Phillipston,	A. V.
66	Eagle	Eagle Coal Mining Co.,	Lawrence,	Chas. M. Harvey,	Wampum,	Penna. Co.
11	Fairmount Nos. 1 & 3	Fairmount Coal & Coke Co.,	Clarion,	Joseph Lehner,	West Monterey,	A. V.
12	Fairmount No. 2	Fairmount Coal & Coke Co.,	Armstrong,	S. Taylor Shaffer,	New Bethlehem,	A. V.
7	Fairmount No. 4	Fairmount Coal & Coke Co.,	Armstrong,	S. Taylor Shaffer,	New Bethlehem,	A. V.
19	Glen	J. K. Smith,	Armstrong,	J. M. Folly,	Manorville,	A. V.
5	Gilpin	Gilpin Coal Company,	Armstrong,	L. W. Hicks,	Leechburg,	Penna. Co.
40	Hamilton	Jefferson & Clearfield C. & I. Co.,	Jefferson,	John H. Bell,	Reynoldsville,	P. B. & P.
45	Hilly	Hilly Coal Co.,	Jefferson,	L. W. Hicks,	Reynoldsville,	P. B. & P.
46	Hilly	Hilly Coal Co.,	Jefferson,	L. W. Hicks,	Reynoldsville,	P. B. & P.
54	Hallyville	Grove Coal Limited,	Mercer,	William Jenkins,	Jackson Center,	W. N. Y.
1	Haddon	Haddon Coal Co.,	Mercer,	D. D. Morris,	Grove City,	P. B. & L. E.
1	Keystone No. 2, Clarion county.	Keystone Coal Mining Co.,	Clarion,	N. S. Hicks,	Leechburg,	Penna. Co.
29	Keystone No. 1, Butler county.	Keystone Coal, Coke, & Mining Co.,	Butler,	Geo. E. Henry,	East Brady,	P. B. & L. E.
29	Keystone No. 1, Butler county.	Keystone Coal, Coke, & Mining Co.,	Butler,	J. L. Turner,	Ferris,	P. B. & L. E.

21	Keystone No. 2, Butler county.	Keystone Coal, Coke, & Mining Co.	Butler,	J. L. Turner,	Ferris,	A. V.
3	Kirkpatrick,	Kirkpatrick & Co., Limited,	Armstrong,	S. T. Shoff,	Leechburg,	Penna. Co.
14	Kerr,	Kerr Coal Company,	Armstrong,	G. B. Findley,	Freeport,	P. & W.
22	Karns City Enterprise,	P. D. Sherwin,	Butler,	P. D. Sherwin,	Karns City,	P. B. & L. E.
27	Leechburg No. 1,	F. A. Mizner,	Butler,	George Findley,	Hilliards,	Penna. Co.
67	Leechburg No. 4,	Leechburg Coal & Coke Co.,	Westmoreland,	N. S. Hicks,	Leechburg,	
33	Manaroch,	Jefferson & Clearfield C. & I. Co.,	Jefferson,	John H. Bell,	Reynoldsville,	
34	Mohar,	C. P. McCafferty,	Butler,	C. P. McCafferty,	East Brady,	
33	Mohar,	Mohar Coal Co.,	Lawrence,	George Findley,	Hilliards,	P. B. & L. E.
23	Mehard,	P. A. Stewart & C. W. H. Eicke,	Clarion,	Robt. H. Mehard,	Goverdale P. O.,	Penna. Co.
48	Mineral Ridge,	Oak Ridge Mining Co.,	Armstrong,	John Fisher,	Westmoreland,	A. V.
35	Oak Ridge,	Flier Brothers,	Mercer,	E. L. Flier,	Oak Ridge Station,	A. V.
13	Pardoe,	Penn Coal Co.,	Lawrence,	Edwin N. Ohi,	New Castle,	P. B. & L. E.
51	Pine Run,	Pine Creek Coal Co.,	Westmoreland,	John W. Hicks,	New Castle,	Penna. Co.
60	Pine Creek,	Rock Point Coal Co.,	Lawrence,	John L. Murray,	Mosgrove,	A. V.
8	Rock Point,	Rock Point Coal Co.,	Lawrence,	Wm. Brown,	Wampum,	P. & W.
.....	Royle,	River View Coal Co.,	Butler,	R. E. Royle,	Hilliards,	P. B. & L. E.
62	River View, Armstrong Co.,	River View Coal Mining Co. Lim.,	Armstrong,	John Doyle,	Cosmus,	A. V.
12	Star Line,	Leechburg Coal & Coke Co.,	Westmoreland,	N. S. Hicks,	Leechburg,	Penna. Co.
17	Star Line,	State Line Coal Co.,	Beaver,	Hugh Laughlin,	East Palestine, Ohio,	P. F. W. & C.
25	Star,	Sterling Coal Co.,	Beaver,	John Hileman,	Cannelton,	P. M. & C.
59	Stoneboro No. 2,	G. G. Stage,	Butler,	James Welsh,	Coaltown,	
58	Stoneboro No. 3,	Mercer Iron & Coal Co.,	Mercer,	B. F. Esgar,	Stoneboro,	L. S. & M. S.
26	Standard,	Mercer Iron & Coal Co.,	Mercer,	B. F. Esgar,	Stoneboro,	L. S. & M. S.
39	Sprague,	P. D. Sherwin,	Butler,	P. D. Sherwin,	Karns City,	P. B. & L. E.
45	Summersville or Carrier Bros.,	Jefferson & Clearfield C. & I. Co.,	Jefferson,	John H. Bell,	Reynoldsville,	E. R. & P.
37	Sherwood,	Carrier Brothers,	Jefferson,	John Reed,	Summersville,	
19	Thompson Run,	Jefferson & Clearfield C. & I. Co.,	Jefferson,	John Reed,	DuBois,	P. & L. E.
41	Virshala,	Thompson Run Coal Co.,	Jefferson,	P. N. Douthett,	Caylor's Ferry,	B. R. & P.
63	West Penn,	Jefferson & Clearfield C. & I. Co.,	Westmoreland,	John H. Bell,	Reynoldsville,	Penna. Co.
.....	Spears,	West Penn Mining Co.,	Mercer,	L. W. Hicks,	Leechburg,	
.....	.....	J. J. Spears, .....	.....	James A. Spears,	Grove City,	

TABLE II.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Third Bituminous District for the year ending December 31, 1898.

Name of Collieries.	County.	Total production in tons of coal.	Total production in tons of coke.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad and water shipments of coal in tons.	Number of days worked.	Number of persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number pounds dynamite used.	Number horses and mules.	Number steam boilers.	Number nine locomotives.	Number coke ovens.
Acme,	Clarion,	15,460	.....	15	9	15,436	167	31	.....	.....	.....	.....	4	.....	.....	.....
Avondale,	Clarion,	84,651	.....	.....	.....	84,651	255	97	.....	.....	360	.....	11	.....	.....	.....
Avonmore,	Armstrong,	1,621,942	.....	.....	.....	872,528	271	1,075	6	6	6,390	1,300	115	12	.....	.....
Big Soldier Run and Sprague,	Jefferson,	137,243	95,107	369	111	137,042	183 3/4	151	.....	.....	1,317	.....	10	1	.....	262
Bloomington,	Jefferson,	63,599	.....	3,290	300	60,000	240	132	1	1	.....	.....	12	3	.....	.....
Beaver No. 1,	Lawrence,	19,069	.....	.....	.....	19,060	228 1/2	42	1	1	90	.....	2	.....	.....	.....
Beaver No. 2,	Lawrence,	51,378	.....	3,294	1,000	47,084	148 3/4	127	1	1	370	.....	10	6	.....	.....
Black Diamond No. 1,	Mercer,	53,110	.....	1,054	1,100	50,246	195 3/4	113	.....	.....	650	20	8	4	.....	.....
Black Diamond No. 2,	Mercer,	45,975	.....	.....	.....	45,475	255	55	.....	.....	.....	.....	6	.....	.....	.....
Beale No. 1,	Armstrong,	3,900	.....	.....	.....	3,900	65	21	.....	.....	.....	.....	2	.....	.....	.....
Beale No. 2,	Armstrong,	48,398	.....	.....	.....	48,398	249	82	.....	.....	480	1,000	4	.....	.....	.....
Bigdad No. 1,	Westmoreland,	20,578	.....	.....	.....	20,578	107	52	.....	.....	481	.....	3	.....	.....	.....
Bigdad No. 2,	Westmoreland,	20,578	.....	500	.....	20,600	149 1/4	73	.....	.....	13	.....	3	1	.....	.....
Butts Cannel Co.,	Beaver,	1,720	.....	.....	.....	1,720	57	13	.....	.....	.....	.....	.....	.....	.....	.....
Cannelton,	Beaver,	27,411	.....	4,000	500	22,911	143	73	.....	.....	100	.....	.....	.....	.....	.....
Chestnut Ridge,	Mercer,	3,000	.....	.....	.....	3,000	50	13	.....	.....	.....	.....	.....	.....	.....	.....
Church Hill,	Clarion,	27,740	.....	4,500	800	32,440	150	76	.....	.....	250	.....	.....	.....	.....	.....
Carver,	Mercer,	5,040	.....	.....	.....	5,040	106	30	.....	.....	.....	.....	.....	.....	.....	.....
Claytonia,	Butler,	2,186	.....	100	40	2,011	27 1/2	66	.....	.....	120	25	.....	.....	.....	.....
Cathish Run,	Clarion,	13,151	.....	62	100	13,389	186	64	.....	.....	150	60	.....	1	.....	.....
Cherry Run,	Clarion,	11,100	.....	.....	.....	11,100	253	43	.....	.....	75	10	.....	.....	.....	.....
Conessing,	Beaver,	2,190	.....	400	.....	2,000	242	13	.....	.....	.....	.....	.....	.....	.....	.....
Darlington,	Beaver,	14,354	.....	.....	.....	14,354	154	76	.....	.....	90	.....	.....	.....	.....	.....
Diamond,	Clarion,	29,897	.....	100	100	29,797	222	61	.....	.....	15	.....	.....	.....	.....	.....
Excelsior No. 2,	Lawrence,	44,390	.....	.....	.....	44,290	255	84	.....	.....	.....	.....	.....	.....	.....	.....
Eagle,	Clarion,	118,454	.....	100	440	117,354	133 1/2	271	.....	.....	1,800	.....	14	3	.....	.....
Fairmount Nos. 1 & 3,	Clarion,	391,317	.....	1,135	.....	389,317	588 1/2	151	.....	.....	.....	.....	.....	.....	.....	.....
Fairmount No. 2,	Armstrong,	262,412	.....	.....	.....	262,412	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fairmount No. 4,	Armstrong,	.....	.....	2,220	.....	.....	.....	256	1	.....	2,500	.....	.....	.....	.....	.....

Glen,	38,746	156	38,554	287	61	3	325	6	
Gilpin,	42,306	.....	42,306	210	60	.....	1,200	4
Armstrong,	178,258	.....	178,258	218½	218	.....	218	21
Jefferson,	46,255	38	46,255	181	36	.....	338	6
Hill,	15,000	200	15,000	151	45	.....	29	1
Hallville,	40,829	.....	40,829	216	57	.....	509	2
Haddon,	40,829	400	40,829	233	105	.....	509	6
Keystone No. 2,	1,889	18	1,882	13	40	1	100	4	
Keystone No. 1,	17,971	125	17,846	89¼	66	.....	100	4
Kirkpatrick,	25,959	25,000	.....	293	25	.....	296	3
Armstrong,	10,800	10,400	.....	208	21	.....	45	2
Butler,	10,267	40	10,267	259	18	.....	150	1
Karns or Enterprise,	32,946	115	32,791	220	67	.....	225	4
Lake Erie,	43,988	.....	43,988	313	41	2	300	5
Leesburg No. 4,	78,144	.....	78,144	283½	133	.....	500	2
Jefferson,	25,500	500	25,000	264	53	.....	.....	4
Clarton,	40,268	33	40,140	210	61	.....	225	4
Mazon,	36,215	100	36,115	217	109	.....	.....	1
Lawrence,	42,253	.....	42,253	253	109	.....	.....	1
Armstrong,	66,273	.....	66,000	100¾	262	.....	500	13
Mineral Ridge,	59,000	457	59,000	186	127	.....	250	3
Pardee,	5,000	.....	5,000	56	45	.....	.....	14
Penn,* .....	.....	.....	.....	.....	.....	.....	500	5
Pine Run,	31,345	.....	33,345	262	48	.....	.....	2
Westmoreland,	11,671	.....	11,671	112	26	.....	17	2
Pine Creek,	41,292	.....	41,292	269	93	.....	32	10
Rock Point,	7,445	400	7,045	173	47	.....	60	3
Royle,	24,776	559	24,219	79	105	.....	175	10
Riverview,	20,369	.....	20,369	295	31	.....	.....	2
Riverview,	86,280	2,000	84,330	296	151	.....	1,680	7
State Line,	46,940	.....	46,940	236	74	.....	250	3
Beaver,	22,078	1,000	22,098	159	59	.....	15	5
Beaver,	22,078	.....	22,098	183	47	.....	45	2
Butler,	19,235	52	17,567	70	122	.....	1,300	3
Standard,	39,824	2,311	38,513	164	146	.....	25	18
Stonboro No. 2, .....	.....	.....	.....	.....	.....	.....	150	6
Stonboro No. 3, .....	.....	.....	.....	.....	.....	.....	.....	4
Mercer, .....	.....	.....	.....	.....	.....	.....	.....	4
Stearns, see Big Soldier Run, .....	.....	.....	.....	.....	.....	.....	.....	.....
Jefferson,	12,600	20	12,600	63	36	.....	40	1
Stammerville or Carrier Bros.,*	38,357	.....	38,357	190	47	.....	.....	6
Sherwood,	36,546	.....	36,546	166	81	.....	375	3
Thompson Run,	29,821	100	29,821	251	100	.....	350	9
Jefferson,	16,952	.....	16,952	217	41	.....	380	4
Virginia, .....	.....	.....	.....	.....	.....	.....	.....	2
West Penn, .....	.....	.....	.....	.....	.....	.....	.....	3
Grand total,	3,761,085	95,407	3,219,444	13,211½	6,538	3	22	25,462	506
								7,380	2
								262	

N. 11.—There were 151,413 tons of coal went into the manufacture of the 95,107 tons of coke which does not appear in the aggregate tonnage under the heading of railroad shipments, quantity of coal in tons for steam and heat and for supply of local trade.

* Statistics approximated at these mines.

TABLE III.—Showing the number of employees at each colliery in the Third Bituminous District, during the year 1898.

Names of Collieries.	Occupations of Persons Employed Inside.						Occupations of Persons Employed Outside.						Grand total inside and outside.		
	Inside foremen or mine boss.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foremen.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Employed in the manufacture of coke.		Superintendents, bookkeepers and clerks.	All other employes.	Total outside.
Acme,	1	24	1	1	2	1	28	1	1	1	1	1	1	2	3
Avondale,	1	76	2	80	25	43	88	1	1	9	2	74	1	33	97
Big Soldier Run and Sprague,	1	132	6	7	6	2	143	1	1	1	1	1	2	16	8
Bloomington,	1	100	12	7	7	7	127	1	1	4	4	1	2	8	151
Beaver No. 1,	1	30	1	1	1	1	34	1	1	1	1	1	1	4	8
Beaver No. 2,	1	91	4	61	2	6	111	1	1	1	1	1	1	6	42
Black Diamond No. 1,	1	81	4	4	7	1	100	1	1	2	2	1	1	6	13
Black Diamond No. 2,	1	43	3	3	3	3	50	1	1	1	1	1	1	4	54
Beate No. 1,	1	15	3	4	1	1	19	1	1	1	1	1	1	2	21
Beate No. 2,	1	50	1	1	1	1	54	1	1	1	1	1	1	6	62
Blackstone,	1	40	1	1	1	1	46	1	1	1	1	1	1	6	52
Baldy No. 2,	1	19	1	1	1	1	22	1	1	1	1	1	1	2	24
Baldy No. 1,	1	50	4	1	1	1	61	1	1	3	3	1	1	4	69
Cannel Coal,	1	8	4	1	1	1	10	1	1	1	1	1	1	2	13
Chestnut Ridge,	1	50	5	6	2	3	67	1	1	3	3	2	1	2	9
Carver,	1	23	1	1	5	1	28	1	1	1	1	1	1	2	30
Claytonla,	1	52	1	1	1	1	58	1	1	1	1	1	1	2	7
Catfish Run,	1	55	1	1	1	1	58	1	1	1	1	1	1	2	7
Cherry Run,	1	32	3	2	1	1	39	1	1	1	1	1	1	2	4
Connessing,	1	8	2	2	1	1	11	1	1	1	1	1	1	2	13
Darlington,	1	64	2	4	3	3	71	1	1	1	1	1	1	1	2
Diamond,	1	49	1	1	1	1	56	1	1	1	1	1	1	2	61
Excelsior No. 2,	1	65	1	1	3	3	76	1	1	1	1	1	1	2	84
Eagle,	1	210	14	14	5	7	246	1	1	3	3	1	1	9	253
Fairmount Nos. 1 & 3,	1	290	3	3	3	7	306	1	1	4	4	1	1	10	316
Fairmount No. 2,	1	220	2	2	4	4	232	1	1	1	1	1	1	4	238
Fairmount No. 4,	1	43	2	2	4	2	53	1	1	6	6	1	1	10	63
Gleb,	1	1	1	1	1	1	4	1	1	1	1	1	1	2	6

Names of Collieries.

TABLE III.—Continued.

Names of Collieries.	Number of Days Worked Each Month During 1898.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Acme	17	12	13	13	12	11	11	10	11	15	22	20
Avondale	21	24	24	15	20	11	14	20	21	21	22	21
Avonmore	24.2	25.3	21.8	21.2	22.6	23.8	24	22.3	20	21	21.8	20.8
Big Soldier Run and Sprague	25	18 ³ / ₄	20.2	22	23 ¹ / ₄	16	20	20	17	19 ³ / ₄	21.8	20.5
Bloomington	16.5	22	23	7.5	22	23	23	22.5	14	20.15	21.5	21.5
Beaver No. 1	17.5	22	23	7.5	22	23	23	22.5	14	20.15	21.5	21.5
Beaver No. 2	21.2	22	23	7.5	22	23	23	22.5	14	20.15	21.5	21.5
Black Diamond No. 1	19.2	21	21	2	10.4	20	20	17.2	17 ¹ / ₂	17	17	21
Black Diamond No. 2	19.2	21	21	2	10.4	20	20	17.2	17 ¹ / ₂	17	17	21
Beale No. 1	21	21	21	21	21	21	20	20	22	23	23	21
Beale No. 2	21	21	21	21	21	21	20	20	22	23	23	21
Blackstone	21	20	23	17	21	24	24	15	17	24	18	25
Bardonia No. 1	20	20	22	18	18	12	12	15	18	20	18	21
Bardonia No. 2	9	20 ¹ / ₂	10 ¹ / ₂	2	1	6	6	6	17 ¹ / ₂	24	23 ³ / ₄	23
Battle Creek Coal	23	20	14	2	1	6	6	6	17 ¹ / ₂	24	23 ³ / ₄	23
Capeblon	9	10	20	19	18	15	20	18	14	14	14	14
Chestnut Ridge	9	10	20	19	18	15	20	18	14	14	14	14
Church Hill	22	22	25	25	25	25	25	25	25	25	25	25
Carver	22	22	25	25	25	25	25	25	25	25	25	25
Claytona	8	2	2	2	2	5	16	9	15	15	15	20
Catfish Run	20	12	14	23	25	23	22	21	20	3	14	19
Cherry Run	8	12	11	11	11	11	20	17	15	22	24	24
Comingsburg	21	20	24	14	23	20	14	23	14	23	24	21
Darlington	16	7	17	4	25	21	21	21	13	15	15	21
Diamond	16	7	17	4	25	21	21	21	13	15	15	21
Excelsior No. 2	18	16	18	9	25	21	21	21	13	15	15	21
Eagle	20	16	18	9	25	21	21	21	13	15	15	21
Fairmount Nos. 1 and 3	20 ¹ / ₂	11	23 ¹ / ₂	20 ¹ / ₂	23 ¹ / ₂	8	5	4 ¹ / ₂	20	20	23 ¹ / ₂	25
Fairmount No. 2	23 ¹ / ₂	16	23 ¹ / ₂	23 ¹ / ₂	23 ¹ / ₂	8	5	4 ¹ / ₂	20	20	23 ¹ / ₂	25
Fairmount No. 3	24	20	24	24	15	17	17	17	15	21 ¹ / ₂	21 ¹ / ₂	24 ¹ / ₂
Fairmount No. 4	24	20	24	24	15	17	17	17	15	21 ¹ / ₂	21 ¹ / ₂	24 ¹ / ₂
Gibb	24	21	26	25	25	24	24	26	25	25	26	25

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Third Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Apr. 14,	J. A. Gallagher,	Miner,	39	S.	.....	.....	Fairmount No. 4, ..	Armstrong,	This was a very careful man and an experienced coal miner. He had worked in the mines for at least twenty-five years. At the time of his death he was driving in the neck of his room, which had been driven in from the batt entrance and was about twenty feet wide on eight feet wide. He was engaged in shooting down the coal and loading it after a mining machine. The roof where he was working was of a very treacherous character. The coal seam was overlaid with a bituminous slate or "Bony," about ten inches in thickness. This "Bony" was left up in the neck of Gallagher's room (fifteen feet back from the coal face), in order to make the adjacent strata more secure. I, myself, examined the place where he was working just two days before he lost his life, and urged him to exercise great care and vigilance as to the strata ahead of him, and to use heavy bars to it if need be, although I saw no indications of danger when I was in the room. The assistant mine foreman was in the room on the morning of the day of the accident and the mine foreman was in it about one hour before the accident occurred, but neither of these two officials discovered the "Bony," becoming dangerous. It seems that just after the mine foreman left the place Gallagher fired two shots in the coal (which had been mined with

the machines), which released a "false slip" near the fact of the coal and otherwise shattered the structure there by weakening the adhesive qualities of the binding. While Gallagher was loading his coal after firing the two shots, the whole of the "honey," which was fourteen feet long, seven feet wide and ten inches thick, fell upon him with fatal results. This man was killed some time between the hours of four and seven o'clock in the evening. Lived four days after sustaining his injuries. It was supposed, at the time of the accident, that the injuries were not of a serious character. In fact he would not allow the mine foreman and the other men who assisted him to take the mine to carry him home. Although to all outward appearances the injuries were of a trifling nature, nevertheless he was crushed very badly internally. Morgan was extracting a main entry pillar and was loading his wagon with coal when a slab of slate of about one hundred pounds in weight dropped off the side of the entry upon him, crushing him between the stone and the side of the wagon, his body being bent over it. The roof in this mine and where Morgan was working is one of the safest I have ever seen, and this accident would not have occurred if ordinary care had been exercised by the deceased.

Was almost instantly killed while he was taking a sprag or leaner which was supporting the shot coal in his room. He was digging out the foot of the leaner and when it became disengaged the coal fell (the seam of coal was about six feet thick), rolled over and knocked out one of the road side posts, thus allowing a large piece of roof to drop upon him and squeeze him against the opposite road side post. His skull was fractured and his neck was supposed to have been broken. Reynolds was a careful and prudent miner and he had his room well secured in the days before the accident. Just a few days before the accident and urged him to be careful, as the roof of his room was a very treacherous one. The

Oct. 24,	Robert M. Egan,	Miner,	39	M.	1	4	Leechburg No. 4, ..	Westmoreland,
29,	Joseph Reynolds,	Miner,	40	M.	1	10	Beaver No. 2,	Lawrence,

TABLE IV.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
									mine foreman was in the room on the morning of the accident and he also cautioned him to be watchful. This was one of those unforeseen accidents which will happen as long as coal is mined, and which miners exercising the greatest degree of care and vigilance.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Third Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 6.	W. N. Bryan,	Miner,	33	M.	Glen,	Armstrong,	Back and legs badly bruised by fall of roof.
17.	W. N. Nunamaker,	Miner,	33	M.	Glen,	Armstrong,	Back and legs badly bruised by fall of roof.
17.	Gerard Fennell,	Miner,	19	S.	Glen,	Armstrong,	Back and legs badly bruised by fall of roof.
Feb. 4.	George Hiles,	Loader,	16	S.	Big Soldier Run,	Jefferson,	Small bone in leg broken by a fall of coal while loading car.
12.	Paul Solace,	Miner,	43	M.	Beale No. 1,	Armstrong,	Foot was badly injured by a fall of top coal.
28.	Pasque Reyno,	Loader,	30	M.	Big Soldier Run,	Jefferson,	Leg broken by a fall of coal.
17.	Hive Sievba,	Loader,	28	S.	Big Soldier Run,	Jefferson,	Cut on head and leg broken in two places by fall of slate and coal.
June 14.	Joseph Ball,	Miner,	32	M.	Keystone No. 2,	Butler,	Body slightly bruised by a fall of slate from roof.
July 14.	James Madden,	Miner,	48	M.	Mineral Ridge,	Clarion,	Leg cut and body bruised by a fall of slate.
20.	Umlas Brouello,	Miner,	31	S.	Leechburg No. 4,	Westmoreland,	Leg broken by mine wagons.
20.	Fred. Miller,	Miner,	29	M.	Big Soldier Run,	Jefferson,	Small bone in leg broken by mine wagons.
Aug. 9.	Ross Murte,	Rope rider,	22	M.	Sprague,	Jefferson,	Slightly injured by mine wagons.
29.	Charles Parks,	Miner,	35	M.	Rock Point,	Lawrence,	Back severely injured by a fall of slate from roof.
25.	Edward Lewis,	Miner,	50	M.	Sherwood,	Jefferson,	Hip dislocated and body bruised by a fall of coal.
Sept. 13.	N. J. Welsen,	Miner,	50	M.	Pardoe,	Mercer,	Body crushed by a fall of coal.
Oct. 13.	Jeff. Whan,	Miner,	21	S.	Stirling,	Beaver,	Small bone in his leg broken by a fall of coal.
14.	Bert Warner,	Miner,	16	S.	Sterling,	Beaver,	Face cut by slate falling from roof.
23.	Thomas Lewis,	Weighmaster,	45	M.	Leechburg No. 4,	Westmoreland,	Face cut by falling timber from chute.
8.	J. M. Seaton,	Miner,	21	S.	Black Diamond No. 1,	Mercer,	Body by a fall of rock from roof.
12.	John Connors,	Ditch digger,	50	M.	Stoneboro No. 3,	Mercer,	Badly injured about face and body by material from a dynamite shot.
13.	Henry Rombough,	Outside laborer,	40	M.	Stoneboro No. 3,	Mercer,	Leg and body injured by railroad cars.
14.	Timler Emelin,	Road cleaner,	31	M.	Big Soldier Run,	Jefferson,	Leg broken by a fall of stone from mine roof.



Fourth Bituminous District.

(TIOGA, POTTER, BRADFORD, LYCOMING, CLINTON, CAMERON, McKEAN AND ELK COUNTIES, AND ALL THE MINES IN CLEARFIELD COUNTY ADJACENT TO THE LOW GRADE DIVISION OF THE ALLEGHENY VALLEY RAILROAD; ALSO THE MINES ADJACENT TO THE CLEARFIELD AND SUSQUEHANNA BRANCH OF THE PENNSYLVANIA RAILROAD; ALSO THE MINES ADJACENT TO THE BUFFALO, ROCHESTER AND PITTSBURG RAILROAD IN JEFFERSON AND CLEARFIELD COUNTIES.)

Blossburg, Pa., February 14, 1899.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I herewith submit my annual report as Inspector of Mines for the Fourth Bituminous District of Pennsylvania for the year ending December 31st, 1898, together with statistical tables compiled from the operators' reports returned to my office. The returns show an aggregate increase of 975,001 tons over that of the preceding year, which is due largely to steady employment throughout the district.

The total number of fatal casualties were greater than during the preceding year. Five of these can be classed as purely accidental, and the others were largely due to lack of proper care on the part of the victims. The number of non-fatal casualties is less than for the preceding year. One additional ventilating fan was erected, and the general condition of the mines continues to be improved throughout the district. The nature and cause of the several accidents will be found more fully described in the table of accidents appended to this report.

Respectfully submitted,

JAMES N. PATTERSON,

Inspector.

Mining Statistics.

Number of mines in district,	68
Total production in tons of coal,	7,516,944
Total production in tons of coke,	573,349
Quantity of coal in tons used for steam and heat,	96,382
Sold to local trade and used by employes,	40,958
Railroad shipments in tons of coal,	5,965,879
Number of days worked,	7,574
Number of persons employed,	9,962
Number of fatal accidents,	15

(367)

Number of non-fatal accidents,	28
Number of kegs of powder used as per operator's report, ..	46,154
Number of pounds of dynamite used,	30,995
Number of steam boilers,	132
Number of horses and mules,	932
Number of mine locomotives,	25
Number of coke ovens,	1,519
Number of tons produced per each fatal accident,	469.809
Number of tons produced per each non-fatal accident, ...	268.462

Classification of Fatal Accidents.

By falls of coal,	3
By mine cars,	3
By falls of roof,	8
Powder explosion,	2
Total,	16

Classification of Non-fatal Accidents.

By falls of coal,	11
By mine cars,	5
By explosion of powder,	5
By falls of roof,	6
By bull wheel,	1
Total,	28

Jefferson County.

Clarion Nos. 1 and 2.—Were closed during the year from exhaustion of available coal.

West Clarion.—Located about one mile west of Brockwayville, is a new mine opened up by the North Western Mining and Exchange Company during the year, which commenced loading coal about the first of March. This mine is equipped with a complete electrical mining machine plant, the machines being of the cutter chain type, made by the Jeffrey Manufacturing Company of Columbus, Ohio, of which there are nine in use at this mine. The production of coal at this mine is about one thousand tons daily, which is being increased as fast as developments can be made. Ventilation is produced by a furnace at present, which is to be changed to a fan as soon as the mine has been sufficiently developed.

Clarion No. 4.—Owned by the same company, located at the Elk county line, was found in good condition. John Cunningham, mine foreman.

Clarion No. 5.—Owned by the same company, was found in fair condition as to ventilation. Archie Donaldson, mine foreman.

Brock Mine.—Leased and operated by Joseph Reily & Co., was not found in very satisfactory condition as to ventilation and drainage. Henry J. Thomas, mine foreman.

Kurtz Mine.—The coal of the front hill is exhausted and they are now mining from the second hill. The coal is hauled by steam locomotive power through a tunnel in the front hill. The ventilation is produced by furnace power at present, and the mine was found in good condition.

Walston No. 1.—Has been idle for some time, and recently they made a 20 foot rock tunnel in order to reach new territory. Ventilation at face of workings was not good.

Walston Nos. 2 and 3.—At these mines they have made a new manway, erected a new fan and a shaft 116 feet in depth. Headings are being driven to connect with the Elk Run shaft for drainage. Four tubular steam boilers have been added to the compressor plant, making 17 in all. The ventilation in some parts of these mines is not good. John Lowther, mine foreman.

Walston No. 4.—Is a new mine opened up during the year with a capacity of 800 tons daily. They use an Ingersoll compressor to drive the coal cutting machines; rope haulage and a ventilating fan have been installed. It was found in good condition.

Coal Glen Nos. 2 and 3.—Were found not in good condition as to ventilation at the face of the workings.

Coal Glen No. 4.—Was found in good condition. John M. Jones, mine foreman.

Adrian Mine.—This mine was in fair condition. During the year they have consolidated the haulage of two principal headings, the 6th and 7th left, by means of a road driven at an angle of 45 degrees through the pillars between these headings, enabling a compressed air locomotive to haul coal from both headings to 6th left side track at main slope. They have also placed in position one 24x12x18 Jeansville pump (capacity 1,200 gallons per minute) at foot of main slope. This throws all surplus water to surface by means of a bore hole 310 feet deep. There is at present under construction at Elk Run a large drainage shaft, which when completed will drain a large percentage of water from both the Adrian and Walston mines. They are now driving what is known as the shaft heading, and will probably connect with the shaft by the end of the year. Twenty-six new coke ovens have been built, making a total of 476. Thirty others have been rebuilt.

Adrian No. 4.—Is a new opening made during the year by S. A. Rinn, and is still in process of development.

Eleanora No. 4.—Is now confined to pillar work, and was found in good condition.

Eleanora Nos. 2 and 3.—At No. 2 opening the rope haulage was extended 1,200 feet, making the total length of rope 12,500 feet. The overcasts and stoppings in this mine are built of stone. The pumping station is near the bottom of the slope where they have placed two new pumps. At No. 3 they also use tail rope system of haulage. The ventilation was found in fair condition. Alexander Pride is mine foreman, and his assistant is James Moran.

Beach Tree No. 3 Mine.—Is exhausted.

Beach Tree No. 2 Mine.—Was in fairly good condition as to ventilation.

London Mine.—At this mine two supplementary tail rope haulages have been placed, one pair of Robinson Machine Company's engines 7x10, and another pair of the same manufacture 10x12. The engines are used to work the branch ropes and haul the coal from the face of the workings to the main haulage rope, and thereby reduce the number of miles to the lowest possible limit. The ventilation is fair.

Klondike Mine.—Has been opened and is now producing 200 tons of coal daily. A small compressor has been set up, and the compressed air is used to run a fan, one pump and two mining machines.

Clearfield County.

Rochester Mine.—Was in fairly good condition as to ventilation. At the foot of the drainage shaft they put in a compound Jeansville Duplex pump 14x25x20x36. This pump has a capacity of 5,000 gallons per minute. There are now four pumps at work in this shaft with a combined capacity of 15,000 gallons per minute. To conduct the steam from the boilers on the surface to the pumps at the bottom of shafts two twelve inch holes were drilled and lined with ten inch pipe, and between the pipe and side rock a cement packing was used. One six inch steam pipe is placed inside of each of the ten inch pipes for exhaust steam.

Three of the pumps are connected with each of the ten inch pipes below, so that as the exhaust steam escapes to the surface, it passes on the outside of the six inch steam pipes, keeping them hot and and thereby saving steam, labor and fuel.

Sandy Lick Mine.—Was in fairly good condition both as to ventilation and drainage. One Ingersoll-Sergeant straight line air compressor 24x26½x30 has been placed at this mine. The rope haulage has also been extended 2,000 feet.

Williamsport Mines.—The ventilation has been found quite good. During the year one electric haulage system has been put in, consisting of one Automatic 18x18 McEwen engine of 232 horse power

to run at 240 revolutions per minute at 90 pounds initial pressure, one 150 K. W. Multipolar "Mine Type" generator, with all necessary instruments and connections for running electric motors and mining machinery inside, and lighting outside; two 60 horse power electric motors in use to haul coal from the mines to the haulage ropes, and three link belt chain breast machines, only one of which is now at work. This electric plant has so far been very satisfactory. They are also working on improvements to the ventilation, which when complete will reduce the length of airways by 6,250 feet, and have extended the rope haulage system 630 feet, making a total length of 3,916 feet from the drum to the bull wheel.

Mount Carmel Mine.—Was not in operation at the time of my last visit.

Winterburn Mine.—Was idle during the year.

Brittannic Mine.—Was also idle during the year.

Cataract Mine.—Was not found in good condition, either as to ventilation or drainage.

Helvetia Slope.—A new man-way has been constructed and a pumping station has been completed during the year. The ventilation was in fairly good condition.

Berwind Shaft Mine.—Was found in fair condition. Every precaution is taken by the mine foreman to keep it in a safe and healthful condition.

Elk County.

Hazel Dell.—Was in good condition both as to ventilation and drainage.

St. Mary's Mines.—Were in fair condition.

Shawmut Nos. 1, 2 and 3.—Were in fair condition. No. 2 was worked up to a "fault" and remained idle for seven years, but during the year it has been reopened and is again in operation.

Shawmut No. 8.—Was found in fair condition as to ventilation and drainage.

Shawmut No. 9.—Was not in good condition.

Meade Run Mines.—Were in good condition.

Dagus Nos. 1, 2 and 3.—Were in fairly good condition.

Dagus Nos. 4, 5 and 6.—The grade in the main entry of the slope has been much improved by cutting down the steeper parts of the roadway and filling up the low places. Light iron rails were replaced by 35 pound rails with a view to putting in mechanical haulage. They propose to take out all of the coal in that section by way of the slope, and in order to properly ventilate the large territory already opened up, and which will be developed as the workings are extended, a new 13½x5 foot "Capell" fan is being erected, which is the first fan of that pattern to be installed in my district. All of the wood

stoppings and overcasts have been replaced by brick work, and taken altogether the mine has been greatly improved.

Noble No. 1.—Was exhausted during the year.

Noble No. 2.—Was not in good condition as to ventilation and drainage.

Tioga County.

Antrim Nos. 1 and 5.—Were both in good condition.

Maple Hill.—Was in good condition.

Bear Run.—They sunk a new shaft near the face of the workings which has greatly improved the ventilation.

Arnot No. 3.—Was found in good condition.

Arnot No. 5.—They sunk a new shaft during the year for the purpose of improving the ventilation. Drainage in many parts of the mine is not good.

Fall Brook No. 2.—Is nearly worked out.

Klondike Mine.—Was in good condition. Robert Russell, mine foreman.

Bradford County.

Long Valley Mines Nos. 1 and 2.—Were in good condition both as to drainage and ventilation.

Lycoming County.

Red Run Mines.—Three in number: No. 1 was in fairly good condition; No. 2 is nearly worked out, and No. 3 was in good condition.

Clinton County.

Kettle Creek Mines.—Two in number, were in good condition throughout the workings.

McKean County.

Instanter Mine.—Was in good condition.

Lyman Mine.—Was also in fairly good condition.

Inquisition Indented and taken at Cartwright.

In the county of Elk on the 12th day of April, A. D. 1898, before W. A. McCoy, justice of the peace, the county aforesaid, upon the view of the bodies of Joseph Goodyear and James Goodyear, then and there lying dead; upon the oaths of William Barclay, Moses Manghan, John Black, John Larson, Nels Paulson, Theo. Coon, six good and lawful men of said county aforesaid, who being duly sworn and charged on the part of the Commonwealth to inquire when, where, how, and after what manner the said Joseph Goodyear and James Goodyear came to their death, do say upon their oaths that the said Joseph Goodyear and James Goodyear came to their death by a fall of rock in first right of No. 1 entry at No. 2 Shawmut mines, in

Horton township, Elk county, Pa. And we also find that all the proper precautions have been taken to avoid accidents by the mine superintendent and mine foreman, and on the part of the deceased, and it was an unforeseen accident and not due to negligence on the part of anyone. Said accident occurred on the 11th day of April, 1898.

In witness whereof, as well the aforesaid justice of the peace, as the aforesaid jurors, have to this inquisition set their hands and seals at Cartwright this 12th day of April, A. D. 1898.

- W. A. McCOY, J. P.,
1. WILLIAM BARCLAY,
2. JOHN BLACK,
3. MOSES MANGHAN.
4. JOHN A. LARSON,
5. THEO. COON,
6. NELS J. PAULSON.

TABLE I.—Showing location, etc., of collieries in the Fourth Bituminous District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
8, 9, 10	Arnott Nos. 3 and 5	Bloss Coal Company.	Tioga	F. B. Lincoln	Arnott	Tioga R. R.
13, 14, 15	Arnim Nos. 1 and 2	Fall Brook Coal Company.	Tioga	James Pollock	Arnim	F. B. R. R.
36, 37	Adrian Nos. 1 and 5	Rochester and Pitts'h Coal & Iron Co.	Jefferson	A. W. Calloway	DeLancey	B. R. & P. R. R.
24	Brittanic	Geo. Rees & Co.	Clearfield	Geo. Rees	Karhaus	
12	Bear Run	Bloss Coal Company.	Tioga		Arnott	Susq. R. R.
43, 44, 45	Bearwind Shaft Colliery	Berwind-White Coal Mining Co.	Clearfield	Chas. E. Sharpless	DuBois	Tioga R. R.
47	Beachtree Nos. 3 and 4	Rochester & Pitts'h Coal & Iron Co.	Jefferson	John B. Ryan	Beachtree	A. V. R. R.
51	Brook	Joseph Reilly & Co.	Jefferson	Joseph Reilly	Philadelphia	B. R. & P. R. R.
48	Coal Glen No. 1	Jefferson Coal Company.	Jefferson	Austin Blakeslee	Coal Glen	T. V. R. R.
22, 23	Coal Glen No. 2	Jefferson Coal Company.	Jefferson	Austin Blakeslee	Coal Glen	B. R. & P. R. R.
42	Cataraugus	Berwind-White Coal Mining Company.	Clearfield	A. J. Cook	Bellefonte	B. R. & P. R. R.
52, 53, 54	Clarion Nos. 1 to 6	Northwestern Mining & Exchange Co.	Jefferson	Joseph Bailey	Brockwayville	T. V. R. R.
62, 63, 61,	Daguen Mines Nos. 1 to 5	Northwestern Mining & Exchange Co.	Elk	Joseph Bailey	Brockwayville	Erle R. R.
65, 66, 67	Eleanora No. 1	Rochester & Pitts'h Coal & Iron Co.	Jefferson	James Craig	Eleanora	B. R. & P. R. R.
34, 35	Eleanora Nos. 2 and 3	Rochester & Pitts'h Coal & Iron Co.	Jefferson	James Craig	Eleanora	B. R. & P. R. R.
4	Fall Brook	Fall Brook Coal Company.	Tioga	Anton Hardt	Wellshoro	F. B. R. R.
70	Hazel Dell	Kaul and Hall	Elk	Andrew Kaul	St. Marys	P. & E. R. R.
31, 32	Helvetia Nos. 1 and 2	Rochester & Pitts'h Coal & Iron Co.	Clearfield	Thomas Lovthier	Helvetia	B. R. & P. R. R.
71	Instantur	Buffalo Coal Company.	McKean	Geo. L. Miller	Clermont	W. N. Y. & P. R. R.
19	Kettle Creek No. 1	Kettle Creek Coal Company.	Clinton	Geo. L. Miller	Clinton	S. & B. R. R.
20	Kettle Creek No. 2	Kettle Creek Coal Company.	Clinton	Geo. L. Miller	Clinton	S. & B. R. R.
3	Klondike	Fall Brook Coal Company.	Jefferson	Anton Hardt	Wellshoro	F. B. R. R.
46	Klondike	Jefferson & Clearfield Coal & Iron Co.	Jefferson	John Reed	DuBois	B. R. & P. R. R.
58	Kurtz Mine	Kurtz and Rinn	Jefferson	Samuel A. Rinn	Punxsutawney	B. R. & P. R. R.
72	London	Jefferson & Clearfield Coal & Iron Co.	Jefferson	John Reed	DuBois	B. R. & P. R. R.
73	Lusk	Duffa Coal Company.	McKean	J. H. Tate	Clermont	W. N. Y. & P. R. R.
1	Maple Hill	Maple Valley Company.	Bradford	I. O. Blight	Towanda	E. R. R.
11	Maple Hill	Bloss Coal Company.	Tioga	W. S. Nearing	Morris Run	Tioga R. R.
5, 6, 7	Morris Run Nos. 1 and 2	Morris Run Coal Mining Company	Clearfield	S. E. Emerick	Karhaus	Susq. R. R.
59, 60	Mead Run	M. Carmel Coal Company.	Elk	Geo. S. Ramsay	Cartwright	B. R. & P. R. R.
29	Rochester Mine	Shawmut Coal Company.	Clearfield	John Reed	DuBois	N. C. R. R.
16, 17, 18	Red Run Mines	Jefferson & Clearfield Coal & Iron Co.	Lycoming	P. B. Allison	Roaring Branch	B. R. & P. R. R.
28	Sandy Lick	Jefferson & Clearfield Coal & Iron Co.	Clearfield	John Reed	DuBois	B. R. & P. R. R.

56, 57, 58	Shawmut Nos. 1, 2 and 3,	Shawmut Coal Company,	Elk,	Geo. S. Ramsay,	Cartwright,	St. M. & S. W.,
	Shawmut No. 5,	Shawmut Coal Company,	Elk,	Geo. S. Ramsay,	Cartwright,	St. M. & S. W.
68, 69	Shawmut No. 8 and 9,	Shawmut Coal Company,	Elk,	Geo. S. Ramsay,	Cartwright,	St. M. & S. W.
25, 26, 27	St. Marys Mines,	St. Marys Coal Company,	Elk,	Joseph Eddy,	St. Marys,	P. & E. R. R.
39	Williamsport Mines,	Clearfield Coal Company,	Clearfield,	John C. Hirst,	Tyler,	A. V. R. R.
40	Walston No. 1,	Rochester & Pittsb'g Coal & Iron Co.,	Jefferson,	Thomas R. Johns,	Walston,	E. R. & P. R. R.
41	Walston No. 3,	Rochester & Pittsb'g Coal & Iron Co.,	Jefferson,	Thomas R. Johns,	Walston,	E. R. & P. R. R.
42	Walston No. 4,	Rochester & Pittsb'g Coal & Iron Co.,	Jefferson,	Thomas R. Johns,	Walston,	E. R. & P. R. R.
21	Adrian No. 3,	S. A. Rhin,	Jefferson,	Samuel A. Rhin,	Punxsutawney, ..	Thoga R. R.

TABLE No. 2.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, etc., in the Fourth Bituminous District for the year ending December 31, 1898.

Name of Collieries.	County.	Total production in tons of coal.	Total production in tons of coke.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad and water shipments of coal in tons.	Number of days worked.	Number of persons employed.	Number of fatal accidents.	Number of non-fatal accidents.	Number kegs powder used.	Number pounds dynamite used.	Number horses and mules.	Number steam boilers.	Number mine locomotives.	Number coke ovens.	
Arnot Nos. 3 and 5,	Tioga,	327,405	503	2,799	4,811	319,795	214	719	3	3	550	300	65	5	1	1	
Antrim Nos. 1 and 5,	Tioga,	98,576			885	15,771	168	233			4,400	1,200	13	4	1	1	
Adrian Nos. 1 and 2,	Jefferson,	859,311	152,912	32,000	3,280	599,892	298	824	4	1			120	17	1	476	
Britanic,	Clearfield,																
Bear Run,	Clearfield,	176,475		2,002	368	174,104	394	354	3	1	1,000	5,500	12	3	4		
Berwind Shaft Colliery,	Clearfield,	136,475		1,824	360	115,905	263	148			1,075	50	21	5	2		
Black Mines Nos. 3 and 4,	Jefferson,	150,212		2,829	965		183	229	1	1	320	5	2	2			
Black Mines,	Jefferson,	36,812		562	220	36,422	124	134			1,800	2,000	27	3	3		
Coal Glen No. 1,	Jefferson,	296,700		2,000	1,000	293,700	211	335									
Coal Glen No. 2,	Jefferson,																
Catawact,	Clearfield,	57,147		69	300	56,778	210	89			657		18				
Clarion Nos. 1 to 6,	Jefferson,	382,917		1,482	2,209	379,227	252	639			3,208	40	55	2	2		
Dagus Mines Nos. 1 to 5,	Elk,	368,504		3,810	2,951	356,743	248	822			3,210	1,900	172	5	1		
Eleanor No. 1,	Jefferson,				3,716	1,064,684	301	902	2		4,500	3,000	103	10	4	201	
Eleanor Nos. 2 and 3,	Jefferson,	1,232,123	100,164	18,046													
Fall Brook,	Tioga,	54,786		343	861	51,535	106	114			172	10	2				
Hazel Dell,	Elk,	27,061				26,963	249	153			575		4				
Hevelta,	Jefferson,	27,659		10,800	1,988	243,299	300	309	2	2	2,805	6,125	37	8		42	
Instanter,	McKean,	27,659		1,348	1,041	25,676	239	53			480	1,600	5	3			
Kettle Creek No. 1,	Clinton,	166,626				166,626	238	206			1,200	5,000	20				
Kettle Creek No. 2,	Clinton,																
Klondike,	Tioga,																
Klondike,	Jefferson,	21,305				21,305	200	41			115		1				
Kurtz Mine,	Jefferson,	150,000		100			285	126			1,570		18	1	1		
Landon,	Jefferson,	471,271		2,973	5,500	468,243	285	329	1	6	2,900		38	7			
Lyman,	McKean,	2,279		15		2,264	87	17			600		2				
Long Valley,	Bradford,	22,508		203	385	21,910	101	76			700		400	2	1		
Maple Hill,	Tioga,	15,767				15,767	271	41			463		1				
Mead Run,	Elk,	192,137				192,137	246	281	2	1	1,463	1,250	26			1	

Mt. Carmel	1	16	2	1	6	10	20	2	9	6	1	15	1	21
Redeemer Mines	1	300	40	1	6	10	258	2	9	6	1	15	27	285
Rocky Top Mines	1	130				21	132	3	2		3	27	41	193
Sandy Lake														
Shawmut Nos. 1, 2 and 3	1	163		12		9	185	3		1	1	12	17	202
Shawmut No. 5	1	90		3			94	2	1		1	5	10	154
Shawmut Nos. 8 and 9	1	62	64	9	1	2	139	2	2	1	1	3	12	151
St. Marys Mines	1	40		3		2	46	3			1	3	5	51
St. Marys Nos. 8 and 9	1	160		9	2	4	176	5	6		2	6	18	234
Williamsport Mines	1							1						
Walston No. 1				51	23	45	633	4	16	2	2	48	272	905
Walston No. 3	4	310												
Walston No. 4														
Walston No. 5				6			102	1			4	15	24	126
West Chester	1	90	5	7			64	4	1	1	1	1	1	65
Adrian No. 3	1	56												
Total	55	7,173	132	636	131	305	8,436	18	141	176	69	521	1,526	9,962

TABLE III.—Continued.

Names of Collieries.	Number of Days Worked Each Month During 1898.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Armat Nos. 3 and 5,	25	17	25	22	.....	18	16	14	15	18	23	21
Antrim Nos. 1 and 5,	16	13	13	13	12	10	9	10	14	15	20	23
Adrian Nos. 1 and 2,	25	16	25	26	26	25	23	26	25	24	25	24
Brittanic, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bear Run,	25	17	23	22	21	17	16	12	13	16	19	22
Berwind Shaft Colliery,	24	17	23	21	21	15	13	14	11	15	15	15
Beachtree Nos. 3 and 4,	19	15	17	20	19	15	13	14	15	12	13	15
Brook Mines, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Coal Glen No. 1,	21	23	24	21	21	25	22	26	23	21	14	17
Catawba, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Daguer Mines Nos. 1 to 5,	15	21	24	22	18	19	7	9	11	20	21	20
Clarton Nos. 1 to 6,	24	16	26	25	24	24	15	13	13	24	22	21
Eleanora No. 1,	23	20	25	25	24	24	18	16	18	17	20	22
Eleanora Nos. 2 and 3,	26	23	27	26	26	26	23	26	25	25	24	24
Fall Brook,	24	20	22	22	26	26	23	26	25	27	24	21
Hazel Hill,	25	24	13	26	15	13	13	26	19	10	18	21
Helvetia,	26	23	25	25	26	26	25	26	25	26	23	26
Instantan,	22	18	17	15	16	18	20	23	19	23	23	23
Kondike,	19	20	25	13	16	19	16	19	18	22	26	25
Kettle Creek No. 1, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kettle Creek No. 2,	10	11	11	11	11	11	11	11	22	21	23	21
Klondike,	25	23	25	25	24	25	24	26	26	21	21	21
Kurtz Mine,	16	15	16	18	14	23	23	23	21	22	24	20
London,	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lynman, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Long Valley,	9	7	7	8	8	6	3	4	6	10	13	20
Maple Hill,	25	24	27	23	25	26	24	22	15	17	23	22
Mead Run,	24	21	20	21	18	14	20	23	22	25	21	22
Morris Run Nos. 1 and 2,	15	14	12	14	10	6	10	11	14	16	16	22

Mt. Carmel	21	22	21	22	21	22	21	22	21	22	21	22	16	16	16	16	14	21	18
Red Run Mines	18	19	19	19	17	17	13	16	16	17	17	21	21	21	24	24	25	25	25
Randy Lick	25	18	14	19	19	21	21	22	24	24	24	24	24	24	25	25	23	23	22
Shawmut Nos. 1, 2 and 3	20	20	22	20	18	18	20	20	20	20	20	20	20	20	20	20	20	20	20
Shawmut No. 3	24	19	22	23	21	21	21	21	21	20	20	20	20	20	20	20	20	20	23
Shawmut Nos. 8 and 9	25	24	26	25	25	25	24	25	25	26	26	26	26	25	25	25	25	25	21
St. Marys Mines	17	21	27	20	17	17	19	19	19	24	24	19	19	20	20	20	23	23	25
Williamsport Mines	25	24	27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Watson No. 1	25	24	27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Watson No. 3	25	24	27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Walston No. 4	25	24	27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Walston No. 5	25	24	27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
West Clarion	25	24	27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Adrian No. 5	25	24	27	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
Total	681	589	652	638	581	623	584	631	628	684	736	757							

TABLE No. 4.—List of fatal accidents that occurred in and about the mines of the Fourth Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 10.	Thomas Jones.	Miner.	26	S.	.....	.....	Eleanor No. 1.	Jefferson.	Instantly killed by fall of roof.
27.	Joseph Rosenach.	Loader.	26	M.	.....	.....	Eleanor No. 2.	Jefferson.	Fall of roof.
Mar. 3.	James Rhodes.	Loader.	17	.....	.....	.....	London.	Jefferson.	Died on the day following the accident, which was due to trying to open a keg of powder with a pick, resulting in an explosion.
19.	Nels Lawson.	Miner.	30	M.	1	1	Shawmut No. 1.	Elk.	Instantly killed by fall of roof; died four days after accident.
25.	George Udar.	Miner.	18	.....	.....	.....	Adrian No. 2.	Jefferson.	Instantly killed by too quickly approaching a shot which hung fire.
Apr. 5.	E. A. Himes.	Spragger.	28	M.	1	.....	Noble.	Elk.	Instantly killed by being caught between a mine car and roof.
11.	Joseph Goodyear.	Miner.	55	M.	1	4	Mead Run.	Elk.	Killed by fall of roof.
11.	James Gault.	Miner.	48	M.	.....	.....	Mead Run.	Elk.	Killed by fall of roof.
May 3.	Jacob Sebalaski.	Miner.	29	M.	1	.....	Adrian No. 2.	Jefferson.	Instantly killed by fall of roof.
3.	Andrew Barber.	Miner.	42	M.	1	.....	Walston No. 2.	Jefferson.	Instantly killed by fall of roof.
July 12.	Santa Garofalo.	Loader.	48	M.	1	.....	Adrian No. 2.	Jefferson.	Killed by falling from mine cars while they were in motion.
Aug. 20.	Mike Tomorrow.	Miner.	48	M.	1	2	Eleanor No. 2.	Jefferson.	Killed by fall of coal.
Sept. 27.	John Bednarczake.	Miner.	25	M.	.....	.....	Helvetia.	Clearfield.	Killed by fall of coal.
Oct. 4.	Chas. Finley.	Driver.	24	S.	.....	.....	Helvetia.	Clearfield.	Injured by collision of mine cars; died four days after.
Nov. 1.	John Larson.	Scraper.	35	M.	1	4	Adrian No. 2.	Jefferson.	Injured by fall of coal; died on November 13.
Dec. 9.	Joseph Georgiantia.	Miner.	50	M.	1	3	Walston No. 3.	Jefferson.	Killed by fall of coal.

TABLE No. 5.—List of non-fatal accidents that occurred in and about the mines of the Fourth Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 16.	James Walker,	Road man, .....	.....	M.	London,	Jefferson,	Leg cut off by bull wheel, due to his own negligence.
Feb. 24.	Thomas Melkowiak,	Miner,	26	M.	Morris Run No. 1,	Tioga,	Collar bone broken by a fall of coal.
28.	Mangus Anderson,	Miner,	27	M.	Shawmut No. 1,	Elk,	Leg broken by fall of roof.
Mar. 3.	Anthony Kidoff,	Loader,	28	M.	London,	Jefferson,	
3.	Alex. Bogden,	Door tender,	14	M.	London,	Jefferson,	
3.	William Hillingham,	Loader,	32	M.	London,	Jefferson,	
3.	Mike Sbagge,	Loader,	30	M.	London,	Jefferson,	
3.	Edward Cryer,	Miner,	21	M.	Adrian No. 1,	Jefferson,	
10.	George Bumber,	Driver,	17	M.	Morris Run No. 1,	Tioga,	Burned on head, face and hands by powder.
15.	John P. Moriarty,	Driver,	17	M.	Morris Run No. 1,	Tioga,	
18.	David Griffiths,	Miner,	62	M.	Antrim No. 5,	Tioga,	Skull fractured by a fall of coal.
22.	George Scharski,	Miner,	60	M.	Morris Run No. 1,	Tioga,	Leg broken by falling from his trip of mine cars.
17.	Albert Busch,	Miner,	24	M.	Bear Run,	Tioga,	Three ribs broken while riding on empty car. Hand badly bruised by fall of coal.
20.	Chas. Freidland,	Miner,	24	M.	Helvetia No. 2,	Clearfield,	Hand injured by fall of coal.
20.	Andy Johnson,	Miner,	20	M.	Helvetia No. 2,	Clearfield,	Collar bone broken by fall of coal.
25.	James R. Hinds,	Pumper,	61	M.	Eleanora No. 2,	Clearfield,	Collar bone broken by fall of coal. Body bruised by falling in front of a grip car.
Sept. 8.	Anthony Budnick,	Miner,	28	M.	Morris Run No. 1,	Tioga,	Collar bone broken by a fall of coal.
12.	Andrew Runkay,	Miner,	50	M.	Arnot No. 3,	Tioga,	Left foot injured by fall of roof; necessitating amputation of all his toes.
Oct. 19.	William Young,	Miner,	39	M.	Antrim No. 5,	Tioga,	Back injured by fall of roof.
28.	E. Jones,	Miner,	55	M.	Antrim No. 5,	Tioga,	Hand injured by fall of roof.
Nov. 10.	John Yeckel,	Driver,	16	M.	Brook,	Jefferson,	Arm broken by falling in front of his trip while cars were in motion.
21.	Andrew Peterson,	Machine runner,	42	M.	Bear Run,	Tioga,	Hand and left arm badly bruised by standing on return wheel of endless rope.
25.	Reuben Rush,	Miner,	38	M.	Mead Run,	Elk,	Four ribs and collar bone broken by a fall of coal.
Dec. 16.	John Wilson,	Miner,	56	M.	Arnot No. 3,	Tioga,	Collar bone broken by a fall of coal.
17.	Samuel Brent,	Motorman,	22	M.	Bear Run,	Tioga,	Small bone in right leg broken by having been caught between the empty and loaded cars.
20.	T. P. Cox,	Miner,	18	M.	Arnot No. 5,	Tioga,	Leg broken by a fall of coal.
27.	Frank Booth,	Miner,	28	M.	Bear Run,	Tioga,	Foot crushed by a fall of coal.
30.	Albert Sward,	Miner,	27	M.	Shawmut No. 1,	Elk,	Back severely injured by fall of roof.



Fifth Bituminous District.

(FAYETTE, SOMERSET AND BEDFORD COUNTIES.)

Uniontown, Pa., March 10, 1899.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I herewith submit my annual report as Inspector of Mines of the Fifth Bituminous District for the year ending December 31, 1898, in compliance with section 2, article 10 of the act of Assembly approved May 15, 1893.

I am pleased to report that the number of accidents, both fatal and non-fatal, have decreased this year, the number last year was fatal, 25; non-fatal, 71. This year the number is, fatal, 14; non-fatal, 62. The tonnage produced and the number of persons employed being greater, makes the percentage of fatalities very much less. Last year there were 6,501,545 tons of coal produced, and 8,650 persons employed. This year there has been 7,754,835 tons produced and 9,321 persons employed; which shows that for 1897 one fatal accident occurred for 260,062 tons produced and one person was killed of every 346 employed; while this year 553,916 tons were produced and one person of every 666 was killed. Which shows in round numbers that about fifty per cent. fewer accidents occurred during 1898 than in 1897. The decrease can be accounted for from the fact that the persons employed exercised more care and that perhaps the mine officials have also enforced stricter discipline. Whatever the reason is, it is very gratifying to be able to submit so favorable a report.

I send with this report the usual statistical tables.

All of which is respectfully submitted.

CHAS. CONNOR,
Mine Inspector Fifth Bituminous District.

Summary of Statistics.

	1897.	1898.
Number of mines in district,	66	66
Number of mines operated during the year,	63	64
Number of mines idle during the year,	3	2
Number of mines opened during the year,	2	4
Number of mines abandoned during the year,	4	4
Number of persons employed inside of mines,	5,688	6,111
Number of persons employed outside of mines,	2,962	3,210
Total number of persons employed,	8,650	9,321
Number of tons (2,000 pounds) of coal produced during the year,	6,501,545	7,754,835
Number of tons (2,000 pounds) of coal shipped during the year,	1,497,780	1,923,234
Number of tons (2,000 pounds) of coke produced during the year,	2,493,269	3,564,669
Number of tons of coal produced for each fatal accident,	260,662	553,978
Number of tons of coal produced for each non-fatal accident,	91,853	125,978
Number of persons employed for each fatal accident,	346	666
Number of persons employed for each non-fatal accident,	122	150
Number of pounds of powder reported as used in mines,	209,275	376,625
Number of tons of coal produced for each pound of powder used,	22.4	20.6
Number of pounds of dynamite reported as used in mines,	11,431	11,379
Number of tons of coal produced for each pound of dynamite used,	568.6	481.5
Number of persons employed digging coal in mines,	1,125.5	1,269
Number of tons of coal produced for each person digging coal,	5,552	5,035
Number of days worked by all the mines during the year,	1,171	1,540
Number of days worked by all the mines during the year,	15,013	15,717
Average number of days worked by all the mines during the year,	238.3	245.5
Average number of tons of coal produced per day for each person employed in mines,	4.7	5.2
Average number of tons of coal produced per day for each person digging coal,	4.9	6.2
Number of horses and mules in use about the mines,	767	890
Number of coke ovens in district,	8,390	8,129
Number of coke ovens built during year,	72	28
Number of coke ovens abandoned during year,	72	208
Number of locomotives in use,	11	18
Number of kegs of powder reported as used in mines,	12,611	15,065
Number of steam boilers in use,	212	201
Number of mine pumps in use, .....	.....	121
Number of steam engines in use, .....	.....	111
Number of fatal accidents during year,	25	11
Number of non-fatal accidents during year,	71	62
Number of widows by fatalities during year,	23	10
Number of orphans by fatalities during year,	63	32

Classification of Accidents.

	1897.		1898.	
	Fatal.	Non-fatal.	Fatal.	Non-fatal.
By falls of roof or slate,	15	25	4	21
By falls of coal,	2	6	4	6
By mine wagons,	3	25	2	22
By barries on coke ovens,	2	1	1	.....
By explosions of gas,	1	8	.....	28
By machinery and ropes,	2	1	.....	1
By premature explosions of powder and dynamite in blasting,	2	.....	1	.....
By mules or horses, .....	.....	.....	.....	6
From miscellaneous causes, .....	.....	2	12	4
Totals,	25	71	11	62

Condition of Mines.

Bessie.—This mine is in good condition and is well looked after by the officials in charge. Joseph Baker, mine foreman.

Berlin.—For a short time only during the year did this mine employ enough persons to bring it under the requirements of law. A new opening was made into another part of the coal property and

for a time there was no second opening. However, the new opening was driven into the workings of the old mine, and the furnace of the old mine was used to great advantage for ventilating the new mine. The ventilation and other conditions are good. Mine boss, C. W. Baker.

Casselman.—This mine has suffered for lack of ventilation owing to insufficient power to produce the requisite volume of air. The air has been produced by means of the radiation of steam pipes which enter the mine to operate a hoisting engine underground, also the pumps. Part of this steam pipe is in the return and part in the inlet airway, with the result that the effective ventilating power is neutralized consequently the air current does not get around the working places which are constantly full of powder smoke. The operator purchased a fan during the year, but instead of erecting it he has kept it lying on the ground for over six months. During the month of November the pumps gave out, and the water accumulated to such an extent that the greater portion of the mine workings were flooded, which caused a suspension of operations for more than a month until other pumps were procured and the water was pumped out again. This seems to have taught the operator a lesson, as he is now making improvements to prevent a recurrence of these conditions, and is also erecting the fan; so that perhaps I will be enabled to report better results next year in connection with this mine. Mine boss, William Gillie.

Cumberland.—This mine is in good condition throughout. During the summer on one of my visits, I found that the furnace was not producing satisfactory results in ventilation. On account of the shallowness of the air shaft there was not a sufficient length of air column produced to overcome natural ventilation, consequently the air was vacillating in the mine, and portions of the workings were not properly ventilated. In my judgment a fan would give very much better results at this mine. During the year a new overcast has been erected and the air split into two currents. This has improved the quality of the air, although for the reasons above stated, the quantity has not been increased. Mine boss and superintendent, Fred. Rowe.

Clarissa.—This mine is in good condition in every respect; it is well looked after and kept in a safe and healthful condition. Mine boss, J. C. Moore.

Chester.—The condition of this mine leaves nothing to be desired as regards healthfulness and safety. It is well looked after and cared for in every particular. Mine boss, James Henderson.

Crossland.—There is no mine in the State that is in better condition than this one. Everything that can be done to comply with the requirements of law and conduce to the safety and comfort of the

employes, is being done by the officials in charge. If there was the same care exercised at all mines that there is at this one, there would be no necessity for a Mine Inspector. Mine boss, David Walters.

Cheat Haven.—This mine has at no period during the year employed a sufficient number of persons to bring it under the supervision of the Mine Inspector, although visits have been made to it regularly. It is, upon the whole, in good condition.

Edna.—Has employed only two persons during the entire year, who dig coal for domestic purposes.

Elm Grove.—This mine is in good condition. The ventilation is ample and well distributed around the working faces. The mine is being developed with a view of reaching the boundary lines. With this end in view, the headings are pushed night and day, and only enough rooms are worked to supply coal for the ovens, the object being to work most of the coal in coming back. The mine will not suffer for lack of attention on the part of the mine officials. Mine boss, James Exton.

Elenora.—Owing to the ventilating power being weak on account of the shallow shaft and small furnace, the ventilation during the warm summer months was not what could be desired. During the remainder of the year, however, it was very satisfactory. The air was well conducted up to the face of the workings and the best use of the ventilating power available was made by the mine boss. Here as in other shallow mines, the ineffectiveness of furnace ventilation is demonstrated. Much more satisfactory results could be obtained by the use of a fan. Mine boss, John Harley.

Ferguson.—At the beginning of the year a fire occurred in this mine. Being notified of this I proceeded to the mine and found that the fire was located in the old workings. Upon examination I found that it was the result of spontaneous combustion, caused by exhausting the steam from the mine pump into an old abandoned room which was filled with water. The steam having no means of escape, heated up the water, producing intense heat, which caused the roof to fall. The steam being confined in this room became superheated, which in turn heated the fallen coal and slate in the room to such an extent that chemical action was produced, whereby the sulphur and pyrites of iron in the strata and coal were decomposed, as were also the oxygen and hydrogen from the water and steam. Thus the elements of sulphuretted hydrogen were produced, which undoubtedly formed that gas. This gas ignites at a very low temperature. Now the intense heat from the imprisoned steam in conjunction with the heat produced by chemical action, raised the temperature sufficiently to ignite this gas, which in turn ignited the coal and slate in the old room, thus causing a fire therein. The fire was confined within comparatively contracted limits; but on account of its loca-

tion was very difficult to manage, as it could neither be flooded nor be shut off air tight, on account of being surrounded by the old working. It was therefore decided to fight it directly with water. For this purpose the discharge line from the mine pump was tapped and conveyed by means of small pipes and hose to the seat of the fire, under pressure of about 260 pounds per square inch. The purpose was, if possible, to cut around the fire by cleaning up the fall within the area of the fire, and thus prevent its spreading. Heroic efforts were made to accomplish this, but it was found impossible by reason of the fact that the fire had now secured such a hold on the strata above the coal seam and fractured the roof to such an extent that it kept falling faster than was possible to remove it, not to speak of the risk to life and limb during the operation. Then again it was found that the direct action of the water upon the heated strata caused it to contract and fracture to such an extent that it kept continually falling. Another very important fact was demonstrated, viz: That the water only reached the outside surface and did not reach back into the strata far enough to be of any practical service in extinguishing the fire therein. Time and again was the loose slate, coal and strata saturated with water until it was perfectly cooled off in parts; when, after a few hours it would burst out with renewed fury. Frequently I have taken a piece of slate that appeared to be perfectly cooled off, and found upon breaking it, that between the laminations of the stratifications it was still red hot.

After prolonged efforts to subdue the fire by these means the officers of the company consulted with and engaged an expert to examine and report upon the mine, when it was determined to make an effort to shut off the fire from the rest of the mine by means of masonry stoppings built along one side of the entire length of the slope, from its mouth down to the solid coal. To do this involved a great danger, because of the existence of explosive gas which was known to be in the abandoned workings which were to be thus shut off. This action was taken without my knowledge or consent, and being aware that danger existed as before mentioned, on being apprised of the above action I at once called upon the following Inspectors: Messrs. Adams, Blick, Callaghan, Lonttit and Ross, and also Mr. Brownlee, Chief of Bureau of Mines, to visit the mine with me and determine upon the safety of permitting it to be operated during the time the stoppings were being built. After a thorough examination of the mine by these officials, the following notice was served upon the mine superintendent:

March 16, 1898.

Mr. John W. Greaves, Dunbar, Pa.:

Dear Sir: We the undersigned, together with several other mine Inspectors, visited to-day the Ferguson mine of which you are the

superintendent, and found said mine in a dangerous condition, in so far as a portion of said mine is on fire; and knowing that explosive gases exist in close proximity to said fire, to such an extent as to jeopardize the lives and health of the persons employed therein. Therefore, in accordance with Article XI, Section I of the act of Assembly relating to bituminous coal mines, approved May 15, 1893, you are hereby notified to remove such dangerous conditions forthwith. In the meantime you will allow no person or persons to work in said mine, other than those necessary to remove said dangerous conditions. In case this request is not complied with as aforesaid, we shall consider it our duty at once to apply for an injunction in accordance with the article referred to above.

Yours respectfully,

CHAS. CONNOR,

Mine Inspector Fifth Bituminous District.

HENRY LOUTTIT,

Mine Inspector First Bituminous District.

B. CALLAGHAN,

Mine Inspector Ninth Bituminous District.

Upon the receipt of this notice, operations were at once suspended, except as provided for in the notice. Great care was exercised to protect the persons employed in erecting the stoppings. Daily tests of the air behind the stoppings were made on the Shaw gas testing machine (which I loaned to the officials for that purpose). The first tests showed the existence of explosive gas mixed with the air. The succeeding tests gave evidence of a less explosive mixture from day to day, until finally there was no evidence of its presence. Further tests showed that the air had become heavily charged with black-damp; consequently, the likelihood of an explosion occurring under these circumstances was remote. Work upon the stoppings was prosecuted with the utmost dispatch until the tests showed that it was comparatively safe to employ a larger force of men. At the end of thirty days the stoppings were all completed. Having been informed of this fact by the mine officials and of their desire to resume operations in the mine, I had Messrs. Louttit, Callaghan and Ross, mine Inspectors, visit the mine, when after investigation and consultation it was decided that operations could be resumed. Since that time and until the present, daily tests have been made of the air behind the brattices, all of which indicated the presence of carbonic acid gas or black-damp mixed with the air in such volumes as to make an explosion of fire-damp improbable in the abandoned part of the mine.

Great credit is due to Mr. Greaves, the mine superintendent, for the skill and energy he manifested in dealing with the difficulties encountered in connection with this mine fire.

When operations were resumed a person was specially engaged to look after the stoppings and attend to the water plugs which were inserted in each of the stoppings in the vicinity of the fire. These water plugs were connected with a water line with a head of 260 pounds per square inch, and were so arranged that should any heat be developed at any of these stoppings they could be kept cool by means of water from the plugs.

The mine is now in better condition in every respect than it ever has been at any period of its past history. New methods of mining have been adopted, which will result in the recovery of a much greater percentage of the coal seam. New pumps have been installed and a new 14-inch bore hole drilled, through which the mine water is delivered to the surface, a height of about 700 feet. The exhaust steam is also allowed to escape to the surface through another bore hole.

The improved conditions which now prevail at this mine, as compared with former conditions, are a striking commentary on the results obtained from competent as compared with incompetent management, both as regards economy and safety. Mine boss, Jos. Taylor.

Fairview.—This mine is being rapidly exhausted. The workings are all confined to removing the pillars during the warm months of the summer. Black-damp is given off freely from the falls, however, on account of these falls usually breaking through to the surface the men do not suffer for lack of ventilation. Mining boss, John Rees.

Grindstone.—This mine has worked more this year than any time during the last six years. At each of my visits I found it in good condition, the ventilation being well conducted up to and around the working places. This mine generates explosive gases freely in the entries, necessitating the use of brattice cloth right up to the face. However, it is very carefully looked after and these places are all being worked with locked safety lamps. The drainage and other conditions are good. Mining boss, Andrew J. Lattimer.

Gooseberry.—Is a mine which has been recently added to this district but until this year it had not employed a sufficient number of persons to bring it under the requirements of law. Recently its production has been increased by reason of furnishing coal for the engines on the Baltimore and Ohio Railroad. Being a small mine and not under the provisions of the law for so long, it was not up to the standard when visited. The defects were pointed out, and promises to have them remedied were given, which if carried out will leave no room for complaint. Mine boss and superintendent, W. R. Smith.

Garman.—This is also a new mine which was opened during the year. It is a small operation, and once only during the year did I find enough men employed to bring it within the requirements of

law. Ventilation was being produced by natural means, and it was by no means satisfactory. An air shaft is now being sunk and a small furnace will be built, which will no doubt improve its condition.

Grassy Run.—During the year the ventilation of this mine has been very materially improved. A new air shaft was sunk near the face of the workings, which has given excellent results. This mine has splendid natural advantages and can be kept in good sanitary condition if care and attention are exercised by the officials in charge, which I have reason to believe will be done in the future. Mining boss and superintendent, John Meagher.

Hoeking.—This mine is in pretty fair condition generally. The air current is conducted up to and around the workings fairly well. From the peculiar location of the furnace the best results are not obtained from it, on account of it not always being able to overcome natural ventilation during all periods of the year. Upon the whole, however, the mine is fairly well ventilated. Other conditions are good. Mine boss, R. A. Winters.

Hamilton.—Considerable trouble has been experienced to keep mine foremen employed at this mine. There seems to have been a disposition on the part of the superintendent to obstruct and hinder the mine foremen in the discharge of their duties by not furnishing them with the necessary supplies to keep the mine in a lawful condition, in consequence of which they have become disgusted and left. I have had occasion to repeatedly call attention to the unsatisfactory condition of the mine, when promises would be made to remedy them; but on my next visit there would be found another mine boss who would have to get the same instructions and who for the same reasons would not be able to carry them out.

Between each mine foreman's employment a period of time ranging from two weeks to as many months would elapse when the mine was operated without a mine boss. Being unable to obtain the improvements complained of, I instituted proceedings against the superintendent for "failing to supply means to furnish a lawful volume of air," and "for operating his mine without employing a competent mine foreman."

This had the desired effect, as the obstructive tactics were discontinued, and the mine boss was allowed to put the mine under lawful conditions.

The superintendent plead guilty to the charges, and sentence was imposed by the court. Mine boss, Archie Cochranë.

Hurst.—During the year a fan was built at this mine, replacing a furnace which had been used previously. The fan increased the volume of air, more than double the quantity having been put in circulation than had been produced by the furnace.

A compressed air plant was installed at the beginning of the year

for the purpose of furnishing power to operate the mine pumps, also to run mining machines. These improvements have contributed to the efficiency of the mine. Mining boss, Robert W. Lightbourn.

Juniata.—This mine maintains its usual good reputation. The workings all being near the outcrops and under light cover, permission was given during the year to use open lights instead of safety lamps, by the persons employed in the mine. Mining boss and superintendent, Adam Nicholson.

Kyle.—Ventilation, drainage and general conditions good. Mining boss, I. W. Reckard.

Leith.—This mine is in its usual good condition. Nothing is left undone to secure protection to life and health. Its condition in this respect is commendable. The natural conditions of bottom and roof make it difficult and dangerous, but despite these adverse circumstances not a single accident occurred during the year. Mining boss, W. J. Callaghan.

Leisenring No. 1.—This mine is being gradually improved each year. The loose tangled ends, so to speak, are being caught up and worked out, which when finally accomplished, will allow the new methods which have been projected to be brought into operation. These methods will concentrate the workings of the mine, and make possible the better distribution of the ventilating current, and the consequent improvement of the sanitary conditions, as well as the more economical production of coal. The mine is well looked after and is in competent hands, every care being taken to ensure safety to the persons employed. Mining boss, Joseph L. Miller.

Leisenring No. 2.—A new haulage engine for dip workings has been installed during the year. The rope haulage on the north side has been extended 2,000 feet. The directions of the air currents have been rearranged by altering the air splits, which has resulted in better distribution of the air around the working places. The other conditions are good. Mining boss, John W. Foster.

Leisenring No. 3.—This mine is in excellent condition throughout. Preparation is being made to introduce mechanical haulage to supersede mule haulage. Mining boss, John Boylan.

Lynn.—This mine is in good condition in all respects. Mining boss, John A. Carrol.

Laughhead.—This mine is being rapidly worked out, the workings being confined to ribs and entry stumps. The general condition is fairly good. Mining boss, Allen Camp.

Lemont Nos. 1 and 2.—These two mines are in excellent condition and well cared for. The ventilation is ample and well distributed throughout the mines. Mine bosses, John Higson and Elias Phillips.

Morrell.—This mine is rapidly being exhausted, work being con-

fined to mining out entry and slope pillars. The ventilation is good. As the slope pillars are taken out faster than the water fills up the excavated part of the dip, which has fallen, there is no trouble about drainage. Mining boss, Herman Stickleback.

Mahoning-Atlas.—This mine is in good condition, being well ventilated, drained and looked after. Mining boss, Edward Mooney.

Mt. Braddock.—The ventilation, drainage and general conditions as to healthfulness and safety are good. Mining boss, John Bitz.

Mt. Hope.—This mine is in its usual good condition and does not lack attention. Mining boss, George Armstrong.

Nellie.—A fire was discovered in the gob in one of the rooms where the ribs had been drawn out in No. 13 butt entry of the above mine on June 8th. On being apprised of the fact I immediately proceeded to the mine and found that the fire was located in No. 30 room on the above named entry. The first indication of fire was discovered when the fire boss was making his examination in the early morning when he noticed smoke in the return air current from No. 13 entry, and immediately reported to the mine foreman, who telephoned for me to come at once. I was in a mine eight miles away when I received word. I at once drove to the mine and arrived there within two hours after the fire boss had reported the finding of smoke. Upon entering the mine, instructions were given to turn all the air current possible into No. 13 entry, to clear it of smoke, with a view of locating the seat of the fire, in order to determine the possibility of extinguishing it. It was found that the fire was in the slate and roof coal, which had fallen when the ribs had been taken out, and as it was impossible to tell the extent of the area on fire, and also impossible to flood it, on account of the pillars all having been drawn out, and as there was no water line of pipe to procure water from to fight it with, it was decided to shut the location off from the rest of the mine, which was done by building masonry stoppings in the chain pillar between Nos. 12 and 13 entries, and also between Nos. 14 and 15 entries and shutting up the ends of Nos. 13 and 14 entries. These stoppings were all built and the fire completely shut off within a week, and it has not given any trouble since.

The cause of the fire was spontaneous combustion. The gob had been known to be very hot for quite a long time with a gradually increasing temperature.

My theory of the cause of the fire is, that the action of falls breaks the surface, and allows the water to come in contact with fire clay and limestone strata. The water having previously been impregnated largely with sulphuric acid from its contact with pyrites of sulphur and iron in passing through the strata. This acid water produces heat by chemical action, to such an extent that the temperature on the top of the gob falls is very high, and as the heat is confined on top of these falls it became superheated until a temperature is

reached which decomposes the sulphur in the coal that is left in the gob, which in turn produces more heat, until the igniting point is reached and a fire ensues.

The other conditions of the mine are good, so far as healthfulness and safety are concerned. The mine is being attentively looked after, and as far as practicable every danger is provided against. Mining boss, David Young.

Nellie.—This mine has been idle all year.

Niverton.—This is a new mine which has been opened during the year. It is located at the extreme southern end of the Meyersdale basin of the Pittsburg vein, indeed a small part of the property extends into the State of Maryland. The mine has been opened up with a view of mining the coal by machinery. To this end a large air compressor has been erected to furnish power to operate coal cutting machines. The Ingersoll "punchers" are the machines used and they have been quite successful. The mine has been opened up very rapidly and at the same time systematically. The coal property is in the form of a very long ellipse. The main headings are being driven in the axis of the greater diameter. From these, headings are driven at right angles on both sides towards the outcrop. From these, cross headings rooms are turned, and as soon as they are air compressor has been erected to furnish power to operate coal is being extracted very clean and a large percentage is recovered. An air shaft has been sunk and a furnace built for temporary purposes of development, the intention being to erect a large ventilating fan in the near future. The ventilation so far has been everything that could be desired, being ample in volume and well conducted around the working places. Mining boss, Peter M. Connor.

Oliphant.—This mine is in excellent condition, both inside and outside. During the year a new tippie and coal bin were erected, also new hoisting engines were installed. An endless rope system of haulage has been installed on the coke-ovens by which the larries are hauled to and from the bins and ovens. A new slope has been driven from a point in the mine, which shortens the haul and gives a better grade for the empty cars to run back into the mine by gravity. These improvements have made this one of the best equipped mines in the district. Mining boss, James Small.

Oliver Nos. 1 and 2.—Everything about these mines gives evidence of careful and efficient supervision. The ventilation is excellent and is conducted to the places where it is most needed, viz: the working places of the miners. There are no mines in this district where a smaller percentage of the total volume of air produced and entering the mine is lost than in these. This is due to the fact that the stoppings are mostly constructed of masonry, and consequently leakage is reduced to a minimum, and also by reason of the intro-

duction of automatic doors in the mines, which gives much more satisfactory results than by having boys to attend them.

These mines have nearly reached the extremes of their boundary lines, and are now being worked largely on the retreating system. A new system of working has been adopted, with reference to the rooms and ribs, which has given such excellent results that perhaps a greater percentage of the coal seam is being recovered than in any other mine in the Connellsville region. Actual results show that about 13,000 tons per acre have been obtained.

An extension of the present system of endless rope haulage is being projected, which when completed will compare favorably in point of efficiency and economy with any now in operation in this district. During the year an electric plant was installed for the purpose of furnishing light at the bottom of the shafts, stables and pump room, also for the outside plants, stores, offices, etc. Mining bosses, Albert J. Williams and Chas. M. Porter.

Paul.—This mine sustains its former good reputation. Everything is being well looked after; no cause of complaint can be found, but rather words of commendation for its excellent condition. Mining boss, Robert Nelson.

Percy.—The workings of this mine are confined to the drawing of the ribs and pillars. It is in good, healthful condition. Mining boss, Everhart Shipley.

Pine Hill.—At no time during the year did this mine employ enough persons to bring it under the requirements of law. It is in a fairly good condition.

Ponfeigh.—This mine has not been running full handed, as for the greater part of the year less than the lawful number of persons were employed.

The mine is located on the bank of a creek. Two openings into the mine are made so near to the creek level that danger was apprehended that water from it would enter the mine and flood it (all the workings being to the dip), thereby endangering the persons employed therein. This was more to be feared from the reason of the existence of two large dams built across the stream above the mine which held back a large body of water. These dams were not in a safe condition, and in the event of their giving way, would allow a torrent of water to rush down the stream, which would undoubtedly enter the mine, as one of the openings was only four feet above the ordinary level of the creek, and the other ten feet. In order to give protection to the persons employed in the mine, orders were given to close up the lower opening by building a masonry dam in the drift and to raise the walls of the shaft ten feet higher above the creek level, thus making it twenty instead of ten feet above. Objection to this was raised on account of the expense, whereupon I called in

two other Inspectors, Messrs. Ross and Callaghan, who visited the mine and agreed with me that dangerous conditions existed. Notice was served upon the superintendent to remove the dangerous conditions forthwith. The dam was built in the drift, but the shaft walls have not yet been raised, and they are not likely to be raised for some time to come, if ever, as the owners reduced the number of persons employed in the mine so that less than ten are employed, thereby making it impossible to compel them to remove the dangerous conditions. Should the lawful number be employed at any time in the future, prompt and energetic measures will be used to insure compliance with law. Mining boss and superintendent, William McDowell.

Rocks.—This is a small mine which has been opened during the year near Smock station on the Redstone branch of the P., V. & C. Railroad which has not yet been developed sufficiently to employ the lawful number of men. It is in good condition. Mining boss, Francis Rocks.

Redstone.—This mine is fully complying with all the requirements of law as to healthfulness and safety. It is well managed and in good condition in every respect. Mining boss, Elijah Parker.

Stewart.—There is nothing to be desired by way of improvement, so far as healthfulness and safety are concerned at this mine. Great care is exercised and good results obtained by the management. Thirty-five new coke ovens were built during the year. Mining boss, Isaac G. Roby.

Snider.—The same conditions exist here as reported last year, viz: That fewer than ten persons are employed, and that the mine does not come under the provisions of the law except for a few months in the winter. The coal is all used for domestic purposes in Uniontown. The mine is in fair condition as to healthfulness and safety. Mining boss, Robert Wilson.

Smock.—Ventilation is somewhat defective at the working faces. The fan is too small to produce a sufficient volume of air for the necessities of the employes in the mine. However, the best possible use is made of the air that is available. I have called the attention of the management to the lack of ventilating power. They have promised better results in the future. Mining boss, Ben. Haliday.

Smithfield.—This mine is in good condition, both as regards ventilation and drainage. Mining boss, Joseph Havlicheck.

Statler.—This mine has improved in condition during the year. The ownership has been changed and the conditions have also changed for the better.

An electric plant has been installed to furnish power to run mining machines; also electric motors for hauling the coal. In consequence of the change in the price of mining brought about by the introduction of machinery, a strike resulted, and the mines were idle for a consid-

erable time. However, an adjustment of prices has been effected, and the mine is in operation again. Mining boss, Orlando Flesher.

Shaw.—This mine is in its usual excellent condition. Everything possible is done for healthfulness and safety. An electric plant was installed during the year for the purpose of furnishing power for electric motors to haul the coal out of the mine. The results have been very satisfactory. Mining machines may also be introduced into the mine when the necessary improvements are completed. Mining boss, James Phillips.

Standard.—This small mine has at no time during the year been under the requirements of law, as fewer than ten persons have been employed. The mine is in fairly good condition, both as to ventilation and drainage. The property has been purchased by a large company, which promises to develop it and produce a large daily output. Mining boss, C. J. Baker.

Tub Mill Run.—This mine is now in better condition than formerly. A new air shaft has been sunk and a furnace built at the bottom of it, which insures better ventilation at all times of the year. The other conditions have been materially improved. Mining boss, William K. Murray.

Thomas.—The conditions of this mine maintain as formerly reported. The natural conditions here are favorable and are taken advantage of and utilized by the management, with the result that the mine is in good condition generally. Mining boss and superintendent, Benjamin Thomas.

Trotter.—This mine is in good condition in all respects, and is well looked after by the mine officials, the requirements of law being not only complied with but exceeded, to secure safety. Mining boss, James Hart.

Uniondale.—This mine is rapidly being exhausted. The operations are confined to the extracting of the ribs, pillars and stumps. The ventilation, drainage and other conditions relating to healthfulness and safety are good. Mining boss, James L. Allen.

Wynn.—This mine is in fairly good condition. On one of my visits I found the ventilation defective on the left side of the slope. I suggested some improvements with reference to the distribution of the air current, which were put in practice, and better results obtained. Mining boss, John A. Hart.

Wheeler.—The operations of this mine are confined to the taking out of the entry and slope pillars. Great difficulty is experienced while drawing out these pillars by reason of the frequent squeezes that occur, and also from the fact that considerable gas is given off from the gob. This necessitates vigorous ventilation and close watchfulness on the part of the mine officials. However, these difficulties have been successfully overcome so far, and if the same care is exer-

cised in the future as in the past by the mine officials, equally satisfactory results will be obtained. Mining boss, James S. Connor.

Washington Nos. 1, 2 and 3.—These mines are all in excellent condition in every respect. Nothing is left undone to secure safety to person or property.

At No. 3 mine a new steel tippie has been erected that for completeness and efficiency will rank with any in the State. Large engines have been put in place to haul coal out of the new slope. The developments in the mine have been rapidly and extensively pushed consequently, a large number of working places are ready, from which, when all the improvements contemplated are completed, a large output of coal will be produced. It is expected that from 3,000 to 3,500 tons of coal per day can be handled at this mine. The ventilation will be produced by a Capell fan fifteen feet diameter and twelve feet face, double inlet. It is expected that this will produce a greater volume of air than was ever circulated in any mine on this continent, if not in the world. The conditions are certainly all favorable for such a result. The airways are numerous and being of large area will offer comparatively small resistance, so that a large volume of air can be circulated with a very small water guage. Mining bosses, George Santimeyer and John Bell.

Walker.—The condition of this mine has been very much improved since my last report. It has passed into other hands and great improvements have been made in the ventilation and other conditions. In connection with the Statler mine, an electric plant furnishes power to operate mining machines of the Jeffrey type. Owing to the prolonged strike due to the re-adjustment of mining rates, the efficiency of these machines to mine coal successfully has not yet been demonstrated. There are peculiar conditions connected with this particular coal seam that may militate against machine mining by the type now being used. The results will be watched with interest by the producers of coal in the neighborhood of these mines. Mining boss, Archie Cochran.

Yoder.—Idle all year.

Youngstown.—This mine is in good condition. The ventilation, drainage and general conditions are good. The mine is in good hands and well taken care of, and will not suffer for lack of attention. Mining boss, John Gibson.

TABLE I.—Showing location, etc., of collieries in the Fifth Bituminous District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
42	Bessie,	Ferry Coal Company,	Fayette,	David P. V. Farmer,	Perryopolis,	P. McK. & Y. R. R.
47	Berlin,	John O. Stoner,	Somerset,	Nevin Long,	Berlin,	B. & O. R. R.
52	Casselman,	Casselman Coal Company,	Somerset,	Nim. G. Hooking,	Meyersdale,	B. & O. R. R.
53	Cumberland,	Cumberland Coal and Coke Co.,	Somerset,	Frederick,	Meyersdale,	B. & O. R. R.
15	Clarissa,	James Cochran Sons & Co.,	Fayette,	R. J. Cochran,	Davon,	P. McK. & Y. R. R.
15	Chester,	E. A. Humphries & Co.,	Fayette,	R. J. Humphries,	Vane Mills,	P. V. & C. R. R.
1	Crossfield,	Chas. Hisea Coal Company,	Fayette,	James Henderson,	Uniontown,	B. & O. R. R.
1	Chick-Hey,	Chick-Hey Coal Company,	Fayette,	W. H. Thomas,	Connellsville,	B. & O. R. R.
2	Connellsville No. 1,	Connellsville Coke Company,	Fayette,	Henry M. Wilson,	Cheat Haven,	B. & O. R. R.
46	Edna,	Connellsville and Ursina Coal and Coke Company,	Somerset,	E. H. Reid,	Scottdale,	B. & O. R. R.
38	Elm Grove,	W. J. Rainey,	Fayette,	T. J. Mitchell,	Vanderblit,	B. & O. R. R.
20	Elenora,	J. D. Boyd Coal Company,	Fayette,	Henry Williams,	Smocks,	P. V. & C. R. R.
29	Ferguson,	Dunbar Furnace Company,	Fayette,	John W. Greaves,	Dunbar,	S. W. P. R. R.
57	Fairview,	Fairview Coal Company,	Fayette,	Thomas Rees,	Meyersdale,	B. & O. R. R.
21	Grfnlstone,	Realstone Oil, Coal and Coke Co.,	Fayette,	W. R. Wilson,	613 Ferguson Block,	P. V. & C. R. R.
					Phylsburg,	
48	Gooseberry,	Savage Fire Brick Company,	Bedford,	U. R. Smith,	Hoblitzel,	
48	Garman,	W. A. Garman,	Somerset,	V. A. Garman,	Berlin,	B. & O. R. R.
54	Grassy Run,	Grassy Run Coal Company,	Somerset,	John Mesathers,	Elk Lick,	B. & O. R. R.
54	Hooking,	Chas. K. Winters,	Somerset,	A. R. Winters,	Coal Run,	B. & O. R. R.
19	Harrison,	Dunbar and Adams,	Somerset,	George H. Duncombe,	Meyersdale,	P. V. & C. R. R.
37	Hurst,	Warner Coal Company,	Fayette,	M. B. Porter,	Smock,	P. V. & C. R. R.
4	Juniata,	Juniata Coke Company,	Fayette,	Adam Nicholson,	Juniataville,	B. & O.
35	Kyle,	H. C. Frick Coke Company,	Fayette,	George B. Irvin,	Fairchance,	S. W. P. R. R.
10	Leith,	H. C. Frick Coke Company,	Fayette,	Harry Whel,	Uniontown,	S. W. P. R. R.
35	Leisenring No. 1,	H. C. Frick Coke Company,	Fayette,	Austin King,	Leisenring,	Pa. R. R.
17	Leisenring No. 2,	H. C. Frick Coke Company,	Fayette,	Chas. J. Warnock,	West Leisenring,	P. V. & C. R. R.
36	Leisenring No. 3,	H. C. Frick Coke Company,	Fayette,	Edward O'Toole,	Leisenring,	Pa. R. R.
22	Lynn,	Hanna Brothers,	Fayette,	J. C. Hanna,	43 Bourse, Phila.,	P. V. & C. R. R.
7	Laughed,	Martha Coke Company,	Fayette,	E. D. Humphreys,	Fairchance,	S. W. P. R. R.
24	Lemont No. 1,	McClure Coke Company,	Fayette,	E. A. Humphries,	Scottdale,	S. W. P. R. R.
25	Lemont No. 2,	McClure Coke Company,	Fayette,	E. A. Humphries,	Scottdale,	S. W. P. R. R.
55	Morrell,	Campha Steel Company,	Fayette,	Martin Meagher,	Connellsville,	B. & O.
32	Madison-Atlas,	Campha Steel Company,	Fayette,	Martin Meagher,	Connellsville,	B. & O.
28	Mt. Braddock,	W. J. Rainey,	Fayette,	F. W. Cunningham,	Mt. Braddock,	B. & O.
28	Mt. Braddock,	Isaac Taylor & Co.,	Fayette,	Isaac Taylor,	Uniontown,	P. V. & C. R. R.
16	Mt. Hope,	Isaac Taylor & Co.,	Fayette,	Isaac Taylor,	Uniontown,	P. V. & C. R. R.

40	Nelle.	Brown and Cochral.	Fayette.	J. R. Laughrey.	Dawson.	P. McK. & Y. R. R.
45	Niverton.	Merchants' Coal Company.	Somerset.	R. S. Garrett.	Elk Lick.	B. & O. R. R.
59	Olyphant.	W. K. Niver & Co.	Somerset.	Joseph L. Dixon.	Elk Lick.	S. W. P. R. R.
8	Oliver No. 1.	H. C. Frick Coke Company.	Fayette.	C. C. Gadd.	Olyphant Furnace.	S. W. P. R. R.
13	Oliver No. 2.	Oliver and Snyder Steel Company.	Fayette.	Fred C. Kelghey.	Uniontown.	S. W. P. R. R.
14	Paul.	Oliver and Snyder Steel Company.	Fayette.	Fred C. Kelghey.	Uniontown.	S. McK. & Y. R. R.
27	Percy.	W. J. Rainey.	Fayette.	T. J. Mitchell.	Vanderbilt.	B. & O. R. R.
30	Percy Mining Company.	Percy Mining Company.	Fayette.	J. Louis Schell.	Uniontown.	B. & O. R. R.
31	Pine Hill Coal Company.	Pine Hill Coal Company.	Somerset.	James H. Carnes.	Pine Hill.	.....
51	Redstone.	Rocks and M. Coal.	Somerset.	Wm. J. McDowell.	Garrett.	B. & O. R. R.
9	Redstone.	Rocks Coal Company.	Fayette.	Francis Brooks.	Brownfield.	S. W. P. R. R.
23	Stewart.	H. C. Frick Coke Company.	Fayette.	Leonard Bullions.	Uniontown.	B. & O. R. R.
12	Snider.	Stewart Iron Company, Limited.	Fayette.	E. M. Peters.	Uniontown.	.....
18	Smock.	Robert B. Wilson.	Fayette.	John Snider.	Smock.	P. V. & C. R. R.
3	Smithfield.	J. D. Boyd Coal Company.	Fayette.	Henry Williams.	Uniontown.	B. & O. R. R.
62	Statler.	Uniontown Coke Company.	Fayette.	J. D. Boyd.	Elk Lick.	B. & O. R. R.
55	Shaws.	Merchants' Coal Company.	Somerset.	R. S. Garrett.	Elk Lick.	B. & O. R. R.
49	Standard.	Cumberland & Elk Lick Coal Co.	Somerset.	A. Chamberlin.	Meyersdale.	B. & O. R. R.
64	Thomas.	Berlin Mining Company.	Somerset.	J. C. Wetmiller.	Berlin.	B. & O. R. R.
34	Trotter.	Fairview Coal Company.	Somerset.	Stewart Smith.	Elk Lick.	B. & O. R. R.
3	Uniondale.	E. Thomas.	Somerset.	P. Thomas.	Meyersdale.	B. & O. R. R.
23	Wheatler.	H. C. Frick Coke Company.	Fayette.	R. B. Rainey.	Uniontown.	P. V. & C. R. R.
46	Washington No. 1.	H. C. Frick Coke Company.	Fayette.	R. B. Rainey.	Dunbar.	P. V. & C. R. R.
44	Washington No. 2.	Cambridge Steel Company.	Fayette.	C. C. Gadd.	Olyphant Furnace.	P. V. & C. R. R.
43	Washington No. 3.	Washington Coal and Coke Co.	Fayette.	Martin Meagher.	Connellsville.	P. V. & C. R. R.
63	Walker.	Washington Coal and Coke Co.	Fayette.	John S. Newmeyer.	Dawson.	P. McK. & Y. R. R.
60	Yoder.	Washington Coal and Coke Co.	Fayette.	John S. Newmeyer.	Dawson.	P. McK. & Y. R. R.
25	Youngstown.	Merchants' Coal Company.	Somerset.	R. S. Garrett.	Elk Lick.	B. & O. R. R.
		H. C. Frick Coke Company.	Fayette.	Chas. M. Shank.	Lemont Furnace.	S. W. P. R. R.

*Idle all year.

TABLE II.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Fifth Bituminous District for the year ending December 31, 1898.

Names of Collieries.	County.	Total production in tons of coal.	Total production in tons of coke.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad and water shipments of coal in tons.	Number of days worked.	Number of persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number pounds dynamite used.	Number horses and mules.	Number steam boilers.	Number mine locomotives.	Number coke ovens.
Bessie,	Fayette,	114,964		1,460	3,500	110,004	265	91		4	657	175	7	1		
Berlin,	Somerset,	4,783		1,143	1,143	3,640	234	33			24					
Casselman,	Somerset,	30,732		1,600	915	29,557	395	35			1,175		4	2		1
Clamberland,	Fayette,	141,671		2,775	2,775	35,408	308	130	1				6			10
Claster,	Fayette,	64,673	50,630		2,775		403	81					6			108
Chester,	Fayette,	24,723	22,093	1,010	2,732		241	37			240		3			40
Crossland,	Fayette,	82,810	55,179	355	733		310	101			50		3			100
Cheat Haven,	Fayette,	1,000				7,000	165	11					3			50
Connellsville No. 1,	Somerset,	32,975	21,667	56	300		225	61			5	30	4	1		
Edna,	Somerset,	2,000				2,000	115	2					1			
Elm Grove,	Fayette,	126,225	81,882	2,517	885		289	251	1	3			21	3	1	218
Elenora,	Fayette,	37,853	3,083		85	34,683	285	33			250	6	3			6
Ferguson,	Somerset,	53,134	6,879	4,299	1,326	68,765	252	119	1	1			18	7		70
Fairview,	Somerset,	40,009		2,583	500	39,400	270	54			545		4			
Grinstone,	Fayette,	183,417	7,618	2,960	591	169,804	226	143	4	4	740		10	3		31
Gouseberry,	Bedford,	3,000			485		277	24			110		4	1		
Garrison,	Somerset,	3,822				3,327	309	9					1			
Glendon,	Somerset,	39,472				39,472	208	51			62		1			
Hocking,	Somerset,	53,848				53,848	231	59			782		5			
Hamilton,	Somerset,	53,886				53,886	231	59					5			
Hurst,	Fayette,	61,100			100	60,000	260	67	1			500	5	2		
Junlata,	Fayette,	171,338	121,944	1,000	1,197		267	250	1			400	20	5	1	250
Kyle,	Fayette,	135,956	88,096	927	817		272	159		1			27	2		164
Leith,	Fayette,	262,505	168,452	9,058	2,778		261	310					28	11	1	304
Leisenring No. 1,	Fayette,	385,090	251,511	5,842	3,986		270	417		7		3,650	68	9	2	500
Leisenring No. 2,	Fayette,	369,094	239,786	7,225	3,030		253	429	1	1		550	60	10	2	500
Leisenring No. 3,	Fayette,	393,904	259,794	9,862	1,324		258	415	1	8		2,250	63	9	2	504
Lynn,	Fayette,	10,200				10,200	304	29					3			50
Lanshead,	Fayette,	41,640	28,400	1,500	659		265	67			3		7	2		
Lemont No. 1,	Fayette,	153,541	96,871	5,438	3,800		221	211	1	3		20	16	6	1	227

Lemont No. 2	255,373	188,617	1,874	1,874	260	845	4	4	50	94	6	350
Morrell	239,307	185,541	1,087	1,087	312	311	1	1	786	31	17	350
Mahoning-Atlas	132,939	132,847	4,766	4,766	292	292	2	2	714	31	17	288
Mt. Braddock	135,000	58,491	1,000	5,000	942	963	1	1	200	9	3	390
Mt. Hope	37,000	2,491	160	160	577	40	1	21	200	9	3	40
Nelle	234,345	159,630	2,000	2,000	300	239	2	2	21	28	3	329
Nelle	40,650	67,400	400	250	40,000	84	1	1	400	8	2	152
Niverton	67,430	43,232	2,338	547	137	152	1	1	16	7	2	152
Oliver No. 1	341,939	227,959	4,968	1,798	304	377	2	2	50	7	1	329
Oliver No. 2	308,076	295,384	3,991	503	300	293	3	3	20	5	1	300
Paul	247,950	241,602	2,038	4,310	290	405	1	1	500	20	7	417
Percy	24,327	13,309	347	2,753	220	47	1	1	8	3	3	36
Pine Hill	1,500	1,500	6,000	6,000	39	9	1	1	12	1	1	1
Pomfrelgh	6,000	880	180	700	172	11	1	1	50	2	1	1
Rocks	316,031	269,222	8,352	1,361	276	375	1	1	4	40	11	2
Redstone	118,449	76,563	3,135	5,469	234	16	4	4	2	5	5	155
Stewart	3,811	1,182	625	5,811	282	127	2	2	960	150	8	12
Snider	102,000	14,937	1,095	32	241	16	1	1	1,200	6	2	75
Smook	150,852	102,000	1,250	1,250	266	169	1	1	1,500	9	2	1
Snuffield	7,000	7,000	3,500	3,500	250	61	1	1	520	2	2	1
Standard	50,000	25,805	16	16	46,500	297	3	3	2	4	8	461
Tubmill Run	21,805	383,050	9,332	1,740	25,789	452	2	2	550	48	8	461
Thomas	28,748	28,042	1,028	62	259	58	1	1	5	3	3	74
Trotter	44,120	28,984	1,086	62	186	71	1	1	2	2	2	103
Unlondale	87,443	68,108	635	971	312	103	1	1	2,500	500	32	320
Wheeler	603,740	137,351	4,420	3,000	390,250	307	6	6	1,000	300	4	1
Washington No. 1	191,910	110,549	1,105	556	190,249	91	1	1	900	300	6	1
Washington No. 2	63,724	63,724	120	120	68,604	240	1	1	5	40	31	240
Washington No. 3	178,031	113,638	6,310	1,474	268	210	1	1	5	40	31	240
Walker	7,754,835	3,964,609	133,245	73,086	1,953,234	15,717	14	62	15,065	11,379	890	201
Walker	188,031	113,638	6,310	1,474	268	210	1	1	5	40	31	240
Youngstown	7,754,835	3,964,609	133,245	73,086	1,953,234	15,717	14	62	15,065	11,379	890	201
Total	7,754,835	3,964,609	133,245	73,086	1,953,234	15,717	14	62	15,065	11,379	890	201

*Idle all year.
 †Included in No. 1 mine.

TABLE III.—Showing the number of employees at each colliery in the Fifth Bituminous District, during the year 1898

Names of Collieries.	Occupations of Persons Employed Inside.										Occupations of Persons Employed Outside.										Grand total inside and outside.
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Employed in the manufacture of coke.	Superintendents, book-keepers and clerks.	All other employes.	Total outside.					
Bessie,	1		78	1	4		1	85	1	1	2					91					
Berlin,			30					30								30					
Cumberland,	1		118		2	3	2	134	1	1	2	1				139					
Clarissa,	1		45	2	6		1	55				1	20			76					
Chester,	1		20		2		1	24			1		11			37					
Crossland,	1		45	2	4	1		53	1	1	1		43			101					
Cheat Haven,	1		7				8	15	1	1	1		1			27					
Connellsville No. 1,	1		30	2	3		2	38	1	1	1	1	15			53					
Edna,			2					2								2					
Elm Grove,	1	1	125	11	11			149	1	3	4		90			251					
Eleanora,	1		23		3		2	29					2			33					
Ferguson,	1	1	59	10	4	1	2	83	1	4	4		16			119					
Fairview,	1		10		4		2	17	1	1			4			24					
Grindstone,	1	2	12		8	3	1	23		3	3		4			34					
Gwynn,			9		4			13		1	1					15					
Gwynn,			7		4			11		1	1					13					
Grassy Run,	1		45		4		1	53								53					
Hocking,	1		60	1	5	2	1	69								69					
Hamilton,	1		46	2	5	2		56	1							59					
Hurst,	1	1	45	2	5	1	3	58	1	1	3		56			67					
Junata,	1		120		11		13	146	1	1	3		95			250					
Kyle,	1	1	79	3	9			93	1	2	3		47			159					
Leith,	1	2	130	10	16	5	5	169	1	4	8		110			310					
Leisenring No. 1,	2	3	206		23	7	22	263	1	6	6		132			417					
Leisenring No. 2,	1	3	215		23	10	19	271	2	7	9		128			429					
Leisenring No. 3,	1	3	206		23	4	14	247	1	6	9		137			415					
Lima,	1		20		3		2	26	1	1			28			32					
Leitchhead,	1		35	2	3			40		2	3		28			67					
Lemont No. 1,	1	2	100	3	11	1	5	123	1	2	6		60			188					

Lemont No. 2,	1	2	164	3	17	5	12	204	2	1	5	100	2	25	141	345
Morrell,	1	1	130	21	11	1	9	174	1	4	4	112	4	14	137	311
Mahoning-Atlas,	1	1	160	4	15	1	17	199	1	2	7	93	9	9	116	315
Mt. Bradock,	2	2	125	5	10	1	2	146	1	3	8	100	5	5	122	268
Mt. Hope,	1	1	22	3	3	1	2	26	1	1	1	13	1	1	14	40
Nelle,	1	1	120	10	13	3	4	152	2	3	4	70	3	3	87	239
Niverton,	1	1	55	8	8	2	8	74	1	2	2	44	3	3	10	84
Oliphant,	1	1	180	5	13	1	2	96	1	2	3	44	3	4	56	152
Oliver No. 1,	2	2	161	6	18	1	23	222	1	11	6	128	4	5	155	377
Oliver No. 2,	1	1	141	6	13	1	17	228	1	6	7	128	4	5	185	417
Pauy,	1	2	240	5	20	1	10	238	1	6	7	125	15	13	167	238
Pine Hill,	1	1	20	4	3	1	3	28	1	9	1	15	1	1	187	448
Pomfleh,	1	1	8	1	1	1	1	9	1	1	1	1	1	1	19	47
Rocks,	1	1	7	1	1	1	1	6	1	1	1	1	1	1	2	11
Redstone,	2	3	170	17	22	1	1	215	2	6	12	105	3	34	162	377
Stewart,	1	1	54	2	4	1	7	70	1	2	3	82	2	9	49	119
Snider,	1	1	8	1	1	1	1	9	1	1	1	1	1	1	10	10
Smock,	1	1	96	1	9	1	3	111	1	2	2	5	3	8	16	127
Smithfield,	1	1	6	1	1	1	1	8	1	1	1	1	1	1	8	16
Statler,	1	1	78	1	6	1	6	86	1	2	2	5	1	1	3	89
Shaws,	1	1	128	6	6	1	6	141	2	1	1	14	2	8	28	169
Standard,	1	1	47	1	1	1	1	8	1	1	1	1	1	1	1	8
Thomson Run,	1	1	24	1	2	1	4	57	1	1	1	1	1	1	3	61
Trotter,	1	1	190	9	19	8	22	250	2	5	6	156	3	27	200	522
Uniondale,	1	1	25	4	2	1	1	35	1	1	1	38	1	23	58	128
Wynn,	1	1	38	1	3	1	1	45	1	1	1	29	1	26	51	103
Wheeler,	1	1	44	3	3	1	10	59	1	2	3	84	3	44	103	244
Washington No. 1,	2	2	375	6	28	6	31	450	3	5	6	120	4	22	160	610
Washington No. 2,†	1	1	80	3	4	1	1	91	1	1	2	91	3	3	84	210
Washington No. 3,	1	1	62	1	6	1	1	70	1	1	1	75	3	5	75	175
Walker,	1	1	62	1	6	1	1	70	1	1	1	75	3	5	75	175
Yoder,	1	1	90	7	12	2	4	118	3	3	6	74	2	7	92	210
Youngstown,	1	1	90	7	12	2	4	118	3	3	6	74	2	7	92	210
Total,	59	50	4,875	160	486	74	306	6,111	45	119	164	2,418	116	322	3,210	9,321

*Idle all year.
 †Included in No. 1 mine.

TABLE III. —Continued.

Names of Collieries.	Number of Days Worked Each Month During 1898.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Bessie,	23	23	22	21	20	22	20	24	23	22	23	22
Berlin,	22	18	19	20	22	25	15-30	10	13	22	18	27
Casselman,	30	28	30	30	31	29	30	30	30	31	30	30
Cumberland,	26	21	27	26	25	26	22	25	26	26	25	25
Clarissa,	21	19	22	22	20	18	12	12	18	20	20	20
Chester,	21	24	27	26	26	26	25	27	26	26	25	26
Chesapeake,	26	23	27	26	23	13	.....	.....	10	26	25	26
Chat Haven,	26	23	27	26	23	13	.....	.....	10	26	25	26
Connellsville No. 1,	24	24	27	25	23	21	21	23	23	26	25	27
Edna,	22	11	25	24	24	26	26	26	26	26	26	23
Elm Grove,	21	24	18	20	19	21	20	19	22	21	20	27
Eleanor,	23	20	26	24	23	23	24	26	25	21	16	19
Ferguson,	17.2	8.20	7.30	18	24.40	24.50	19	23.70	21.40	17.10	23.60	22
Fairview,	23	20	26	24	23	23	24	26	25	21	16	19
Grindstone,	17.2	8.20	7.30	18	24.40	24.50	19	23.70	21.40	17.10	23.60	22
Gooseberry,	21	16	13	28	27	28	29	30	30	31	30	31
Gorman,	21	16	21	19	9	21	21	25	24	16	22	23
Grassy Run,	20	19	20	19	18	8	24	25	19	19	21	19
Hocking,	29	15	20	23	23	25	19	25	21	23	21	13
Hurst,	25	23	27	20	20	14	13	22	26	26	25	24
Juniata,	18	19	24	20	20	20	22	20	22	23	23	21
Kyle,	22	20	22	22	22	21	22	23	21	22	22	22
Leith,	22	20	22	22	22	21	22	22	21	22	23	22
Leisnering No. 1,	21	20	22	21	20	20	22	21	22	24	23	23
Leisnering No. 2,	21	20	22	21	20	20	22	21	22	24	23	23
Leisnering No. 3,	21	20	22	21	20	21	21	21	21	23	23	22
Lynn,	26	24	27	26	26	26	26	20	15	26	26	26
Laughhead,	24	21	22	22	21	22	21	22	22	22	22	23
Lemont No. 1,	18	.....	9	21	21	21	22	21	21	23	22	22

Lemont No. 2,	21	26	21	19	17	22	23	21	23	25	22
Morrell,	26	27	26	26	26	25	27	26	26	26	27
Mahoning-Atlas,	24	27	26	26	26	25	27	26	26	26	27
Mt. Braddock,	24	26	26	26	26	25	27	26	26	26	27
Mt. Hope,	26	26	26	26	26	25	27	26	26	26	27
Nettle,	26	27	26	26	26	25	27	26	26	26	27
Nettle,*	26	27	26	26	26	25	27	26	26	26	27
Niverton,	20	22	19	26	25	25	24	26	27	24	23
Oliphant,	24	27	26	26	26	25	24	26	27	24	23
Oliver No. 1,	23	24	27	26	26	23	22	25	26	26	26
Oliver No. 2,	25	24	27	24	25	21	22	24	26	25	26
Paul,	21	20	19	18	15	15	17	17	17	21	22
Percy Hill,	21	20	19	18	15	15	17	17	17	21	22
Pontefigh,	21	20	19	18	15	15	17	17	17	21	22
Rocks,	21	20	19	18	15	15	17	17	17	21	22
Redstone,	20	22	19	26	25	25	24	26	27	24	23
Stewart,	18	21	20	20	21	22	21	22	23	23	22
Snider,	26	27	26	26	26	25	27	26	26	26	27
Smock,	25	24	24	23	23	24	24	24	26	26	26
Smithfield,	14	21	23	23	18	24	26	19	23	33	30
Stalter,	20	20	20	20	20	20	20	20	20	21	21
Shaws,	20	20	20	20	20	20	20	20	20	21	21
Shaws,	21	21	22	21	20	20	20	20	20	21	21
Standard,	21	22	21	20	20	18	20	20	20	21	21
Tubmill Run,	24	22	24	20	20	20	20	20	22	22	22
Thomas,	23	25	26	26	26	25	25	25	23	23	23
Thomas,	20	20	22	21	21	22	22	21	22	22	22
Unplandale,	20	22	20	19	21	22	22	21	22	22	22
Wynn,	20	22	20	20	21	22	22	21	22	22	22
Wheeler,	16	27	26	26	26	25	26	26	26	26	27
Washington No. 1,	20	24	26	26	26	25	26	26	26	25	26
Washington No. 2,†	26	24	26	26	26	25	26	26	26	26	27
Washington No. 3,	26	24	26	26	26	25	26	26	26	26	27
Walker,	20	20	20	20	20	20	20	20	20	20	20
Yoder,	20	20	20	20	20	20	20	20	20	20	20
Youngstown,	21	20	22	20	21	22	21	23	23	25	24

*Idle all year.
†Included in No. 1 mine.

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Fifth Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 10, 18,	James B. Matheny,	Miner,	33	M.	1	3	Statler,	Somerset,	Fall of roof coal.
	William Linskey,	Driver,	24	M.	1	.....	Ferguson,	Fayette,	Fall of smoke stack caused by a mule falling upon and breaking a guy line. Run over by charging larry on coke ovens, while asleep on the larry track.
Feb. 5,	Andy Varzor,	Coke forker,	20	S.	.....	.....	Youngstown,	Fayette,	Killed by a premature shot; while in the act of lighting a blast it went off.
Mar. 24,	John Stuck,	Miner,	35	M.	1	2	Juniata,	Fayette,	These two men were instantly killed by a fall of roof coal and slate while loading a wagon of coal in a place in which they were forbidden to work by mine foreman.
May 3,	John Martin,	Miner,	43	M.	1	5	Mahoning-Atlas,	Fayette,	Killed by a fall of roof while drawing out posts.
3,	Mike Luvaney,	Miner,	42	M.	1	7	Mahoning-Atlas,	Fayette,	Struck over the heart by a pinch-bar while starting compressor engine.
7,	Andy Slevina,	Miner,	36	M.	1	3	Lemont No. 1,	Fayette,	Squeezed between cars and rib; had jumped off trip of cars while it was in motion; his leg was broken and he was injured internally; inflammation set in and he died 36 hours after.
24,	William Lape, .....	.....	18	S.	.....	.....	Hurst,	Fayette,	Broken neck; caused by a fall of slate from the roof while pushing a wagon.
July 6,	James Dolan, Jr.,	Driver,	18	S.	.....	.....	Leisenring No. 3,	Fayette,	Both legs broken and skull fractured; caused by a fall of roof coal while milking.
Aug. 2,	George Laggen,	Miner,	43	M.	1	4	Leisenring No. 2,	Fayette,	Was thrown against a bag of coal when it fell out between two slings, crushing his head and killing him instantly.
Sept. 5,	Henry Baer,	Miner,	35	M.	1	5	Walker,	Somerset,	Killed by a fall of roof coal; while digging coal off rib he neglected to set props to secure roof.
Dec. 2,	Robert Engle,	Miner,	18	S.	.....	.....	Cumberland,	Somerset,	
4,	Michael Muka,	Miner,	25	M.	1	1	Niverton,	Somerset,	

12. Jake Kelmar,	38	M.	1	2	Elm Grove,	Fayette,	Squeezed between wagon and corner of rib; was standing on side of track to allow coal cars to pass. Horse turned off and pulled car off track, crushing chest about the breast and ribs so that he lived only a few minutes.
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TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Fifth Bituminous District, for the year ending December 31, 1898.

Date of Accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 2,	James Moore,	Tracklayer helper,	21	S.	Leisenring No. 1,	Fayette,	Squeezed between rib and empty wagon; injured about chest.
14,	Antonio Cortella,	Miner,	29	M.	Bessie,	Fayette,	Leg fractured above ankle by fall of roof coal.
19,	John Bolack,	Miner,	30	S.	Nelle,	Fayette,	Leg broken while drawing out posts in rib working.
20,	Andy Laventry,	Miner,	45	M.	Mahoning-Atlas,	Fayette,	Back slightly sprained by fall of slate.
22,	Daniel Purcell,	Greaser,	16	S.	Leisenring No. 3,	Fayette,	Right leg broken between knee and hip.
22,	John Durkin,	Trapper,	13	S.	Leisenring No. 3,	Fayette,	Left knee dislocated; these boys had got on an empty trip on which they had no business) the top of the track (the track hooked out at post, and some slate fell on them, injuring them as above described.
25,	James Shortuse,	Driver,	34	M.	Lemont,	Fayette,	Head injured by being kicked by a mule.
25,	Mike Mosaek,	Miner,	52	M.	Stewart,	Fayette,	Shoulders and back bruised, also three scalp wounds; by piece of coal and slate falling from side of rib.
25,	Frank McPherson,	Miner,	17	S.	Leisenring No. 1,	Fayette,	Small bone in right arm fractured, by wagon jumping track and catching his arm between it and roof.
Feb. 9,	Valant Magda,	Driver,	25	M.	Leisenring No. 3,	Fayette,	Collar bone broken and breast injured; crushed between rib and car.
14,	John Keech,	Miner,	33	M.	Lemont No. 2,	Fayette,	Jaw bone broken, kicked by a mule.
19,	Peter Bibnc,	Driver,	45	M.	Morrill,	Fayette,	Right arm fractured in empty car.
Mar. 7,	Martin Petrosky,	Roller repairer,	40	M.	Paul,	Fayette,	Right leg off at knee; was run over by trip of cars on slope.
10,	Thomas Twiford,	Roadman,	30	M.	Ferguson,	Fayette,	Hip dislocated; caught between cars while riding on trip.
25,	Andy Serpok,	Miner,	29	M.	Lemont No. 2,	Fayette,	Both legs badly bruised; caught by fall of roof while drawing posts.
Apr. 16,	Edward Ryan,	Driver,	24	S.	Trotter,	Fayette,	Squeezed across hips and back; mule turned off coming out of room and he was caught between car and rib.

May	14	Patrick McQuade	Fire boss	38	M.	Lemont No. 1	Fayette	Leg broken, back injured and head cut; was caught by a fall of rock while examining old gob workings.
June	1	Alek Kropniak	Driver	25	M.	Bessie	Fayette	Hip, knee and head cut by a fall of slate and coal.
July	11	John M. Sloy	Asst. roadman	42	M.	Grindstone	Fayette	Ankle crushed by wrecking of trip on slope.
July	11	George Yelon	Miner	35	S.	Leisenring No. 2	Fayette	Injured about the hips by a fall of slate. Leg injured; mule turned off and truck caught his leg against rib.
July	14	Calvin Radcliffe	Driver	21	S.	Walker	Somerset	Ankle broken; piece of slate fell from side while cleaning up fall.
July	20	John Pencoty	Driver	26	S.	Leisenring No. 3	Fayette	Leg broken; fell in front of loaded trip of cars.
July	20	Steve Celhelmick	Miner	30	M.	Stewart	Fayette	Dislocation of back bone; fell in front of empty car which run on top of him.
July	23	James Forkin	Miner	19	S.	Leisenring No. 1	Fayette	Body badly bruised and arm cut by fall of roof coal and slate.
July	26	Mike Hurdosh	Miner	29	M.	Leisenring No. 1	Fayette	Two toes cut off left foot; loaded car ran over his foot.
Aug.	4	George Miller	Miner	32	M.	Oliver No. 1	Fayette	Broken leg; while lifting loaded car on track the post used as lever fell against his leg, breaking it.
Aug.	10	John Yimen	Miner	25	S.	Elenora	Fayette	Ribs injured by fall of slate in working place.
Aug.	10	Mike Hirisack	Miner	32	M.	Stewart	Fayette	Collar bone broken by fall of coal. Body badly bruised and knee sprained; fall of roof coal when drawing out posts in rib.
Aug.	13	Alex. Tarnan	Miner	50	M.	Grindstone	Fayette	Broken leg and foot mashed by a fall of slate in his room.
Aug.	15	John Matthews	Driver	30	M.	Mt. Braddock	Fayette	Two fingers mashed; caught between two pit cars.
Aug.	19	Joseph Simic	Miner	35	M.	Grindstone	Fayette	Right leg broken; struck by a post which was knocked out by falling roof.
Aug.	22	John Uobar	Driver	33	M.	Leisenring No. 1	Fayette	Left leg fractured; caught between two trips of cars.
Aug.	25	Joseph Williams	Miner	35	M.	Oliver No. 1	Fayette	Legs injured by fall of slate from edge of rib fall.
Aug.	27	Steve Collesa	Driver	19	S.	Leisenring No. 3	Fayette	Slit ear; mule kicked him on the ear.
Aug.	30	John Vesa	Driver	26	M.	Leisenring No. 3	Fayette	Collar bone broken; caught between car and rib.
Sept.	13	Mike Vargo	Miner	30	M.	Nelle	Fayette	Shoulder hurt while hitching up wagons.
Sept.	19	George Anderson	Driver	17	S.	Elm Grove	Fayette	Broken leg; horse slipped on rail and fell on him.
Sept.	22	William Harford	Driver	15	S.	Youngstown	Fayette	Ankle and knee badly sprained and bruised; mine car ran over his leg; he slipped off car while riding thereon.
Sept.	24	John King	Miner	44	S.	Leisenring No. 3	Fayette	Broken leg, caused by fall of slate in his working place.
Sept.	30	George Romanchek	Miner	53	M.	Oliver No. 2	Fayette	Broken ankle, caused by fall of slate from roof.

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Oct. 6.	Frank Veugar,	Miner,	42	S.	Eessie,	Fayette,	Badly bruised about body, hips, ankle and head; was caught by fall of roof coal and slate while drawing out empty pillars.
27.	Marlin Spherelock,	Miner,	27	S.	Smock,	Fayette,	Collar bone broken, head cut and hips crushed by fall of coal.
29.	Joe Refnoski,	Miner,	37	M.	Leisenring No. 3,	Fayette,	Compound fracture of left leg, caused by fall of slate in his room.
Nov. 1.	Richard Jenkins,	Driver,	31	M.	Elm Grove,	Fayette,	Bruised foot and ankle; wheel broke and car run over his foot.
8.	Mike Duresta,	Miner,	50	M.	Lemont No. 2,	Fayette,	Right arm broken; caught between wagon and pillar.
11.	Anton Gasner,	Miner,	28	S.	Grindstone,	Fayette,	Hips injured, badly bruised and sprained.
11.	Joseph McCormick,	Miner,	55	M.	Stewart,	Fayette,	Arm broken by fall of post in rib.
12.	B. C. Williams,	Miner,	30	S.	Niverton,	Somerset,	While drawing out post in rib. Breast and back hurt, also injured internally by a fall of coal from breast while scraping coal out from mining machine.
15.	Pat McArdle,	Driver,	22	S.	Leisenring No. 1,	Fayette,	Back and hand out, arm and shoulder badly bruised, caused by horse backing up against car; driver got on top of car to save himself from being squeezed and was injured as above.
21.	Joseph Kendro,	Miner,	23	M.	Kyle,	Fayette,	Back badly bruised and sprained by fall of slate in working place.
25.	Ignats Lear,	Miner,	23	S.	Oliver No. 2,	Fayette,	Ankle broken by fall of slate when drawing out post in rib.
28.	Andrew Robinson,	Miner,	16	S.	Shaws,	Somerset,	Thigh broken; struck by electric motor.
Dec. 6.	Alphonse Walsnet,	Miner,	20	S.	Bessie,	Fayette,	Fractured skull and leg; fall of slate in working place.
6.	William Thompson,	Roadman,	24	M.	Elm Grove,	Fayette,	Broken arm; thrown by a horse against pillar.
15.	Andy Crino,	Miner,	27	M.	Oliver No. 2,	Fayette,	Head cut and hip dislocated by a fall of slate in his room.

17.	Clifton Hunt,	School boy,	13	S.	Leith,	Fayette,	Jaw broken and head cut; he had climbed up the ladder into coal bin and was caught between one of the conveyer buckets and side of bin; had no business near this bin, and had been driven away 10 minutes before accident. Arm bruised and lacerated badly; was guiding a wagon into his room for driver when he fell in front of wagon, and the wheel ran over his arm. Head cut and bruised by a fall of slate and roof of car.
22.	Thomas Gibbons,	Miner,	36	M.	Trotter,	Fayette,	Arm bruised and lacerated badly; was guiding a wagon into his room for driver when he fell in front of wagon, and the wheel ran over his arm. Head cut and bruised by a fall of slate and roof of car.
28.	John Sheback,	Miner,	33	M.	Lemont No. 1,	Fayette,	Arm bruised and lacerated badly; was guiding a wagon into his room for driver when he fell in front of wagon, and the wheel ran over his arm. Head cut and bruised by a fall of slate and roof of car.
31.	Henry Dynes,	Driver,	22	S.	Lemont No. 1,	Fayette,	Breast and arm bruised; was kicked on breast by mule, he fell in front of car and wheel passed over the side of his arm. Leg broken above ankle; was digging out stump when the gob fell in and covered him, injuring him as above stated.
31.	Herman Tensky,	Miner,	38	M.	Trotter,	Fayette,	Arm bruised and lacerated badly; was guiding a wagon into his room for driver when he fell in front of wagon, and the wheel ran over his arm. Head cut and bruised by a fall of slate and roof of car.



Sixth Bituminous District.

(CAMBRIA, SOMERSET AND INDIANA COUNTIES.)

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I have the honor of presenting herewith my annual report for the year ending December 31, 1898. In addition to the usual tables I have formulated a new one, giving the name of mine, of the foreman in charge, the method of haulage, how ventilated (fan or furnace), whether drift, slope or shaft, also whether pick or machine mine. This will give in a condensed form information that may be of value to a great many persons connected with the mines.

The total quantity of coal mined in the district for the year is 7,161,333 tons, an increase of 1,659,722 tons over that of last year. I regret to say that the number of accidents during the year increased in greater proportion than the quantity of coal produced. I attribute this to several causes, some of which have been referred to in the comment on the accidents in the district, and in my remarks on the general condition of the mines. To these we wish to add here another probable cause for the large accident record. It exists in the very rapid increase of operations in the district, involving the opening up of new fields and the danger consequent to such work until the character of the coal veins and overlying strata has been ascertained by actual experience. The fact of this great increase can be readily seen from the following table, which contains, in condensed form, statistical information concerning the past year's operations in the district, as furnished by the operators:

Total quantity of coal mined, in net tons,	7,161,333
Coke produced,	236,663
Coal used at mines for steam and heat,	82,621
Sold at mines to local trade,	28,179
Total quantity shipped by railroad,	6,551,754
Tons of coal mined per fatal accident,	322,787
Number of men employed per fatal accident,	476
Total number of men employed,	10,488
Total number of mines,	91
Total number of coke ovens,	661
Total number of men employed in the mines,	9,621
Total number of men employed outside,	867

By this table it will be seen that there has been an increase of 30 per cent. in the quantity of coal mined over that of last year and an increase of 17 per cent. in the number of men employed in the mining industry in the district.

Yours respectfully,

J. L. EVANS,

Accidents and their Causes.

	Fatal.	Non-fatal.	Wives left widows.	Orphans.
By falls of rock,	4	7		
By falls of coal,	6	1		
By falls of rock and coal,	3			
By electric shock,	12			
By electric machine chain,		1		
By electric motor,	1	1		
By dilly trips,	3	3		
By dynamite explosion,		6		
By falling into shaft,	1			
By falling into coal chute,	1			
By mine wagons,		2		
By machinery,		1		
Slight accidents, miscellaneous causes,	2	9		
Total,	23	30	12	17

It will be noticed that of the twenty-two fatal accidents that occurred during the year, thirteen were caused by falls of coal and slate and these falls generally took place in the miner's own working room, where he is supposed to protect himself from such dangers by the aid of materials which are supplied by the operator. This he will do if he is careful and qualified by experience for his work. Of the thirteen accidents that occurred from falls of coal and rock, only four were really unavoidable, the others having been caused either by carelessness of the unfortunates or incompetency. I found the latter causes to be in the majority, the experience of many of them in mining being so limited that they were not aware of the dangerous conditions when they existed and therefore did not protect themselves by propping up the roof or spragging the coal, and I have reason to believe, from careful observation and inquiry made in the past few years, that too many accidents are attributed to the carelessness of miners which should be ascribed to a lack of knowledge and incompetency to detect danger. No one can doubt the statement that never in the history of mining in this State have there been so many inexperienced miners employed as at the present time, and no mining man will assert that such men can guard against danger as well as experienced ones. I have long maintained that the accident lists of our mines are higher

than they otherwise would be, through the increased number of inexperienced men employed therein, and now have conclusive proof of this in my possession.

Notwithstanding the foregoing remarks concerning accidents and their causes, I do not wish to detract any from the statements so often made in the Inspector's reports, that to reduce the number of accidents a strict discipline must be maintained and the rules of the mines enforced, as I am well aware of the great number of accidents that occur every year through disobedience of well known regulations of the mines.

General Condition of Mines.

To describe in detail the condition of each mine in the district is monotonous to the writer, and certainly must be more so to the reader, and since the reports are intended to be interesting, as well as instructive, I have deemed it best to make only a few remarks on the mines in convenient groups in another part of the report and in this place to speak in a general way of the safety and sanitary conditions throughout the district, commenting on the good and bad features of the mines as I find them in my examinations. If I refer to some errors and defects it will in many cases not be the first time to point them out, as I regard that as one of the important parts of an Inspector's duty, which I have tried not to neglect in my visits to the workings.

Sometimes the criticisms that are made on such occasions are taken in the proper spirit and suggestions are gladly followed. Unfortunately, however, some cases are met with (very few, I am glad to say) that severely test one's patience. The fact that none are so blind as those who will not see is frequently exemplified in trying to show some operators the error of their ways in mining methods which they falsely consider economical. Apparently the almighty dollar looks as big as a cart wheel to them when they are asked to expend it in improving the condition of their mines, while it would return them five fold. But as the returns are in the future and the dollar is in hand, it is a difficult matter to induce them to part with it.

In my opinion, if there is any one business where more than another, false economy proves disastrous, it is in mining, as has been abundantly proven by the condition of the workings everywhere; for never in the history of the business has coal been taken out more cheaply than at the present time, with the costly but improved methods of mining, ventilation, drainage and haulage, which also better the condition of the mines from the standpoint of safety and sanitation, providing there is no neglect in establishing safeguards about roads upon which coal is hauled by machinery. In a well regulated mine of to-day there is a steel rail costing from 10 to 20 cents a foot,

instead of the old wooden one that cost less than a cent a foot; a fan costing from \$2,000 to \$4,000, instead of a furnace that cost from \$100 to \$200; a drain put in at an expense of from 50 cents to \$1 a yard, to convey the water from the mine instead of allowing it to run in the middle of the road; large roomy headings, driven from 10 to 12 feet wide where the conditions will warrant it, instead of narrow roads from 6 to 7 feet in width. The foregoing are some of the changes that have been made in our up-to-date collieries, and yet, despite the high priced ventilating machines, steel rail tracks and expensive drain ways and hauling roads, these are the very mines that produce the cheapest coal, but in the face of all this there remain some operators who are apparently unconvinced.

There is in no calling a better class of men in general than those who are connected with the mining industry, yet they are only human and liable to err and occasionally relax in their duties toward their fellow men; and if perchance here, as in all other departments of life's activity, an unscrupulous one should be met with, he is not so easily discovered as in most other lines of business, for the reason that his work is carried on in the deep and gloomy caverns of the mine, and not in the open light of day. How necessary it is, then, that only men of the best type should hold positions of responsibility in this work. At one of our institute meetings recently a superintendent expressed the proper idea on this matter when he said that he felt himself morally responsible for the health and safety of every man under his charge. With such men in all positions of trust and responsibility, the lot of the miner, which is not easy at best, would have many of its hardships softened and much of its danger removed.

As suggested above, the conditions confronting the men in the mines are quite different from those which any other class of the world's workers must encounter. One of these is the lack of good light, and this is a very difficult matter to contend with, surrounded as the miner is by innumerable dangers in the narrow passage ways through which he must grope his way by the feeble light of a lamp, and in an atmosphere that sometimes suddenly becomes an agent of death to him. In addition to these natural conditions, there has been introduced into the mines a new source of danger in the railroading which is done on quite an extensive scale by means of compressed air locomotives, electric motors and cable system; so that we can hear the whistle of the locomotive, the gong of the electric motor, or the whirl of the rollers on the cable line almost as though on the streets in the heart of one of the large cities. But there is not the light of the sun, as on the surface, to see the danger approaching, nor the room to get out of the way.

Notwithstanding the dangers of mining increase as mines pene-

trate deeper into the bowels of the earth, I am enabled to say that the abilities of our mining engineers, superintendents and foremen of to-day, upon whom rests the responsibility of coping with these dangers, are quite equal to the task, so that it is possible to make a very favorable report on the general safety and sanitary condition of the mines of the district. It is true that quite an increase is found in the number of fatal accidents during the year, which I attribute to several causes, chief among them, probably, being the unusual activity in the mining business, every one trying to make all possible out of their work, and some not even taking the time to protect themselves from danger. Another noticeable fact was the fatal results of many accidents that were seemingly slight and were reported so, but in a day or two were followed by fatal consequences. The variety of causes of accidents is really remarkable and the more surprising when we know that many of the mishaps occurred at places and times where not even the least suspicion of danger existed. In summing up, I am bound to admit that the year has been a rather disastrous one in these particulars, and the accident list, considering the character, circumstances and causes shows like a great streak of misfortune through the record. But it must be stated in justice to the operators and the men in authority in the various collieries that many of the mishaps were due, as always, to the carelessness or incompetency of the unfortunates themselves, who failed to provide for their own protection with the means at hand, such as spragging the coal or propping up the roof. Therefore, while I repeat that the condition of the mines is good in regard to safety, yet the very act of providing the improvements that brought about this condition has produced new dangers that must be met, and it cannot be denied that more could, and perhaps should, be done to insure greater safety in this age of machinery for mining, haulage, etc. One of the dangers in this particular is the custom of men walking along roads where coal is being hauled out by machinery. Some provision should be made to prevent this whenever possible.

As to the sanitary conditions of the mines, they could be improved a great deal by the foremen paying more attention to having the air currents carried to the face of the workings in greater quantities. The putting in of a good fan or furnace to force or exhaust air in large quantities into or out of a mine, is no assurance that it is well ventilated, as the important part is to see that the air is well distributed and conducted to the face of the workings by a good system of air crossings or doors and substantial and airtight brattices. Certainly by far the best method of insuring the proper carrying of the air through the mines to where it is needed for supplying the men with the requisite quantity and quality, is the system of

air bridges or crossings, with good airtight stopping on the route to prevent leakage. I am warranted in saying that this is the only way, because the law requires that the air currents be split, so that each division of work shall have a fresh current, and experience has demonstrated that, except in very rare cases, this can be accomplished in no other way. This system does away with doors, which have been the cause of more suffering in the past and present, than any other one source, because they are not attended to properly. In fact they are often left without an attendant, or get out of repair and are permitted to stand open, thereby cutting off the air supply from the men.

The drainage of the mines throughout the district is exceptionally good upon the whole, as special attention is paid to it in most of the mines. Yet there are some few workings that require more care upon that subject.

Report of Mines by Groups.

Somerset County Mines.—Five of the mines in Somerset county are located on the Somerset and Cambria branch of the Baltimore and Ohio Railroad. Four of these are ventilated by furnaces and kept in a very fair sanitary condition. The fifth, located at Listie, is now ventilated by a fan, which, on the occasion of my last visit, had just been put in to replace a furnace and which had wrought such a change that it seemed like a new mine. The air was crisp and clear all through the workings, making it healthful and comfortable for the employes. There is another mine on the S. & C. branch, but it is located in Cambria county. Ventilation there is by furnace, which is adequate for the work if properly attended to as only about twenty-five men are employed. The remainder of the mines in Somerset county are located at Scalp Level or Windber, and are operated by the Berwind-White Coal Mining Company. At present there are six in operation. A general description of one of these workings will suffice for all, as the same methods of mining and hauling are used in each. The mining machines are driven by compressed air, and electricity is used for hauling. For each heading in the mine there is a separate current of air produced by fans, all being of the "Capell" type but one, that being a "Stine." Each main heading is driven 16 feet wide, giving room for two roads, one for empties, or ingoing trips, and the other for full loads, or outgoing ones. The motors run in each cross heading and collect the coal at the mouth of each room, thus doing away with mules entirely. Two of the mines have a capacity of from 70 to 80 railroad cars per day each already, and yet the first coal was shipped from this new field only a year ago last September. In and about these mines the company employs

from 1,500 to 1,700 men. Beyond doubt there is at this point the best equipped mining plant to be found in the State.

In and About Johnstown.—The mines of the Conemaugh valley in and about Johnstown are all in excellent sanitary condition. There are five located at this point, three of which are ventilated by fans and the others by furnaces. All are worked on the most improved plan, thereby insuring the greatest possible safety, and providing good ventilation. In the Rolling Mill mine compressed air machines are used for mining coal, and compressed air locomotives do part of the hauling. For the first two miles the coal is hauled by rope, then one mile by compressed air locomotives, and about a half to three-fourths of a mile by mules, the distance being from three and one-half to three and three-fourths miles from face of mine to tippie.

South Fork Mines.—There are seven workings at this place, all except two being ventilated by fans and in five of them coal is hauled by machinery. The condition as to ventilation and general safety has been very satisfactory except as to one mine, which has been far from that condition during the past year. This operation is opened up by two slopes, starting from a common point and running apart until separated by about two thousand feet. In each of these slopes was a steam line, which completely ruined the ventilation by heating the air and causing it to rise so that the fan was almost powerless to force fresh air in, and besides it made walking in and out of the mine almost unbearable by reason of the high temperature. The steam line in one slope has now been taken out and I expect to find the condition of the mine greatly improved in consequence. The other mines at this point are conducted satisfactorily as regards safety and sanitary condition.

Dunlo Mines.—There are three mines here, two of them being very extensive collieries, employing from 250 to 300 persons each. They are ventilated by fans and the hauling is done by machinery. Each is opened up by two slopes from the bottom of the shaft and two systems of rope haulage also from the bottom of each shaft. The general condition of the mines is satisfactory. The third mine at this place is a new slope, just being opened up, and is not yet fully developed.

Lloydell.—This is a new mining town on the Dunlo Branch Railroad. There are two new mines here, Lloydell and Alton. The latter is ventilated by a 7-foot "Stine" fan, which throws a good volume of air, that is well distributed and carried to the face of the workings. Lloydell mine is ventilated by a furnace, which is only temporary, however, as the present opening is to be abandoned and a new one made at another point more favorable for development. Ventilation is in fairly good condition.

Portage Mines.—Six mines are located on the branch railroad here,

all ventilated by fans, and in three of them coal is hauled by electric motors. The safety and sanitary condition of these mines is becoming more satisfactory each year, inasmuch as greater efforts are being made to keep up good drainage and ventilation, which is the secret of economy in mining, a fact which I am glad to note more of the mining people are ascertaining each year.

Bens Creek Mines.—About the oldest collieries on the Allegheny mountains are at this point. Of the five workings only two of them are of long life, the others being nearly worked out, most of the advancing work being done. All of the mines except one are ventilated by fans.

Lilly Mines.—Four in number, are all ventilated by fans except one, which is a small operation, employing from 25 to 30 men, and not having a very favorable system of mining for conducting air through the workings, the ventilation is not up to the standard. The other three mines have in operation the most improved plans for conducting air through the workings, and, with fans to produce ventilation, are of course in very satisfactory condition as to the state of the atmosphere in the working quarters, as well as to drainage.

At Cresson.—There is but one mine, that being a shaft, which is the deepest in the district—300 feet—and is now being sunk still deeper from the bottom of the air shaft to the lower coal bed, the B, or Miller seam, which is 200 feet below the bottom of the present shaft. As will be seen, this will have the great depth of 500 feet when completed.

Gallitzin Mines.—There are located here a slope and a shaft, both large operations, employing over 250 men each inside the workings. They are operated on the most improved plans of hauling, ventilation and drainage, and consequently are in very satisfactory condition. The slope is a complete machine mine, all the digging being done by machinery driven by electricity, which also does the hauling. The shaft operators contemplate putting in the same power.

Patton Mines.—In two of the six collieries in operation at or near this place, the coal is dug by electric machines, in one by compressed air, while the others are pick mines. Ventilation is produced in three of them by fans and in the rest by furnaces. The sanitary condition of all is very fair, except that some of them have not split the air properly, thereby causing the current in some parts of the work to be rather impure, as the splits are allowed to come together before they get to the main return, thus giving some of the men impure air, although there may be plenty of fresh air passing over them. This evil is being corrected slowly by better systems of splitting the air, which I expect soon to see universally adopted in the district. This criticism can be applied to a few other mines as well.

Barnesboro.—In and about this place there are eleven mines, the largest number clustered about any one point in the district. Seven of them are machine mines, four using compressed air and the other three electricity. In only one is the coal hauled by machinery, an electric motor. Two are ventilated by fans, the others by furnaces. It is certainly a great mistake to use furnaces where the power for machine ventilation is available, as 500 pounds of coal additional burned under the boilers would produce more air with a fan than two tons of coal consumed in a furnace. Thus there would be a very considerable saving in a year, without taking into account the labor necessary to attend the furnace. The sanitary condition of the above mentioned mines is quite satisfactory, except in the "Delta" mine, which has grown beyond the capacity of the furnace and should now have a fan.

Amsbry.—There is one mine at this place, and another on the same branch of the railroad, at Dysart. The latter is not a very large working. It is ventilated by a furnace, and when examined last was not in very satisfactory condition either as to ventilation or drainage. The former is ventilated by a fan and when last visited was found to be in good condition.

Spangler Mines.—All of the three mines located here are ventilated by furnaces, which, being large, give satisfaction, as the mines are comparatively small. In the largest of the three workings not more than 90 men are employed. Ventilation and drainage are good in both.

Elmora.—One of the two mines here opens on the B, or Miller vein, and the other on the D, or Moshannon bed, both being operated by the same firm. Ventilation and drainage are in fair condition, both mines using furnaces.

Hastings.—Two of the six operations are ventilated by fans and four by furnaces. The latter are comparatively small workings, none of them employing more than 50 men; consequently furnace ventilation is adequate. All are pick mines except one, where the coal is dug by machines driven by compressed air. The condition of the mines is very satisfactory on the whole, as those in charge look after them well and take particular care that each one shall have good drainage.

Frugality.—Two mines are operated at this place. One is ventilated by both fan and furnace the mining being done by compressed air. The other is a pick mine and is ventilated by a furnace only. In both the sanitary condition is satisfactory in every respect.

Vintondale.—Fans ventilate the two collieries in this place and in both, the hauling is done by machinery, electric motor being used in one and rope haulage in the other. Electricity is the power used

for running mining machines in both. Drainage and ventilation are satisfactory in both, and general conditions are good.

Twin Rocks.—The one mine at this place uses compressed air in the digging machines. Ventilation is produced by fan, and if the air is properly conducted around the workings it is sufficient for all purposes.

Nant-y-Glo Mines.—Are two in number, both being ventilated by furnaces, and the sanitary condition is fairly good.

Name of Mine.	Foreman.	Haulage.	Fan or Furnace.	Drift, Slope or Shaft.	Pick or Machine.	Kind of Machine.
Alipport No. 1,	John Jones,	Mules,	Furnace,	Drift,	Pick,	Compressed air.
Alipport No. 2,	Alex. McLane,	Mules,	Furnace,	Drift,	Pick,	
Argyle,	J. W. Donaldson,	Rope,	Furnace,	Drift,	Pick,	
Aurora,	Mules,	Mules,	Furnace,	Drift,	Pick,	
Alpha,	Henry Gage,	Mules,	Furnace,	Drift,	Pick,	
Adams,	John Williams,	Mules,	Furnace,	Drift,	Pick,	
Adams,	John Connors,	Mules,	Furnace,	Drift,	Pick,	
Alton,	Dan Mulholland,	Mules,	Furnace,	Drift,	Pick,	
Ascroft,	W. M. Gates,	Mules,	Fan,	Drift,	Machine,	Compressed air.
Big Bend,	Sidney Clements,	Mules,	Furnace,	Drift,	Pick,	
Benton,	John Sheehan,	Mules,	Furnace,	Drift,	Pick,	
Bethel,	Patrick Leahy,	Mules,	Furnace,	Drift,	Pick,	
Bell,	Robert V. Ighin,	Mules,	Furnace,	Drift,	Pick,	
Bresson Shaft,	M. Jones,	Mules,	Fan,	Shaft,	Pick,	
Cymbria,	John Platt,	Mules,	Fan,	Drift,	Pick,	
Columbia No. 4,	Thomas Scullen,	Mules,	Furnace,	Drift,	Pick,	
Conemaugh,	Lawrence Gardner,	Mules,	Furnace,	Drift,	Pick,	
Columbia,	David Duncan,	Mules,	Furnace,	Drift,	Pick,	
Dysart,	Edward Nicholson,	Rope and mules,	Fan,	Drift,	Machine,	Electric.
Delta,	Thomas Leahy,	Mules,	Fan,	Drift,	Pick,	
Duibo Slope,	J. J. McGonigle,	Mules,	Furnace,	Slope,	Machine,	Compressed air.
Eureka No. 30,	Richard Parboe,	Mules,	Furnace,	Drift,	Pick,	
Eureka No. 31,	Daniel Thomas,	Electric motor,	Fan,	Drift,	Machine,	Compressed air.
Eureka No. 32,	John Langtry,	Electric motor,	Fan,	Drift,	Machine,	Compressed air.
Eureka No. 33,	James Somerville,	Electric motor,	Fan,	Drift,	Machine,	Compressed air.
Eureka No. 34,	Thomas Bradford,	Electric motor,	Fan,	Drift,	Machine,	Compressed air.
Eureka No. 35,	East Works,	Electric motor,	Fan,	Drift,	Machine,	Compressed air.
Elmora Nos. 1 and 2,	Grant Couper,	Electric motor,	Furnace,	Drift,	Pick,	
Excelsior,	John Cole,	Mules,	Fan,	Drift,	Pick,	
Empire,	Robert Pierce,	Mules,	Fan,	Drift,	Machine,	Compressed air.
Frugality Nos. 2, 4 & 5,	William Leighton,	Mules,	Fan,	Drift,	Pick,	
Frugality No. 8,	George Simmers,	Mules,	Furnace,	Slope,	Machine,	Compressed air.
Franklin Run,	Wm. Simmers,	Rope and mules,	Fan and furnace,	Drift,	Machine,	Compressed air.
Franklin,	Alex. Montooth,	Electric motor,	Fan,	Drift,	Machine,	Compressed air.
Glen Helen,	James Brownlee,	Mules,	Fan,	Slope,	Pick,	
Gallitzen Slope,	George A. Eaton,	Rope and mules,	Fan,	Slope,	Machine,	Electric.
Gallitzen Shaft,	James Nicholson,	Rope and electric motor,	Fan,	Shaft,	Machine,	Electric.
Gallitzen Shaft,	James Stoker,	Rope,	Fan,	Shaft,	Pick,	
Gallitzen Shaft,	Thomas Stoker,	Rope and mules,	Fan,	Shaft,	Pick,	
Hastings Shaft,	E. F. Smith,	Mules,	Fan,	Shaft,	Pick,	
Hays Shaft,	Wm. Oppy,	Mules,	Fan,	Shaft,	Pick,	
Inceside,	Wm. Moss,	Mules,	Fan,	Drift,	Pick,	
Ivy Ridge,	James Hgme,	Electric motor,	Fan,	Drift,	Machine,	Electric.
Junjata,	Richard Morris,	Mules,	Furnace,	Drift,	Machine,	Electric.
Krehs,	Wm. McGee,	Electric motor,	Fan,	Drift,	Pick,	
Lally Slope,	Nicholas Evans,	Mules,	Fan,	Slope,	Pick,	
Lancashire No. 3,	No foreman, idle at present,	Rope,	Furnace,	Drift,	Pick,	

TABLE.—Giving name of mine, foreman in charge, haulage, method of ventilation, drift slope or shaft, pick or machine mine.—
Continued.

Name of Mine.	Foreman.	Haulage.	Fan or Furnace.	Drift, Slope or Shaft.	Pick or Machine.	Kind of Machine.
Lancashire No. 6, . . .	Thomas Ashcroft,	Mules,	Furnace,	Drift,	Machine,	Electric.
Lancashire No. 1, . . .	Thomas Stevens,	Electric motor,	Furnace,	Drift,	Pick,	Electric.
Loydell,	Mules,	Mules,	Furnace,	Drift,	Pick,	
Lorain,	John Hunter,	Mules,	Fan,	Drift,	Pick,	
Moshannon,	John Byron,	Mules,	Furnace,	Drift,	Pick,	
Mineral Point,	John Leonard,	Rope,	Furnace,	Drift,	Pick,	
Nant'y Glo,	James Campbell,	Rope and mules,	Fan,	Drift,	Pick,	
Oak Ridge,	James Campbell,	Mules,	Furnace,	Drift,	Pick,	
Plain,	John Leah,	Mules,	Fan,	Drift,	Pick,	
Plain No. 1,	Deussen,	Electric motor,	Fan,	Shaft,	Machine,	Electric.
Puritan No. 2,	George Bell,	Mules,	Fan,	Drift,	Pick,	
Puritan No. 3,	Frank Campbell,	Electric motor,	Fan,	Slope,	Pick and machine,	Electric.
Pardee No. 3,	William Cowan,	Rope,	Furnace,	Drift,	Machine,	Compressed air.
Patton,	John Fulton,	Mules,	Fan,	Drift,	Pick,	Compressed air.
Rolling Mill,		Rope, compressed air				
		locomotives and mules,				
Stinman No. 1,	Samuel Brewer,	Rope and mules,	Fan,	Drift and slope,	Pick,	
Stinman No. 2,	Alex Hleslop,	Electric motor,	Fan,	Drift,	Pick,	
Sonman No. 1,	Smith Hawxby,	Mules,	Fan,	Drift,	Pick,	
Sonman No. 2,	Joseph Easton,	Rope and mules,	Fan,	Drift,	Pick,	
Susquehanna,	Henry Rogers,	Mules,	Furnace,	Drift,	Pick,	
South Fork No. 1,	Evan D. Davis,	Mules,	Fan,	Slope,	Pick,	
Stony Creek,	Wm. Hunter,	Mules,	Furnace,	Drift,	Pick,	
Stonycreek,	Charles Hoffa,	Mules,	Furnace,	Drift,	Pick,	
Stonycreek No. 2,	Victor Evans,	Mules,	Fan,	Drift,	Pick,	
Sterling No. 8,	John McGonigle,	Mules and rope,	Furnace,	Drift,	Machine,	Compressed air.
Sterling No. 10,		Mules,	Fan,	Drift,	Pick,	
Sterling No. 11,	At present idle,	Mules,	Furnace,	Drift,	Pick,	
Sterling No. 13,	At present idle,	Mules,	Furnace,	Drift,	Pick,	
Sonman Shaft,		Rope and mules,	Fan,	Shaft,	Pick,	
Spangler,	Henry Redding,	Mules,	Furnace,	Slope,	Pick,	
Trout Run,	Joseph Harrison,	Mules,	Fan,	Drift,	Machine,	Electric.
Vintondale No. 1,	George Bluet,	Electric motor,	Fan,	Drift,	Pick,	Electric.
Vintondale No. 2,	Wm. Alexander,	Rope,	Fan,	Drift,	Pick,	
Wells Creek,	Hugh Ross,	Mules,	Furnace,	Drift and slope,	Pick,	
Webster Nos. 3 and 6,	John Reed,	Rope and mules,	Fans,	Drift,	Pick,	
Watnut Run,	Peter Stewart,	Mules,	Furnace,	Drift,	Pick,	
West Branch,	Charles Stewart,	Mules,	Fan,	Drift,	Machine,	Compressed air.
Yellow Run Shaft,	Thomas Griffiths,	Rope and mules,	Fan,	Shaft,	Pick,	

TABLE I.—Showing location, etc., of collieries in the Sixth Bituminous District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
27	Allport No. 1.	Allport Coal Company.	Cambria.	Jas. H. Allport.	Hastings.	P. R. R.
13	Allport No. 2.	Allport Coal Company.	Cambria.	Jas. H. Allport.	Hastings.	P. R. R.
3	Argyle.	Huff & Coultter.	Cambria.	J. P. Wilson.	South Fork.	B. & O. R. R.
4	Aurora.	Aurora Coal Company.	Cambria.	D. W. Luke.	South Fork.	P. R. R.
36	Alpha.	Knight & Co.	Cambria.	H. C. Williams.	Barnesboro.	P. R. R.
39	Adams.	Rowe & Adams.	Somerset.	John Connor.	Listie.	P. R. R.
31	Alton.	Alton Coal Company.	Cambria.	D. J. Mulhollen.	Lovet.	P. R. R.
32	Ashton.	Patton Coal Company.	Cambria.	John Ashcroft.	Patton.	B. C. R. R.
79	Big Bend.	Eds. McFadden, Jr.	Cambria.	H. McFadden.	Epedit.	P. R. R.
12	Benon.	Benon Coal Co.	Cambria.	Patrick Campbell.	Hastings.	P. R. R.
43	Bear Rock.	Bethel Coal Company.	Cambria.	Joseph Virgin.	Hastings.	P. R. R.
47	Bethel.	Bethel Coal Company.	Somerset.	George Thirley.	Johnstown.	B. & O. R. R.
54	Bell.	Herman Coal Company.	Cambria.	John K. Paul.	Cresson.	P. R. R.
16	Cresson Shaft.	Cresson Coal and Coke Company.	Cambria.	E. R. Musser.	Barnesboro.	P. R. R.
18	Cymbria.	Cymbria Coal Company.	Cambria.	Lawrence Gardiner.	Myra.	B. C. R. R.
94	Columbia No. 4.	J. L. Mitchell.	Cambria.	J. P. Wilson.	South Fork.	P. R. R.
25	Conemaugh.	Huff & Coultter.	Cambria.	John Ashcroft.	Patton.	B. C. R. R.
23	Columbia.	Patton Coal Company.	Cambria.	Thomas Leahy.	Lilly.	P. R. R.
24	Dysart.	D. Laughlin & Co.	Cambria.	C. F. Frazer.	Hastings.	P. R. R.
6	Delta.	Buncan & Spangler.	Cambria.	J. F. Wilson.	South Fork.	P. R. R.
67	Eureka No. 1.	Mountain Coal Company.	Cambria.	J. E. Cunningham.	Whidder.	P. R. R.
68	Eureka No. 2.	Berwind White Coal Mining Co.	Somerset.	J. E. Cunningham.	Whidder.	P. R. R.
75	Eureka No. 30.	Berwind White Coal Mining Co.	Somerset.	J. E. Cunningham.	Whidder.	P. R. R.
78	Eureka No. 31.	Berwind White Coal Mining Co.	Somerset.	J. E. Cunningham.	Whidder.	P. R. R.
79	Eureka No. 32.	Berwind White Coal Mining Co.	Somerset.	J. E. Cunningham.	Whidder.	P. R. R.
80	Eureka No. 33.	Berwind White Coal Mining Co.	Somerset.	J. E. Cunningham.	Whidder.	P. R. R.
81	Eureka No. 34.	Berwind White Coal Mining Co.	Somerset.	J. E. Cunningham.	Whidder.	P. R. R.
82	Eureka No. 35.	Berwind White Coal Mining Co.	Somerset.	J. E. Cunningham.	Whidder.	P. R. R.
28-24	Elmora Nos. 1 and 2.	Elmora Coal Mining Company.	Cambria.	Jno. B. Reed.	Elmora.	P. R. R.
41	Excelsior.	Empire Coal and Coke Company.	Cambria.	Robert Pearce.	Puritan.	P. R. R.
76	Empire.	Empire Coal and Coke Company.	Cambria.	R. A. Shillingsford.	Peale.	B. C. R. R.
57-59	Fragality Nos. 2, 4 & 5.	Fragality Coal and Coke Company.	Cambria.	Frank McFarland.	Fragality.	P. R. R.
19	Fragality No. 3.	Fragality Coal and Coke Company.	Cambria.	Frank McFarland.	Fragality.	P. R. R.
3	Franklin Run.	Patton Coal Company.	Cambria.	John Ashcroft.	Patton.	B. C. R. R.
1	Gallitzen No. 1.	Taylor Bros. Company.	Cambria.	Val Eichenlaub.	Amsbury.	P. R. R.
22	Gallitzen No. 2.	Walsh and McCool & Coke Co.	Cambria.	William Smith.	Gallitzen.	P. R. R.
31	Gallitzen Shaft.	Walsh and McCool & Coke Co.	Cambria.	T. E. Dipner.	Gallitzen.	P. R. R.
17	Gaultier No. 3.	Cambria Steel Company.	Cambria.	W. H. Morris.	Johnstown.	P. R. R.

TABLE 1.—Continued.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
40	Henrietta Shaft.	Henrietta Coal Company.	Cambria.	John McNulty.	Dunlo.	P. R. R.
35-36	Hastings.	Shiffler & Smith.	Cambria.	W. C. Shiffler.	Hastings.	P. R. R.
42	Haws Shaft.	A. J. Haws & Son.	Cambria.	H. Y. Haws.	Johnstown.	P. R. R.
43	Ingleside.	Ingleside Coal Company.	Cambria.	William Moss.	Walsal.	B. & O.
45	Ivy Ridge.	Lovell Coal Mining Company.	Cambria.	P. S. Campbell.	Puritan.	P. R. R.
70	Juniata.	D. Atherton.	Cambria.	Richard C. Morris.	Barnesboro.	P. R. R.
15	Krebs.	Lifstie Mining Company.	Somerset.	George J. Krebs.	Somerset.	B. & O.
14	Lilly Slope.	Lilly Coal Company.	Cambria.	Nicholas Evans.	Lilly.	B. & O.
11	Lancashire No. 3.	Barnes & Tucker.	Cambria.	J. T. Stenger.	Barnesboro.	P. R. R.
95	Lancashire No. 1.	Barnes & Tucker.	Cambria.	J. T. Stenger.	Barnesboro.	P. R. R.
93	Lancashire No. 4.	Barnes & Tucker.	Cambria.	J. T. Stenger.	Barnesboro.	P. R. R.
87	Loydell.	L. B. Huff & Co.	Cambria.	J. P. Wilson.	South Fork.	P. R. R.
84	Loydell.	L. B. Huff & Co.	Cambria.	C. Lorain.	Phillipsburg.	P. R. R.
88	Moshannon.	E. P. McCormick.	Cambria.	E. P. McCormick.	Patton.	B. C. R. R.
10	Mineral Point.	M. Bracken Coal Company.	Cambria.	J. H. Bracken.	Mineral Point.	P. R. R.
89	Nant y Glo.	Nant y Glo Coal Company.	Cambria.	J. W. Dunwiddle.	Glen Glade.	P. R. R.
50	Oak Ridge.	James Campbell & Co.	Cambria.	James Campbell.	Hastings.	P. R. R.
7	Plah.	E. W. Mentzer.	Cambria.	John A. Leap.	Lilly.	P. R. R.
52	Puritan No. 1.	Puritan Coal Mining Company.	Cambria.	John Langdon.	Huntingdon.	P. R. R.
46	Puritan No. 2.	Puritan Coal Mining Company.	Cambria.	John Langdon.	Huntingdon.	P. R. R.
46	Puritan No. 3.	Puritan Coal Mining Company.	Cambria.	John Langdon.	Huntingdon.	P. R. R.
91	Pardee No. 3.	McGee & Jingle.	Cambria.	W. C. Jingle.	Patton.	B. C. R. R.
91	Pardee No. 3.	McGee & Jingle.	Cambria.	W. C. Jingle.	Patton.	B. C. R. R.
56	Patton Mill.	Morrisdale Coal Company.	Cambria.	Edward Cowan.	Carrolltown.	B. C. R. R.
56	Patton Mill.	Morrisdale Coal Company.	Cambria.	Edward Cowan.	Carrolltown.	B. C. R. R.
71	Stinevan No. 1.	Stinevan Coal Company.	Cambria.	W. H. Stinevan.	Johnstown.	P. R. R.
60	Stinevan No. 2.	Stinevan Coal and Coke Company.	Cambria.	J. H. Dietrich.	South Fork.	P. R. R.
61	Sonman No. 1.	W. H. Piper & Co.	Cambria.	W. H. Piper.	South Fork.	P. R. R.
61	Sonman No. 2.	W. H. Piper & Co.	Cambria.	W. H. Piper.	South Fork.	P. R. R.
39	Susquehanna.	Derringer Bros.	Cambria.	George S. Forsyth.	Lilly.	P. R. R.
34	South Fork No. 1.	South Fork Coal Mining Company.	Cambria.	W. Derringer.	South Fork.	P. R. R.
34	South Fork No. 1.	South Fork Coal Mining Company.	Cambria.	E. D. Davis.	South Fork.	P. R. R.
65	Stony Creek.	Stony Creek Coal Company.	Somerset.	A. F. John.	Johnstown.	B. & O. R. R.
65	Stony Creek.	Stony Creek Coal Company.	Somerset.	A. F. John.	Johnstown.	B. & O. R. R.
63	Standard.	Standard Coal Company.	Cambria.	Nicholas Evans.	Lilly.	P. R. R.
64	Sterling No. 8.	Duncan & Spangler.	Cambria.	C. F. Frazer.	Hastings.	P. R. R.
66	Sterling No. 10.	Duncan & Spangler.	Cambria.	C. F. Frazer.	Hastings.	P. R. R.
67	Sterling No. 11.	Duncan & Spangler.	Cambria.	C. F. Frazer.	Hastings.	P. R. R.
63	Sterling No. 13.	Duncan & Spangler.	Cambria.	C. F. Frazer.	Hastings.	P. R. R.

58	Sonman Shaft,	Loyalhanna Coal and Coke Company.	Camabria,	Joseph Patterson,	Myra,	P. R. R.
49	Spangler,	Summit Coal Company,	Camabria,	Henry R. Eddy,	Spangler,	P. R. R.
55-59	Trout Run,	Pinney and Bituminous Coal Co.,	Camabria,	John W. Herpin,	Porter,	P. R. R.
63	Trout Run, Nos. 1 and 2,	Vintondale Colliery Company,	Camabria,	Clarence R. Claghorn,	Vintondale,	P. R. R.
75	Wells Creek,	Wells Creek,	Somerset,	Hugh Ross,	Listie,	B. & O.
75	Webster No. 3,	John C. Scott & Sons,	Camabria,	Philip Hartman,	Ehrenfeld,	P. R. R.
21	Walnut Run,	Walnut Run Coal Company,	Camabria,	C. F. Frazer,	Hastings,	P. R. R.
21	West Branch,	Clearfield Bit. Coal Corp'n,	Camabria,	R. A. Shillingford,	Peale,	B. C. R. R.
21	Yellow Run Shaft,	Berwind White Coal Mining Co.,	Camabria,	A. S. R. Richards,	Osceola Mills,	B. C. R. R.

Frugality Nos. 2, 4 and 5.	500	160	600	25, 133	236	51	10	240	50	10	1	88
Cambria.....	26,333	1,200	600	25,133	236	51	10	240	50	10	4	1
Frugality No. 8.....	99,837	1,300	300	98,637	225	154	9	387	150	9	1	1
Flambean Run.....	136,680	300	300	133,880	178	215	14	409	100	14	1	1
Glen Helen.....	5,011	4,253	3,257	3,257	174	215	6	1,253	22	6	3	181
Gallitzin Slope.....	153,834	81,827	2,315	134,157	254	313	8	1,811	22	8	3	240
Gallitzin Shaft.....	71,951	1,475	2,315	69,161	254	313	3	1,679	22	3	1	181
Gaultier No. 3.....	46,150	1,475	2,315	44,360	254	313	2	922	50	2	1	240
Hastings Shaft.....	201,178	3,500	1,005	197,679	220	297	28	1,600	250	28	4	152
Hastings.....	183,462	9,400	1,131	173,062	286	248	20	1,165	500	20	3	152
Hays Shaft.....	29,600	1,400	1,131	27,169	286	54	2	1,290	100	2	2	152
Inveside.....	21,075	30	60	20,985	150	26	2	1,290	100	2	2	152
Ivy Ridge.....	11,102	11,102	84	11,102	84	41	5	160	10	5	1	152
Juniatra.....	34,748	209	250	34,289	145	63	6	159	10	6	1	152
Krebs.....	175,336	700	100	174,336	219	173	18	1,586	275	18	2	1
Lancashire No. 1.....	28,369	297	297	27,869	188	49	6	20	50	6	1	158
Lancashire No. 2.....	46,781	60	510	46,171	90	186	4	40	250	4	1	158
Lancashire No. 3.....	132,557	300	1,500	130,957	210	167	12	150	350	12	1	158
Lancashire No. 4.....	32,475	300	1,500	30,675	210	167	3	1,212	350	3	1	158
Lloydell.....	27,450	300	1,500	25,650	283	32	2	212	350	2	1	158
Lorain.....	10,780	70	14,000	10,670	150	30	2	70	350	2	1	158
Luscomb.....	27,070	70	27,000	26,930	150	30	2	70	350	2	1	158
Mason Run.....	97,711	4,08	2,000	93,631	319	11	2	2,970	450	2	1	158
Metal Point.....	12,136	46	43	12,047	163	37	6	146	3	6	1	158
Nant Y Glo.....	49,000	135	176	48,689	163	37	4	90	3	4	1	158
Oak Ridge.....	23,125	135	176	22,814	163	37	7	50	3	7	1	158
Plain.....	57,538	1,222	200	56,516	205	68	4	300	10	4	1	158
Puritan No. 1.....	147,018	692	200	146,526	246	221	12	800	10	12	4	2
Puritan No. 2.....	48,554	692	200	47,862	246	221	12	800	10	12	4	2
Puritan No. 3.....	56,953	692	200	56,161	246	221	12	800	10	12	4	2
Puritan No. 4.....	343,254	348	1,003	341,503	291	329	6	315	500	6	2	1
Patton.....	10,780	70	14,000	10,670	150	30	2	1,200	500	2	1	158
Rolling Mill.....	97,711	4,08	2,000	93,631	319	11	2	2,970	450	2	1	158
Stineman No. 1.....	58,619	2,907	182	55,525	268	130	9	1,643	400	9	3	1
Stineman No. 2.....	60,911	2,907	182	57,804	268	130	9	1,643	400	9	3	1
Sonman No. 1.....	119,781	800	600	118,981	149	121	14	183	12	14	2	1
Sonman No. 2.....	45,769	800	100	44,969	215	95	5	350	3,000	5	3	1
Susquehanna.....	77,000	2,400	100	74,600	138	138	3	350	3,000	3	3	1
South Fork No. 1.....	8,285	119	62	8,166	119	62	3	8,385	100	3	3	1
Stony Creek.....	2,024	2,024	55	1,969	55	16	2	2,024	55	2	2	1
Somerseset.....	37,500	37,500	301	37,199	301	46	3	15	550	3	3	1
Standard.....	110,125	2,372	507	107,250	178	178	26	763	250	26	7	1
Sterling No. 8.....	12,059	567	67	11,452	133	122	2	171	100	2	2	1
Sterling No. 9.....	41,140	567	67	40,506	133	122	2	374	100	2	2	1
Sterling No. 10.....	168,874	6,530	100	162,244	200	250	47	47	100	47	7	1
Sterling No. 13.....	39,009	1,300	100	37,709	200	200	7	90	100	7	1	1
Sonman Shaft.....	32,545	1,300	100	31,145	200	200	7	90	100	7	1	1
Sonman Run.....	108,119	457	378	107,364	238	142	4	813	150	4	3	1
Vintondale Nos. 1 and 2.....	9,000	6,178	2,227	3,000	268	23	4	70	150	4	3	1
Wells Creek.....	298,818	6,178	2,227	292,413	265	460	35	1,856	600	35	8	1
Webster No. 3.....	10,720	1,210	200	9,310	185	32	2	127	10,000	2	2	1
Walnut Run.....	100,245	4,752	272	95,221	290	77	9	524	10,000	9	2	1
West Branch.....	257,102	4,752	272	252,078	272	295	6	1,112	10,000	6	6	1
Yellow Run Shaft.....	7,161,333	236,663	28,179	6,351,754	16,771	10,488	22	38,017	43,219	22	137	28
Total.....	7,161,333	236,663	28,179	6,351,754	16,771	10,488	22	38,017	43,219	22	137	28

TABLE II.—Showing the number of employees at each colliery in the Sixth Bituminous District, during the year 1898.

Names of Collieries.	Occupations of Persons Employed Inside.										Occupations of Persons Employed Outside.										Grand total inside and outside.
	Inside boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Employed in the manufacture of coke.	Superintendents, bookkeepers and clerks.	All other employes.	Total outside.					
Allport No. 1.	1		139		9	1	1	146	1	1				1		4	150				
Allport No. 2.	1		19		1	1	22	22	1	1						3	25				
Arkyle.	1		140		12		155	2	1	2				9		16	171				
Aurora.	1		55		6		63	1	1	1				1		4	71				
Alpha.	1		24		1		26	2	1	2				1		2	36				
Adams.	1		27	2	3		34	2	1	1				2		2	46				
Alton.	1		40		3		47	3	1	3				3		3	80				
Ashcroft.	1		52		4		57	1	2	3				3		3	84				
Big Bend.	1		54		2		56	5	1	1				6		1	62				
Benton.	1		50		4		54	4	1	1				1		2	58				
Bethel Rock.	1		12		4		14	4	4	1				1		1	15				
Bethel.	1		25		2		28	1	1	1				1		2	30				
Bell.	1		51		4		58	2	1	2				1		2	64				
Cresson Shaft.	1		114		5	3	124	1	1	1				3		6	130				
Cymbria.	1		52		3	1	59	1	1	1				1		2	63				
Columbia No. 4.	1		52		5	3	60	1	1	1				1		2	63				
Conemaugh.	1		150	12	12	6	181	3	1	1				3		7	188				
Columbia.	1		172		15	3	192	1	1	1				3		6	198				
Dysart.	1		106	3	5	5	122	2	1	2				1		2	132				
Deita.	1		24		10		34	1	1	1				2		2	36				
Dunlo Slope.	1		302		10		314	2	1	1				1		2	316				
Eureka No. 30.	1		368		8		388	24	1	1				12		24	454				
Eureka No. 31.	1		308		8		324	24	1	1				1		21	422				
Eureka No. 32.	1		178		8		197	20	1	1				6		14	221				
Eureka No. 33.	1		150		4		158	25	1	1				11		19	189				
Eureka No. 34.	1		41		4		46	10	1	1				3		3	65				
Eureka No. 35.	1		41		2		43	25	1	2				3		9	77				
Elmora Nos. 1 and 2.	1		130	1	7	1	141	1	1	1				1		3	147				
Excelsior.	1		30		4		36	1	1	1				1		2	38				
Empire.	1		160	40	10	2	215	2	1	2				1		4	225				

1	35	.....	5	1	2	44	.....	1	1	1	3	3	3	9	7	51
1	101	.....	12	2	8	202	.....	2	2	2	.....	.....	.....	10	18	121
1	175	.....	6	3	8	77	.....	1	1	1	.....	.....	.....	2	10	52
1	216	.....	15	9	30	233	.....	4	3	3	51	.....	.....	12	80	313
1	33	.....	2	1	32	273	.....	1	4	4	70	.....	.....	.....	80	353
1	245	.....	23	6	1	38	.....	2	5	2	.....	.....	.....	.....	41	41
1	170	.....	9	4	5	189	.....	2	3	2	43	.....	.....	10	59	248
1	33	.....	6	1	41	.....	.....	1	2	.....	.....	.....	.....	9	13	54
1	22	.....	4	2	24	.....	.....	1	2	.....	.....	.....	.....	2	26	26
1	50	.....	3	3	1	38	.....	1	1	.....	.....	.....	.....	1	2	41
1	135	.....	4	4	5	161	.....	1	1	.....	.....	.....	.....	5	14	175
1	38	.....	2	6	41	.....	.....	1	1	.....	.....	.....	.....	2	6	49
1	109	.....	5	2	2	190	.....	1	1	.....	.....	.....	.....	1	6	120
2	130	.....	7	3	7	152	.....	2	3	.....	.....	.....	.....	2	6	157
2	21	.....	3	3	7	28	.....	1	3	.....	.....	.....	.....	1	13	157
1	26	.....	1	.....	.....	28	.....	1	.....	.....	.....	.....	.....	2	14	32
1	45	.....	3	1	1	62	.....	1	1	.....	.....	.....	.....	1	3	30
1	29	.....	4	1	1	35	.....	1	1	.....	.....	.....	.....	.....	3	55
1	58	.....	4	1	3	66	.....	1	1	.....	.....	.....	.....	.....	2	37
1	25	.....	3	1	1	31	.....	1	1	.....	.....	.....	.....	.....	2	68
1	75	.....	11	2	.....	89	.....	2	2	.....	.....	.....	.....	1	1	94
1	187	.....	10	1	12	211	.....	2	3	.....	.....	.....	.....	2	6	224
1	40	.....	3	1	1	46	.....	1	1	.....	.....	.....	.....	1	2	49
1	80	.....	5	3	4	32	.....	1	2	.....	.....	.....	.....	1	2	8
1	225	.....	40	14	3	297	.....	3	4	.....	.....	.....	.....	3	13	320
2	3	.....	1	.....	.....	393	.....	6	11	.....	.....	.....	.....	.....	.....	.....
2	252	.....	24	20	35	303	.....	1	.....	.....	.....	.....	.....	3	21	411
1	108	.....	9	1	2	121	.....	2	2	.....	.....	.....	.....	1	20	324
1	94	.....	2	3	11	121	.....	1	1	.....	.....	.....	.....	5	9	130
1	169	.....	4	20	2	191	.....	2	1	.....	.....	.....	.....	2	5	121
1	85	.....	2	2	4	91	.....	2	1	.....	.....	.....	.....	2	7	198
1	100	.....	7	1	22	131	.....	1	3	.....	.....	.....	.....	1	3	95
1	13	.....	1	3	1	61	.....	2	3	.....	.....	.....	.....	1	7	138
1	35	.....	5	1	1	15	.....	1	1	.....	.....	.....	.....	1	1	16
1	123	.....	7	6	1	45	.....	1	1	.....	.....	.....	.....	1	1	46
1	23	.....	2	1	1	165	.....	3	6	.....	.....	.....	.....	2	1	178
1	190	.....	5	3	3	128	.....	1	2	.....	.....	.....	.....	1	3	159
1	200	.....	2	2	1	134	.....	1	2	.....	.....	.....	.....	1	8	182
1	40	.....	16	.....	.....	231	.....	4	6	.....	.....	.....	.....	4	10	250
1	80	.....	2	.....	.....	43	.....	1	2	.....	.....	.....	.....	2	4	45
1	110	.....	4	.....	.....	98	.....	1	1	.....	.....	.....	.....	1	3	101
2	409	.....	10	.....	.....	123	.....	3	3	.....	.....	.....	.....	10	19	142
1	26	.....	34	2	14	461	.....	1	1	.....	.....	.....	.....	3	2	23
1	50	.....	11	5	2	281	.....	3	6	.....	.....	.....	.....	16	29	490
1	254	.....	17	6	3	281	.....	1	2	.....	.....	.....	.....	1	4	32
1	.....	.....	11	6	2	69	.....	1	1	.....	.....	.....	.....	5	8	77
1	.....	.....	17	6	3	281	.....	3	4	.....	.....	.....	.....	2	4	295
89	2	8,421	613	153	449	9,621	25	109	136	39	170	101	287	867	10,488	
		Total														

TABLE III.—Continued.

Names of Collieries.	Number of Days Worked Each Month During 1898.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Allport No. 1,	23	21	25	24	22	18	19	12	17	20	19	21
Allport No. 2,	26	24	27	26	15	19	17	14	20	21	22	23
Argyle,	22	20	23	19	26	26	26	27	26	26	26	27
Aurora,	20	16	26	14	15	15	15	17	14	17	16	22
Alpha,	25	24	27	26	24	25	25	25	13	15	21	21
Adams,	21	22	23	18	22	22	22	21	22	20	21	23
Ashcroft,	21	13	23	23	22	18	17	17	23	21	16	16
Big Bend,	20	14	22	22	24	21	18	21	21	17	15	17
Beaumont,	14	15	21	22	16	15	13	23	18	17	19	21
Bethel,	25	24	27	26	24	25	25	24	24	22	24	24
Bell,	14	15	15	15	15	15	15	15	15	15	15	15
Cresson Shaft,	25	18	23	21	17	9	6	7	13	10	9	9
Cymbria,	21	23	23	21	24	16	11	17	17	21	17	17
Columbia No. 4,	26	24	27	26	26	26	26	27	26	26	26	27
Conemaugh,	24	21	24	25	21	24	24	25	24	22	24	24
Columbia,	25	22	25	26	24	26	26	26	26	26	26	26
Dysart,	25	24	27	26	24	26	26	26	26	26	26	26
Delta,	25	22	15	26	24	26	26	26	26	26	26	25
Dunlop Slope,	25	24	27	26	25	25	21	21	22	23	25	26
Eureka No. 31,	25	23	27	26	25	23	21	21	22	23	25	26
Eureka No. 32,	26	23	27	26	25	23	21	21	20	24	21	24
Eureka No. 33,	26	23	24	26	23	23	23	26	24	24	22	24
Eureka No. 34,	26	23	24	26	26	23	25	24	25	25	26	26
Eureka No. 35,	24	19	25	19	18	25	17	15	22	25	26	26
Elmora Nos. 1 and 2,	18	17	25	14	18	25	12	12	4	17	11	16
Excelsior,	24	21	25	23	24	30	30	30	15	23	22	26
Empire,	24	21	25	23	24	30	30	30	15	23	22	26

Frugality Nos. 2, 4 and 5,	20	19	24	23	18	22	17	20	14	20	20
Frugality No. 8,	22	21	20	17	20	18	16	14	12	14	22
Flannigan Run,	24	26	25	24	24	19	19	24	25	25	25
Glen Helen,	18	13	14	7	14	7	8	9	11	15	15
Gallitzen Slope,	21-90	19-80	20-40	22-10	19-40	19-90	19-90	21-10	21-10	23	22
Gallitzen Shaft,	26	25	26	21-75	25	25	26	24	26	26	26
Gautier No. 3,	24	25	25-50	21-75	23	27	26	25	24	24-75	24
Henrietta Shaft,	24	25	25	25	25	27	26	25	24	25	25
Harris Shaft,	21-50	19-90	19-90	19-90	19-30	16-90	16-90	21-30	23	23	20
Harris Shaft,	21-50	21-50	23	22-50	22-50	24-50	24-50	25-50	25-50	25-50	25
Hays Shaft,	21-50	21-50	23	22-50	22-50	24-50	24-50	25-50	25-50	25-50	25
Inghelide,	19	16-50	12-50	12-50	9-75	10-50	8-50	8-50	7	13-50	13-50
Ivy Ridge,	18	9	9	9	11	4	4	7	8	7	10
Juniata,	18	20	12	10	13	11	12	9	8	10	10
Krebs,	11	13	19	22	11	23	23	23	20	22	20
Lilly Slope,	18	10-25	13-50	16-75	11	14	13-25	12-50	19-50	22-25	22-25
Lancashire No. 3,	22	20	26	14	8	14	14	14	14	14	14
Lancashire No. 6,	14-25	21	21	16	21-25	17	19	16-75	18-75	18-75	12-50
Lancashire No. 1,	22-50	21-75	23	22	19-22-75	19	18-50	22	16-75	19-50	12-50
Lloydell,	15	20	23	18-75	25	25	24	25	26	26	26
Lorath,	24	26	15	16	9	21	9	8	14	17	17
Moshannon,	16	17	16	16	16	16	16	14	14	16	16
Natural Point,	19	17	15	15	16	16	16	14	14	16	16
Oak Ridge,	9-40	14	15-40	15-40	10-40	7-10	9	13-20	13-20	13-50	13-50
Plain,	24	24	24	24	13	11	16	17	20	20	20
Puritan No. 1,	24	22	22	16	22	22	22	15	15	15	16
Puritan No. 2,	24	22	21	23	22	22	22	13	13	15	15
Puritan No. 3,	20	22	27	19	20	18-20	8	12-90	13	13	16
Pardee No. 3,	23	21	25	25	23	26	24	24	23	26	26
Patton,	26	24	27	26	26	25	26	26	26	26	26
Rolling Mill,	25	23	26	24	26	25	25	23	24	25	23
Stineman No. 1,	22	20	25	21	24	22	21	24	23	21	21
Stineman No. 2,	17	20	17	12	16	12	12	13	13	13	13
Soman No. 1,	20	20	20	18	22	12	17	20	22	22	22
Soman No. 2,	24	18	20	23	22	19	11	17	17	17	15
South Fork No. 1,	7	12	12	6	18	18	18	18	18	18	18
Stony Creek,	25	24	26	25	25	25	25	26	25	25	25
Standard,	25	24	25	25	25	25	25	26	25	25	25
Sterling No. 8,	15-60	17-80	23-60	16-20	15	15-60	14-70	15-80	21-70	19-40	19-40
Sterling No. 10,											
Sterling No. 11,											
Sterling No. 13,											
Soman Shaft,											
Spangler,											
Vront Run,	25	26	24	25	11	8-50	11	10-50	24-50	24	24
Wells Creek,	25	26	26	26	18	18-75	18	18-75	23-50	23	23
Wehster No. 3,	25	20-75	25	18-75	18-25	20-75	20-75	21-75	23-50	20	20
Walnut Run,	25	24	26	24	18	24	24	24	24	24	24
West Branch,	25	25	25	24	25	25	25	25	25	25	25
Yellow Run Shaft,	19	22	22	24	19	24	25	24	24	24	24
Total,	1,278.95	1,445.55	1,287.80	1,262.55	1,184.65	1,155.25	1,218.80	1,359.25	1,833.10	1,402.20	1,402.20

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Sixth Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 8.	Wm. Stibblin,	Miner,	50	M.	1	1	Bell,	Cambria,	Was undermining coal and did not sprag it as he should have done and it fell on him and broke his neck. These men were killed by the same fall of coal and slate; they were working under the coal undermining it; it had a loose end and above the coal there was from one foot to fifteen inches of rock that was being let down after coal was taken out; in this case the rock hung back a couple of feet behind the coal. The weight of this rock brought the coal down upon the two unfortunate men, killing them instantly. This accident happened in the early morning before the mine had started to work; both the men were coming down the shaft with miners when they came in at 7 o'clock a. m.
14.	Joseph Supper,	Miner,	34	M.	1	2	Lancashire No. 3, ...	Cambria,	This man stepped into the shaft; a gate is kept locked at this shaft and the day engineer opened the gate to see if the cage was up; it being dark in the morning, and this man pushed past the engineer and stepped into the shaft, believing no doubt that the cage was there. This young man was running past his motor to turn a switch and he fell before the motor and was run over; he jumped up and fell on the wrong side, which necessitated his crawling back ahead of the motor to reach the switch, so when he fell he was caught as stated.
14.	Mike Fadden,	Miner,	36	M.	1	1	Lancashire No. 3, ...	Cambria,	
Feb. 8.	Mike Adamcik,	Miner,	29	M.	1	1	Cresson Shaft,	Cambria,	
9.	Andy Lully,	Sprag'r on motor,	23	S.	.....	.....	Eureka No. 30,	Somerset,	

Mar. 21,	Frank Gerocha,	Miner,	45 S. ....	.....	Dysart,	Cambria,	Was killed by a fall of coal, which should have been secured but was neglected, the result was that it fell upon him, crushing his head and body so as to cause death.
Apr. 1,	John Mowar,	Laborer,	32 M.	1	Rolling Mill,	Cambria,	This man was working on the dilly road, and at the time of accident he was standing on the side to let the dilly trip pass, when a piece of rock from the side fell and knocked him on the track just ahead of a full trip, which ran over him, killing him instantly.
15,	David E. Edmuston,	Laborer,	18 S. ....	.....	Eureka No. 33,	Somerset,	This man was killed by a large fall of rock in the shape of a large pot or boiler, a large piece of rock in mines; this piece of rock had been set by the mine foreman less than an hour before it fell, and sounded solid; this was an unavoidable accident.
23,	Mike Bittala,	Miner,	33 M.	1	Henrietta Shaft,	Cambria,	Neck broken; caused by jumping into the chute and the wagon went over the dump and caught him in the chute and crushed him. As he jumped into the chute he took hold of the wagon and that took it over the horns and into the chute.
May 7,	Kenben Colgrin,	Sprag'r on motor,	18 S. ....	.....	Eureka No. 30,	Somerset,	It was difficult to tell what caused the death of this young man; it was claimed that he complained in the morning of pain in his stomach, and during the morning the motor upon which he was working was hauling some large timber into the mine and the timbers became moved out of position and they stopped the trip to straighten them up, the motorman was at one end of timber which was possibly twenty feet long and this young man at the other, and in moving timber which was direct under the trolley wire, he gave one groan and fell over dead. Whether he touched the wire or not is a question; the doctor claimed that body showed no indications of death by electricity, and he thought it might have been heart trouble.
13,	John Robu,	Miner,	21 S. ....	.....	Sonman Shaft,	Cambria,	Was killed by a fall of coal; head and body badly crushed; he neglected to sprag the coal in compliance with rules of mine.
June 4,	Paul Simon,	Miner,	28 S. ....	.....	Benton No. 1,	Cambria,	Crushed about the head and shoulders by a fall of coal; caused by his neglect in not spragging it.
4,	Mike Kosstyo,	Laborer,	20 S. ....	.....	Eureka No. 30,	Somerset,	Was pushing a car and standing in water, and the back of his neck touched the trolley wire which killed him instantly.

TABLE IV. —Continued.

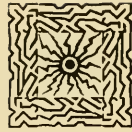
Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
July 8,	Mike Sambol,	Miner,	35	M.	1	2	Yellow Run Shaft, ...	Cambria,	Was killed by fall of roof, which a good practical miner would have propped and made it secure.
25,	John Harchick,	Miner,	30	M.	1	4	Eureka No. 30,	Somerset,	This man was killed by a fall of rock, there were two others with him who barely escaped the same fate; it was a very treacherous piece of top, and the foreman had just tested it and it seemed safe and solid.
Aug. 2,	John Poshock,	Miner,	60	M.	1	2	Delta,	Cambria,	Was instantly killed by fall of rock while taking out heading stumps; a little precaution on his part would have prevented this accident and saved his life.
5,	Barnes Matchuck,	Loader after machines,	28	S.	.....	.....	Sterling No. 8,	Cambria,	In going out from work he attempted to jump on the dilly trip and fell between cars and was dragged for over 100 feet, and cut up very badly, causing his death.
19,	Andrew Goschick,	Miner,	48	M.	1	1	Susquehanna,	Cambria,	Shoulder bone and ribs broken by a fall of slate; the roof was very bad at this point and difficult to keep up.
Oct. 14,	Theodore Kimmel,	Miner,	17	S.	.....	.....	Krebs,	Somerset,	Head and body badly crushed by a fall of rock; this boy was aware of dangerous condition of this piece of slate and contrary to the usual order he went under it to shovel up some coal when it fell upon him, killing him instantly.
Nov. 12,	George Boom,	Driver,	28	S.	.....	.....	Rolling Mill,	Cambria,	Was killed by dilly trip; in going out in the evening along the dilly road he stood near the rail to let trip pass and the front car happened to be off the track and struck him and then dragged him some distance, causing his death.

24.	Gaet Marhouts,	Miner,	34	S.	.....	.....	Gallitzen Slope,	Cambrtia,	Was killed by electricity; he was helping to lift a car on and he stretched the wire beyond as he was standing in a wet place at the time, this made a short circuit through his body, killing him; the wire only carried 250 volts.
29.	Mike Dyke,	Miner,	43	M.	1	2	Eureka No. 31,	Somerset,	Skull crushed by a fall of coal for lack of its being spragged.
Dec. 9.	John D. Jones,	Miner,	44	M.	1	.....	Pardee No. 3,	Cambrtia,	Was injured by a fall of coal; this was thought to be only a slight accident at the time, but being a very small and weak man, it proved fatal in a few days.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Sixth Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 13.	Henry Layton,	Driver,	15	S.	Webster No. 3,	Cambria,	Foot squeezed and two toes broken; run over by coal car.
Feb. 8.	Frank Santa,	Miner,	39	M.	Sonman No. 1,	Cambria,	Collar bone injured and bruised ankle by fall of coal.
15.	Levi Thomas,	Miner,	25	S.	Sterling No. 10,	Cambria,	Leg bruised badly by fall of slate.
Mar. 9.	Peter Benner,	Driver,	48	M.	Puritan No. 2,	Cambria,	Fracture between knee and ankle; was caught between coal cars.
17.	John Hughes,	Miner,	22	S.	Puritan No. 2,	Cambria,	Hips and stomach squeezed; he fell in front of a loaded car coming down his room.
22.	Mike Belick,	Miner,	42	M.	Sonman No. 1,	Cambria,	Leg broken; a piece of draw slate fell on him.
Oct. 1.	Henry Wise,	Driver,	23	M.	Webster No. 3,	Cambria,	Leg broken; he was riding between cars which left the track and caught him.
Nov. 14.	John Stare,	Miner,	64	M.	Pardee No. 3,	Cambria,	Was injured slightly by a fall of coal.
Dec. 15.	Richard Oppy,	Miner,	37	M.	Haws Shaft,	Cambria,	Was injured by a fall of coal; injury was at first thought to be serious, but proved slight, he was squeezed very badly by the fall.
Apr. 16.	C. E. Myers,	Laborer,	19	S.	Eureka No. 33,	Somerset,	Fracture of leg; caused by a fall of roof from the side of working place.
July 15.	James Young,	Miner,	50	M.	Adams,	Somerset,	Small bone in right leg and collar bone broken; cause, fall of rock.
27.	Joe Artie,	Miner,	45	M.	Eureka No. 30,	Somerset,	Leg broken by fall of rock.
Aug. 13.	John Kelego,	Miner,	42	M.	Sonman Shaft,	Cambria,	Leg broken by fall of coal; this man lay down to mine a piece of coal, having two legs, and put no sprags under to support it.
18.	Steve Hannah,	Miner,	30	M.	Vintondale,	Cambria,	Injured on head and body; was caught between mine wagons.
Sept. 8.	Robert Woods,	Trapper,	16	S.	Rolling Mill,	Cambria,	Was hurt while trying to jump on the moving trip on dilly road; leg was injured so that it had to be amputated.
9.	George L. L. Davis,	Miner,	46	M.	Rolling Mill,	Cambria,	Collar bone injured and bruised on body by a fall of rock.

29,	Gust Balsor,	Rope rider,	17	S.	Dysert,	Cambria,	Leg and arm broken; caused by taking hold of the shaft of fan and he could not let go and it carried him around and threw him against the machinery.
Oct.	13, Herman Dishong,	Machine helper, ...	19	S.	Vintondale,	Cambria,	Foot and leg very seriously injured by being caught in the machinery.
16,	Steve Purer,	Miner,	30	M.	West Branch,	Cambria,	Lost an eye by dynamite exploding in a hole by it being hammered in with a bar and sledge.
16,	Frank Hoover,	Miner,	27	S.	West Branch,	Cambria,	One eye and one arm blown off by same explosion.
Nov.	7, Wm. Gregory,	Greasing sheaver, ..	16	S.	Sonman Shaft,	Cambria,	Leg broken; was struck by haulage rope.
8,	John Gubik,	Miner,	33	M.	Yellow Run Shaft,	Cambria,	Leg broken above knee by a fall of slate while he was loading a wagon.
8,	John Meaklaw,	Miner,	42	M.	Dysert,	Cambria,	Collar bone broken by a fall of bony.
27,	C. L. Samouse,	Rock men,	26	S.	Eureka No. 33,	Somerset,	Left arm fractured by explosion of dynamite.
27,	H. H. Bracken,	Rock man,	27	M.	Eureka No. 33,	Somerset,	Flesh wound on hip, caused by explosion of dynamite.
27,	J. W. Berkeley,	Rock man,	23	S.	Eureka No. 33,	Somerset,	Thumb mashed; ten sticks of dynamite exploded while they were thawing it over a red hot stove.
28,	Martin Murphy,	Rock man,	35	S.	Eureka No. 32,	Somerset,	Hand blown off; caused by heating dynamite over a stove to thaw it.
Dec.	2, Mike Stenko,	Machine runner, ..	30	S.	Gallitzen Slope,	Cambria,	Leg broken and back injured; he attempted to jump on a dilly trip when it was in motion and he fell and caught between rib and cars.
15,	Harry Hill,	Miner,	48	S.	Dysert,	Cambria,	Right leg broken below the knee and three of his ribs fractured by a fall of slate.
21,	Albert Aurison,	Laborer,	26	S.	Eureka No. 33,	Somerset,	Four toes mashed by being run over by electric motor.



SEVENTH BITUMINOUS DISTRICT.

(ALLEGHENY AND WASHINGTON COUNTIES.)

Idlewood, Pa., February 23, 1899.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: In compliance with Article X of the Bituminous Mining Law of the State, defining the duties of Inspectors of Mines, I herewith submit for your approval my annual report for the Seventh Bituminous district for the year ending December 31, 1898.

There have been no strikes or labor disputes of any moment in the district during the past year, consequently the mines as a whole were operated more steadily than during the previous year. The increase in production over that of 1897 amounts to 943,192 tons, but notwithstanding this increase it must not be presumed that the mines have been operated at full time. In reality a number of the mines have experienced much idle time. This is due to the fact that the present capacity of the Pittsburg coal district is very much larger than its markets can absorb, consequently irregular work and low prices will probably continue for an indefinite period. During my several inspection tours through the district I have found the condition of most of the mines to be reasonably satisfactory from a sanitary standpoint.

During the past year I found it necessary in three instances to institute legal proceedings for violation of the mining law. In two cases the offense was that of using crude petroleum oil for lighting purposes, the third case was against a mine foreman for permitting rooms to be turned away in advance of the ventilating currents. Two of the parties were taken before a justice of the peace, and were allowed to depart on payment of cost and a promise not to offend again. In the third case the party left for parts unknown and has not yet returned.

I also gave a written opinion relative to a case upon which the language of the act was not clear. A copy of this and a statement filed with the court, together with the decision rendered by the court upon the appeal taken, is attached hereto and made part of this report

Number of short tons, run of mine, of coal mined,	5,943,567
Number of tons of coke produced,	525

Number of mines in the district,	74
Number of employes inside,	8,802
Number of employes outside,	854
Total number of employes,	9,656
Number of persons killed in and about the mines,	26
Number of non-fatal injuries,	66
Number of wives made widows by above fatalities,	14
Number of orphans from same cause,	29
Number of tons of coal produced per life lost,	228,599+
Number of tons of coal produced per person injured,	90,054+
Number of persons employed per life lost,	371+
Number of persons employed per non-fatal injury,	146+
Number of horses and mules in use,	641
Number of steam boilers in use,	161
Number of steam locomotives used in the mines,	2
Number of electric locomotives used in the mines,	16

Causes of Accidents.	Fatal.	Non-fatal.	Widows.	Orphans.
By fall of slate and roof,	13	35	7	12
By falls of coal,	2	12	2	12
By explosions of gas,	2	1	1	4
By mine cars,	7	14	3	1
By machinery,	2	3	1	1
From miscellaneous causes, .....	.....	1	.....	.....
Total,	26	66	14	29

Embodied in this report will be found a brief description of the condition of the several groups of mines in the district; also a brief review of the improvements made in the mines during the past thirteen years, and other matters of interest connected with mining and mine inspection, together with the usual tabulated statements. All of which is respectfully submitted.

Yours respectfully,

JAMES BLICK,
Inspector.

Copy of Decision given to Operator James Fox, upon a Point of Law.

Idlewood, November 28, 1898.

James Blick, Inspector of Mines, to James Fox, Esq.:

Dear Sir: Having received information from you to the effect that you have employed Charles Warner to act as mine foreman at your mine, I will say that I have grave doubts as to whether you can legally employ him for that position, and I consider it to be my duty to take exception to his employment in that capacity. The said

Charles Warner has not been granted a certificate of competency by any of the Examining Boards appointed for that purpose; but he did during the year 1885 receive a certificate of service giving him permission to continue to act as mine foreman at the mines of Hartley & Marshall, where he was then employed in that capacity, and he did continue to so act until, I think, some time during the year 1886, since which time he has not acted in that capacity. The act of May 15, 1893, gives to persons holding service certificates (granted under the act of 1885) permission to act as mine foreman at mines other than those where they were acting when said certificates were granted, but in order to take advantage of that privilege, Section 3, Article XV, of the act of May 15, 1893, would seem to imply that a person leaving the employ of one firm to accept a position as mine foreman for another person or firm, must have been acting as mine foreman for the firm whose employ he left, and up until the time he left such employment, or in other words that he must have been in continuous service in the capacity of mine foreman. The condition of the mine does not enter into the question, for the condition of your mine is much less dangerous than that of the mine where he was employed when his certificate of service was granted. The only point at issue is, as to whether he can be legally employed by you to act as mine foreman, seeing that he was not employed in that capacity by his previous employers immediately before you employed him. My construction of the meaning of the law may be wrong, and under article 14 of the act you have the right to appeal to court against my decision as noted above, and I think that may be the proper course to pursue, and the court will then place a right and proper construction upon the language used in that part of the act above quoted, and thereby remove all doubts on the subject.

Yours respectfully,

JAMES BLICK.

Copy of Affidavit filed in Court in Support of the above Decision.

In the year 1885 the Legislature passed an act providing for the health and safety of persons employed in Bituminous coal mines. Among its provisions was one requiring that persons aspiring to the position of mine foreman should pass an examination before a board of examiners appointed for that purpose, and obtain a certificate of competency before they could become eligible to fill such position. The act of Assembly also directed the board of examiners to grant certificates of service, without an examination, to persons who were then acting as mine foreman, but said service certificates only gave the holder of the same the privilege to act as mine foreman for the same person or firm by whom he was employed at the time of the enactment of the law under which such certificate was

granted. The act of 1893, which repealed that of 1885, provides that persons holding certificates of service granted under the act of 1885, may act as mine foreman at mines other than those whereat they were employed when said certificates were granted. The language of the act of 1893, granting this privilege, would seem to imply that this provision is only applicable in such cases where the person was employed as mine foreman at the time the law was enacted, and also at the time of leaving the employ of one firm to accept a similar position at the mines of another person or firm. As stated in the decision given to Mr. Fox, Mr. Warner has not obtained a certificate of competency. But he did receive a certificate of service granted to him in the year 1885, and he continued to act as mine foreman for about one year after receiving said certificate, since which time he has not acted in that capacity. The point in dispute between the plaintiffs and defendant is simply as to whether the language of the act does or does not permit Mr. Fox to employ Mr. Warner to fill the position of mine foreman, seeing that he ceased to act in that capacity from about the year 1886, until employed by Mr. Fox in the month of November, 1898.

The mine operated by Mr. Fox is a small operation, employing not more than about thirty (30) men, and is remarkably free from dangers or difficulties of an unusual character. There is no question raised affecting Mr. Warner's ability to manage such a mine. All we ask is that the court put a construction upon the language of the act, so as to remove all doubt on the point at issue.

Copy of affidavit in No. 49 September Sessions, 1898. Mis. Docket.

JAMES T. FOX & CHARLES	}	No. 49 Sept. 1898.
WARNER,		
vs.		
COMMONWEALTH EX REL		
JAMES BLICK, MINE IN-	}	Mis. Docket.
SPECTOR.		

This case comes before us upon appeal by James T. Fox and Charles Warner, from a decision of the Mine Inspector of the Pittsburg district, under the act of Assembly relating to bituminous coal mines of May 15, 1893, P. L. 52, *Purd. Dig.* 1370, Pe. 295.

The facts as set forth in the decision of the Inspector and the statement filed by him are admitted to be true. From these it appears that James T. Fox is the owner of and is operating a mine in the Pittsburg district, and has lately employed Charles Warner as foreman. At the time of the passage of the act of June 30, 1885, Charles Warner was engaged as foreman of a mine in this district and was given a certificate of service under the provisions of the act of 1885, and he continued to act as mine foreman for about one year after

receiving such certificate, since which time he has not acted in that capacity. The mine operated by Mr. Fox is small, employing about thirty men, and free from dangers and difficulties of an unusual character, and the general conditions affecting the health and safety of the persons employed do not differ materially from those at the mine in which he was working when said certificate was granted. No question is raised affecting Mr. Warner's ability to manage such a mine.

The only question therefor is as to the legal right of Mr. Warner to act as foreman under the act of 1893.

To properly understand the act of 1893, it is necessary to examine the corresponding provisions of the act of 1885, which it supplies. The fifteenth section of the act of 1885, P. L. 216, provides for the appointment of examining boards, the examination of applicants for position of mining boss and the granting of certificates to all persons whose examination shall disclose their fitness for the duties of that office, "provided, that any person who shall have been employed as a miner at least five years in the bituminous mines of Pennsylvania, and as a mining boss continuously by the same person or firms for the period of one year next preceding the passage of this act shall be entitled to a certificate without undergoing said examination, but he shall not be employed by any other person or firm without having undergone such examination."

It will be observed that there is a marked distinction between "a certificate of competency," after examination and "a certificate of service" under this act. The first might be granted to any person showing proper knowledge and capacity at any time, and authorized his employment at any mine. The second could only be granted to one then actually employed as a mining boss, and did not authorize his employment in any other mine than the one in which he was then engaged. It was evidently intended merely to prevent the displacement of a person then employed.

It is clear that when Mr. Warner gave up his employment in 1886, the certificate which he held did not authorize his employment in any mine and that he continued ineligible for appointment to any such position, unless the disability was removed by the act of 1893.

We think that the same distinction between certificates of competency and certificates of service is found in the act of 1893, Art. 15, of act of May 15, 1893, P. L. 52, Pub. Dig. 1370, 298, provides for appointment of examiners and examinations and issuing of certificates substantially the same as in the act of 1885 and then provided "that all persons holding certificates of competency granted under the provisions of the act to which this is a supplement shall continue to act under this act, and provided further, that any person acting as mine foreman upon a certificate of service under the act of

which this is a supplement may continue to act in the same capacity at any mine where the general conditions affecting the health and safety of the persons employed do not differ materially from those at the mine in which he was acting when said certificate was granted."

The difference in the language used in these two paragraphs is very significant. The first gives the right to persons holding certificates of competency, without regard to the question of employment; the second limits the right to one acting as mine foreman upon a certificate of service, unless otherwise indicated. An act of Assembly must be regarded as referring to the time of its passage and the natural application of the word acting would be as of that time. But the change of language clearly indicates this intention. If it had been intended to give effect to a certificate of service which had been invalidated by removal from the mine to which it had alone applied under the act of 1885, the appropriate language would have been the same as that referring to certificates of competency, viz: That all persons holding certificates of service might act as foreman. Aside from this there is further indication of the limitation to persons then acting in the language of the proviso itself, in the words "may continue to act," which is inapplicable to one who wishes to resume employment previously discontinued, and the same idea is found in the next proviso, which provides for the case of a foreman who leaves his present employer.

In our judgment the language of the act plainly prohibits the employment of foremen not holding certificates of competency who were not then so employed under certificates of service granted under the act of 1885. And this accords with the spirit of the Legislature, which is intended to secure competent foremen by means of critical examination as to knowledge and fitness, and merely makes an exception in favor of those at the time employed as such. It may be that this construction of the act will exclude the employment of some competent foreman—as it probably does in this case but no permanent injury can be done as a person wishing to resume employment as mine foreman can do so by undergoing the examination provided by the law.

The appeal in this case is therefore dismissed and the decision of the Mine Inspector is affirmed.

The costs to be paid by appellants.

Inspectors—Their Legal Duties and Qualifications.

The law, as far as possible, has very wisely guarded against the appointment of incompetent Inspectors, by requiring that they be not only men having had a long and varied experience inside of coal mines, but that they be also required to pass a rigid examination (both written and oral) on all subjects relative to the science of

ruining, showing to the satisfaction of the examiners that they possess both practical and theoretical knowledge fitting them for the position. All of which qualifications are absolutely necessary before they can efficiently perform the duties required of them. To illustrate this more fully, I might say, that because certain methods might be successful in overcoming difficulties and removing dangers at one mine on any particular occasion, is no criterion that the same tactics will prove successful in the removal of the same class of dangers and difficulties at another mine, but attended with dissimilar conditions, requiring different methods of action, that can only be determined after an examination of the surrounding circumstances, hence the reason why a varied experience in different classes of mines operating under different systems of working becomes a necessary part of the qualifications which an Inspector should possess. Of course every one will agree that the most urgent duties to be performed by an Inspector is that of the inspection of the mine workings, and as much of his time as possible should be devoted to this particular duty. Any new or additional labor placed upon him which curtails the actual inspection of the mines will detract from the efficiency of the service. The benefits to health and safety to be derived from mine inspection will largely depend upon the manner in which the Inspector performs his duties. When he finds that the law is being violated, either wilfully or through carelessness, he should not hesitate to prosecute all such cases; but difficulties are often encountered in mining operations which no law may be competent to deal with, and such difficulties may produce conditions dangerous to health and life, unless skillful management and sound judgment is displayed by the officials in charge; in cases of this nature the Inspector should not stand by, awaiting an opportunity to prosecute any infraction of the law, that may result through mistakes or lack of judgment in dealing with such conditions, but he should rather act as an adviser, and give what assistance he can to overcome the difficulty and so avert the necessity for prosecution.

An official copy of the maps of all mines in the district are now furnished to the Inspector to be kept in his office, and he can spend considerable time in the study of such maps to good advantage, as by so doing he can familiarize himself with all details of the systems of ventilation, drainage and other matters relative to healthfulness and safety, and thereby be in a position when visiting the mines to know just where defects are likely to be found, and the nature of such defects. In previous years I spent sufficient time in studying the maps to have, at all times, a good, general idea of the methods being pursued at the different mines, but during the past year this matter has been somewhat neglected, for reasons before mentioned.

Improvements in the Methods of Mining Since the Year 1885.

When I came to this district in the year 1885, I found that at a majority of the mines the methods of mining were crude and very imperfect, most of the mines were then operated on the old time single entry system, very little thought being given to the size of pillars necessary to be left to prevent the mines or parts thereof from being overrun with creep or crush. Where the coal was easy of access it was mined out, and where difficulties were in the way which required skillful management to surmount, the coal was often left in the ground to waste. In fact, at that time, a large percentage of the coal in most of the mines was left unmined and so lost. If suggestions were offered recommending a change or improvement of the methods in use, with a view to the recovery of a greater percentage of the coal, the parties offering such suggestions would more than likely be met with the answer that "coal was cheap and plentiful, and that it would not pay to incur much expense to recover it," and there seemed to be a general desire to continue along the line of the easy going slipshod, wasteful methods of the past. If the parties operating the mines were asked how many tons per acre were being mined out, only very few could give the desired information, or even an approximation. In fact, I find some operators at the present time who are not in a position to impart this information. In many cases tracts of coal had been purchased and worked out, without any thought or preparation to maintain permanent passage ways with the view to the recovery of the solid coal lying in the hills beyond, and to-day the coal in some of our mines is being hauled long distances through passage ways which are difficult to maintain, and the mines are being operated under difficulties which entail considerable expense, over and above what it would have been had those mines in the years past been operated and managed with a view to future requirements. Soon after the passage of the act of June 30, 1885, a marked improvement began slowly to manifest itself, the old single entry system was gradually retired into oblivion, and the double entry method introduced into general use, as fast as circumstances would permit; more attention being given to the size of pillars necessary to preserve the roadways and a general desire evinced to mine out a larger percentage of coal. It may be said that in mining operations, old methods cannot be replaced by new and improved systems at will, on the contrary it often requires many years of time to overcome the effects of previous mistakes, and instances are not wanting of mines where the effects of past bad management will be felt to a greater or less degree so long as such mines continue in operation. While it gives me pleasure to contemplate improvements made and of the advancement of the science of mining in general, since the law of 1885 became

effective, still we must not forget that we have not yet arrived at the goal of perfection. We must also admit that some of our operations have shared in the improvements of the past only to a very limited extent, and in the matter of mining out the greatest possible percentage of coal, and leaving as little as possible to waste, I must confess that in some instances I notice indications of retrogression, but this I believe to be only spasmodic, and do not think there will be any general backward move along this line, but rather look for a general advance towards greater perfection.

Improvement in Ventilation.

I make no claims that the ventilation at all mines is perfect at this time, but I do maintain that there have been remarkable improvements along this line since the enactment of the law of 1885. At that time a host of small mines and a number of large operations were not supplied with artificial appliances to produce ventilation, consequently it was a common occurrence for me to go to such mines and find no perceptible air current in motion, and before a person could complete an inspection of the workings he would be overcome with a desire to get outside for a breathing spell in the fresh air, while at other times if the direction of the wind and the outside temperature were favorable, a reasonably fair quantity of air could be measured on the main passage ways, but very little could be found in the working parts of the mines. The average quantity of air produced in all of the mines in the district combined, in the year 1885, the air currents being measured under the most favorable conditions, was 130 cubic feet per minute for each person employed inside. In the year 1898, the average quantity for each employe was about 350 cubic feet per minute, which amounted in the aggregate to 3,200,000 cubic feet per minute, equal in weight to about 123 tons. The greatest total quantity of air volume measured in one mine in the year 1885 was 40,000 cubic feet per minute. In 1898 the greatest total quantity measured in one mine was 220,000 cubic feet per minute; but it should be remembered that the airways in the mines of this district are limited in area, which makes it more difficult to obtain as large air volumes as in districts where the coal is thicker and the airways of larger dimensions. During the above period of time there has been provided in the district 47 ventilating furnaces and 49 ventilating fans. Six of the furnaces and six fans were provided without any solicitation on the part of the Inspector, and 41 furnaces and 43 fans were provided on his request. The above facts need no comments, and I will only add that many of the fans are among the most costly of any in use.

Mine Maps.

Previous to the law of 1885 anything approaching a perfect mine map could rarely be found. In very many cases there were no maps from which any information whatever could be derived regarding the development or general condition of the mine workings. With few exceptions the services of an engineer or surveyor were seldom called into requisition, and in very many instances money spent for the services of an engineer was then looked upon as a useless investment from which no returns could be derived, and, as a natural result, there were few men possessing ambition to become conversant with the science of mining, and competent mining engineers were not so numerous as at the present time. While the conditions as above described do not speak well for the past, I am in a position to report that present and future prospects are encouraging. The mine maps are now made complete and kept up to date, and at large operations especially, the engineer is now always called in consultation regarding the best methods to be adopted for the proper development and successful operation of the mines. The importance of engineering work cannot be over-estimated, and money spent for this purpose is now properly regarded as a profitable investment, and only in the case of a few small operators is there any difficulty experienced in having the provisions of the law complied with relation to mine maps and engineering work in general.

Mine Foremen of Former Years, and Mine Foremen of To-day.

When I first became acquainted with the Pittsburg district I found a number of competent mine foremen employed, I also found very many who were incompetent, who did not understand and could not intelligently discuss the science of mining as applicable to the proper methods of working and ventilating of coal mines, and the proper way to deal with and render harmless or expel from the mines the noxious and dangerous gases generated therein. It can now truthfully be said that there has been a great improvement in this respect. The clause contained in the act of 1885, requiring that all persons aspiring to the office of mine foreman or fire boss should undergo an examination and obtain certificates of competency before being eligible to either position, had an instant effect in stimulating thought on mining subjects among the practical miners; and men of ability but whose intellectual faculties were lying dormant have come to the front and are to-day numbered among our most successful mine managers, and as a rule there are at this time in charge of the mines men capable of either offering or receiving suggestions on matters relative to healthfulness, safety and other subjects pertaining to successful mine management. I do not wish to be understood as saying that all persons who pass an examination will make

good mine foremen. On the contrary I have in mind persons holding certificates who cannot put their knowledge into practice, and will hardly ever become good managers, while, on the other hand, I have yet to find a good all round manager who could not pass a creditable examination. Before closing this subject I wish also to say that there are persons holding certificates who disqualify themselves by their own acts, and whose certificates should be cancelled, but this can only be done through the action of the superintendents, and if they fail to take such action as directed by law the Inspector is powerless to interfere.

Mines on the Monongahela River, on the Wheeling Division of the B. & O. R. R., and on the Little Saw Mill Run R. R.

There are sixteen mines located in this territory, all of which, with one exception, have been operated during the past year. Some of these mines have not experienced much idle time, while at others very little work has been done. I may say that at all of the above mines the health and safety of the employes are fairly well protected, and the sanitary conditions existing in the workings of the various mines are, generally speaking, above complaint. At the First Pool No. 2 Mine a shaft is being sunk for ventilation, and a powerful fan of the Capell type will be placed on top of this shaft ready for operation early in 1899. Hitherto this mine has been ventilated by a division of air currents produced by a twenty-five foot Vulcan fan, located at No. 1 mine. This is an extensive and valuable coal property, and the company operating the mines is always up to date with all improvements in the interest of healthfulness and safety, and in other matters necessary for the successful operation of coal mines. Explosive gas is generated in nine of the above mines.

Mines Situate on the Moon Run Railroad, on the Montour Railroad and West of the Allegheny River.

There are twelve mines in this division of the district, all of which are in operation but in one case, namely, at the Freeport mine a sufficient number of persons are not now employed to bring the mine under the provisions of the mining law. During my last tour of inspection I found most of them in reasonably good condition. While in a few instances I found it necessary to suggest improvements in matters relative to ventilation and drainage. The ventilation in the West Tarentum mine, while it is considerably above the maximum amount specified by law, still I consider that the conditions of the mine call for a more liberal supply, and I have advised the owners of this fact and shall expect them to take action in the matter with a view to an increased air volume.

The Partridge mine is a new operation, located at Imperial, on the Montour Railroad. It is a drift opening, and the main and several cross entries are advanced forward into the hill for a distance of about a thousand feet, and the territory will be sufficiently developed to insure a large output by the time that lake shipments begin next season. A shaft has been sunk for ventilation and a fan will be used to produce the necessary supply of air. There are only two mines out of the above number that generate explosive gas.

Mines Located along the Main Line of the Pan Handle Railroad.

There are eighteen mines located in this part of the district, thirteen of which were in operation and five have been idle throughout the year. The greater number of these mines are in reasonably good condition, but there are a few wherein the conditions are not very satisfactory, but in nearly all such cases improvements are either in progress or under contemplation, among which may be mentioned a new ventilating furnace at the Cherry mine and an air shaft at the Laurel Hill No. 1 Mine. North of the railroad the mines are working under a very shallow cover, and during the rainy season the drainage becomes a very difficult matter as it is almost impossible to keep the roadways clear of water; these mines are remarkably free from explosive gas, but large volumes of black-damp is generated from the overlying strata, and difficulty is sometimes experienced in keeping the workings free from this noxious gas. South of the railroad the mines are working under a higher cover. The drainage is rather less difficult. The volume of carbonic acid gas is not so profuse, but all of the mines, with one exception, generate explosive gas.

Mines Situated Along the Chartiers Valley and Miller's Run Branches of the Pan Handle Railroad.

There are nineteen mines located in this division of the district. Operations have been carried on with more or less activity at all of these mines during the year, with one exception, but in most instances much idle time was experienced. In my examination during the year I found the conditions in a majority of the mines to be reasonably satisfactory from a sanitary standpoint, while in others improvements were required. In the Laurel Hill Mines Nos. 2, 4 and 5 the method of conducting the ventilation through the workings was found imperfect in detail. Instructions were given and suggestions offered along the line of improvement in this matter, which have been partly acted upon; but for some reason changes of managers occurs so frequently at these mines, that no person remains in the employ of the company a sufficient length of time to become fully

acquainted with the condition of the mines, or to undertake and complete needed improvements; in fact the constant change of foremen is the main reason why the condition of the mines is nearly always found below the standard of other large operations located in the same neighborhood. I visit these mines frequently, but rarely ever find the same foreman in charge on any two visits. Hence I offer suggestions or give instructions on one visit as to how necessary improvements should be made to give the best results with the least cost, and when a return visit is made expecting to find previous defects remedied, I often find the conditions about the same as before and a stranger in charge, with no knowledge of previous arrangements. Under a system of management of this character no one other than the owner has any permanent interest in the property and I am not surprised when I find sanitary requirements imperfect and the business of operating the mines unprofitable.

The North Western and Boon mines are both in need of more powerful ventilators to produce the adequate amount of air. I have made representations to both firms on the subject, and received assurances that the matter will receive attention. During the former part of the year the ventilation in the Summer Hill mine was inadequate, but they have now provided a new and powerful fan. I have not visited the mine since this fan was put in motion a few weeks ago and know nothing of its capacity from personal observation. A new shaft mine has been opened at Hill Station. The coal at this point being about 150 feet below water level. As yet the workings are only advanced forward a short distance from the shaft bottom, but the coal is of excellent quality. Nearly all the mines in this section of the district generate explosive gas.

Mines Situate along the P. C. & Y. R R.

There are ten mines located along the above railroad, one of which has been idle for the past two years, the other nine have been operated somewhat irregularly during the past year, and three of the nine are now closed and will likely remain inactive until the opening of the lake trade in the spring. With one or two exceptions I have not found much cause for complaint in regard to the management or condition of the above mines in matters relative to healthfulness and safety during the past year. At the Lake Superior mine the ventilation during the summer months was rather below the requirements but they have promised to install a more powerful ventilator ready for use next spring. A ventilating fan has been introduced at the Hickman mine, so that one section of this mine is now ventilated by a furnace and the other by a fan. Explosive gas is generated in all of the mines in this section of territory with two exceptions.

TABLE I.—Showing location, etc., of collieries in the Seventh Bituminous District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
47	Allison	Cook & Sons	Washington	R. M. Cook	McGovern	P. C. C. & St. L.
42	Bower Hill	Alex. Dempster	Allegheny	W. W. Dempster	Pittsburg	P. C. C. & St. L.
1	Bellwood	Munhall Company	Allegheny	George Kramer	Munhall	P. C. R.
59	Becks Run	Hays Coal Company	Allegheny	Julius Esmiol	Redman Mills	P. C. R. & Y. R. R.
10	Beading	Beading Brothers	Allegheny	John F. Hackett	Beading	P. C. C. & St. L.
43	Bridgeville	Bridgeville Coal Company	Allegheny	W. H. Sanford	Bridgeville	P. C. C. & St. L.
25	Boyd	Boyd Coal Company	Allegheny	Alfred Hicks	Walcoburg Mills	P. C. R. & St. L.
67	Brackenridge	Brackenridge Coal Company	Allegheny	E. T. Hitchens	Walcoburg	P. C. R. & St. L.
36	Bron	Canonburg Coal Company	Washington	J. D. Sauters	Canonburg	P. C. C. & St. L.
33	Bron Hill	Canonburg Coal Company	Washington	E. T. Sauters	Canonburg	P. C. C. & St. L.
53	Chadmoore	Ohio and Pennsylvania Coal Co.	Washington	Ruben Street	Cecil	P. C. C. & St. L.
30	Champion	Robbins Coal Mining Company	Allegheny	G. W. Schluenderberg	Pittsburg	P. C. C. & St. L.
26	Cherry	Morris McCue & Co.	Allegheny	James Boyle	Pittsburg	P. C. C. & St. L.
12	Castle Shannon	P. b'g & Castle Shannon R. R. Co.	Allegheny	E. J. Reamer	Pittsburg	P. C. C. & St. L.
2	Calhoun	W. S. B. Hays	Allegheny	L. O. Hays	Homestead	P. C. C. & St. L.
17	Dickson	Impertial Coal Company	Allegheny	L. S. Young	Impertial	P. C. R. R.
58	Enterprise	Hartley & Marshall	Allegheny	B. M. Hartley	Pittsburg	P. C. C. & St. L.
55	Essen No. 1	Essen Coal Company	Allegheny	Thomas Renshaw	Essen	P. C. C. & St. L.
62	Essen Nos. 2 and 3	Essen Coal Company	Allegheny	Wm. Baldwin	Essen	P. C. C. & St. L.
48	Enterprise No. 2	Cook & Sons	Washington	W. M. Cook	Federal	P. C. C. & St. L.
54	Federal	Charliers Block Coal Company	Washington	N. S. Baldwin	McGovern	P. C. C. & St. L.
14	Freeport	Freeport Coal Company	Allegheny	W. S. Hicks	Leechburg	P. C. R. R.
13	Fox	Thomas Fox	Allegheny	James Fox	Leechburg	P. C. R. R.
67	First Spring	Federal Coal Company	Allegheny	R. P. Grist	West End Pittsburg	P. C. & Y. R. R.
23	Fort Pitt	First Pool Men, Gas Coal Company	Allegheny	G. W. Schluenderberg	232 Fifth ave, P'b'g	B. & O. & St. L.
22	Grant	Pittsburg Block Coal Company	Allegheny	C. J. Nebo	Walkers Mills	P. C. C. & St. L.
65	Hickman	Egar Brothers & Snyder	Allegheny	Edward H. Snyder	Carnegie	P. C. C. & St. L.
4.5	Hays Street Run Nos. 2 and 3	Federal Coal Company	Allegheny	R. P. Grist	Hickman	P. C. C. & Y. R. R.
44	Hastings Slope	Hays Coal Company	Allegheny	John Watson	Hoppe Church	B. & O. & St. L.
69	Hite	Slope Mines Coal Company	Allegheny	John Neish	Bridgeville	P. C. C. & St. L.
21	Idlewood	McPetridge Brothers	Allegheny	G. H. McPetridge	Hite	P. C. C. & St. L.
55	Jumbo	Pittsburg Consolidated Coal Co.	Washington	G. W. Schluenderberg	Pittsburg	P. C. C. & St. L.
32, 56, 52	Laurel Hill No. 2	Pittsb'g & Western Coal & Coke Co.	Washington	D. S. Williams	Grading	P. C. C. & St. L.
8	Laurel Hill Nos. 1, 4, & 5	Pittsb'g & Western Coal & Coke Co.	Allegheny	D. S. Williams	Grading	P. C. C. & St. L.
	Lick Run	Keeling Coal Company	Allegheny	Chas. A. Wilhelm	Broughton	P. C. C. & St. L.

40	Leasdale	Jesse H. Sanford	Allegheny	Jesse H. Sanford	Carnegie	P. C. & St. L.
40	Lake Superior	Lake Superior Coal Company	Allegheny	Jesse H. Sanford	Imperial	M. R. R. R.
19	Montours	Imperial Coal Company	Allegheny	L. S. Young	Carnegie	P. C. C. & St. L.
38	Mansfield No. 2	Mansfield Coal and Coke Co.	Allegheny	Daniel Boden	Pittsburg	M. R. R. R.
37	Midway	Midway Block Coal Company	Washington	G. W. Schluenderberg	Imperial	M. R. R. R.
18	Margerum	Morgan, Moore & Balne	Allegheny	C. G. Newton	Moon Run	M. R. R. R.
16	Moon Run	Moon Run Coal Company	Allegheny	N. F. Sanford	.....	.....
50	Morgan	National Coal Company	Allegheny	Hugh McIver	Nobletstown	P. C. C. & St. L.
29	National	Alex. Black Coal Company, Limited	Allegheny	Wm. Lipsley	Joint	P. C. C. & St. L.
39	Natrona Nos. 1 and 2	Pennsylvania Salt Mfg. Co.	Allegheny	Robert Pfeifferlen	Natrona	P. C. C. & St. L.
43	North Western	W. D. Dixon & Co.	Allegheny	Hugh Sauts	McDermald	P. C. C. & St. L.
33	Nickel Plate	Kessler Coal Company	Allegheny	Andy Weinheimer	.....	.....
31	Oak Ridge	Oak Ridge Coal Co., Limited	Allegheny	G. W. Schluenderberg	Carrick	P. R. R. R.
28	O. I. C.	W. J. Steen	Allegheny	J. H. Bates	Pittsburg	P. C. C. & St. L.
68	Pine Creek	Robbins Coal and Coke Co.	Allegheny	G. W. Schluenderberg	Box 38, Carnegie	P. C. & Y. R. R.
27	Pine Ridge	Mankledick Coal Company	Allegheny	F. W. Jones	Pittsburg	P. C. & Y. R. R.
57	Pan Handle	Pan Handle Coal Company	Allegheny	F. W. Mankledick	Oakdale	P. C. C. & St. L.
37	Primrose	Pittsburg Consolidated Coal Co.	Allegheny	F. W. Jones	Earland	P. C. C. & Y. R. R.
36	Partridge	Morgan, Moore & Balne	Washington	C. G. Newton	Pittsburg	P. C. C. & St. L.
54	Provident	Provident Mining Co.	Washington	Thomas Gray	Imperial	P. C. C. & St. L.
41	Ridgway Bishop	Ridgway Bishop Coal Company	Washington	W. L. Nancarrow	Lawrence	P. C. C. & St. L.
14	Streets Run	Harrison Gas Coal Company	Allegheny	W. L. Nancarrow	Bishop	P. C. C. & St. L.
31	Summer Hill	Frank Armstrong	Allegheny	Frank Armstrong	Hope Church	P. R. R. & St. L.
11	Venture	Saw Mill Run Coal Company	Allegheny	David Gartley	Goodville	P. C. Y. R. R. R.
31	Whelan	Willow Coal Company	Allegheny	G. W. Schluenderberg	Morgan	P. C. C. & St. L.
9	Wagon Grove	Joseph Walton & Co., incorporated	Allegheny	Maurice Kapp	Pittsburg	P. C. C. & St. L.
70	West Tarentum	McFetridge Brothers	Allegheny	G. H. McFetridge	Carrick	P. R. R. R.
					Hite	W. P. R. R.

TABLE II.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Seventh Bituminous District for the year ending December 31, 1898.

Name of Collieries.	County.	Total production in tons of coal.	Total production in tons of coke.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad and water shipments of coal in tons.	Number of days worked.	Number of persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number pounds dynamite used.	Number horses and mules.	Number steam boilers.	Number mine locomotives.	Number coke ovens.
Allison.	Washington.	115,461	.....	.....	300	114,861	133	167	.....	1	50	.....	15	.....	.....	.....
Ballwood.	Allegheny.	51,189	.....	125	.....	51,189	105	180	.....	1	.....	.....	12	.....	.....	.....
Beaver Hill.	Allegheny.	61,000	.....	200	100	58,800	188	150	.....	.....	.....	.....	6	.....	.....	.....
Beading.	Allegheny.	225,066	.....	2,506	2,560	229,000	221	212	1	1	620	60	22	3	2	.....
Bridgeville.	Allegheny.	137,810	.....	1,640	410	135,760	265	113	1	2	432	.....	5	1	.....	.....
Boyd.	Allegheny.	51,745	.....	730	.....	51,015	268	116	.....	3	402	.....	15	.....	.....	.....
Brackentridge.	Allegheny.	38,000	.....	.....	.....	38,000	310	46	.....	.....	.....	.....	3	.....	.....	.....
Booth.	Washington.	78,535	.....	600	220	77,715	296	125	.....	2	180	50	12	.....	.....	.....
Brier Hill.	Washington.	84,829	.....	1,000	800	82,229	191	89	1	1	.....	.....	11	.....	.....	.....
Creedmore.	Washington.	114,868	.....	.....	900	110,868	354	286	.....	.....	.....	130	12	.....	.....	.....
Champion.	Allegheny.	160,622	.....	5,267	300	154,355	170	188	.....	2	.....	.....	11	.....	.....	.....
Cherry.	Allegheny.	86,713	.....	806	1,137	85,807	247	184	.....	.....	.....	.....	7	.....	.....	.....
Castle Shannon.	Allegheny.	73,825	.....	.....	.....	73,822	254	117	.....	1	.....	.....	13	.....	.....	.....
Dalhousie.	Allegheny.	119,235	.....	.....	6,119	113,116	317	142	.....	.....	.....	.....	.....	.....	.....	.....
Enterprise.	Allegheny.	126,600	.....	4,200	.....	108,035	187	189	.....	.....	.....	.....	13	.....	.....	.....
Enterprise No. 1.	Allegheny.	119,792	.....	807	.....	125,700	155	205	2	2	.....	.....	.....	.....	.....	.....
Essen No. 2.	Allegheny.	186,097	.....	818	.....	185,279	188	200	3	1	.....	.....	13	.....	.....	.....
Essen No. 3.	Allegheny.	184,211	.....	3,534	.....	180,675	169	332	.....	5	.....	.....	18	.....	.....	.....
Enterprise No. 2.	Washington.	11,321	.....	600	.....	10,721	34	49	.....	.....	30	50	4	.....	.....	.....
Federal Spring.	Allegheny.	10,689	.....	.....	.....	10,689	37	37	.....	.....	.....	.....	1	.....	.....	.....
First Pool Nos. 1, 2 and 3.	Allegheny.	469,630	.....	7,697	2,300	456,633	241	399	1	.....	.....	.....	27	.....	.....	.....
Fox.	Allegheny.	9,835	.....	2,000	9,835	90,431	174	29	.....	1	1,000	.....	3	.....	.....	.....
Fort Pitt.	Allegheny.	55,000	.....	1,000	5,018	50,982	165	200	.....	.....	.....	.....	1	.....	.....	.....
Grant.	Allegheny.	56,618	.....	.....	.....	56,618	165	200	.....	.....	.....	.....	12	.....	.....	.....
Hickman.	Allegheny.	111,345	.....	1,000	173	110,345	80	274	.....	1	.....	.....	1	.....	.....	.....
Hayes Street Run Nos. 2 & 3.	Allegheny.	20,875	.....	.....	150	20,680	80	274	.....	.....	.....	.....	26	.....	.....	.....
Hickings Slope.	Allegheny.	109,458	.....	1,824	2,860	104,974	250	133	.....	.....	1,200	.....	8	.....	.....	.....
Idlewood.*	Allegheny.	10,000	.....	.....	.....	10,000	150	29	.....	.....	.....	.....	4	.....	.....	.....

Jumbo,	194,674	10,182	1,273	183,218	222	242	1	1	2,240	23	1	1
Laurel Hill No. 1,	192,386	525	300	179,561	231	294	3	3	700	30	10	150
Laurel Hill No. 2,	61,103	.....	.....	59,703	100	149	1	1	915	9	8	1
Laurel Hill No. 3,	76,205	.....	750	72,135	130	165	10	3	2,300	10	6	1
Laurel Hill No. 5,	192,657	.....	800	189,357	217	296	.....	.....	.....	10	2	.....
Lick Run,	47,670	.....	.....	45,838	189	80	.....	.....	.....	5	3	.....
Lake Superior,	30,000	.....	.....	29,000	130	67	.....	.....	.....	4	2	.....
Massena,	68,872	.....	.....	68,000	192	128	.....	.....	.....	8	.....	.....
Montauk,	68,872	.....	.....	68,000	192	128	.....	.....	.....	8	.....	.....
Monsieur,	221,075	.....	504	219,311	225	320	3	3	400	20	3	1
Morganfield No. 2,	80,631	.....	180	80,111	178	85	1	3	.....	11	.....	.....
Margnum,	239,210	.....	3,849	232,965	206	370	1	3	.....	20	5	2
Moon Run,	42,947	.....	2,375	42,947	139	95	.....	.....	.....	5	3	.....
National,	139,842	.....	1,437	137,024	148	186	1	1	900	10	2	1
Nixon,	129,395	.....	480	129,109	119	120	.....	.....	.....	24	2	.....
Natrona Nos. 1 and 2,	41,580	.....	2,000	37,586	133	144	.....	.....	.....	8	2	.....
North Western,	102,586	.....	3,000	97,586	133	144	.....	.....	.....	12	3	.....
Nickel Plate,	160,009	.....	1,020	158,889	263	184	.....	.....	.....	5	2	.....
Ormsby,	61,352	.....	3,000	57,552	232	81	.....	.....	.....	5	2	.....
Oak Ridge,	51,400	.....	480	51,400	190	97	.....	.....	.....	7	2	.....
O. I. C.,	4,472	.....	888	4,472	257	68	.....	.....	.....	6	2	.....
Provident,	92,440	.....	200	92,240	143	59	.....	.....	.....	3	.....	.....
Pine Ridge,	269,921	.....	3,801	206,640	257	331	1	5	.....	18	6	.....
Pan Handle,	6,189	.....	226	5,963	79	33	.....	.....	.....	2	.....	.....
Partridge,	37,646	.....	3,074	2,565	31,407	48	.....	.....	150	10	15	.....
Ridgway Bishop,	33,800	.....	765	33,035	217	64	.....	.....	.....	3	1	.....
Streets Run,	128,524	.....	.....	128,524	217	194	1	1	.....	10	3	.....
Summer Hill,	68,310	.....	1,400	64,810	198	182	.....	.....	441	200	16	3
Venture,	153,890	.....	2,747	151,440	209	102	.....	.....	763	400	12	2
Vulcan,	143,440	.....	1,091	142,349	163	308	.....	.....	.....	20	3	.....
Walton,	8,377	.....	8,377	.....	298	16	.....	.....	169	.....	.....	.....
West Tarentum,	5,943,567	.....	64,923	5,646,376	11,337	9,656	26	66	13,063	641	161	18
Total, .....	.....	230,388	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*Estimated.

TABLE III.—Showing the number of employees at each colliery in the Seventh Bituminous District, during the year 1898.

Names of Collieries	Occupations of Persons Employed Inside.						Occupations of Persons Employed Outside.						Grand total inside and outside.		
	Occupations of Persons Employed Inside.						Occupations of Persons Employed Outside.								
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and Runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	Slate pickers.		Superintendents, book-keepers and clerks.	All other employes.	Total outside.
Allison	1	1	144	2	10	1	1	156	1	2	2	2	2	10	167
Ballwood	1	1	150	12	12	1	1	165	1	1	1	1	1	10	180
Boyer Hill	1	1	125	5	5	5	5	138	1	3	3	3	3	7	150
Beading	1	1	174	13	13	4	1	195	1	3	1	4	4	7	212
Bridgeville	1	1	158	2	9	1	1	175	1	1	3	3	3	7	193
Boyd	1	1	88	4	4	3	12	109	1	1	1	1	1	3	116
Brackenridge	1	1	104	3	3	1	44	114	1	1	2	2	2	7	125
Boon	1	1	130	1	1	1	1	134	1	1	1	1	1	10	150
Brier Hill	1	1	136	20	10	1	4	168	1	1	1	1	1	10	180
Creedmore	1	1	126	1	1	1	9	142	1	1	1	1	1	15	206
Champion	1	1	127	2	10	1	4	149	1	2	2	2	2	15	188
Cherry	1	1	95	4	7	1	1	107	1	1	1	1	1	8	117
Castle Shannon	1	1	8	1	1	1	1	12	1	1	1	1	1	3	12
Cockson	1	1	156	9	13	2	3	175	1	3	1	1	1	6	189
Enterprise	1	1	160	9	13	2	4	186	1	2	1	2	2	10	205
Essen No. 1	1	1	205	2	13	2	4	224	1	2	1	1	1	6	230
Essen No. 2	1	1	190	3	18	4	27	245	1	1	1	8	1	15	260
Essen No. 3	1	1	240	5	21	3	36	308	1	1	6	1	2	24	322
Enterprise No. 2	1	1	37	1	4	1	1	43	1	1	1	1	1	6	49
Federal Spring	1	1	31	1	1	1	36	36	1	1	1	1	1	6	43
First Fool Mines	3	5	302	1	23	6	16	360	1	4	10	3	3	22	381
Fox	1	1	50	1	1	1	1	54	1	1	1	1	1	6	61
Fort Pitt	1	1	20	21	10	1	4	47	1	1	1	1	1	8	56
Grant	1	1	25	1	3	1	1	31	1	1	1	1	1	6	38
Hickman	1	1	143	1	10	4	30	188	1	1	1	1	1	15	200
Hickman Run Nos. 2 and 3	2	1	213	1	18	4	1	233	1	2	2	1	1	26	274
Hastings Slope	1	1	72	1	6	1	1	84	1	1	1	1	1	7	91
Hite	1	1	111	1	4	2	1	121	1	1	3	2	2	4	133
Idlewood*	1	1	20	1	3	1	1	25	1	1	1	1	1	4	29

Laurel Hill No. 5,	13	15	7	10	30	28	25	28	27	22	22	18
Lack Run,			4	17	12	13	6	16	22	24	23	24
Lake Superior,*			3	6.25	11	16.75	10	17.50	14	13	24.25	18.25
Measdale,	15.50	11.50	13.50	23.50	19	23.50	16.50	16.75	15.50	13.50	19.25	14.50
Meadow,	8	12.50	12.25	16	12	8	21	26	25.50	25	24.25	25.75
Manfield,	13.50	12.50	12.25	16	12	8	21	26	25.50	25	24.25	25.75
Manfield, No. 2,	13.50	12.50	12.25	16	12	8	21	26	25.50	25	24.25	25.75
Margery,	11	12	19	35	18	15.88	18.25	17.75	16	10.50	14	13
Moon Run,	11	12	19	35	18	15.88	18.25	17.75	16	10.50	14	13
National,	18	4	12.50	20	11	6.25	16	18	8	18	18	19
Nixon,	9.50	6.50	12.50	20	11	6.25	16	18	8	18	18	19
Natrona Nos. 1 and 2,	26	23	27	23	25	24	22	23	21	17	20.50	21.50
North Western,												
Nickel Plate,	19	13	17	17	19	15	16	13	13	12	18	21
Ormsby,	24	22	23	23	20	20	19	24	29	22	22	24
Oak Ridge,	24.25	18.75	24.25	16	12	10.50	9	21	24	23.50	25.50	23
O. I. C.,	14	15	13	14	17	17	18	18	17	16	14	17
One Creek,	16	16.25	21	23	25	23	23	24.55	21	23	24.75	23.50
Ormsby,												
Partridge,	13	6	15	13	5	11	10	10	15	18	20	20
Partridge,	17	21	24	20	20	25	21	26	23	22	22	17
Partridge,												
Ridgeway Bishop,	16	16	16								25.50	27
Streets Run,	6.50	17.50	14	13	13.50	12.50	20.50	21.50	20	21.50	21	23
Summer Hill,	20	14	21	6	18	13	13	20	21	19	24	23
Venture,	23	19	14	14	22	5	8	19	18	15	59	19
Vulcan,	16	18	21.50	13.50	17	18.50	21.25	14	14	13.75	22	19.50
Walton,												
West Tarentum,	25	24	25	25	25	25	24	25	24	26	26	24

*Estimated.

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Seventh Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.			Number of widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
				Married	Single	Widows					
Jan. 3,	Joseph Datal,	Miner,	24	S.	.....	.....	.....	Pine Ridge,	Allegheny,	.....	Fatally injured by a fall of slate in his room.
7,	John Prandon,	Miner,	20	S.	.....	.....	.....	Champion,	Allegheny,	.....	Killed by a fall of slate in his room.
20,	Michael Paofletski,	Miner,	30	S.	.....	.....	.....	Enterprise,	Allegheny,	.....	Fatally injured by a fall of slate in his room.
21,	Wm. DeBalze,	Miner,	20	S.	.....	.....	.....	Laurel Hill No. 2,	Washington,	.....	Fatally injured by a fall of slate in his working place.
21,	Lucien Hans,	Miner,	50	M.	1	6	.....	Erier Hill,	Washington,	.....	Fatally injured by a fall of coal in his room.
Feb. 25,	Joseph Mills,	Miner,	20	S.	.....	.....	.....	Mansfield No. 2,	Allegheny,	.....	Killed by falling under a car which passed over him.
Mar. 10,	Wm. Grubbs,	Fireman,	38	M.	1	.....	.....	First Pool No. 1,	Allegheny,	.....	Killed by falling into the ventilating fan while trying to set it in motion.
26,	John Alten,	Miner,	61	M.	1	.....	.....	Laurel Hill No. 1,	Allegheny,	.....	Killed by being struck by the dilly trip on main road.
Apr. 5,	Mike Grovack,	Miner,	21	S.	.....	.....	.....	Beadling,	Allegheny,	.....	Fatally injured by a fall of slate in his room.
27,	Andy Wajtko,	Miner,	37	M.	1	2	.....	Essen No. 2,	Allegheny,	.....	Killed by a fall of slate in his working place.
28,	Jacob Thorne,	Hooker on,	16	S.	.....	.....	.....	Essen No. 2,	Allegheny,	.....	Killed by falling under trip of full cars on the slope.
May 5,	Patrick Murray,	Miner,	41	M.	1	3	.....	Enterprise,	Allegheny,	.....	Killed by being struck in his room.
20,	Lucas Casper,	Miner,	34	M.	1	4	.....	Essen No. 2,	Allegheny,	.....	Killed by being struck by an empty trip of cars, which jumped the track at the point where he stood to allow the trip to pass.
20,	Robert McMullin,	Miner,	20	M.	1	.....	.....	Laurel Hill No. 1,	Allegheny,	.....	Killed by an explosion of gas; they both passed over a danger signal into an entry where a large feeder of gas was escaping; having open lights with them.
20,	Archie McMullin,	Miner boy,	15	.....	.....	.....	.....	Laurel Hill No. 1,	Allegheny,	.....	Killed by falling under a trip of full cars, outside of the mine.
June 2,	William Kelly,	Mule driver,	16	.....	.....	.....	.....	Margerum,	Allegheny,	.....	Fatally injured by a fall of slate in his room.
3,	Baptist Camanlor,	Miner,	38	S.	.....	.....	.....	Summer Hill,	Allegheny,	.....	.....

22.	Peter M. Burns,	Miner,	60	S.	1	1	Moon Run,	Allegheny,	Fatally injured by being run over by a trip of empty cars.
July 15.	Robert Peak,	Miner,	65	M.	1	1	Nixon,	Allegheny,	Fatally injured by a fall of slate in his room.
27.	Peter Carlile,	Miner,	29	M.	1	1	Bridgeville,	Allegheny,	Instantly killed by a fall of slate in his room.
Aug. 3.	John Cully,	Miner,	34	M.	1	....	Pan Handle,	Allegheny,	Fatally injured by a fall of slate in his working place.
12.	E. Plecto,	Miner,	32	M.	1	....	Jumbo,	Washington,	Killed while riding on full car; was crushed between car and roof.
Sept. 17.	Andrew Pasco,	Miner,	32	M.	1	3	Dickson,	Allegheny,	Fatally injured by a fall of slate in his room, about the same day.
Nov. 10.	Josiah Stevens,	Drill sharpener,	34	S.	....	1	Mansfield No. 2,	Allegheny,	Clothing caught in belt wheel while clothing the machinery, causing injuries from which he died the same day.
11.	Peter Doppelrter,	Miner,	36	M.	1	6	Mansfield No. 2,	Allegheny,	Fatally injured by a fall of coal in his room.
Dec. 23.	John Reynolds,	Miner,	32	M.	1	2	Hickman,	Allegheny,	Instantly killed by a fall of slate in his working place.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Seventh Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 3.	Joseph Cargie,	Mule driver,	18	S.	Oak Ridge,	Allegheny,	Both legs broken and hurt about head and breast; fell under fall cars.
6.	Andrew Oposse,	Miner,	54	S.	Leasdale,	Allegheny,	Injured about back and side by a fall of slate.
Feb. 4.	Charles Dabulysky,	Miner,	37	S.	Hickman,	Allegheny,	Back and head injured by a fall of slate.
11.	Joe Metz,	Miner,	42	M.	Essen No. 2,	Allegheny,	Injured by a fall of coal.
16.	Michael White,	Miner,	35	M.	S. Allison,	Washington,	Leg injured by a fall of coal, not seriously.
23.	Nelson Stevens,	Miner,	45	M.	S. Ventre,	Allegheny,	Leg broken in two places by a fall of coal.
24.	John Wilkinson,	Miner,	39	M.	Belwood,	Allegheny,	Leg broken by fall of slate.
Mar. 7.	Antonio Quinigs,	Miner,	36	M.	Essen No. 3,	Allegheny,	His horse and arm broken, and injured internally by fall of slate.
15.	Joe Berenik,	Miner,	20	S.	Essen No. 2,	Allegheny,	Leg broken by a fall of slate.
16.	Edward Campbell,	Miner boy,	16	...	Moan Run,	Allegheny,	Leg broken and shoulder fractured by a fall of slate.
Apr. 5.	Antonio Bell,	Miner,	28	S.	Boon,	Washington,	Leg broken and shoulder fractured by a fall of slate.
8.	Fred. Duckerd,	Mule driver,	38	M.	Castle Shannon,	Allegheny,	Ankle broken; his leg got entangled in the tail chain.
18.	Joe Vide,	Miner,	47	S.	Essen No. 3,	Allegheny,	Small toe and side of foot crushed by a fall of slate.
18.	Mike Mad,	Miner,	25	M.	Essen No. 3,	Allegheny,	Leg broken by a fall of slate.
20.	Sidney Katon,	Miner,	50	S.	Laurel Hill No. 2,	Washington,	The jack bar on the mining machine slipped and struck him on the leg, breaking the bone.
22.	Henry Bohomar,	Machine runner, ..	22	S.	Pan Handle,	Allegheny,	Foot badly cut by coming in contact with cutter bar of a mining machine while it was in motion.
22.	John Dulfi,	Miner,	28	M.	O. I. C.,	Allegheny,	Leg broken by fall of slate.
23.	Joe Succo,	Miner,	38	M.	Vulcan,	Allegheny,	Injured about head and shoulders by a fall of slate.
May 4.	Edward Reld,	Miner,	43	S.	Walton,	Allegheny,	Back and hip injured by a fall of slate.
6.	Christ Rush,	Mule driver,	26	S.	Essen No. 3,	Allegheny,	Squeezed about abdomen; caused by the collision of two trips.
6.	Daniel Davis,	Machine helper, ..	15	...	Creedmore,	Washington,	Leg broken by a fall of slate.
11.	Starr Venter,	Miner,	23	S.	Laurel Hill No. 5,	Allegheny,	Head injured by a fall of slate.
12.	Miak Kozakeli,	Miner,	25	S.	Essen No. 2,	Allegheny,	Back and breast injured by a fall of slate.

June	14	John Sappy, Frank House,	Miner,	65	M. Nickel Plate, Pan Handle,	Allegheny, Allegheny,	Leg broken by a fall of coal. Hand injured; was squeezed between two cars.
	15	John Palmajol, Wm. Guthrea,	Miner,	42	S. Essen No. 3,	Allegheny, Allegheny,	Leg broken by a fall of coal. Leg broken; he was struck by coal car outside of the mine.
	13,	John Goff, J. Speicher,	Miner,	36	M. Bridgehill No. 5, Ormsby,	Allegheny, Allegheny,	Back slightly injured by a fall of slate. Arm injured by being squeezed between car and side of entry.
	21,	Adam Gleist, John Sebestyer,	Mule driver,	39	S. Fort Pitt, Boyd,	Allegheny, Allegheny,	Leg broken by a fall of roof coal. Injured by being squeezed between empty car and side of entry.
July	2,	John Cleulla, Joseph Scovel,	Miner,	33	M. Boyd, Margerum,	Allegheny, Allegheny,	Head and back injured by a fall of slate. Head and head injured by a fall of slate.
	9,	James Bernad, Joseph Rough,	Miner,	38	S. Moon Run, Moon,	Allegheny, Washington, Allegheny,	Arm broken by a fall of slate. Shoulder dislocated by fall of roof, slate.
	10,	Steve Gasody, Jno. Zatawan,	Miner,	40	M. Moon Run, Moon,	Allegheny, Washington, Allegheny,	Head, back and foot injured by a fall of slate.
	21,	Steve Gasody, Jno. Zatawan,	Miner,	29	M. Moon Run, Moon,	Allegheny, Washington, Allegheny,	Head, back and foot injured by a fall of slate.
	22,	Steve Gasody, John Housowe,	Miner,	35	S. Vulcan, Brier Hill,	Allegheny, Washington, Allegheny,	Head injured by a fall of slate. Leg broken by a fall of coal.
Aug.	8,	John Mattans, James Sowers,	Miner,	14	M. Pan Handle, Pine Creek,	Allegheny, Allegheny,	Head injured by a fall of slate. Three ribs broken by a fall of roof.
	10,	John Mattans, James Sowers,	Miner,	33	M. Pine Creek, Montours,	Allegheny, Allegheny,	Leg broken; fell in front of a trip of cars. Leg broken; fell under a trip while attempting to get on the cars.
	18,	Eugene Loraine, Thos. Snedden,	Mule driver,	21	S. Essen No. 3, Essen No. 2,	Allegheny, Allegheny,	Leg broken; fell under a trip while attempting to get on the cars. Ankle dislocated; he was struck by an empty car on the slope.
	29,	Thos. Snedden, Wm. Neilson,	Roadman,	43	M. Essen No. 2, Essen No. 2,	Allegheny, Allegheny,	Ankle dislocated; he was struck by an empty car on the slope. Two ribs broken; he was struck by an empty car on the slope.
	31,	Steve Gerdy, George Smith,	Mine foreman,	51	M. Essen No. 2, Essen No. 2,	Allegheny, Allegheny,	Two ribs broken; he was struck by an empty car on the slope. Leg broken by a fall of slate.
Sept.	1,	Charles Mollegoni, John R. Brennan,	Miner,	32	M. Vulcan, Enterprise,	Allegheny, Allegheny,	Leg broken by a fall of slate. Leg broken by a fall of slate.
	2,	John R. Brennan, Matthew O'Rourke,	Miner,	25	M. Enterprise, Essen No. 1,	Allegheny, Allegheny,	Leg broken by a fall of slate. Head and face injured; was squeezed between cars in the mine.
	2,	Matthew O'Rourke, Emil Quinnett,	Machine boss,	36	M. Champion, Laurel Hill No. 5,	Allegheny, Allegheny,	Head and face injured; was squeezed between cars in the mine. Ribs broken; he was squeezed between car and cage at the shaft bottom.
	4,	Emil Quinnett, George Boones,	Miner,	22	S. Champion, Pan Handle,	Allegheny, Allegheny,	Hip dislocated by a fall of coal. Burned about face and hands by an explosion of gas.
	8,	George Boones, Snoy Deal,	Miner,	38	S. Champion, Pan Handle,	Allegheny, Allegheny,	Hip dislocated by a fall of coal. Burned about face and hands by an explosion of gas.
	14,	Snoy Deal, Jno. Bagway,	Miner,	47	S. Vulcan, Essen No. 2,	Allegheny, Allegheny,	Slight injury by a fall of coal. Leg injured by fall of slate.
	20,	Julius Moser, Mike O. Dishek,	Miner,	44	S. Moon Run, Pan Handle,	Allegheny, Allegheny,	Back injured by a fall of slate. Leg broken by a fall of slate.
Oct.	17,	Julius Moser, Mike O. Dishek,	Miner,	20	S. Moon Run, Pan Handle,	Allegheny, Allegheny,	Back injured by a fall of slate. Leg broken by a fall of slate.
	21,	Job Cox, George Primrose,	Miner,	45	M. Pan Handle, Bridgeville,	Allegheny, Allegheny,	Leg and foot slightly injured by a fall of slate. Foot badly cut by cutter bar of mining machine.
	31,	George Primrose, Emil Jordan,	Machine runner,	30	S. Bridgeville, Jumbo,	Allegheny, Washington,	Foot badly cut by cutter bar of mining machine. Ankle broken and hip injured by a fall of slate.
Nov.	4,	Emil Jordan, Carl Smith,	Miner,	37	M. Jumbo, Beading,	Washington, Allegheny,	Ankle broken and hip injured by a fall of slate. Injured by a fall of slate, not seriously.
	8,	Carl Smith, Paul Farnham,	Miner,	61	M. Beading, Nagerum,	Allegheny, Allegheny,	Leg bruised; was struck by an empty car. Leg broken by a fall of slate.
	10,	Paul Farnham, Richard Perry,	Miner,	60	M. Nagerum, Venture,	Allegheny, Allegheny,	Leg broken by a fall of slate. Hand injured by a fall of coal.
	28,	Richard Perry, George Primrose,	Miner,	22	S. Venture, Pan Handle,	Allegheny, Allegheny,	Hand injured by a fall of coal. Foot badly cut by cutter bar of mining machine.

TABLE V. — Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Dec. 5,	Frederick Coking,	Miner,	21	S.	Margerum,	Allegheny,	Back and hand injured by a fall of roof coal, not seriously.
24,	John Peach,	Mule driver,	22	S.	Walton,	Allegheny,	Knee dislocated; fell in front of a moving car.
28,	John Langan,	Miner,	54	M.	Enterprise,	Allegheny,	Ankle crushed by a fall of slate, necessitating amputation of the foot.
29,	John Kansas,	Miner,	48	M.	Vulcan,	Allegheny,	Foot injured by a fall of slate.

Eighth Bituminous District.

(CLEARFIELD, CENTRE AND JEFFERSON COUNTIES.)

Philipsburg, Pa., February 14, 1899.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor of presenting to you my fourth annual report as Inspector of Mines of the Eighth Bituminous district for the year ending December 31, 1898, in compliance with Section eleven of Article ten of the Bituminous mine law, approved May 15, 1893.

The report contains the usual statistical tables relating to the names of coal companies and location of the mines, the total production in net tons of coal, the number of each class of workmen employed in and about the mines, each fatal and non-fatal accident, together with the responsibility and remedy where needed.

Some of the accidents show rather poor judgment on the part of the unfortunates themselves, but one instance shows that the foreman used poor discretion in placing an incompetent person in the most dangerous position, and while I mention it here I also notified the company of the foreman's incompetency to oversee the mine under the existing conditions, and they removed him and put a more competent person in charge. While my report shows a slight decrease in tonnage over the preceding year the total number of fatal accidents remains the same, but the number of non-fatal cases is less by seven than of the preceding year, which is a fair showing for this section of the State, but among the number of non-fatal cases there has been gross carelessness displayed, and it was not due to the good judgment or energy on the part of the men that the list of fatal cases is so small, for some of the most reckless acts were committed that it was possible for sane men to commit.

The mines have been kept in very fair condition as a whole, but I had occasion to make information against three small coal firms for violating the law, after giving them plenty of warning to desist, but such disobedience always comes from people with a small amount of capital invested, who are a hindrance to the mining business by trying to get out coal without regard for the health and safety of those that are toiling for them.

Very respectfully yours,

JOSEPH KNAPPER.

Table "A."

Showing the quantity of coal mined, coke produced, number of persons employed in and about the mines, (foreman not included), number of net tons of coal produced, per each fatal and non-fatal accident, together with quantity of powder consumed, number of days worked, &c.

Total number of tons mined,	3,352,840
Total number of tons shipped,	3,233,579
Total number of tons of coke shipped,	15,693
Total number of tons mined per fatal accident,	478,977
Total number of tons mined per non-fatal accident,	15,242
Number of persons employed inside of mines,	5,407
Number of persons employed outside of mines,	405
Total number of persons employed in and about the mines,	5,812
Total number of days worked,	14,198
Average number of days worked,	179
Tons of coal mined per employe,	559
Tons of coal mined per miner,	677
Kegs of powder used,	23,017
Number of horses and mules employed,	574
Number of steam boilers,	92
Coke ovens at mines,	106
Number of mines that came under inspection,	77
Number of new mines opened,	11
Number of mines abandoned during year,	5

Table "B."

Classification of Accidents.	Fatal.	Non-fatal.	Widows.	Orphans.
Falls of coal,	2	10		
Falls of roof,	4	2		
Mine machinery,		1		
Mine cars,	1	6		
Premature blasts,		2		
Ignition of loose powder,		1		
Total,	7	22	4	23

Report of Fatal Accidents during the Year, with Causes and Responsibility.

On March 2d, John Densham, miner, was fatally injured by a fall of coal; he had undermined a cut of coal to within a few inches of a down throw fault, and was still mining without any sprag, when the foreman, Charles Milson, entered the room and requested that Densham set a sprag because the coal was full of smooth slips and liable to roll over on him any moment, when the miner raised to a sitting position and said he would drill a hole and blast the cut down; the

foreman believing that he would do what he said, left the place, and was gone only a few minutes when the miner must have attempted to undercut the coal deeper, when the whole cut of coal rolled over on him; he survived sixteen hours.

Elijah Owens and his son William were instantly killed by a fall of sand rock roof, while withdrawing cross heading pillars, and according to evidence, the foreman had left the place only fifteen minutes, and had not noticed any unusual conditions, but the firing of a shot must have loosened the roof. The miner and his boy went immediately back into their place and commenced loading a car, when without warning the whole place caved in, crushing both beneath the fall, causing instant death.

Simon Film was mining out, and withdrawing heading pillars, a section where there was a heavy squeeze on the place, extending out beyond the place fifty feet, where other gangs of men were at work, and while the deceased was undercutting the coal, the crush caused a piece of slate to be liberated, striking him while lying on his side, proving fatal in eight hours. The deceased was unfit to be placed in the rear of five or six gangs of men, owing to his being a cripple and deaf. The foreman used poor judgment. Foreman, Grant Watkins.

Andrew Gowatski was placing lumps of coal on the side of a partly loaded mine car, and while leaning over the side a piece of roof slate fourteen feet long and one and one-half feet wide fell out of the roof, striking him across the shoulders and causing instant death. On the gob side of his room he had two props set, one on each side of the stone, but none under it. It was evident that he did not understand timbering, for the roof where the props were set was perfectly safe without props being set so close, and where props were needed none were set.

John Atkins was instantly killed by a fall of coal. He had mined a cut of coal four and one-half feet deep and eleven feet long on the road side of his room pillar, which he was withdrawing, and one loose end was at a cross cut or cut hole through the pillar. He had left a coal sprag at this point and when all was ready he commenced to cut out the coal sprag, mining on the face side to cut it out, and when nine inches deep a section of the coal rolled over, fracturing his skull. The reason was that a coal smooth or slip was in the face of coal, one and one-half feet deep and unseen by him, and when he cut into it the coal gave way. While this was an unforeseen occurrence it is always my advice to sprag the coal with timber, which is provided for that purpose.

Clifford Reynolds was found dead beside two loaded cars, with a mule hitched to the front of them. His spine was dislocated at the neck, which must have caused instant death. This was a case of unavoidable accident, and according to evidence the boy was only

fifteen years old and had only been in charge of a mule and cars a few days when the accident occurred. It seems as though the boy must have been trying to get past the cars in order to hurry the mule up, when he missed his footing and fell and was struck by the cars.

Report of Mines in Clearfield County and the Condition of Ventilation and Drainage, with Descriptions of Violations and Prosecutions before a Justice of the Peace.

Aeme No. 1.—On my visit in October there was 36,800 cubic feet of air in circulation in three currents, the main currents were well divided, but there were too many subsplits and overcasts which divided the air current until when it reached the working face it did not have the necessary volume and force to keep the working places clear of noxious gases. Drainage good. Foreman, D. Philips.

Aeme No. 2.—Is a new slope opening and is at present ventilated from the fan of Aeme No. 1, and by the same current; but it is not yet complete, owing to excessive volumes of water to be pumped at this opening. Foreman, M. Walker.

Atlantic No. 1 Mine.—Had 64,000 cubic feet of air in circulation in three currents, which keeps the workings in good condition and the roads are fairly well drained. Foreman, Benjamin Baduan.

Atlantic No. 2 Mine.—Had 14,000 cubic feet of air circulating in one current and is in good condition; drainage was also good. Foreman, William Williams.

Alexandria Mine.—Has been idle for several years, but during the past year the operator has opened a new drift, built a substantial furnace, sunk a furnace shaft and built a new tippie, which indicates more steady operation than in the past. Foreman, Wm. S. Blythe.

Baltic Nos. 1 and 3 Mines.—Had 4,800 and 9,100 cubic feet of air in circulation in separate currents, which kept the mine in a healthful condition. The drainage however was defective in haulage ways. Foreman, C. H. Milsom.

Belsena No. 3 Mine.—Has 10,400 cubic feet of air in circulation in one current, which keeps the mine in a healthful condition. The drainage has been greatly improved, but there is still room for improvement on haulage ways. Foreman, Daniel Campbell.

Belsena No. 4.—Would have been exhausted before the close of 1898 but for the scarcity of cars. When in operation there was 6,000 cubic feet of air in circulation in one current, which kept the mine in very fair condition; drainage fair. Foreman, James McAlarney.

Coaldale Nos. 3 and 5.—Were worked out and abandoned during the year, both having been in fair condition when in operation. Foreman, David Philips.

Colorado No. 2.—This mine had 10,500 cubic feet of air in circula-

tion in one current through the mine, which kept it well ventilated; the drainage was also good. Foreman, James Gates.

Colorado No. 3.—Was under the provision of the law only a few days in December, and was idle on every one of my visits, but it seems to have better prospects for the future. The trouble seems to have been in getting railroad cars, according to the statement of the present operator. Foreman, James Jennicks.

Cuba Mine.—Has either been idle or working but nine men on my several visits during the year, except in December, when I called when they did not expect me and found them working thirty-five men with no mine foreman, contrary to Article 6, Section 1, of the Bituminous Mine Law, and after I had sent them word two weeks previously where they could get a foreman. I at once made information before Squire Gearhart, and at the hearing I had fifteen miners as witnesses; the operator plead guilty and the case was dismissed on his paying the costs.

Columbia No. 5 Mine.—Was either idle during my several visits or else working fewer than ten men. Foreman, William Fitzgerald.

Decatur No. 1 Mine.—Had 25,500 cubic feet of air circulating in two currents; ventilation was in good condition. Drainage fair. Foreman, John Hawkins.

Decatur No. 2.—Seems destined to remain idle, the coal in the mine is now being taken out of Decatur No. 1 opening.

Donegal Mine.—Has not been under the provisions of the law during the year, sometimes working from two to five men, and for the greater part of the time it was idle.

Eureka No. 5 Mine.—At times gives off a slight quantity of fire damp C. H. 4, but is well cared for, having 42,000 cubic feet of air circulating in four currents throughout the mine; the ventilation and drainage were also in good condition. Foreman, Thomas Forsythe.

Eureka No. 7 Mine.—Had 53,040 cubic feet of air circulating in three currents, and it is well conducted throughout the mine, the roads and workings are also well drained. Foreman, John Carlan.

Eureka No. 12.—Was worked with only nine men in the early part of the year, at which time the coal was all taken out as expected by this company and mine was abandoned.

Eureka No. 13.—Is being rapidly exhausted, only a small section of the mine is solid coal. The ventilation is only fair for number of men employed, while the drainage is defective on haulage ways. Foreman, M. Blythe.

Eureka No. 14 Mine.—Has been idle for several months, but when last in operation the ventilation was in good condition, there having been 23,700 cubic feet of air in circulation in two currents. There were defects in drainage on main haulage way. Foreman, Wm. Fitzgerald.

Eureka No. 16 Mine.—Ventilation was in fair condition on my visit in September, there having been 26,400 cubic feet of air circulating in two currents; drainage was defective on main haulage ways. Foreman, E. F. Townsend.

Eureka No. 18 Mine.—Was not in operation at my last visit. Foreman, James Blade.

Eureka No. 19 Mine.—Is well drained and ventilated, having had 28,800 cubic feet of air circulating in three currents throughout the roads and working places of the mine. Foreman, James Delves.

Eureka No. 20 Mine.—Had 18,600 cubic feet of air in circulation in one current, which was fairly conducted throughout the mine, the drainage was also in fair condition, but the mine has since been abandoned by the Berwind-White Coal Mining Company. Foreman, Grant Watkins.

Eureka No. 22 Mine.—Had 74,800 cubic feet of air in circulation in four currents, which was well conducted throughout the mine, the drainage was also in very good condition. Foreman, John Milson. Over foreman, Wm. Poltock.

Eureka No. 24 Mine.—Had 18,900 cubic feet of air in circulation in one current, being well conducted throughout the mine, and the workings and roadways well drained. Foreman, John Allen.

Eureka No. 26 Mine.—Loaded only 2,000 tons about the first of the year, and has been indefinitely shut down.

Fairmount Mine.—Had 7,800 cubic feet of air in circulation in one current, which keeps the mine in a healthful condition, but there are local defects in the haulage and drainage. Foreman, Jno. Burns.

Grampian No. 1.—Has not been worked very steadily during the year, but was in very fair condition for number of men employed, having had 7,800 cubic feet of air in circulation in one current. Foreman, Ed. Shell.

Glenwood No. 1.—On my last visit there were 19,200 cubic feet of air in circulation in two currents; the mine was in a healthful condition, with very fair drainage. Foreman, Chas. Paul.

Guion Mine.—Was idle on my last visit in October, since which time and while it was idle, two boys went into the weigh office, where one keg of powder is kept, to get a supply to use in some other mine; having open lights on their caps and while filling out the powder, the dust from the powder ignited from the lamps, setting off three-fourths of a keg, fatally burning one of the boys and seriously burning the other one, and burning the tippie and scale house to the ground.

Gearhart Mine.—Was visited once during the year when it was in operation, having been operated by nine men for several months previous to that time, and the mine was in anything but a healthful condition, airways having fallen in, and (C. O. 2) black damp being given off from an old mine below and broken strata of this mine, but they

had nearly finished a new air shaft near the working face which would put the air supply in good condition, but for the constant falls caused from the settling of the strata in the seam below. Foreman, W. Wood.

Henderson's Nos. 1 and 2.—Employed only nine men each, and do not come under provisions of the law.

Highland Mine.—On my last visit had 6,300 cubic feet of air in circulation in one current, keeping the mine in very fair condition for number of men employed. Drainage had only local defects.

Imperial Mine.—Had 8,400 cubic feet of air circulating in one current, which kept the mine healthful for number of men employed. The drainage was fair on my last visit. Foreman, John Tate.

Jefferson Mine.—Had 8,400 cubic feet of air in circulation in one current, which kept the mine in a healthful condition for the number of men employed; drainage very good. Foreman, J. C. Johnson.

Kentuck Mine.—Was idle on my last visit, but in July only 4,420 cubic feet of air was entering the mine, which was not sufficient to keep it in good condition; drainage was however in fair condition. Foreman, James Dunsmore.

Leader Mines Nos. 1 and 2.—Have been worked alternately during the year; No. 2 being a new opening on "D" seam of coal to take out some crop coal left by other operators, having no definite volume of air, but receiving air through broken strata and holes made to the surface at several points, which keeps the mine in healthful condition. A new drift and incline plane have been built and opened on "E" seam, which is ventilated by a natural current of air; both places have been in a healthful condition for number of men employed, owing to so many connections to the surface. Foreman, George Huston.

Lane Nos. 1 and 2 Mines.—Had 11,500 and 9,450 cubic feet of air circulating in separate currents throughout each mine, which keeps them well ventilated. Condition of drainage was very good. Foreman, S. Sykes.

Union Mine.—Had 10,600 cubic feet of air circulating in two currents, the ventilation and drainage being very fair. Foreman, Albert Howe.

Leland Mine.—Had 24,400 cubic feet of air passing through the working in two currents. First right heading air was defective, it not getting its share of the volume. Drainage fair. Foreman, Adolph Cook.

Lenore Mine.—Had not always the necessary volume of air circulating, and on my last visit in September had only 7,040 cubic feet of air going out at the furnace, 4,000 of which came from broken strata, which did not reach the working places. I have requested the company to put in a mechanical ventilator with more power than the furnace in use has, and was notified in December that a seven

foot Stine fan had been brought on the premises but was not yet in operation. Foreman, Charles Rodden.

Lorraine Nos. 1 and 2 Mines.—Had 6,800 and 5,800 cubic feet of air circulating in separate currents, which kept the mines healthful for number of men employed. The drainage had some local defects. Foreman, George Gould.

Morrisdale No. 2 Shaft.—Is a new mine opened during the year, having been laid out for electric haulage and compressed air mining machines. This is a permanent operation with modern equipment both inside and outside of the mine, having self dumping cages and temporary ventilation furnished by a seven foot Stine fan. The sinking and equipment was under the immediate supervision of the mine superintendent, James Stafford.

Mabel Mine.—Had 7,200 cubic feet of air circulating throughout the workings and is in very fair condition for the number of men employed; the drainage also is very fair. No foreman on my last visit.

Morrisdale No. 4 Mine.—Has not had a good volume of air in circulation, it having been deficient on my two last visits, having only 2,400 cubic feet of air for the twenty-one men employed; this was caused by the contractors not keeping the small furnace in operation. The superintendent was notified of his negligence and promised better arrangements for the future. Foreman, James McCann.

Mt. Vernon No. 4 Mine.—Has not been under the provisions of the law during the year, and on my several calls had only from five to nine men employed.

Mt. Vernon No. 6 Mine.—Has 29,400 cubic feet of air circulating throughout the workings in two incomplete splits, and while the workings are in a healthful condition, the current is not properly conducted in separate currents for men employed. Drainage is very fair. Foreman, J. Hutchinson.

Mt. Vernon No. 7 Mine.—Had been poorly ventilated during the early part of the year, and ventilation is still defective in one section, owing to imperfect airways and brattices. Drainage has some defects which are local. Foreman, A. P. Isenburg.

Mt. Vernon No. 9 Mine.—Is well ventilated for the number of men employed, having 9,600 cubic feet of air in circulation in one current. Drainage was in fair condition. Foreman, Edward Hughes.

Meadowbrook Mine.—Did not come under the provision of the law during the year.

Mapleton Mine.—Had 10,200 cubic feet of air going through the mine from several openings which is produced by natural means, which kept the mine in fairly good condition for number of men employed. The working places were fairly well drained. Foreman, Thomas Duggan.

Old Moshannon Mine.—Had 2,700 and 4,500 cubic feet of air circu

lating in separate currents in each drift. It is in very fair condition. Foreman, Paul Hyde.

Lancashire No. 1 Mine.—Has been abandoned by Thomas Barnes and Brother, but a contract has been entered into by a miner to take out the remaining crop coal with nine men, but in December I gave him a call and found a sufficient number of men to require him to comply with Article 6, Section 1 of the law, so I made information against him before Squire Gearhart, where he plead guilty, and on payment of cost I abandoned the case.

Morrisdale No. 1 Shaft.—Had a volume of 94,000 cubic feet of air circulating in six currents throughout the mine, keeping the workings well ventilated except main "A" heading. The condition of drainage was fair, but some local defects existed owing to the numerous local swamps in the seam in this section. Foremen, Robert Cole, F. Pilkington and Eugene Marks. Mine superintendent, James Stafford.

Mocks Mine.—Has two openings, one a drift, the other a slope, just being opened. The former has been opened for three years, but was never worked very extensively, 6,900 cubic feet of air having been in circulation by natural means but was poorly conducted owing to the loose methods in vogue when only nine men were employed, which has been the case ever since it has been opened until last October. I, however, expect an improvement on my next visit. Foreman, George Minds.

Midvale Mine.—Has been fairly well ventilated for the fifteen men employed and for the area of the mine, there having been 4,100 cubic feet of air in circulation. There were defects in drainage on haulage ways, which the foreman himself hauled the coal through. Foreman, John Farrel.

Banion Mine.—Is a new slope opening on "B" seam of coal, 300 feet long driven through the strata above the coal and striking the seam of coal at an approximate angle of 12 degrees pitch, having a natural current of air of 6,400 cubic feet. The ventilation and drainage is in a very fair condition for number of men employed. Foreman and operator, James Gatehouse.

Osceola No. 3 Mine.—Had 5,400 cubic feet of air circulating through the workings, which keeps it in fair condition for number of men employed. Drainage was in fair condition. Foreman, Thomas Estep.

Parks Mine.—Is operated for the purpose of supplying the company's brick works with coal, which has kept a few men steadily at work during the year, there having been 6,900 cubic feet of air in circulation in two currents throughout the mine, which is in fair condition in other respects. Foreman, John Baker.

Queen Mine.—Employs only from nine to twelve men, and is always in fair condition for the number of men employed, having had 3,000 cubic feet of air in circulation. Foreman, E. Brubaker.

Reading Nos. 1 and 2 Mines.—Had 5,400 and 10,000 cubic feet of air in separate currents circulating throughout the mine, which keeps the mine healthful for the number of men employed; drainage has local defects. Foreman, C. Maher.

Sterling No. 3 Mine.—Has 6,240 cubic feet of air circulating throughout the workings. The drainage was in fair condition. Foreman, M. Craig.

Schwinn Mine.—On my last visit in December, had neither second opening, ventilating apparatus, safety holes, apparatus to relieve the injured, nor a mine foreman, and had seventeen men at work with no safe way out of the mine, the main drift having caved in. In one section after I got the operation stopped, which I did by making information before Squire McGrath, and at the hearing defendant plead guilty and paid the fine, and the case was dropped on his promise not to operate the mine again until it was in a safe and healthful condition, according to the requirements of the Bituminous Mine Law.

Staffordshire Mine.—Had been idle for several years, but during the month of December commenced operations again on a small scale, and has not yet been visited. Foreman, John Todhunter.

Troy Mine.—Worked only with from five to nine men during the year, therefore it did not come under provisions of the law.

Webster No. 4 Mine.—Has two drifts, and has 35,770 cubic feet of air in one drift in three currents, and 7,200 cubic feet of air in the other drift in one current, being fairly well conducted through the mine. The drainage in No. 1 mine is fairly good, while in No. 2 it is defective on the main haulage. Foreman, John Stoker.

Whiteside No. 1 Mine.—Had only 4,400 cubic feet of air in circulation on my visit in October, but the places were in a healthful condition for number of men employed. Drainage fairly good. Foreman, Jos. Wheatley.

Mines in Centre County.

Black Diamond Mine.—Was not in operation on my visit, and was abandoned in the autumn by R. A. Jackson, owing to lease having expired, and has since been idle.

Bear Run Mine.—Was in operation only a few weeks during the year, the company having been busy in prospecting for another seam of coal, which they thought might prove of more value. Superintendent and foreman, John Quinn.

Electric Mine.—Had 21,000 cubic feet of air circulating in three currents. The ventilation and drainage having been in good condition for the men in their present locations. Foreman, W. S. Edwards.

Eureka No. 21 Mine.—Had 14,800 cubic feet of air in circulating in

three currents throughout the mine, but some local defects existed in this connection which I directed to be remedied. Drainage had some defects which were unavoidable, owing to soft bottom. Foreman, W. Pollock.

Ghem Mine.—Was always in good condition on my visits when it was in operation, but was seldom at work. Foreman, Samuel Pfontz.

Orient Mine.—Had 16,000 cubic feet of air passing out at the furnace, the greater part of which reached the working faces, keeping the ventilation in good condition. The drainage was in fairly good condition. Foreman, Samuel Twiggs.

Ophir Mine.—Has had a new drift added to the improvements so as to make a nearer route to the central part of the mine. There were 18,000 cubic feet of air circulating throughout the workings in three currents, but a slight defect exists in No. 4 and in No. 5 right headings. Drainage was in fairly good condition. Foreman, Michael Wayne.

Phoenix Mine.—Had 14,000 cubic feet of air circulating throughout the workings, which kept the mine in a healthful condition. The drainage was also fairly good. Foreman, John Howard.

Standard No. 1.—Is a new mine, with mule haulage and furnace ventilation, having had 9,600 cubic feet of air in circulation. It is in fairly good condition for the number of men employed. Drainage was also fairly good. Foreman, Robert Whitehead.

Jefferson County Mines.

Summit Mine.—Had only nine miners at work during the year; therefore did not come under the provisions of the law. Foreman and superintendent, Jno. Smith.

West Eureka No. 4 Mine.—Was well ventilated, having had 88,200 cubic feet of air circulating throughout the mine in two main and two subsplits. The drainage was fairly good. Foreman, M. Moore.

West Eureka No. 5 Mine.—Had a current of 20,250 cubic feet of air in circulation in two currents, being fairly well conducted throughout the workings. The drainage was also in fairly good condition. Foreman, Joseph Williams.

West Eureka No. 6 Mine.—Was well ventilated, having 79,200 cubic feet of air in circulation in three currents throughout the mine. A large sand rock has been cut, for over 700 feet during the year, which promised to develop a large field of coal, but which has so far given off large volumes of C. H. 4 fire damp, but it is well looked after, the superintendent ordering locked safety lamps only to be used as soon as notified of its presence in the section where it was given off. Foreman, Thomas Morgan.

West Eureka No. 10 Mine.—Had a volume of 76,800 cubic feet of air circulating in four currents. The mine being well ventilated and drained. Foreman, John Reese.

West Eureka No. 12 Mine.—Had 41,200 cubic feet of air in circulation in two currents, but it was not properly conducted throughout the workings; the foreman's attention having been called to the defects, I directed him to remedy the same at once. All material that was necessary to improve the conditions were on the premises, and I think they will receive prompt attention. Drainage was unavoidably defective in places. Foreman, Wm. Wood.

West Eureka No. 12 Mine.—Had 67,200 cubic feet of air in circulation in two main splits, which kept the ventilation in good condition. Some local defects exist in drainage on main haulage road. Foreman, Elijah Higgins.

West Eureka Nos. 1 and 13 Mines.—Did not come under the provisions of the law during the year.

TABLE I.—Showing location, etc., of collieries in the Eighth Bituminous Mine District.

Numbers showing locations on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
8	Acme No. 1.	O. Perry Jones.	Clearfield.	Jas. Jennicks.	Phillipsburg.	C. R. R.
21	Acme No. 2.*	O. Perry Jones.	Clearfield.	Jas. Jennicks.	Phillipsburg.	B. C. R.
10	Atlantic No. 1.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	C. R. R.
11	Atlantic No. 2.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	C. R. R.
12	Alexandra.*	Thomas Blythe.	Clearfield.	Thos. Blythe.	Madera.	P. R. R.
9	Baltic Nos. 1 and 3.	Baltic Coal Company.	Clearfield.	T. E. Johnson.	Phillipsburg.	C. R. R.
1	Black Diamond.	R. A. Jackson.	Centre.	R. A. Jackson.	Osceola Mills.	P. R. R.
51	Bear Run.	Wilson Freeman.	Centre.	John O'Connell.	Houtzdale.	P. R. R.
61	Balsena No. 3.	Balsena Coal Company.	Clearfield.	J. H. Klock.	Balsena Mills.	P. R. R.
13	Coaldale No. 3.	O. P. Jones.	Clearfield.	D. R. Philips.	Balsena Mills.	P. R. R.
14	Coaldale No. 5.	O. P. Jones.	Clearfield.	D. R. Philips.	Balsena Mills.	P. R. R.
15	Colorado No. 2.	Elsworth & Dunham.	Clearfield.	J. N. Jones.	Hawks Run.	C. R. R.
16	Colorado No. 3.	Elsworth & Dunham.	Clearfield.	J. N. Jones.	Hawks Run.	C. R. R.
17	Cuba.	Stratton Bros.	Clearfield.	A. H. Elsworth.	Phillipsburg.	C. R. R.
18	Columbia No. 5.	Stratton Bros.	Clearfield.	D. Atherton.	Phillipsburg.	C. R. R.
19	Decatur No. 1.	John Nuttal & Co.	Clearfield.	P. Gallagher.	Phillipsburg.	C. R. R.
20	Decatur No. 2.	John Nuttal & Co.	Clearfield.	Geo. McGaffey.	Phillipsburg.	C. R. R.
21	Demogal.	John Nuttal & Co.	Clearfield.	Geo. McGaffey.	Phillipsburg.	C. R. R.
22	Electric.	Thos. C. Helms.	Centre.	P. Gallagher.	Osceola Mills.	A. & P. R. R.
23	Eureka No. 5.	Berwind White Coal Mining Co.	Clearfield.	Thos. C. Helms.	Osceola Mills.	P. R. R.
24	Eureka No. 6.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
25	Eureka No. 7.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
26	Eureka No. 8.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
27	Eureka No. 9.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
28	Eureka No. 10.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
29	Eureka No. 11.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
30	Eureka No. 12.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
31	Eureka No. 13.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
32	Eureka No. 14.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
33	Eureka No. 15.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
34	Eureka No. 16.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
35	Eureka No. 17.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
36	Eureka No. 18.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
37	Eureka No. 19.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
38	Eureka No. 20.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
39	Eureka No. 21.	Berwind White Coal Mining Co.	Centre.	A. S. R. Richards.	Osceola Mills.	P. R. R.
40	Eureka No. 22.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
41	Eureka No. 23.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
42	Eureka No. 24.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
43	Eureka No. 25.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
44	Eureka No. 26.	Berwind White Coal Mining Co.	Clearfield.	A. S. R. Richards.	Osceola Mills.	P. R. R.
45	Fairmont.	M. Liveright Co.	Clearfield.	M. Burns.	Trishin.	P. R. R.
46	Franklin Nos. 1 and 2.	Williams & Co.	Clearfield.	S. E. Campbell.	Phillipsburg.	P. R. R.
47	Greenwood.	Williams & Co.	Clearfield.	S. E. Campbell.	Phillipsburg.	P. R. R.
48	Gilbon.	Wm. P. Duncan.	Clearfield.	Wm. P. Duncan.	Phillipsburg.	P. R. R.

TABLE I.—Continued.

Numbers showing locations of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
22	Gearhart,	Thos. J. Lee & Co., Limited,	Clearfield,	Thos. J. Lee,	Phillipsburg,	B. C. R. R.
23	Ghem,	Ghem Coal Company,	Centre,	Saml. Pfoutz,	Osceola Mills,	P. R. R.
45	Henderson Nos. 1 and 2,	W. A. Gould,	Clearfield,	Wm. A. Gould,	Brisbin,	P. R. R.
87	Highland,	O. P. Jones,	Clearfield,	M. F. Walker,	Hawk,	B. C. R. R.
85	Imperial No. 1,	J. Bennet Philips,	Clearfield,	J. R. Fleming,	Phillipsburg,	P. R. R.
86	Jefferson,	Adams & Co.,	Clearfield,	Geo. E. Friday,	Phillipsburg,	P. R. R.
28	Kentuck,	J. R. Fleming,	Clearfield,	J. R. Fleming,	Phillipsburg,	P. R. R.
34	Lenore,	Thos. C. Helms & Co.,	Clearfield,	J. C. Helms,	Osceola Mills,	P. R. R.
31	Lorraine,	Rearkirk Bros. & Co.,	Clearfield,	Geo. Gould,	Brisbin,	P. R. R.
72	Lebanon Nos. 1 and 2,	Richard Hughes & Son,	Clearfield,	H. M. Hughes,	Phillipsburg,	P. R. R.
71	Lebanon No. 1,	Cambria Coal Mining Company,	Clearfield,	Ellj. Brubaker,	Osceola Mills,	P. R. R.
30	Lee,*	Lee Coal Company,	Clearfield,	Thos. J. Lee,	Spokee Run,	P. R. R.
29	Lancashire No. 1,*	Jno. Barnes,	Clearfield,	J. Barnes,	Phillipsburg,	B. C. R. R.
25	Morrisdale Shaft No. 1,	Morrisdale Coal Company,	Clearfield,	Jas. E. Hedding,	Morrisdale Mines,	P. R. R.
74	Morrisdale Shaft No. 2,*	Morrisdale Coal Company,	Clearfield,	Jas. E. Hedding,	Morrisdale Mines,	P. R. R.
73	Morrisdale No. 4,	Morrisdale Coal Company,	Clearfield,	Jas. E. Hedding,	Morrisdale Mines,	P. R. R.
32	Mabel,	Morrisdale Coal Mining Company,	Clearfield,	Jas. E. Hedding,	Morrisdale Mines,	P. R. R.
64	Mt. Vernon No. 4,	United Colliery Company,	Clearfield,	Thos. Whitehead,	Houtzdale,	P. R. R.
58	Mt. Vernon No. 6,	United Colliery Company,	Clearfield,	Thos. Whitehead,	Houtzdale,	A. & P. R. R.
26	Mt. Vernon No. 7,	United Colliery Company,	Clearfield,	Thos. Whitehead,	Houtzdale,	A. & P. R. R.
55	Mt. Vernon No. 8,*	United Colliery Company,	Clearfield,	Thos. Whitehead,	Houtzdale,	A. & P. R. R.
75	Meadow Brook,	J. C. Cook,	Clearfield,	J. C. Cook,	Houtzdale,	P. R. R.
76	Meigs,	P. Gallagher,	Clearfield,	P. Gallagher,	Phillipsburg,	P. R. R.
77	Mockton,*	Chas. Rickard,	Clearfield,	Chas. Rickard,	Osceola Mills,	P. R. R.
62	Mockton,*	Geo. Mock & Co.,	Clearfield,	Geo. Mock,	Houtzdale,	P. R. R.
	Midvale,	Wm. A. Gould,	Clearfield,	Wm. A. Gould,	Phillipsburg,	P. R. R.
	Orient,	Blair Bros.,	Centre,	Blair,	Tyrone,	P. R. R.
4	Ophir,	J. Swires & Co.,	Centre,	J. Swires,	Phillipsburg,	B. C. R. R.
71	Parks,	Harbison Walker Company,	Clearfield,	H. M. Kurtz,	Woodland	B. C. R. R.
75	Phoenix,	M. Liveright,	Centre,	H. Liveright,	Osceola Mills,	P. R. R.
38	Reading,	Penn Iron Company,	Clearfield,	C. Maher,	Osceola Mills,	P. R. R.
41	Sterling Nos. 1 and 3,	M. and P. Craig,	Clearfield,	M. Craig,	Brisbin,	P. R. R.
49	Standard No. 1,*	Thos. Whitehead & Co.,	Centre,	Thos. Whitehead,	Houtzdale,	P. R. R.
63	Summit,	Henry Schwinn,	Clearfield,	Thos. Schwinn,	Houtzdale,	A. & P. R. R.
48	Susquehanna,	C. F. Frazier,	Jefferson,	Isaac Smith,	Houtzdale,	P. & N. R. R.
39	Staircase,*	Christoff Bros & Co.,	Clearfield,	L. K. Christoff,	Brisbin,	P. R. R.

42	Troy,	Morrisdale Coal Mining Company,	Clearfield,	Jas. E. Hedding,	Morrisdale Mines,	B. C. R. R.
48	Union,	Brown & Dwyer,	Clearfield,	M. Juggan,	Osceola Mills,	P. R. R.
49	Webster No. 4,	Beulah Coal Company,	Clearfield,	Jas. Minds,	Ramey,	P. R. R.
52	Whiteside No. 1,	J. Mountz,	Clearfield,	J. Mountz,	Moran,	P. R. R.
43	West Eureka No. 1,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
44	West Eureka No. 5,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
45	West Eureka No. 6,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
46	West Eureka No. 7,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
47	West Eureka No. 8,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
48	West Eureka No. 9,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
49	West Eureka No. 10,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
50	West Eureka No. 11,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
51	West Eureka No. 12,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
52	West Eureka No. 13,	Berwind White Coal Mining Co., ..	Jefferson,	A. J. Cook,	Horatio,	W. R. R.
81	Banlon Colliery,*	James Gatehouse,	Clearfield,	Jas. Gatehouse,	Madera,	P. & N. W. R.
82	Osceola No. 3,*	Berdine Estep,	Centre,	Thos. Estep,	Osceola Mills,	P. & N. W. R.
6						P. R. R.

*New collieries.

†Abandoned mines.

TABLE II.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employees, number of persons killed and injured, number of kegs of powder used, etc., in the Eighth Bituminous District for the year ending December 31, 1898.

Name of Collieries.	County.	Total production in tons of coal.	Total production in tons of coke.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad and water shipments of coal in tons.	Number of days worked.	Number of persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number pounds dynamite used.	Number horses and mules.	Number steam boilers.	Number mine locomotives.	Number coke ovens.
Acme No. 1.	Clearfield.	131,738		1,250	1,125	129,363	221	202			920		19	6		
Acme No. 2.	Clearfield.															
Atlantic No. 1.	Clearfield.	17,193		4,134		133,659	206	216			223		15	8	3	
Atlantic No. 2.	Clearfield.	70,575		1,721		68,818	280	31		2			13	6		
Alexandra.	Clearfield.	60,000		5	15	59,985	16	11			4		1			
Battle Nos. 1 and 3.	Clearfield.	30,000			200	29,800	167	63			400		15			
Black Diamond.	Centre.	1,270			5,000	27,000	187	22			240		6			
Bear Run.	Centre.	33,537		125		1,270	18	22			6		1			
Belsena No. 3.	Clearfield.	100		160		33,412	219	55					2			
Belsena No. 4.	Clearfield.	19,108		50		24,402	91	12			3		5	1		
Banion Colliery.	Clearfield.	2,894		480		18,628	135	48			400		5			
Coaldale No. 3.	Clearfield.	37,375		120		2,874	40	18			38		6			
Colorado No. 5.	Clearfield.	16,552				37,575	148	67			300		5	2		
Colorado No. 2.	Clearfield.	3,400			50	16,502	172	33			150		3			
Columbia No. 5.	Clearfield.	52,531			3,400	3,400	87	11			15		2			
Decatur No. 1.	Clearfield.	34,007			222	35,315	142	64					16			
Donegal.	Centre.	127,635														
Electric.	Centre.	137,607														
Eureka No. 5.	Clearfield.	72,440		4,791		51,007	138	16			150		6			
Eureka No. 1.	Clearfield.	2,066		2,820		122,814	231	158		1	317		22	7		
Eureka No. 12.	Clearfield.	50,213				70,120	223	19		3	315		26	4		
Eureka No. 13.	Clearfield.	101,925				2,066	46	10					0			
Eureka No. 14.	Clearfield.	47,434				50,213	276	82			410		4	1		
Eureka No. 16.	Clearfield.	119,256				24,498	170	58			227		0			
Eureka No. 18.	Clearfield.	13,940			220	101,925	270	206		2	570		20	2		
Eureka No. 19.	Clearfield.	42,553		958		47,214	173	83			197		16			
Eureka No. 20.	Clearfield.					118,298	269	186			752		5	2		
Eureka No. 21.	Centre.				71	11,869	110	22		3	50		10			
					211	42,348	229	62			450					

	209,752	1,713	218,049	284	294	1	1,845	4	4
Eureka No. 22	Clearfield								
Eureka No. 23	Clearfield		494	188	53			7	1
Eureka No. 24	Clearfield		2,222	29	59		24	1	1
Fairmount	Clearfield		16,167	174	28		35	3	2
Gramplan No. 1	Clearfield		3,374	66	22		35	2	2
Gramplan No. 2	Clearfield								
Glenwood Nos. 1 and 2	Clearfield								
Guion	Clearfield		47,945	501	90		153	7	4
Gearhart	Clearfield		7,894	119	34		70	4	4
Ghem	Centre		19,379	151	41		107	5	5
Henderson Nos. 1 and 2	Clearfield		18,189	38	21		100	5	5
Highland	Clearfield		7,546	210	18		75	3	3
Imperial No. 1	Clearfield		125	15,219	163		75	5	5
Jefferson	Clearfield			35,100	225	1	290	11	11
Kentuck	Clearfield		748	143	51		100	4	4
Lenore	Clearfield		11,654	31	16		30	3	3
Lena	Clearfield		25,282	11	2		140	2	2
Lane Nos. 1 and 2	Clearfield		13,559	170	40		40	2	2
Leg	Clearfield		240	53,079	220		40	7	7
Lancashire No. 1	Clearfield		8,735	250	18		100	2	2
Leader	Clearfield		36,000	20	45		150	6	6
Leland Nos. 1 and 2	Clearfield		61,890	221	147		300	118	118
Morrisdale Shaft No. 1	Clearfield		310,559	5,715	2,629	1	3,105	800	40
Morrisdale Shaft No. 2	Clearfield	15,683	18,768	293	588	1	1,996	1,000	2
Morrisdale No. 4	Clearfield		19,659	497	35		157	3	3
Mabel	Clearfield		18,062	18,062	237		157	2	2
Mt. Vernon No. 4	Clearfield		15,268	75	35		150	75	4
Mt. Vernon No. 6	Clearfield	1,560	1,000	34	22		20	10	2
Mt. Vernon No. 9	Clearfield	1,793	65,968	201	162		670	908	22
Meadow Brook	Clearfield		23,312	221	52	1	298	196	5
Mapleton	Clearfield		5,494	98	23		126	59	4
Moshannon	Clearfield		22,527	183	30		120	6	6
Mocks	Clearfield		3,484	114	22		125	1	1
Midvale Nos. 1 and 2	Clearfield	60	1,300	60	23		70	2	2
Ophir	Centre		10,588	399	30		506	7	7
Orlent	Centre		50,000	50,000	231		330	10	10
Parke	Clearfield		37,258	231	95		231	2	2
Phoenix	Clearfield		14,432	310	25		61	4	4
Reading	Clearfield		14,016	303	25		126	9	9
Sterling Nos. 2 and 3	Clearfield		27,446	12,965	157		190	33	33
Standard No. 1	Clearfield		6,068	27,410	191		73	82	1
Summit	Clearfield		10,000	760	200	1	50	4	4
Sunnyside	Jefferson	2,600	9,622	317	10		87	2	2
Staffordshire	Clearfield		1,860	11	12		20	60	2
Troy	Clearfield		24,265	219	35		150	16	16
Webster No. 4	Clearfield		76,825	165	162	2	500	100	100
Whiteside No. 1	Clearfield	294	16,018	296	42				
West Eureka No. 1	Jefferson		100,718	210	218	1	1,550	23	23
West Eureka No. 4	Jefferson		64,633	1	69	3	1,000	10	10
West Eureka No. 5	Jefferson		62,419	195	73		870	3,400	12
West Eureka No. 6	Jefferson		188,616	232	243		1,500	21	21

TABLE II.—Continued.

Name of Collieries.	County.	Total production in tons of coal.	Total production in tons of coke.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad and water shipments of coal in tons.	Number of days worked.	Number of persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number pounds dynamite used.	Number horses and mules.	Number steam boilers.	Number mine locomotives.	Number coke ovens.
West Eureka No. 11,	Jefferson,	119,762	.....	.....	1,363	118,339	221	131	.....	.....	1,000	.....	18	.....	.....	.....
West Eureka No. 12,	Jefferson,	57,883	.....	69	18	57,805	234	49	.....	.....	500	.....	8	.....	.....	.....
West Eureka No. 13,	Jefferson, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Osceola No. 3,	Jefferson,	13,703	.....	156	12	13,555	211	22	.....	.....	126	.....	2	.....	.....	.....
Total, .....	.....	3,352,840	15,693	49,341	14,960	3,233,579	14,198	5,812	7	22	23,017	7,229	574	92	11	106

TABLE III. —Continued.

Names of Collieries.	Occupations of Persons Employed Inside.						Occupations of Persons Employed Outside.						Grand total inside and outside.				
	Inside foreman or mine boss.	Fire bosses.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.		Employed in the manufacture of coke.	Superintendents, bookkeepers and clerks.	All other employes.	Total outside.
Eureka No. 31.	1		54		3	2	1	58		1	2	1		1	1	4	62
Eureka No. 32.	1		270		3		1	284		1		1		1	6	14	294
Eureka No. 24.	1		45		3	1	1	50		1	1	1		1	2	7	57
Eureka No. 26.	1		41		1	1	1	44		1		1		1	2	4	48
Fairmount.	1		23		1	1	1	26	1					1	2	3	29
Gramplan No. 1.	1		19		1			20	1					1	1	3	23
Gramplan No. 2.	1		43		1		1	46	1					2	1	4	50
Glenwood.	1		29		1		1	32	1					1	3	3	31
Gulon.	1		58		1	2	1	64	1					1	1	2	66
Gearhart.	1		30		1	1		33						1	1	2	34
Henderson Nos. 1 and 2.	1		16		3		1	18	1					1	2	4	18
Highland No. 1.	1		42		1		2	47	1			1		1	2	3	51
Imperial No. 1.	1		40		2		2	44						1	2	3	49
Indiana.	1		20		2		1	23				1		1	1	3	26
Kentuck.	1		54		2		1	57	1			1		1	1	3	60
Loraine.	1		35		2		1	38	1					1	1	3	41
Lane Nos. 1 and 2.	1		60		2	3	2	67	1		1	1		1	1	4	70
Leland Nos. 1 and 2.	1		123		3	3	2	133						1	1	2	137
Leader.	1		37		1	3	2	43						2	1	3	45
Lancashire No. 1.	3		425		27	7	12	471	1	5	6	2	37	5	1	57	528
Morrisdale Shaft No. 1.	1		50		3	4	1	57	1	2	3	1	1	1	1	8	65
Morrisdale Shaft No. 2.	1		33		1	1	1	34	1					1	1	3	35
Morrisdale No. 4.	1		30		1	1	1	32						1	1	3	35
Mabel.	1		140		1	1	1	143						1	1	2	145
Mt. Vernon No. 4.	1		140		1	1	1	143						1	1	2	145
Mt. Vernon No. 5.	1		140		1	1	1	143						1	1	2	145
Mt. Vernon No. 7.	1		46		1	1	1	49	1					1	1	3	52
Mt. Vernon No. 9.	1		50		1	1	1	53	1					1	1	3	56

TABLE III.—Continued.

Names of Collieries.	Number of Days Worked Each Month During 1898.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Acme No. 1.	25	20	21	16	15	14	14	15	21	19	24	17
Acme No. 2.												
Atlantic No. 1.	24	23	27	25	25	26	24	24	24	24	25	25
Atlantic No. 2.	25	24	27	23	25	25	24	24	25	19	23	16
Alexandra.												
Battle Nos. 1 and 3.	18	15	12	14	15	15	17	17	10	10	16	18
Black Diamond.	20	17	16	18	16	10	10	14	15	20	22	19
Beaumont.	10					8						
Beaumont No. 3.	18	18	22	24	22	21	22	26	21	8	20	21
Belsama No. 1.	17	17	22	19	24	22	24	25	22	9	15	20
Belsama No. 4.									20	22	18	10
Banion.		7	8	25	25	25	19	17				
Coaldale No. 3.	9							4		4	16	17
Coaldale No. 5.	19	14	7									
Colorado No. 2.	23	12	24	17	22		9					
Colorado No. 3.												
Cuba.	21	22	25	18	20	12	10	2	3	4	12	20
Columbia No. 5.		5, 75	21	20	9	10	8	9	3			
Decatur No. 1.				16, 50	13	19	2		22, 50	15, 30	19, 75	23, 75
Decatur No. 2.												
Electric.												
Electric No. 1.	18	10	11	13, 50	13	12, 50	1, 50	7, 25	16, 50	12, 50	10, 25	9, 50
Eureka No. 1.	17	21	19	18, 50	20	24	17	24	25	25	27	24
Eureka No. 7.	25	24	27	24	22	16	18	11	8	16	20	12
Eureka No. 12.												
Eureka No. 13.												
Eureka No. 14.	22	22, 75	25, 75	24, 25	24	23, 25	20, 25	21, 75	22, 50	23, 75	22, 75	23
Eureka No. 16.												
Eureka No. 18.	25	15	23	15	14	9	13	11	14	13	15	6
Eureka No. 19.	24	24	27	26	22	16	17	18	21	25	23	23

Bureka No. 20	22	18	21	19	10	18	20	19	16	19
Bureka No. 21	23	23	24	18	10	21	20	19	16	19
Bureka No. 22	24	26	23	24	7	19	22	24	23	24
Bureka No. 23	24	26	23	13	7	19	12	16	12	11
Bureka No. 24	24	26	23	13	7	19	12	16	12	11
Bureka No. 25	24	26	23	13	7	19	12	16	12	11
Bureka No. 26	24	26	23	13	7	19	12	16	12	11
Farmount	10,50	15,50	17,50	13,50	13,50	12,50	8	16	15	22
Gramplan No. 1	15,50	17,50	17,50	17,50	17,50	14,25	14,75	14,50	18,50	15,50
Gramplan No. 2	14,50	16,50	14	19	5	14,25	15	18	18	24,50
Glenwood	24	15	16	22	29	5	15	16	19	19
Gearhart	18	14,50	11,50	11	7	5	12,33	13	13,50	17,50
Henderson Nos. 1 and 2	20	18	16	17	16	17	15	18	18	16
Highland	23	20	23	15	8	17	23	12	18	17
Jeffersdale	20	18	21	15	15	20	21	22	20	14
Kentuck	17,95	17	17,75	14	13,75	14,25	13,75	12,75	15,50	20,75
Kenora	20	18	23	29	6	3	4	4	8	22
Loraine	14	20	18	18	2	2	12	18	11	13
Lane Nos. 1 and 2	17	21	15	23	16	14	10	17	22	24
Leland Nos. 1 and 2	17	21	15	23	16	14	10	17	22	24
Leader	19	17	26	23	19	15	17	14	16	18
Lanwashire No. 1	24	16	24	22	22	24	20	21	20	17
Morrisdale Shaft No. 1	24	16	24	22	22	24	20	21	20	17
Morrisdale Shaft No. 2	24	16	24	22	22	24	20	21	20	17
Morrisdale No. 4	24	16	24	22	22	24	20	21	20	17
Matbel	25	12	23	25	25	22	17	25	19	5
Mt. Vernon No. 1	18	16	17	18	19	22	17	25	19	5
Mt. Vernon No. 2	18	16	17	18	19	22	17	25	19	5
Mt. Vernon No. 3	18	16	17	18	19	22	17	25	19	5
Mt. Vernon No. 4	18	16	17	18	19	22	17	25	19	5
Mt. Vernon No. 5	18	16	17	18	19	22	17	25	19	5
Mt. Vernon No. 6	18	16	17	18	19	22	17	25	19	5
Mt. Vernon No. 7	18	16	17	18	19	22	17	25	19	5
Mt. Vernon No. 8	18	16	17	18	19	22	17	25	19	5
Mt. Vernon No. 9	18	16	17	18	19	22	17	25	19	5
Meadow Brook	25	24	25	25,50	11,50	9	14	15	13,25	7,75
Mapleton	13	18	17	16	22	18	15	10	18	20
Mocks	22	19,50	16,90	17,90	15,25	17,50	17,80	20	21,30	20,20
Midvale	20	21	22	23	13	9	18	7	15	19
Ophir	26	24	27	26	26	26	26	27	26	27
Larks	26	24	26	24	25	25	25	26	24	26
Phoenix	26	24	26	24	25	25	25	26	24	26
Franklin	16	18,50	18,50	18	18	20	17	20	11	16
Standard No. 1	24,50	24,50	18,15	24,50	23,50	18	21	21,50	13,50	21,75
Steeple Nos. 2 and 3	20	18	20	16	20	18	14	11	18	14
Schwin	20	18	20	16	20	18	14	11	18	14
Summit	25	22	20	26	26	26	25	26	26	26
Staffordshire	25	22	20	26	26	26	25	26	26	26
Troy	24	21	26	25	25	14	11	15	13	16
Welster No. 4	24,50	18,75	23	18,25	13,75	10,50	8,50	9,25	7,50	10,75
Whiteside No. 1	12	19	26	22	22	13	13	17	8	19
West Bureka No. 1	22,50	17,50	18	18	14	11	15	15	14	21
West Bureka No. 2	25	21	20	20	17	11	14	13	12	22
West Bureka No. 3	21,50	17,50	18	18	17	14	13	15	13	18
West Bureka No. 4	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 5	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 6	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 7	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 8	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 9	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 10	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 11	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 12	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 13	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 14	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 15	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 16	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 17	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 18	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 19	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 20	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 21	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 22	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 23	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 24	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 25	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 26	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 27	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 28	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 29	20,50	20,50	20	20	22,50	15	12	15	18	20
West Bureka No. 30	20,50	20,50	20	20	22,50	15	12	15	18	20

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Eighth Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.		County.	Nature and Cause of Accident in Brief.
Mar. 2,	John Densham,	Miner,	57	M.	1	7	Morrisdale Shaft,	Clearfield,		Was undermining a cut of coal against a down-dip, and fell without using the necessary sprags; when the coal separated from fault and fell, crushing the miner internally; he survived the accident 24 hours.
Mar. 18,	Simon Fihnn,	Miner,	59	M.	1	5	Eureka No. 20,	Clearfield,		Was undercutting coal in heading pillars in a section where there was a heavy squeeze following them, and being partly deaf, he did not hear the sound of breaking roof strata when a piece fell on him; he survived the accident 24 hours.
May 7, 7,	Eli Owens,	Miner,	39	M.	1	5	West Eureka No. 12,	Jefferson,		Father and son were working on heading pillars where there was a sand and rock roof and a large number of crevices, and just having fired a shot, they immediately returned to the place and commenced to load coal, when several tons of roof fell, killing both of them instantly.
May 23,	Andrew Gowatski,	Miner,	50	S.	.....	.....	Leland No. 1,	Clearfield,		Chest crushed while leaning across a mine car by a fall of slate roof; a slip having been in the coal face, and extending into the roof, making a loose end, from which the stone liberated itself and fell on the miner.
Dec. 13,	John Atkins,	Miner,	40	M.	1	6	Imperial No. 1,	Clearfield,		While cutting out a coal sprag, a piece became separated from main body, owing to a smooth slip in coal behind sprag that was not seen.

TABLE IV.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Dec. 23,	Clifford Reynolds,	Driver boy,	15	S.	.....	.....	Mt. Vernon No. 7,	Clearfield,	Was driving a mule and while going up grade with two loaded cars, he was trying to assist by pushing at rear end and hit side of front car, when his foot must have slipped and he fell. Second car came against him forcing his head to the ground, and dislocating his neck.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Eighth Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 7.	Wm. Gusky.	Miner boy.	14	S.	Schwinn.	Clearfield.	Struck by a fall of coal while tamping a shot, causing simple fracture of thigh.
17.	Fred. Price.	Rope rider.	18	S.	Atlantic No. 2.	Clearfield.	Arm bruised; he was putting on brakes, when he slipped and fell, an empty car passing over his arm.
31.	Martin Dupu.	Miner.	26	M.	Webster No. 4.	Clearfield.	Caught by a fall of coal, while mining without a sprag; both severely bruised about arms and head, also about lower
31.	Anthony Turk.	Miner.	32	M.	Webster No. 4.	Clearfield.	limbs, internally by being struck by derrick pole while unloading mine cars.
Feb. 11.	Thos. Gatehouse.	Laborer.	26	M.	Eureka No. 19.	Clearfield.	He was riding with one foot on bumper of front car and one on tail chain, when
Apr. 7.	David Philips.	Driver.	21	S.	West Eureka No. 5.	Jefferson.	he slipped and fell, the car striking him on the back, and severely bruising it.
May 20.	Fred. Washburn.	Miner.	16	S.	Morrisdale Shaft No. 1.	Clearfield.	The driver had left a car on heading, and Washburn took off the brake to run it back to one of his own, when the cars
May 26.	Steven Wargo.	Trapper boy.	14	S.	West Eureka No. 5.	Jefferson.	came together and he was squeezed between them.
June 2.	Howard Dixon.	Miner boy.	14	S.	Eureka No. 16.	Clearfield.	Shoulder in arm broken by being caught away from his door, side of heading while
June 5.	Thos. Smith.	Miner.	36	M.	Eureka No. 5.	Clearfield.	Severely burned by explosion of powder which was ignited by a lamp on the
June 8.	Chas. Suaphoski.	Miner.	36	M.	Atlantic No. 2.	Clearfield.	boy's cap. Several toes mashed by a fall of roof slate. Simple fracture of right leg and back severely bruised by a fall of roof slate while entering his working place in the morning; some of the workmen warned him not to pass.

TABLE V.—Continued.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
June 29,	Joseph Korats,	Miner,	20	S.	Eureka No. 19,	Clearfield,	Side of face burned and sight of one eye was injured; he went back to see why a rock had exploded, when it went off in his face.
July 2,	Wm. Paron,	Miner,	34	M.	Eureka No. 5,	Clearfield,	Face badly cut and bruised; he had ignited two shots, one being dynamite, and when a blast went off he thought both had exploded and immediately went back to look, when the dynamite shot went off in his face.
July 27,	Wm. Waldash,	Miner,	39	M.	Eureka No. 5,	Clearfield,	Collar bone broken; he was mining a cut of coal when a piece fell from the face, striking him on the shoulder.
30,	Frank Sluga,	Miner,	16	S.	Eureka No. 22,	Clearfield,	Head severely bruised; he was mining a cut of coal when a piece fell from the face.
Sept. 3,	Laseu Evanski,	Miner,	30	S.	Eureka No. 16,	Clearfield,	Head badly bruised and bruised; he was walking beside a trip of four cars helping to push them, when the space he got into between cars and side of heading was insufficient for him, and he was caught by cars and squeezed.
13,	Wm. Hunter,	Miner,	29	S.	Imperial No. 1,	Clearfield,	Simple fracture of leg; he had a cut of coal mined and shot, then without setting a sprag or other safety appliance under the coal, he commenced shearing, and the cut of coal rolled over, striking his leg.
Oct. 19,	Mike Lechco,	Miner,	37	S.	Eureka No. 19,	Clearfield,	Right leg severely bruised; he was mining a cut of coal, having two loose ends, and only one sprag under, when the other cut rolled on him; had no sprag set, nor any coal left in.
23,	Califore Grazincr,	Miner,	54	M.	West Eureka No. 4,	Jefferson,	Simple fracture of left leg below knee; he was caught between loaded and empty car, while running them together.

Nov. 26,	Steven Patchin,	Miner,	36	M. West Eureka No. 5,	Jefferson,	Collar bone broken; he was mining a cut coal when the piece rolled on him.
29,	Thos. Elder,	Miner,	20	S. Electric,	Centre,	Back severely injured in a coal fall; he had mined a cut coal, fired a tight and flank shot, then being in a hurry to load car and not yet having any down, he says he went to shear it, but the position he was in, and the pitch he used being under the bottom of coal, I am led to believe he was mining it, thinking to get away before the coal fell.
Dec. 20,	James Napier,	Miner,	45	M. Morrisdale No. 1 Shaft,	Clearfield,.....	Two ribs fractured; hip and shoulder dislocated; he was in a hurry to get coal to the car and attempted to mine a point on the room pillar but when he could get coal the quickest, but after mining the coal one and a half feet deep the pressure of overlying strata broke the coal off which fell on him; he has always been known as a skillful miuer, but made a mistake on this occasion.



Ninth Bituminous District.

(ALLEGHENY, FAYETTE AND WESTMORELAND COUNTIES.)

Connellsville, Pa., February 28, 1899.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I have the honor to submit herewith my annual report as Inspector of Mines of the Ninth Bituminous District for the year ending December 31, 1898.

I have to report that this has been a very prosperous year at the mines; the quantity of coal mined was 6,625,738 tons, or 1,551,353 tons more than was mined in 1897. The quantity of coke was 2,528,177, or an increase of 934,852 tons as compared with 1897. The number of persons employed during the year was 8,152, or 357 less than in 1897. I have also to report that 28 fatal accidents occurred during the year, while there were only 19 the previous year, but a lesser number of non-fatalities compared with 1897, there being 7 less.

A brief description of these accidents is given, and how they occurred, which will explain where the fault lay. There were 11 wives made widows and 24 children made orphans by these casualties. The healthfulness and safety of the mines are in a very satisfactory condition, especially the great gas producers, as the dangers would be greater in them but for the attention given to ventilation especially in the abandoned portions of the mines. The number of mining machines is increasing which demands stronger ventilation and better methods of mining, which will lessen the probabilities of accidents. I advocate different methods all through, especially in rib drawing, as nearly all the fatal accidents in the coke region occur in going back too far to knock out posts or take out a piece of coal that could have been taken out when it was quite safe to do so.

I am pleased to say that some of the mine foremen have taken this matter up, which promises good results.

A brief description of the mines is attached hereto; also accident list, and the statistical tables, all of which will be found in their proper places in the report.

All of which is respectfully submitted.

BERNARD CALLAGHAN.

Accident Table of 1898.

	Fatal.	Non-fatal.	Widows.	Orphans.
By falls of slate,	16	9	9	17
By roof coal and slate,	6	5	1	7
By wagon trips,	4	8	1	
By coal,	1	1		
Explosive gas,	1	1		
By powder,		1		
By locomotive,		1		
Total,	28	26	11	24

Summary of Statistics for 1898.

Number of mines in the district,	64
Number of mines operated during the year,	59
Number of mines idle during the year,	5
Number of persons employed inside during the year,	6,210
Number of persons employed outside,	1,942
Total number of persons employed,	8,152
Number of tons (2,000) of coal mined,	6,625,738
Number of tons (2,000) of coal shipped,	3,599,920
Number of tons (2,000) of coke made and shipped during the year,	2,028,177
Number of tons (2,000) coal produced for each person employed,	806.14
Number of lives lost during the year,	28
Number of tons of coal produced for each life lost,	236,626.35
Number of persons injured during the year,	26
Number of tons of coal produced for each injury,	239,451.46
Number of persons employed for each life lost,	293.53
Number of persons employed for each non-fatal accident during the year,	316
Number of days worked during the year,	12,287
Average number of days worked at 59 mines,	207.5
Number of kegs of powder reported as used,	16,475
Number of pounds of dynamite reported as used,	12,629
Number of steam boilers in use at mines,	171
Number of mine locomotives in use in mines,	9
Number of outside locomotives used for charging ovens and hauling coal,	10
Number of coke ovens in operation in the district,	4,567

Mines on the B. & O. Railroad.

B. & O. Mine.—There is quite a change in the conditions of this mine since the report for the year previous. They had quite a lot of trouble with an old mine fire, which caused them to abandon

the original inlet and haulage way, they then opened at a different place and had a little trouble with the same smouldering fire, which caused them to uncover the pit mouth and seal up the one side. They have also commenced to drive an entry under the river to work a large body of coal on the other side. Mine foreman, Clair Stillwagon.

Davidson Shaft.—This mine is in good condition in every particular, ventilation, drainage and system of mining. It is, I might say, about the only mine where attempt is being made to mine all the coal with economy and safety, as every one knows that is acquainted with mining, that the loss of coal under deep surface is by not taking the pillars out in the proper manner. The system here is to change the break row of posts every day, by keeping them close to the working face which gives the miners the proper support and safety to get out all the coal; this is done better with an ordinary sized pillar than with a thick one. Mine foreman, John Stevenson.

Henry Clay.—Is in good condition. Ventilation and drainage are good. The mine fire is not giving them any trouble because the place is filled up all through with water. Mine foreman, John Keck.

Tyrone.—Although a mine with hardly any solid coal, it is well looked after and is in good condition, both in ventilation and drainage. Thomas R. Kane, mine foreman.

Sterling No. 1.—This mine commenced to work about the middle of the year after being idle for over three years, as there is not very much solid coal now to work, they intend to continue until the coal is all worked out. The conditions at present are fairly good. David Brown, mine foreman.

Jackson.—This mine is abandoned on account of an old mine fire in front of pit mouth, which has given them trouble for several years, but has broken out more severely of late, which caused them to stop hauling through the old way. This compelled them to open at another part of the hill, which will be to their advantage in every way. This mine although requiring great care was well looked after and kept in good condition in every respect. Mine foreman, George Moore.

Jimtown.—Has not worked any this year but is preparing to work the ensuing year.

Eureka.—Has made great improvements this year, their machines had great success in increasing the output nearly double and no accidents of any kind were reported during the year; ventilation, and drainage good. Mine foreman, Thomas Perkin.

Smithton No. 2.—Very little can be said for this mine at present. They have trouble with bad roof and water, which will put the company to considerable expense in keeping it in good condition. Mine foreman, Peter Cameron.

Port Royal No. 1.—In describing this mine I have to say that it is replete with trouble and difficulties. Their system of mining so far has been not to take out pillars, which compels them to extend the workings more rapidly than if they mined all of the coal. They are putting in an electric motor and have made an excellent hauling road which will give good results. Mine foreman, William Goodfellow.

Euclid.—Considerable improvements have been made in this mine, first by widening the shaft three feet on one side from bottom to top also in putting up a new derrick with self dumping cage; and in changing the fan from hoisting shaft to the air shaft, which doubles the air current; they also intend to put in an electric motor to haul the coal, instead of a dilly, which will be a great improvement. Mine foreman, Michael Roy.

Yough Slope.—There has been a good deal of trouble at this mine on account of bad roof and local swamps, but they still hold on to the system of short and wide rooms for machines and are very fortunate in extracting all of the coal in ribs and pillar work. Ventilation and drainage is good. Charles K. McCaffey, mine foreman.

Amyville.—This mine was worked more steadily this year than last. I cannot say much for its condition as to ventilation and drainage, especially drainage. Mine foreman, Samuel Jones.

Ocean No. 1.—This mine has done very well considering the number of local dips they had to contend with; they have graded the hauling road so that the electric motor can reach nearly the far end of the workings; ventilation and drainage is fairly well looked after. Mine foreman, William Goldsboro.

Shaner's No. 2.—They have done fairly well here both in ventilation and drainage, although they were compelled to put in a six inch pipe line and take out the four inch line. They are now busy putting in an endless haulage system, which makes it difficult on account of the slope, which although short, dips 60 feet in a distance of 300 feet. Walter O'Malley, superintendent and mine foreman.

Guffey.—Mine is in good condition as regards ventilation and drainage. Mine foreman, Edward Bell.

Big Chief.—Mine is now operated by the Youghiogheny River Coal Company. It is in fairly good condition both as to ventilation and drainage. Mine foreman, William Barker.

Osceola.—This mine has good furnace ventilation but it is only at the furnace; the quantity at the entries is not very great. The drainage in some places is not very good. Mine foreman, Maurice Beadle.

Mines on the Mount Pleasant Branch.

Rist.—Conditions of mine, as well as ventilation and drainage is good. Mine foreman, Charles Winingroth.

White.—This mine is in good condition both as to ventilation and drainage. Mine foreman, Jacob Houser.

Morgan.—Considering the troublesome ways of getting out coal where it is nearly all stumps and pillars, this mine is in good condition.

Summit and Eagle.—These mines are in good conditions and up to the requirements of law. Mine foreman, J. F. Anderson.

Franklin Mine.—Every requirement of the law is well observed and although it has only furnace ventilation, it gives sufficient ventilation all through the mine. Mine foreman, William Muir.

Tip Top.—Mine has been working steadily all the year and is in good condition.

Valley.—Mine in good condition in all particulars as required by law. Mine foreman, James Jackson.

Scottdale Iron and Steel Company.—Mine has started to work again after being idle over a year on account of company using natural gas instead of coal.

Dexter.—Mine although having trouble yet with slate in the middle of the coal, will soon be through it. Ventilation and drainage is fairly good. Mine foreman, S. R. Fairchild.

Painter.—They have had a good deal of trouble with the drainage in cutting through to adjoining mine. The ventilation could also be improved.

Diamond.—Mine has started to work after being idle for over one year; ventilation and drainage promises to be good. Mine foreman, John Boyle.

Emma.—Mine is totally exhausted, but they are opening another piece of coal across the railroad, which will supply the ovens for some time. Mine foreman, Adam Whitehead.

Rising Sun.—Mine can be worked without either fan or furnace on account of light surface, which allows quite a number of falls to open to daylight; ventilation also good.

Bessemer.—Mine has now a fan which has improved the ventilation greatly; everything else is also in good condition. Mine foreman, J. A. Trimboth.

West Overton.—Mine is completely exhausted and there is no more coal to work.

Buckeye.—A great many improvements have been made during the year both in drainage and by opening new territory. Mine foreman, George Burns.

Mullen.—Mine is in good condition both in regard to ventilation and drainage. Mine foreman, Edwin Williams.

Mines along the Southwest Pennsylvania Railroad.

Plumer.—This mine although it was not expected to, will last another year. It is kept in good condition. Mine foreman, Daniel Alsop.

Coal Brook.—Mine system, ventilation and drainage are good. Mine foreman, John Nolan.

Grace.—No complaints regarding ventilation and drainage. Mine foreman, B. S. Raygor.

Pennsville.—Mine has always been found in good condition, both in regard to ventilation and drainage. Mine foreman, William Kooser.

Enterprise.—Is a small mine and will never be a large operation as all available coal will soon be worked out; it is easily kept in good condition.

Union Mine.—Has made improvements during the year with regard to haulage roads; it is a small operation and easily kept in good condition. Mine foreman, William Duncan.

Mayfield.—Has not worked any this year.

Donnelly.—Has not worked any during the year but is ready to start at the beginning of next year.

Mines along the Pittsburg and Lake Erie Railroad.

Adelaide.—This mine is quite extensive, with slope and cross entry haulage; ventilation and drainage both good. Mine foreman, Thomas Harris.

Moreland Slope and Fort Hill.—These mines are in good condition both as to ventilation and drainage. Mine foreman, William Sloan.

Rainbow.—This mine is doing very well all through, although it sometimes gives off gas in large quantities; the ventilation is well looked after; they have two small fans but one good one would be better than both. Mine foreman, Dennis Wordly.

Wick Haven.—Coal mining machines have been installed and are doing fairly well, although there is yet room for improvement. They have a good Capell fan but the air currents could be improved by more careful attention. Mine foreman, James Watkins.

Banning.—There is quite an improvement in the ventilation in this mine; it required a great deal of work in building brick and cement stoppings to carry the air to the far end, but it is accomplished, now that they are intending to put in electric motors to haul to slope rope. Mine foreman, Thomas McKinney.

Darr Mine.—This mine has made a good record during the year, both in output and ventilation. They put in two electric motors to haul the coal to the slope rope, which are a great success. Mine foreman, Charles Watson.

Port Royal No. 2.—This mine is in good condition, and although

they still have trouble with bad roof, they seem to be getting past it. Ventilation and drainage good.

West Newton Shaft.—Everything in this mine is in satisfactory condition as to ventilation and drainage. Mine foreman, Robert Hall.

Ocean No. 5.—Has not worked any this year.

Forrest Hill.—Has done well this year; they have put in another electric motor for hauling purposes; ventilation and drainage good. Mine foreman, Robert Watson.

Pacific.—Has not worked any this year.

Sarah Mine.—Has worked very little this year; it is only a small operation and they don't seem to be able to get sale for their product.

Ocean No. 2.—This is a large mine and they had to put in another electric motor to haul the required quantity of coal. Ventilation is by a Capell fan, which gives plenty of air all through the mine. Mine foreman, Thomas Whiteman.

Ocean No. 4.—Has worked most of this year after being idle for two or three years. It took a great deal of cleaning up to put it in good condition, but it is all right again. Mine foreman, Frank Ridley.

Painter's and Cornell.—Has changed operators. Osborne, Saeger & Co., have it now and are operating it steadily. It is always found in good condition. Mine foreman, John Frayer.

Dravo.—This mine is getting in order to have coal cutting machines and is in good enough condition to work them.

Brown's No. 1.—After being idle for some years they are preparing to start up in full.

Brown's No. 2.—This mine is mining nearly all of the coal with the McHugh coal cutting machine, which is one of the best machines in operation. Mine foreman, Alex. Cochrane.

Lynch.—This mine does not now come under the provision of the mining laws, but I visit it occasionally and find it is in good order. I also get the report of its output each year.

Mines along the Belle Vernon Railroad.

Belle Bridge.—This mine has not done much work this year; it is in fairly good condition.

Lovedale.—Has changed operators again and is working; condition of ventilation and drainage fairly good. Mine foreman, John Smith.

Horne and Roberts Nos. 3 and 4.—The same company still operates these mines and is doing fairly well; they spare no labor to get the coal out. Mine foreman, Archie Cowan.

Gospel.—This is an old mine; now as the coal is about exhausted in the old hill they are opening the new hill and seem to go about it in the proper way; they intend to operate coal cutting machines,

which have been very successful before in their short, wide rooms. Mine foreman, John Besenthener.

Accident List.

John Shina, a Slavish miner, aged 43 years, was fatally injured on January 13th, in Darr mine. This accident happened in a very stupid manner. He was working in No. 6 entry but went around to see some men he was acquainted with in No. 5 entry; in doing so he chose an easy place to rest himself, and lay down partly on some slack close to the face of cut through. The men who worked in the cut through told him to watch the slate; his answer was after looking up at it, "That is all right," and kept his position for nearly a half hour, when the slate fell on him injuring him so badly that he died five hours afterward. He leaves a wife and two children in Austria.

Edward Roth, trapper boy, age 14 years, was instantly killed at Darr mine on February 9th, by being run over with the front wagon of a two wagon trip. This accident occurred by reason of the boy leaving his door and going in with the driver, then waiting for another to come out at No. 2 right off No. 21 face entry. He was standing at a curve and when the driver came along he stepped on front wagon of trip and in turning around to face the road he missed his hold on the wagon and fell, the wagon passing over him on the lower part of the body and hip joint; he had only time to say "I am killed." This happened 1,000 feet from his door, and shows the risk which boys run in going in with the drivers.

George Mickes came by his death at Fort Hill on February 25th, by being caught by an empty wagon on No. 5 flat. It was the last trip and they expected to load their wagons quickly and go home, so they were out in the entry when the empty trip was coming in. George was in a man hole, and hearing the wagon coming prepared to put in a sprag, but the front wagon got off the track before it reach where he was standing, and ran toward him and caught him between the rib, fracturing his skull; he never regained consciousness; he died next day, 24 hours after the accident.

Mike Patsco, Slavish miner, was instantly killed by a fall of roof in Grace mine March 2d, No. 3 room on No. 7 butt. This accident occurred by taking unnecessary risks in knocking out posts on ribs. The distance from the face to the last post was over 20 feet and in knocking out the fourth one they nearly all fell suddenly, covering him. This was about one o'clock, afternoon, when the men who were working in adjoining rooms and ribs, who were also Slavish, saw what happened, they all ran out of the mine and told the mine foreman; he went inside took the road men with him and cleaned the fall off to get his body out, and it took them over two hours to do it.

Owen W. Perry, miner, was fatally injured by a fall of coal in Ocean No. 2 mine on March 15th. This happened while he was undermining along the face of his room; he had cut only in a depth of eight inches and about four feet long when part of it fell on him, injuring him so badly that he died five hours after. The strangest part about this accident was, that so little coal and such small pieces fell on him as to hurt him fatally, but he was 55 years of age and was poorly looked after, which was partly the cause of him not being able to stand much.

Primo Gevenardi, Italian miner, was almost instantly killed by a fall of slate in Guffey mine on March 15th. This accident happened while he was knocking down coal under the slate; he had one post under it, and there was not much room for more posts at the time, but there was an unseen slip behind the coal and as soon as the coal fell it released the slip and all fell together. He died two hours after.

Martin Hawk, Slavish miner, 32 years old, was instantly killed by a fall of slate in Darr mine on 19th of April, in No. 24 entry. The cause of this accident was that he was in too great haste to load his wagon after he fired a shot. This happened in entry driving after machines. It was a butt shot and knocked the coal down before the slate, so in his haste to load the car he did not examine the slate to see if it was safe to work near it, and in taking this risk the slate fell with the above result. This man was in this country only about one year; he leaves a wife and two children in Austria.

At the Horner & Roberts mine on May 19th Joseph Hir yok was instantly killed by a fall of slate in No. 1 room II entry. This happened after firing a shot in the middle of room, the other part next the road not being undermined. He and his partner commenced to make ready for another shot and having slate from cut up yet with two posts under it, they thought it safe to work under, but the other shot loosened a piece large enough which when it fell rolled over on Hir yok, striking him on the abdomen, killing him instantly. This is a usual occurrence with people that are caught with slate, thinking they are always safe if posts are under it. This man was a Slav and had not worked in the mines long. He leaves a wife and two children in Austria.

George Simons was almost instantly killed by a fall of coal and slate in his room on June 6, while working pillars back to clay vein. He and his partner, John Stacy, were undermining it. It fell suddenly on Simons, injuring him so that he died one hour afterwards. This accident occurred in No. 2 room on 10 entry which did not look very like a place that was dangerous.

John Bowalk, Slavish, miner, was instantly killed in room 38 No. 16 entry, Ocean No. 2, on June 16. This accident happened through

carelessness in not having another post under the slate. This could easily have been avoided, as the coal was all lying loose and he went under it, thinking it was safe enough with the two posts that were under it. He was working here only three months, after the machines, and was not very well acquainted with the condition of the slate.

Steve Caniss, Slav, driver, was almost instantly killed in Adelaide mine on June 20. This accident happened rather strangely. The room which he was hauling an empty wagon into, had a piece of bad roof by reason of a clay vein crossing it, and it had plenty of posts along it, also one cross piece. In going in with empty car it went off the track and the horse he was driving was called to stop, but went on hauling the wagon off the track until it came to the post on rib side which was holding up the cross-piece and knocked it down, the roof falling suddenly on him with above results.

John Chubrun, Slavish, miner, was instantly killed by a fall of slate in his room in Banning mine on June 22. This happened through not putting posts under it, or in taking it down instead of shoveling coal from under it. The testimony showed that they intended to take it down as soon as the coal was cleaned back and when all but the last shovelful was cleaned back, the slate fell on Chubrun. He was only a short time working in this vein and seemed not to realize the danger from the slate.

Paul McChando, Italian, machine helper, was fatally injured by a piece of coal and slate falling on him while making his last cut in room. He did not discover any danger until it was too late to get away from under it. He was injured internally and died three days after. This happened in Port Royal No. 2 mine, June 30.

Lewis Cramer, a boy, who was working with his father, was fatally injured by a small piece of slate falling on him while in a stooping position. If there is any blame to be attached to any one for this accident it should be his father, because he told the boy to go and clean the slate that had already fallen, without looking to see if it was safe, he being in a hurry to load night wagons, and he had not put in more than 10 bushels of coal when a small piece of slate fell on the boy, injuring him internally so that he died three hours after. This happened in Smithton No. 2 shaft, July 1.

Charles Fazenbaker, American, miner, was instantly killed by a fall of slate in Valley Mine on July 2. This happened on a rib, and intending to draw out the posts to make it fall, he called the man who worked next to him to come and help him. The man came immediately to his assistance and his testimony was that having a small stump of coal he commenced to cut it out, and the first stroke he gave the whole roof fell, covering him so that it took four hours to get his body out. This looks strange for a good practical miner not to see that the best support under this roof slate four feet

thick was the stump of coal, when he would knock out the posts that were under it. The roof would have fallen in time enough and he would have been away from under it, but it seems every one that draws ribs likes to see the roof fall before he leaves it, and a great many fatal accidents have been caused by this method.

John Frakovsky, Polish, miner, was instantly killed by a fall of slate July 18, at Ocean No. 1 mine. This accident was caused by carelessness on the part of deceased, because if he had put up a post he would not have lost his life. It was the last wagon of coal on machine cut to load, and they were working to load it and valued it more than their lives, as his partner told him it needed a post, but he said it was hard enough to get down without putting a post under it, and he worked under it until it fell on him. He had worked in this seam about six weeks, having come from the anthracite region, where he had worked about six years. He leaves a wife and four children.

James Hason was instantly killed by a fall of roof coal on July 22 in Rist mine. This accident happened in a very peculiar manner. He was taking back a skip on main entry stump, and having a good roof he thought to knock out some posts in order to allow the coal roof to fall because it was good clean coal, but by doing so he lost his life. This is easily explained to any one who draws ribs or stumps, that when a person wants to knock out posts they should be set up so close together that the drawing of one would not allow the whole roof to fall over them, but there is too much of this done, not alone by the foreign element that is here, for the same can be said for the American miners, as this is the second case of the kind this month in this district.

William Adams, driver at Dexter mine, was instantly killed by being run over by front wagon of his loaded trip on August 4. He had just come out of the back hill pit mouth with his last trip and it being raining at the time, he jumped off his trip to stir up his mule while going from one pit mouth to the other, a distance of 500 feet, to get out of the rain. When the mule was going fast enough he tried to step on the front of trip and slipped and fell and the front wagon passed over him, the two side wheels passing over his neck breaking it.

Fred. Carlson was fatally injured at Ocean No. 2 mine, No. 3 entry, No. 42 room, August 29. This happened in a place which any person would think quite safe. He had slate above two and one-half feet wide and ten feet long but had two posts under it, and although it looked safe, a small piece about two feet long and one foot wide and ten inches thick fell over the post at outer edge, and while he was in a stooping position fell on him, breaking his leg and injuring his head so severely that he died two days after in West Penn Hospital.

Steve Saltes, Hungarian, was instantly killed by a fall of slate in No. 5 room, 2 butt, 25 flat, Darr mine, on September 13. This accident happened by the coal knocking out a post that was holding up the slate and instead of Saltes replacing it up again he kept on shoveling coal to load his wagon until it fell upon him with above results. This was taking a risk that was forbidden by his partner, it being only eight minutes after the post was knocked out until the slate fell. This man had worked here about six years and thought he knew all about slate.

September 24th, Germano Rosetti, Italian, was fatally injured by a fall of slate at Ocean No. 4, in No. 11 room, No. 3 entry and died 30 minutes after. This is another case of carelessness on the part of the deceased. He had fired a shot in the coal which brought it down but left the slate up, he then commenced to put up a post to the roof a short distance from the slate and in doing so it fell on him with above result. This man had only been a few weeks digging here. He leaves a wife in the old country.

Francisco Polo Paligge, Italian, miner, was fatally injured by a fall of slate at Smithton No. 2, September 29, in No. 2 room No. 3, south entry. This happened by risking his life where danger was apparent. He was digging a piece of coal under the slate and had no posts under it; he released it at the place where it was supported and ran the risk of his life in doing so. He lived five hours after the accident. This man has a wife and small family on the ocean coming to this country. It is a sad affair, but he was often warned before of the risks he took with slate.

Michael Sargot, American, miner, was instantly killed by a fall of slate in Painter mine on October 4. He and another man named R. F. Willtoup were taking out a pillar and to make a fall, commenced to draw out the posts and when they had drawn all of them but one, they knew it was not safe to knock it out, but in spite of advice of Willtoup, Sargot said he could take it out, and in doing so the roof fell on him, as above stated.

Lawrence Graboski, Polish, miner, was killed almost instantly in Port Royal No. 2 mine, October 17, in his room by a fall of slate. This happened when he was shoveling the last wagon of coal from under it and he had neglected to put a sufficient number of posts under it.

October 19 Ed. Prico, boss driver, was instantly killed by being run over by part of empty dilly trip in Yough slope. This happened through his having stepped across the track, thinking he had plenty of time to do so before the trip would reach him, and so he would have had but 12 of the wagons of the trip had cut loose by the hitcher pulling out, which caused them to run at an enormous speed and Prico not knowing this, thought the rope was attached to them and

that he had plenty of time to cross over the track as he was in the habit of doing, but it cost him his life this time.

Alexander Moore, Irish, was fatally injured in Yough slope on October 22. This happened in No. 14 entry, No. 5 and 6 rooms. While he was throwing back coal from under slate, although he had two posts under it at the time, there was a piece of slate that the post did not have the proper hold of, and while working at the coal, a piece struck the post and the jar of it shook the slate so that it fell on him. Every one who worked beside this man said that he was very reckless about the slate, as he was anxious to load coal.

John Gray, colored, driver, was fatally injured by being burned by explosive gas which set fire to his clothes. This happened in Darr mine December 14. While driving in No. 1 entry, 25 flat, he was coming out with one loaded wagon and in passing No. 8 room a fall had taken place which gave off a little explosive gas. A canvas was at this room and in going through it the force of it falling drove the gas on his light and set his clothes on fire and burned him so severely that he died in four hours after. Gas was never found in this mine before, it having been examined by the fire boss each morning.

TABLE I.—Showing location, etc., of collieries in the Ninth Bituminous District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
6	Adelaide.	H. C. Frick Coke Company.	Fayette.	James A. Childs.	Adelaide.	P. & L. E. R. R.
21	Amyville.	Amyville Coal Company.	Westmoreland.	R. H. McIntosh.	Scottsdale.	B. & O. R. R.
35	Brown's No. 1.	W. H. Brown's Sons.	Allegheny.	James A. Dewar.	Boston.	P. & L. E. R. R.
36	Brown's No. 2.	W. H. Brown's Sons.	Allegheny.	James A. Dewar.	Boston.	P. & L. E. R. R.
1	B. & O.	Marietta & Stillwagon.	Fayette.	Clair Stillwagon.	Connellsville.	B. & O. R. R.
12	Banning.	Morgan, Moore & Faine.	Fayette.	W. M. Fillabon.	Van Meter.	P. & L. E. R. R.
38	Belle Bridge.	Belle Bridge Coal Company.	Allegheny.	James F. Cook.	Belle Bridge.	P. & L. E. R. R.
32	Big Chief.	Youghiogheny River Coal Company.	Westmoreland.	J. B. Stone.	Scott Haven.	B. & O. R. R.
51	Buckeye.	McClure Coke Company.	Westmoreland.	James Dumphy.	Stouffer.	B. & O. R. R.
57	Bessemer and Rising Sun.	McClure Coke Company.	Westmoreland.	James Devlin.	Mount Pleasant.	B. & O. R. R.
65	Coal Brook.	H. C. Frick Coke Company.	Fayette.	Robert Cook.	Moyer.	P. R. R.
52	Davison Shaft.	F. C. Stoner & Co.	Fayette.	W. H. Fugard.	Connellsville.	B. & O. R. R.
13	Dexter.	Osborne, Szeges & Co.	Fayette.	S. R. Fairchild.	Scottsdale.	B. & O. R. R.
22	Dravo.	Lake Shore Gas Coal Company.	Allegheny.	A. W. Isborne.	Van Meter.	B. & O. R. R.
33	Donnelly.	McClure Coke Company.	Allegheny.	W. H. Wisser.	Robbins.	P. & L. E. R. R.
53	Diamond.	McClure Coke Company.	Westmoreland.	William Hurst.	Scottsion.	P. & L. E. R. R.
54	Emma.	J. W. Overholt & Co.	Fayette.	John H. Culler.	Scottsdale.	P. R. R.
62	Enterprise.	McClure Coke Company.	Westmoreland.	Iraden Hurst.	West Newton.	B. & O. R. R.
14	Eureka.	Eureka Coal Company.	Westmoreland.	William McCune.	West Newton.	B. & O. R. R.
18	Euclid.	O. & P. Coal Company.	Westmoreland.	Michael Roy.	Flitz Henry.	B. & O. R. R.
46	Franklin.	B. F. Keister & Co.	Fayette.	B. F. Keister.	Summit Mines.	B. & O. R. R.
8	Fort Hill.	W. J. Kainey.	Fayette.	T. J. Mitchell.	Vanderbilt.	P. & L. E. R. R.
83	Forrest Hill.	Jas. Elsworth & Co.	Allegheny.	Robert Watson.	Suterville.	P. & L. E. R. R.
41	Grace.	W. J. Kainey & Co.	Fayette.	Thomas Johns.	Moyer.	P. R. R.
31	Guflay.	Yough River Coal Company.	Allegheny.	H. D. O'Neil.	Elizabeth.	P. & L. E. R. R.
3	Henry Clay.	H. C. Frick Coke Company.	Westmoreland.	J. B. Stone.	Scott Haven.	B. & O. R. R.
40	Home Works.	Wiley and Stouffer Company.	Fayette.	Wm. W. Mullen.	Broad Ford.	B. & O. R. R.
37	Hornor & Roberts.	Elizabeth Mining Company.	Allegheny.	Archie Cochran.	Elizabeth.	P. & L. E. R. R.
31	Jackson.	Jas. Cochran Sons.	Fayette.	P. G. Cochran.	Elizabeth.	P. & L. E. R. R.
37	Lynch.	H. D. Lynch.	Allegheny.	H. D. Lynch.	McKeasport.	B. & O. R. R.
39	Lovedale.	Lovedale Mining Company.	Allegheny.	W. H. Rhodes.	Elizabeth.	P. & L. E. R. R.
58	Mullin.	McClure Coke Company.	Westmoreland.	James Dumphy.	Stouffer.	B. & O. R. R.
60	Mayfield.	McClure Coke Company.	Westmoreland.	William Ramsay.	Alverton.	P. & L. E. R. R.
43	Morscan.	H. C. Frick Coke Company.	Fayette.	Wm. C. Mullen.	Broad Ford.	B. & O. R. R.
25	Ocean No. 1.	Youghiogheny River Coal Company.	Westmoreland.	J. B. Stone.	Scott Haven.	B. & O. R. R.

27	Ocean No. 2,	Youghiogheny River Coal Company,	Allegheny,	J. B. Stone,	Scott Haven,	P. & L. E. R. R.
28	Ocean No. 4,	Youghiogheny River Coal Company,	Allegheny,	J. B. Stone,	Scott Haven,	P. & L. E. R. R.
29	Ocean No. 5,	Youghiogheny River Coal Company,	Allegheny,	J. B. Stone,	Scott Haven,	P. & L. E. R. R.
34	Oscoda,	James W. Shields,	Allegheny,	James W. Shields,	Emblem,	B. & O. R. R.
34	Pacific,	Youghiogheny River Coal Company,	Allegheny,	J. B. Stone,	Scott Haven,	P. & L. E. R. R.
34	Painter & Cornell,	Oshorne, Saeger & Co.,	Allegheny,	William Cornell,	Buena Vista,	B. & O. R. R.
16-17	Port Royal Nos. 1 and 2,	Port Royal Coal and Coke Company,	Westmoreland,	William Goodfellow,	Fitz Henry,	B. & O. R. R.
63	Pennsylvania,	H. C. Frick Coke Company,	Fayette,	W. H. Hugas,	Cornellsville,	P. & R. R.
62	Palmer,	H. C. Sherrick & Co.,	Fayette,	J. D. Sherrick,	Pennsville,	P. & R. R.
42	Rist,	McClure Coke Company,	Fayette,	John H. Culler,	Scottdale,	B. & O. R. R.
10	Rainbow,	H. C. Frick Coke Company,	Fayette,	Wm. C. Mullen,	Broad Ford,	B. & O. R. R.
25	Sarah,	Rainbow Coal Company,	Allegheny,	W. C. Smith,	Whittiset,	P. & L. E. R. R.
49	Scottdale Steel Co.,	Douglas Coal Company,	Fayette,	A. S. Peairs,	Blytheedale,	B. & O. R. R.
5	Summit,	Scottdale Steel Company,	Fayette,	James A. Childs,	Averton,	B. & O. R. R.
45	Smithton No. 1,	H. C. Frick Coke Company,	Fayette,	Wm. C. Mullen,	Broad Ford,	B. & O. R. R.
15	Smithton No. 2,	H. C. Frick Coke Company,	Westmoreland,	Peter Cameron,	Smithton,	B. & O. R. R.
30	Shaners No. 2,	Waverly Coal and Coke Company,	Westmoreland,	Walter O'Malley,	Youghiogheny,	B. & O. R. R.
4	Tyrone,	Criterion Coal Company,	Fayette,	Clifton Wharton,	Broad Ford,	B. & O. R. R.
47	Tip Top,	Loughlin & Co., Limited,	Fayette,	James Lynch,	Scottdale,	B. & O. R. R.
48	Union,	H. C. Frick Coke Company,	Westmoreland,	William Duncan,	Alverton,	P. & R. R.
48	Van,	W. J. Rainey,	Fayette,	James Lynch,	Scottdale,	P. & R. R.
51	West Overton,	H. C. Frick Coke Company,	Westmoreland,	B. F. Overholt,	West Overton,	P. & L. E. R. R.
19	West Newton,	Oshorne, Saeger & Co.,	Westmoreland,	W. T. Allison,	West Newton,	P. & L. E. R. R.
11	Wick Haven,	Youghiogheny Mining Company,	Fayette,	F. W. Powers,	Wick Haven,	P. & L. E. R. R.
44	White,	H. C. Frick Coke Company,	Fayette,	Wm. C. Mullen,	Broad Ford,	B. & O. R. R.
20	Yough Slope,	Columbus Gas Coal Company,	Westmoreland,	Charles K. McCaffrey,	West Newton,	B. & O. R. R.

TABLE II.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Ninth Bituminous District for the year ending December 31, 1898.

Name of Collieries.	County.	Total production in tons of coal.	Total production in tons of coke.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad and water shipments of coal in tons.	Number of days worked.	Number of persons employed.	Number of fatal accidents.	Number of non-fatal accidents.	Number of kegs powder used.	Number pounds dynamite used.	Number horses and mules.	Number steam boilers.	Number mine locomotives.	Number coke ovens.
Adelaine.....	Fayette.....	283,599	183,802	3,656	2,570	42,755	263	283	1	1	.....	25	21	4	.....	342
Amyville.....	Westmoreland.....	43,175	.....	60	360	.....	162	107	.....	.....	50	.....	10	.....	.....	.....
Browns No. 2.....	Allegheny.....	102,875	.....	279	341	102,255	152	192	.....	1	100	.....	13	4	.....	.....
B. & O.....	Fayette.....	40,000	.....	.....	.....	40,000	364	32	.....	.....	.....	.....	1	.....	.....	.....
Banning.....	Allegheny.....	311,250	.....	6,554	100	303,696	269	266	1	4	1,270	400	18	10	.....	.....
Belle Bridge.....	Allegheny.....	40,041	.....	.....	.....	40,041	100	1	.....	.....	20	.....	2	.....	.....	.....
Big Chief.....	Westmoreland.....	87,708	.....	175	.....	87,533	170	156	1	1	332	.....	6	.....	.....	.....
Buckeye.....	Westmoreland.....	11,954	.....	1,950	2,612	.....	210	191	.....	.....	.....	125	25	6	.....	160
Bessner, and Rising Sun.....	Westmoreland.....	14,974	.....	.....	.....	.....	210	121	.....	.....	.....	.....	19	.....	.....	173
Chesapeake.....	Allegheny.....	99,609	.....	65,560	407	.....	553	1,729	.....	.....	.....	.....	17	.....	.....	173
Camp Run.....	Fayette.....	215,614	134,431	3,294	407	.....	255	238	.....	.....	.....	.....	17	6	.....	330
Davidson Shaft.....	Fayette.....	18,070	11,428	.....	141	.....	239	24	1	.....	.....	149	3	.....	.....	40
Dexter.....	Westmoreland.....	457,966	.....	9,000	.....	448,966	267	327	5	2	1,600	550	20	9	2	.....
Darr.....	Allegheny.....	14,200	.....	.....	200	14,000	80	70	.....	.....	100	.....	4	.....	.....	.....
Dravo.....	Westmoreland.....	17,790	12,144	.....	207	.....	256	20	.....	.....	.....	.....	1	.....	.....	36
Emma.....	Westmoreland.....	28,328	19,044	71	91	.....	248	43	.....	.....	.....	.....	8	.....	.....	51
Enterprise.....	Westmoreland.....	242,088	.....	1,100	63	240,875	273	193	.....	.....	500	200	16	3	.....	.....
Eureka.....	Westmoreland.....	42,258	.....	2,190	220	39,848	108	103	.....	.....	67	200	9	.....	.....	25
Euclid.....	Westmoreland.....	31,602	24,488	.....	194	886	264	38	.....	.....	.....	.....	6	.....	.....	50
Franklin.....	Fayette.....	296,348	203,608	1,740	.....	.....	286	1	.....	.....	.....	400	18	4	.....	325
Fort Hill.....	Allegheny.....	316,687	.....	5,461	.....	311,226	234	286	1	.....	916	10	19	4	2	.....
Garrett Hill.....	Allegheny.....	230,988	.....	2,304	.....	217	346	1	.....	.....	800	.....	3	.....	.....	407
Grace.....	Allegheny.....	106,703	.....	50	75	105,778	188	157	.....	.....	463	.....	18	.....	.....	.....
Guffey.....	Westmoreland.....	106,502	.....	.....	.....	106,502	188	157	.....	.....	.....	.....	3	.....	.....	.....
Henry Clay.....	Fayette.....	119,087	74,627	3,247	2,928	.....	253	421	1	1	244	65	12	5	.....	120
Homer & Roberts.....	Allegheny.....	15,325	.....	540	845	14,785	172	159	1	.....	180	.....	5	.....	.....	20
Home Works.....	Fayette.....	11,772	9,775	.....	.....	.....	296	13	.....	.....	25	.....	1	.....	.....	58
Jackson.....	Fayette.....	46,028	.....	385	1,250	.....	286	50	.....	.....	.....	.....	8	.....	.....	.....
Lynch.....	Allegheny.....	5,500	.....	.....	5,500	.....	180	7	.....	.....	.....	.....	1	.....	.....	.....
Lovedale.....	Allegheny.....	19,068	.....	420	.....	18,588	96	75	.....	.....	.....	.....	3	.....	.....	.....

Mullin,	68,790	42,635	2,139	3,132	.....	255	80	.....	20	8	5	.....	82
Morgan,	143,192	2,375	2,000	.....	.....	71	21	.....	40	3	.....	.....	.....
Ocean No. 1,	333,437	.....	2,771	.....	141,267	201	222	1	868	16	2	1	.....
Ocean No. 2,	78,349	.....	2,772	.....	330,066	239	424	3	1,769	35	3	2	.....
Ocean No. 5, .....	.....	.....	.....	.....	77,568	137	239	1	415	14	1	.....	.....
Oscoda,	84,270	.....	546	.....	83,724	170	153	.....	130	8	3	.....	.....
Painter and Cornell,	123,137	.....	.....	.....	123,137	173	215	.....	120	5	.....	.....	.....
Port Royal Nos. 1 and 2,	255,049	29,412	12,106	983	135,982	287	269	2	1,300	33	14	1	60
Plumer,	39,919	29,941	200	84	.....	354	46	.....	.....	3	.....	.....	.....
Pennsville,	41,862	31,256	833	401	.....	240	62	.....	191	3	.....	.....	92
Painter and Diamond,	181,613	120,711	758	731	.....	236	258	1	370	3	.....	.....	291
Rainbow,	166,563	.....	1,090	.....	164,868	216	237	2	350	9	.....	.....	.....
Rist,	228,088	134,236	1,321	2,550	.....	216	297	1	511	23	4	.....	367
Sarah,	1,000	.....	.....	.....	1,800	14	12	.....	.....	3	1	.....	.....
Scottdale Steel Company,	34,400	22,669	298	193	.....	194	63	.....	.....	2	4	.....	.....
Sterling No. 1,	117,877	75,938	141	3,146	.....	251	124	.....	394	18	1	.....	100
Summit,	98,564	14,746	1,293	326	.....	213	102	2	375	60	2	.....	222
Shanley No. 2,	18,964	.....	848	.....	96,945	212	113	1	120	8	2	.....	60
Shanley No. 2, .....	.....	.....	.....	.....	18,116	212	113	1	.....	.....	.....	.....	.....
Tip Top,	97,435	65,049	G1	.....	.....	246	93	.....	.....	14	1	.....	121
Union,	35,331	29,737	188	265	.....	183	57	.....	.....	9	2	.....	70
Valley,	241,583	142,559	1,370	1,319	.....	257	226	1	1,40	20	4	.....	251
West Overton,	38,892	30,910	.....	140	.....	246	69	.....	.....	7	.....	.....	110
West Newton Shaft,	230,986	.....	3,650	.....	.....	246	234	1	156	16	.....	.....	.....
West Haven,	239,145	.....	7,000	166	.....	245	234	.....	420	8	.....	.....	.....
White,	131,280	86,323	72	823	231,979	236	263	.....	.....	13	.....	.....	200
White,	118,146	85,256	1,823	1,823	.....	339	116	.....	250	11	1	.....	141
Wharton Tyrone,	90,828	.....	1,823	4,800	84,263	190	115	2	.....	8	3	.....	.....
Youghlgheny Slope, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	6,625,738	2,028,177	86,471	41,085	3,458,954	12,287	8,152	28	26	672	171	9	4,567

TABLE III.—Continued.

Number of Days Worked Each Month During 1898.

Names of Collieries.	Number of Days Worked Each Month During 1898.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Adelaide,	22	20	22	22	22	21	23	24	21	22	22	22
Amysville,	11	10	16	3	16	15	9	18	18	19	19	16
Bros. No. 2,	20	10	16	14	16	23	6	20	20	22	22	22
B. & O.,	31	28	31	31	31	30	31	31	30	31	30	31
Banning,	22	24	25	15	22	25	15	26	25	24	23	22
Belle Bridge,	20	14	16	13	15	19	3	24	25	21	23	22
Big Chief, .....	.....	.....	.....	24	13	21	18	21	16	16	22	2
Buckeye,	19	18	22	21	20	20	22	20	21	23	21	24
Bessemer and Rising Sun,	18	13	22	20	20	20	22	20	21	24	22	22
Coal Brook,	19	19	22	20	21	21	22	20	21	24	23	21
Davidson Shaft,	20	18	23	20	21	21	22	22	21	22	22	23
Dexter,	21	19	22	22	19	17	18	18	18	22	22	21
Dart,	22	18	17	21	23	19	23	26	26	24	24	24
Dravo,	4	6	6	6	6	6	1	4	5	13	12	10
Edwards,	21	20	21	22	20	21	22	23	21	23	22	19
Emery,	14	10	22	20	20	21	22	23	21	23	22	19
Europa,	16	13	22	20	20	20	21	21	20	21	21	22
Euclid,	6	23	23	21	22	19	13	14	20	16	20	16
Franklin,	26	20	22	23	21	21	23	23	21	22	22	22
Fort Hill,	25	24	25	23	25	21	20	22	22	22	22	22
Forrest Hill,	17	11	19	23	21	24	20	20	21	18	21	19
Grace,	21	25	22	19	21	22	21	21	24	25	25	27
Gospel,	12	23	24	21	25	6	19	15	24	26	25	27
Guffey,	12	9	6	19	7	9	19	18	.....	.....	.....	7
Henry Clay,	19	19	22	20	20	20	22	21	22	21	21	25
Horner and Roberts,	18	19	22	18	20	20	22	21	22	22	24	22
Home Works,	21	20	19	16	18	18	22	18	.....	.....	.....	13
Lebanon,	26	25	16	26	25	26	21	20	26	26	26	26
Lynch,	24	22	15	15	12	.....	10	20	24	24	24	24
Lovedale, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26

Names of Collieries.

Mullin,	19	18	20	21	21	21	21	23	24	23
Murray,	19	16	16	6	16	18	18	21	22	22
Ocean No. 1,	15	12	22	23	19	19	16	18	18	17
Ocean No. 2,	22	12	19	25	19	23	19	18	21	22
Ocean No. 4, .....	.....	.....	3	25	16	20	21	8	11	9
Ocean No. 5,	7	8	11	18	24	7	14	16	18	16
Oceola,	5	5	4	19	18	9	20	17	17	21
Painter and Cornell,	24	24	26	21	24	18	25	26	26	25
Port Royal Nos. 1 and 2,	20	18	23	18	21	.....	.....	20	21	23
Plumer,	20	18	23	20	18	.....	.....	20	21	23
Pennsville,	20	18	22	20	21	.....	.....	21	21	21
Painter and Diamond,	26	15	16	21	21	20	25	24	21	26
Rainbow,	10	18	15	15	21	14	22	22	15	16
Rust,	10	18	20	20	21	22	21	22	22	22
Sandy,	4	6	4	.....	.....	.....	.....	.....	.....	.....
Sheridale Steel Company, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
Sterling No. 1,	18	18	23	19	19	11	16	21	24	22
Smithton No. 1,	19	8	17	19	20	20	20	21	22	21
Shamers No. 2,	11	14	18	23	25	14	9	23	24	12
Summit,	19	18	23	19	20	22	20	21	24	22
Tyrone,	26	24	27	26	26	26	26	27	26	26
Tip Top,	18	18	22	20	20	22	20	21	22	21
Union, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Valley,	21	20	22	16	24	24	26	26	26	26
West Overton,	19	24	26	21	21	22	21	21	21	21
West Newton Shaft,	17	8	24	23	26	24	24	26	24	26
Wick Haven,	17	11	17	21	22	22	22	22	22	22
Whitcomb,	16	11	21	20	21	22	21	21	24	22
Youghiogheny Slope,	16	16	14	25	10	15	10	25	25	24
Total,	979	868	1,018	1,028	1,043	965	987	1,108	1,131	1,134

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Ninth Bituminous District, for the year ending December 31, 1898.

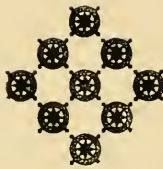
Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 13.	John Shina,	Miner,	43	M	1	.....	Darr,	Westmoreland, ..	Fatally injured by a piece of slate falling on him.
Feb. 9.	Edward Ruth,	Trapper,	14	.....	.....	.....	Darr,	Westmoreland, ..	Instantly killed by falling in front of a loaded trip.
25.	George Mickes,	Miner,	21	S	.....	.....	Fort Hill,	Fayette,	Fatally injured by being caught between empty wagon and rib.
Mar. 2.	Mike Patsco,	Miner,	23	S	.....	.....	Grace,	Fayette,	Instantly killed by roof falling on him while knocking out posts.
15.	Owen W. Perry,	Miner,	55	S	.....	.....	Ocean No. 2,	Allegheny,	Fatally injured by a fall of coal in his room.
16.	Primo Gevonardi,	Miner,	28	M	1	2	Guffey,	Westmoreland, ..	Almost instantly killed by a fall of slate.
19.	Martin Hawk,	Miner,	32	M	1	2	Darr,	Westmoreland, ..	Instantly killed by a fall of slate in entry of a coal wagon.
May 18.	Joseph Hiryoak,	Miner,	40	M	1	2	Honner and Roberts,	Allegheny,	Instantly killed by a fall of slate.
20.	Mike Dornack,	Miner,	34	M	1	3	Shaners No. 2,	Westmoreland, ..	Fatally injured by a fall of slate.
June 6.	George Simons,	Miner,	45	M	1	1	West Newton Shaft,	Westmoreland, ..	Almost instantly killed by fall of coal and slate.
16.	John Bowalk,	Miner,	25	M	1	1	Ocean No. 2,	Allegheny,	Instantly killed by fall of slate in his room.
20.	Steve Coaniss,	Driver,	25	M	1	1	Adelaide,	Fayette,	Almost instantly killed by a fall of roof.
22.	John Chubran,	Miner,	23	M	.....	.....	Janning,	Fayette,	Instantly killed by a fall of slate.
30.	Paul Machado,	Machine helper,	22	S	.....	.....	Port Royal,	Westmoreland, ..	Fatally injured by a fall of slate and coal.
July 1.	Lewis Kromer,	Miner helper,	13	S	.....	.....	Smithton No. 2,	Westmoreland, ..	Almost instantly killed by a fall of small piece of slate.
2.	Chas. Fazenbaker,	Miner,	46	M	1	5	Valley,	Fayette,	Instantly killed by fall of roof.
18.	John Frakovsky,	Miner,	32	M	1	4	Ocean No. 1,	Westmoreland, ..	Instantly killed by a fall of slate.
22.	James Hasson,	Miner,	22	S	.....	.....	Rist,	Fayette,	Instantly killed by a fall of roof coal.
Aug. 4.	William Adams,	Driver,	33	M	1	.....	Dexter,	Fayette,	Instantly killed by being run over by a loaded trip.
29.	Fred. Carlson,	Miner,	56	S	.....	.....	Ocean No. 2,	Allegheny,	Fatally injured by a fall of slate in his room.
Sept. 13.	Steve Soltes,	Miner,	47	M	1	3	Darr,	Westmoreland, ..	Instantly killed by a fall of slate in his room.
24.	Germano Rosetti,	Miner,	60	S	.....	.....	Ocean No. 4,	Allegheny,	Instantly killed by a fall of slate in his room.

29,	Francisco Polo Pallege,	Miner,	45	M	1	3	Smithton No. 2,	Westmoreland,	Almost instantly killed by a fall of slate.
30,	Michael Sargot,	Miner,	19	S	3	Palmer,	Fayette,	Fayette,	Instantly killed by fall of roof.
1,	Lawrence Graboski,	Miner,	30	M	1	Port Royal No. 1,	Westmoreland,	Westmoreland,	Almost instantly killed by a fall of slate in his room.
19,	Ed. Price,	Boss driver,	34	M	1	Youghiogheny Slope,	Westmoreland,	Westmoreland,	Instantly killed by being run over by empty dilly trip.
22,	Alex. Moore,	Miner,	27	M	1	Youghiogheny Slope,	Westmoreland,	Westmoreland,	Almost instantly killed by a fall of slate in room.
Dec. 14,	John Gray,	Driver,	24	S	.....	Darr,	Westmoreland,	Westmoreland,	Fatally burned by explosive gas.

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Ninth Bituminous District, for the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 8.	Mike Regini,	Miner,	32	M.	Banning,	Fayette,	Leg broken by fall of slate when taking out post.
10.	Olyle Jordani,	Trapper,	14	S.	Banning,	Fayette,	Body squeezed between loaded wagon and empty pillar.
21.	Jullus Roth,	Trapper,	18	S.	Henry Clay,	Fayette,	Slate pillar broken by being caught between loaded wagon and entry pillar.
21.	George Scuttish,	Miner,	32	S.	Banning,	Fayette,	Back injured and legs paralyzed by being caught between loaded wagon and entry pillar.
Mar. 10.	George Thack,	Miner,	43	S.	Darr,	Westmoreland,	Leg broken by a fall of slate in his room.
15.	Edward Thomas,	Miner,	30	S.	Browns No. 2,	Allegheny,	Collar bone broken by being caught between loaded wagon and roof.
15.	Joseph Stillwagon,	Driver,	48	M.	Painter,	Fayette,	Breast bone and one rib broken by a loaded wagon.
22.	Peter Foldnor,	Miner,	29	S.	Shaners No. 2,	Westmoreland,	Severe scalp wound and cut on elbow by a fall of slate.
Apr. 12.	Samuel Lelley,	Miner,	21	S.	Grace,	Fayette,	Hands and arms badly burned by powder exploding by a spark from a lamp.
12.	Peter Bulger,	Miner,	24	S.	Big Chief,	Westmoreland,	Thigh bone broken by a fall of slate in his room.
13.	Mike Shaler,	Miner,	34	S.	Shaners No. 2,	Westmoreland,	Leg broken by a fall of coal and slate.
15.	Daniel Ryan,	Miner,	32	S.	Shaners No. 2,	Westmoreland,	Leg broken by a fall of slate in his room.
May 13.	Thomas Saluskie,	Miner,	49	M.	Port Royal,	Westmoreland,	Face and hands burned by explosive gas in main entry.
June 25.	Grant Weaver,	Miner,	35	M.	Adelaide,	Fayette,	Collar bone broken while lifting loaded wagon on track.
30.	Nicholl Spangler,	Machine miner,	40	M.	Ocean No. 2,	Allegheny,	Nose broken and face cut by a fall of rock on main entry.
July 9.	Mike Arday,	Miner,	22	S.	Rainbow,	Fayette,	Leg broken by a fall of coal and slate while drawing a pillar.
13.	Steve Barbelo,	Miner,	22	S.	Wick Haven,	Fayette,	Leg broken, which necessitated amputation of the limb.
20.	Fred. Myrinert,	Miner,	35	M.	Port Royal,	Westmoreland,	Body bruised and three ribs broken by locomotive on entry.

Aug. 3,	Mike Barna,	Miner,	22	S.	Wick Haven,	Fayette,	Hip joint dislocated and finger cut off by fall of slate.
23,	John Lenger,	Miner,	40	S.	Rainbow,	Fayette,	Wrist broken by a wagon against the entry.
26,	Andrew Smchascle,	Miner,	35	S.	Guffey,	Westmoreland,	Rib broken and back injured by fall of slate.
Sept. 21,	Heas Paterson,	Miner,	25	S.	Painter and Cornell, ..	Allegheny,	Leg broken by a fall of coal.
51,	Jonathan Bashford,	Miner,	39	M.	Shaner No. 2,	Westmoreland,	Leg broken by a fall of coal.
Oct. 11,	Coro Ovel,	Miner,	23	S.	Darr,	Westmoreland,	Leg broken and chest bruised by a fall of roof coal.
15,	Albert Repshey,	Trapper,	12	S.	Banning,	Fayette,	Ankle broken by an empty wagon.
Nov. 10,	Lewis Burnesly,	Miner,	38	M.	Young,	Westmoreland,	Leg broken by a fall of roof coal.
Dec. 20,	Victor Haney,	Miner,	27	S.	Tyrone,	Fayette,	Shoulder bone fractured and body otherwise bruised by a fall of roof coal.



Tenth Bituminous District.

(HUNTINGDON, BEDFORD, FULTON AND BLAIR COUNTIES, AND THOSE PARTS OF CLEARFIELD, CAMBRIA AND INDIANA COUNTIES LYING ADJACENT TO THE BELL GAP RAILROAD, AND THOSE PARTS OF CLEARFIELD, CENTRE AND CLINTON COUNTIES LYING ADJACENT TO THE BEECH CREEK RAILROAD.)

Altoona, Pa., March 1, 1899.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: In accordance with the provisions of the Bituminous Mine Law, I have the honor to submit the annual report for this district for the year ending December 31, 1898.

There was a slight increase in the production of coal, and in the number of men employed, over the previous year, and the general condition of the mines was about the same as last year. I am sorry to say that the number of fatal accidents this year was eleven, as compared with seven for the previous year, and of this number, eight were due to falls of coal and slate, and the other three, to having been crushed by cars.

The number of mines reporting was 65; no new mines were opened, and at two mines, mining machines have been installed, and one ventilating fan erected during the year. The mines have worked about the same as last year, and there is nothing special to record of the district. The report is respectfully submitted.

R. HAMPSON.

Summary of Statistics.

Number of mines in the district, reported,	64
Total quantity of coal produced, tons,	3,401,281
Total quantity of coke produced,	208,200
Amount used for steam and heat,	23,163
Amount sold to local trade and employes,	14,382
Amount shipped by rail,	2,941,621
Total number of persons employed,	5,653
Aggregate number of days worked during the year,	11,454
Number of fatal accidents,	11
Number of non-fatal accidents,	27
Number of tons produced per fatal accident,	309,207
Number of tons produced per non-fatal accident,	125,973

Number of kegs of powder used,	20,233
Number of pounds of dynamite used,	19,800

Description of Mines.

Gazzam Mines.

These are drift mines owned and operated by the Clearfield Bituminous Coal Corporation, and they have worked very well during the past year. No. 1 mine is a long distance in, and the general condition of the mine was very good at the different visits made during the year.

The coal still continues very low, which makes this a difficult mine to work. They have put in a new drift that will intersect with the workings on the south side of No. 1 mine in a very short time, and have graded the main railroad to near the new drift, and put up a tippie; this will cut off the long haul from No. 1 mine to the old tippie and will concentrate the work more at one point, and it will be a decided improvement over the present system of working.

At the No. 4 mine the work has been confined mostly to pulling out the heading pillars. They put down a bore hole to the right of the drift and found good coal beyond the fault at that point, and now they have cut through the fault, and have got into good coal, and were making a connection with a shaft they had sunk down to the coal. The prospects of a large body of coal beyond the fault are very good, and if this proves correct it means a new lease of life for this drift that was supposed to have been worked out. The condition of the mine was good.

O'Shanter Mines.

No. 1 mine is located about one mile from Mitchel Station and is operated by Weaver & Eftla, and the work has been confined to working out the heading pillars, and it will soon be finished.

At my last visit they had again commenced work at the Plane mine close to Mitchel Station, and they will now make this the principal work. The coal is of the same thickness as at the other mines and the general conditions are similar. The mine is ventilated by furnace and the condition was fairly good, but the brattices will need good overhauling, as they are very much decayed and not of much use in their present condition. A new opening has been put in that strikes near the face of the workings, but this is only used at present for an airway and to make of it a new hauling way would necessitate a tram road being built outside to the head of the plane.

Bloomington Mines.

These mines are operated by the Bloomington Mining Company and are working on the same vein as the mines last mentioned. In No.

3 mine the headings to the dip have been cleared of water and pushed on farther and the ventilation was found good in this part of the mine, as the workings are not very far away from the fan. In the upper part of the mine the work has been mostly pillar work, and the condition was very fair in this portion. As they are now about to work out a small piece of coal they have leased adjacent to this body of coal, they will start up the headings again and this will last for a while longer.

In No. 4 mine they are digging most of the coal by machines, and as the mine is getting a long distance in, the ventilation at the back part of the work was not as good as in the other portions. The coal is hauled out by means of a tail rope, and one branch of it runs down No. 3 right, and brings out all the coal from that portion of the mine, and the main rope runs up the main heading and brings out the coal from back part of the workings. They have several pumps in the dip which are worked by compressed air, and they all do good work. This mine is about at the limit of profitable haulage, and the headings will not be pushed much farther, but a new opening will be put in to cut off all the present workings.

In the new slope, connection has been made, and they can now open up this mine and soon make it a very productive one, as they have room for a good many headings on the right and left, and as they will go a long distance it will make a big mine.

Royal Slope.

This mine is operated by O. P. Jones Co., and is located near Munsen Station. They have worked fairly well during the year, and the mine was always found to be in good condition and every attention is paid to the keeping it in good sanitary condition. They still have trouble with water in the dip workings, and as they have had a great deal of trouble with the old pumps, but they have been replaced by new ones which are fully capable of taking care of all the water now made in that portion of the mine.

They are still pushing the headings from the dip toward the north and in a short time will be far enough to start a heading to the east that will liberate a body of water lying at the face of the main heading; which will allow this portion of the mine to be worked again.

Harts.

This is a small mine operated by Thomas Hart, and sometimes it has enough miners to come under the provisions of the law and sometimes not, but I have visited it once or twice during the year and found it in good condition at each visit, and as they are working a narrow strip of coal it will not last long.

Kyler.

Operated by W. G. Fishburn and located at Munson Station. The mine has worked reasonably well during the year, and its general condition was good at the different visits. The work has been confined mostly to room and pillar working, and the headings have not been driven very far.

Forest.

This mine is operated by O. P. Jones & Co., and adjoining the Kyler mine. The workings to the right of the main heading have all run into the big fault that is on that side of the work, and it was also struck in the main heading, and so the work is now confined to the upper left headings, and as these places will run against the fault, the coal will soon be exhausted, and to get at the large body of coal on the other side of the fault a new opening will have to be put in at some point near Winburne. The condition of the mine was fair at the two first visits, but on the other visits was not very good as the work is all getting crowded up into a corner, and as the coal sticks so much, it needs a great deal of blasting for the quantity mined, so that the mine is in a smoky condition all the time.

Summerville.

This mine is operated by Summerville & Buchanan. During the year mining machines have been put in to do the undercutting, and the mine has worked very well during the year. They have put in a big waterway to drain one portion of the mine, and in the other parts of the mine below the level they have electric pumps at work, which do the work very well. The fan has also been removed to the shaft near the drift mouth; the ventilation was good during the year.

Ogle.

This is Summerville mine No. 4, but the improvements were purchased by the Bloomington Mining Company, so as to get at a large body of coal they have, immediately adjoining Summerville No. 4, so they have changed the name to Ogle mine and have made many improvements since taking possession of it. They have put in a large Ingersoll-Sargent compressor and have mining machines of the puncher type. They have also installed an electric plant for haulage which was put in by the Independent Electric Company, and a Stine fan for ventilation was also erected at the shaft near the drift mouth. Everything was in good condition about the mine, while inside the ventilation was very fair, as they had not yet got things in proper order, but when this is done the mine will be in good condition, and they will soon be able to put out a large tonnage.

Grass Flat.

Work has been very good here during the year; the heading work has been pushed ahead all the time, and they have considerable ground opened up. The ventilation and drainage were good at the different visits made during the year.

Pleasant Hill.

This mine adjoins and is connected with the Grass Flat mine; the same fan ventilates Grass Flat and a portion of the Pleasant Hill mines, and the method of working and drainage are similar. The condition of the mine was good during the year. The workings on the north side have been pushed right along and a new shaft will soon be put down to ventilate this portion of the mine.

Moravian.

This mine adjoins Pleasant Hill mine and the two mines will soon be connected. They have pushed the work right along here and the heading going north is opening up a big territory. A furnace shaft will soon be put down to ventilate this portion of the mine. The ventilation and drainage were good during the year.

Knox Run.

Work has been good here during the past year, and a great deal of ground has been opened up. The ventilation and drainage were good, and everything in and about the mine was in very good condition and well looked after. These mines, Grass Flat, Pleasant Hill, Moravian and Knox Run, are owned and operated by the Clearfield Bituminous Coal Corporation.

Cherry Run.

This mine is operated by the Snow Shoe Mining Company, and they have been working fairly well and could have employed many more miners, but as the mine is isolated it is hard to get men to work here. They still have trouble with rolls and faults in the mine, and local swamps make the drainage difficult at times. The mine is now connected with the No. 2 opening, and the general condition was good during the year.

Sugar Camp.

These mines are operated by the Lehigh Valley Coal Company; they have run very steadily during the year and much work has been done in driving headings in the different openings. In No. 2 mine they have done considerable work and opened quite a lot of coal, and

the condition of the mine was good. No. 3 mine is confined to pulling out the heading pillars and will last a long time yet. In No. 4 mine they have done a good deal of work and the condition was good. They have put down a shaft and put in a gasoline pump for pumping water out of the dip, which works very satisfactorily.

No. 7 mine will soon be connected with No. 4 but they have had much trouble from local dips. The coal from these openings is loaded at Sugar Camp No. 4 tippie.

On the opposite side of the run is Sugar Camp mines 5 and 6, which have been opened again after having been closed for several years. In the lower vein, No. 5, there is trouble with a very poor roof as there are so many cutters running up into it that it makes it extremely dangerous and requires watchfulness on the part of the men employed there. At the first visit to these mines the ventilation was not very good as they were putting down the furnace shafts, but on the last visit the mines were both in very good condition, and attention is paid to the safety of the men employed there.

Cato.

Operated by Kelly & Nugent; did not do much business during the year as they were restrained from working the mine by a law suit.

Careytown.

This mine is owned by the Lehigh Valley Coal Company and was found in good condition at the time I visited it. There are now less than the legal number of men required by law. They are engaged in pulling out the heading pillars and at the present rate of working it will last some time.

Tunnel.

This is a small operation at one of the old Tunnel mines and is operated by Harms & Quirk, and they are engaged in pulling out the heading and room pillars that were left in. The condition of the mine was not good.

Glen White.

Operated by the Glen White Coal and Lumber Company, working the Lemon seam of coal. Work was very good here during the year, and the ventilation and drainage were also good.

They have put in a new opening on the Miller seam, and the coal will be used in the coke ovens. A shaft was being put down for ventilation, and a furnace will be built.

Horse Shoe.

This mine is operated by the Altoona Coal and Coke Company, and has worked very well during the year. They have worked around the

squeeze which had closed some of the headings and are now getting along very well. The new opening has been connected with the mine, and this will serve for drainage and give them another body of coal to work below the present level. The ventilation was good.

Delaney.

This mine is operated by the Altoon Coal and Coke Company, and has worked very steadily during the year, and the ventilation and drainage of the different openings has been very good, and everything well looked after by those in charge. A new opening has been put in during the year, which will take the place of one of the other parts of the mine that is playing out.

East End.

Operated by the East End Coal Company; the condition of the mine was good during the year. They still have trouble with clay veins in the mine and this makes the cross cuts in the rooms irregular and is a drawback to keeping a mine in good condition, but everything is properly kept inside the mine. The rope was extended down to another lift during the year and considerable work was done in the lower level, but at my last visit the mine was being abandoned, owing to the lease having expired.

Lemon.

This mine is or was operated by the Altoona Coal and Coke Company, but their lease expired early in the year, so they did not do much work. The ventilation was fair.

Bradley.

This mine, in conjunction with the Porter shaft, is operated by Bradley & Meagher, and has worked very well during the year, and the condition of the mine was good. A new shaft has been put down for ventilation, and it is the intention to take all the coal out at the Porter shaft as soon as No. 7 heading from Porter connects with the Bradley, which will be in a short time, and then the work which is now scattered will be more compact.

Blands.

Operated by Fred. Bland, and the coal is used for the engines on the Bells Gap Railroad, and the mine works very steadily.

The condition was good during the year, and the drainage also.

They have got into a body of very good coal which runs nearly five feet high, and the quality is good.

Fricks.

Operated by Max Frick and working on same vein as Bland's. The mine has been kept in very good condition during the year. A connection has been made into the old mine above this which will help the ventilation of the mine and also give them a chance to get at coal they left in the dip of the old mine.

Great Bend.

This mine adjoins the one last mentioned, is operated by the Bellwood Coal Company, and during the year they have got into a better roof, so that the mine is safer than last year. The rick in the middle of the coal still holds its thickness. The condition of the mine was very fair, both for ventilation and drainage.

Eldorado.

This mine has not done very much business during the year, and they still have trouble with poor coal, but are trying to get beyond it and into good coal. The condition of the mine was fair.

Mountindale.

This mine is operated by the Bear Ridge Coal and Coke Company, and they have worked very well during the year, and made many improvements. A new opening has been put in and a furnace shaft sunk and furnace built, and the tail rope has been extended from the tippie to the turnout inside the timbers of the new mine. Changes have been made in and around the tippie and a branch railroad has been built from the main line, which has abolished the hauling of coal and coke over the hill, so that matters look much better about the mine this year than they did last. The ventilation of the old mine was only fair, while the new mine was in very good condition. The men will all soon be at work in the new mine.

Pennsylvania.

This mine was operated by Thomas Barnes & Co., and they only worked a portion of the year and then for some cause abandoned it.

The ventilation was good at the visits made during the year.

Oakland.

This is a small mine operated by S. Hegarty's Sons, and the number of men employed has been small. The condition of the mine was fair during the year.

Irvona.

This mine is operated by the Irvona Coal Company and they have worked very steadily and have opened up a great deal of ground. A large number of men are employed and the condition of the mine was good at the different visits. The tunnel has been enlarged to permit a locomotive to go inside the mine to the top of the slope, by which coal is hauled to the tippie. A new boiler has been put in to provide steam for the engine hauling up the slope for the fan. They are still driving in the high coal so as to get a larger airway from the fan to the bottom of the slope, which will make a decided improvement, as the present airway is too small.

National.

These mines are operated by the Philadelphia Coal and Coke Company, and have run very steadily during the year. No. 1 mine has had about thirty men working in it, and the ventilation and drainage of the mine were good. No. 2 mine was also in good condition and several headings which have lain under water for several years have been drained, which gives them a chance to work the coal.

Penn.

Operated by Reakirt Bros. & Co., who have done considerable work in taking out heading and room pillars, and working out the coal in the dip. The condition of the mine was good.

Urey.

There are three mines on this branch operated by the Urey Ridge Coal Company, which have worked fairly well during the year and the ventilation and drainage of the different openings were very good.

Glenwood.

These mines are operated by the Glenwood Coal Company, and No. 2 mine has worked intermittently during the year, and they still have trouble with faulty coal and are trying to get around it. The condition of mine was only fair.

No. 4 mine was worked very well during the year, and they have made an opening through the hill and have put a new opening into another piece of coal, and at my last visit they were equipping the mine for electric haulage. The ventilation is good.

This company is developing the lower or B seam by means of a slope, and if this proves of good quality it means a great deal for this section of the country, for this seam has not been developed at any place, and it means a new lease of life for this section, for the seam

covers all the country, and as it is below water level we hope it may prove of good quality, and if suitable for coking, ovens will be built for coking the product.

Burnside.

This mine is operated by the Burnside Coal Company, and they have worked fairly well during the year and have done considerable work inside the mine. The condition was very good at the different visits made during the year.

Dougherty.

Operated by the Dougherty Coal Company, but the number of men employed here is not large, as the coal is sold for domestic use. The condition of the mine was good.

Durham.

This mine works very regularly, is operated by the Kemble Iron Company, and the product is used for making coke for the furnaces of that company. Considerable new work has been opened up, and the ventilation and drainage was always good.

Delta.

Very little work has been done here during the year as the parties who leased the mine soon gave it up. The condition of the ventilation was not very good.

Harvey Slope.

This mine was operated by the Harvey Coal Mining Company, and during the latter part of the year it went into the hands of a receiver, by whom it is now being operated. The ventilation was not very good, and the managers have promised to put in a fan in a short time.

Cunard.

Operated by the Morrisdale Coal Company, and has worked very irregularly during the year, owing to disputes between the miners and operators. They still have much trouble with rolls and dips, and the mine is very hard to keep in reasonably good condition. The ventilation on the whole was good.

New Hampshire.

The Crescent Coal Mining Company leased this mine during the year, and it has worked fairly well. Not much improvement has been made, as the work progresses slowly in these mines, but the

condition of the ventilation was good. They have trouble like all mines in this region with rolls and dips, which makes the mine look very irregular.

Warner.

Operated by the Lambirth Coal Mining Company. There is not much change to report from last year, as they are still trying to work around the rolls as best they can. The condition of the mine is good.

Kearney.

This mine is operated by Joseph Thropp, and the coal is all used for coking purposes and then goes to the furnace owned by Mr. Thropp.

The Plane mine was not in good condition, but in the Slope mine the condition was better, as they have the mine in better order than the plane, and the rooms and the headings are driven in a more systematic manner than in the plane workings.

Cambria.

These mines are operated by the United Collieries Company and very little work has been done in the way of driving headings in No. 1 mine, as the dip of coal is so narrow. These workings are connected with the Plane mine at Kearney, and the ventilation was good when the mine was visited. At the shaft or No. 3 Cambria, little work was done during the year, but at my last visit they were starting up work there and now expect to run steadily. The ventilation of No. 3 was good, the drainage also.

Crescent.

This mine is operated by the Crescent Coal Mining Company and they have worked very well during the year. The headings are getting pretty close to the property line, and unless a new lease is made they will soon have the mine on the recreat. The ventilation and drainage of this part of the mine was good. In the Chevington portion the ventilation in summer was not very good, but since that time they have put down a shaft at the face of the work which has improved the ventilation very much.

Robertsdale Slope.

This mine and the Woodvale shaft are operated by the Rockhill Iron Company and the mines are very extensive. During the year a large compressor was set up and mining machines put in, and now most of the coal is mined by machines. At the bottom of the slope

a tunnel has been driven through the measures and the lower seam has been opened up, which shows a good workable seam; which will now be worked in conjunction with the upper one. The general condition of the mine was good.

Woodvale Shaft.

Connection has been made with the slope mine, and it is the intention as soon as possible to turn all the water from the slope working to the shaft and pump all water from this one point. Mining machines are used in this mine; they are now making a level road from near the foot of the shaft across the old workings and will then put on electric haulage and dispense with a great many mules. They still have trouble with rolls and dips, which makes haulage difficult. The ventilation was good.

Benedict.

This mine is operated by D. C. Reed and it has not been worked to the full capacity during the year. They have abandoned the lower mine and put the men in the upper one and have now cut into the old Benedict workings and have a large body of coal to work, but they had trouble during the summer with one of the airways being closed up with water, and until this was drained off, the ventilation was poor, but now it is in better condition.

Huntingdon.

There has been little if any change at this mine during the year though they have cut into the old Huntingdon mine at different points; the ventilation and drainage were very fair.

Ocean No. 1.

They have worked very well at this mine during the year, and have put down a shaft at the face of the workings. The ventilation was reasonably good at the different visits.

Ocean No. 2.

Work has been very steady at this mine and during the latter part of the summer they made a connection with the Fisher mine that adjoins the property, and as the working face of the mine is nearly all on a straight line, the ventilation on the whole was good.

A new tippie has been built and the distance and grade from the drift mouth to the tippie has been materially lessened.

Carbon.

A new drift has been put in on the Barnett seam, but like the one below it is very much disturbed by rolls. In the lower mine they

have been and are still working around the rolls. The ventilation was good. These four mines are operated by W. H. Sweet.

Fisher.

This mine is operated by E. Eichelberger, and the number of men employed is less than twenty, but they work steadily. The ventilation of the mine was good at the different visits I made during the year.

TABLE I.—Showing location, etc., of collieries in the Tenth Bituminous District.

Numbers showing location of mines on district map.	Name of Colliery.	Name of Operator.	County.	Name of Superintendent.	Postoffice Address.	Name of Railroad to Mine.
24	Blands.	Fred. Bland.	Cambria.	Fred. Bland.	Blandsburg.	P. & N. W. R. R.
17	Bradley.	Bradley & Meagher.	Blair.	H. H. Bradley.	Ballitzen.	P. R. R.
43	Bloomington Nos. 3 and 4.	Bloomington Coal Company.	Clearfield.	Alex. Dunwoode.	Glen Richey.	H. & E. T. R. R.
69	Benedict.	D. C. Reed.	Huntingdon.	W. W. Reed.	Dudley.	H. & E. T. R. R.
46	Burnside.	Burnside Coal Company.	Clearfield.	John Boag.	Burnside.	P. R. R.
34	Cato.	Kelly & Nugent.	Centre.	Lawrence Nugent.	Snow Shoe.	P. R. R.
20	Carbon.	W. H. Sweet.	Huntingdon.	W. H. Sweet.	Ludley.	P. R. R.
2, 3, 4	Cambria Nos. 1, 2 and 3.	United Collieries Company.	Bedford.	James Demithorne.	Langdondale.	H. & E. T. R. R.
1	Carreytown.	Lehigh Valley Coal Company.	Centre.	James F. Marsteller.	Snow Shoe.	H. & E. T. R. R.
7, 8	Cuba Nos. 1 and 2.	Huntingdon & Broad Top Mt. R. R.	Bedford.	John Langdon.	Hopewell.	H. & E. T. R. R.
8	Cunard Island.	Marquette Coal Company.	Bedford.	H. F. Chaney.	Six Mile Run.	H. & E. T. R. R.
9	Cunard.	Shenandoah Coal Company.	Centre.	H. F. Holt.	Phillipsburg.	H. & E. T. R. R.
35	Cherry Run.	Shenandoah Coal Company.	Centre.	John Langdon.	Hopewell.	H. & E. T. R. R.
6	Crescent.	Crescent Coal Mining Company.	Bedford.	John Munro.	Coupon.	P. R. R.
25	Delaney.	Altoona Coal and Coke Company.	Cambria.	John Munro.	Coupon.	P. R. R.
1	Delta.	Altoona Coal and Coke Company.	Cambria.	John Munro.	Coupon.	P. R. R.
26	Douglas Slope.	Dougherty Coal Company.	Cambria.	John H. Dougherty.	Altoona.	H. & E. T. R. R.
10	Dougherty.	Dougherty Coal Company.	Cambria.	John H. Dougherty.	Altoona.	H. & E. T. R. R.
18	Durham.	Kemble Iron Company.	Blair.	William Lauder.	Riddellsburg.	P. R. R.
15	East End.	East End Coal Company.	Blair.	Thomas Loyd.	Bennington.	H. & E. T. R. R.
57	Eagle.	John Given & Son.	Cambria.	J. M. Given.	Mountandale.	P. R. R.
27	Eldorado.	John Given & Son.	Cambria.	J. C. McCartney.	Mountandale.	P. & N. W. R. R.
28	Edinaston.	Edinaston & Son.	Cambria.	J. C. McCartney.	Mountandale.	P. & N. W. R. R.
1	Edinaston.	Edinaston & Son.	Cambria.	J. C. McCartney.	Mountandale.	P. & N. W. R. R.
47, 48	Forest Nos. 1 and 2.	Morrisdale Coal Company.	Bedford.	H. F. Chaney.	Six Mile Run.	P. R. R.
71	Fisher.	F. E. Jones & Co.	Clearfield.	John Hooten.	Munson.	B. C. R. R.
31	Ficks.	F. E. Jones & Co.	Clearfield.	John Hooten.	Munson.	B. C. R. R.
31	Fisher.	F. E. Jones & Co.	Clearfield.	John Hooten.	Munson.	B. C. R. R.
31	Ficks.	Max Frick.	Cambria.	Max Frick.	Broad Top City.	H. & E. T. R. R.
52	Grass Flat.	Clearfield Bituminous Coal Corp.	Clearfield.	R. A. Shillingford.	Blandsburg.	P. & N. W. R. R.
40, 50, 51	Gazam Nos. 2, 3 and 4.	Clearfield Bituminous Coal Corp.	Clearfield.	R. A. Shillingford.	Peale.	B. C. R. R.
19	Glen White.	Glen White Coal and Lumber Co.	Clearfield.	R. A. Shillingford.	Peale.	B. C. R. R.
30	Great Bend.	Bellwood Coal Company.	Blair.	W. S. Best.	Glen White.	P. R. R.
78, 79	Glenwood.	Glenwood Coal Company.	Cambria.	W. S. Best.	Bellwood.	P. & N. W. R. R.
80, 81	Glenwood.	Glenwood Coal Company.	Indiana.	Arthur Riddle.	Glen Campbell.	P. & N. W. R. R.
80	Harvey Slope.	Harvey Coal Mining Company.	Bedford.	John McIntyre.	Six Mile Run.	H. & E. T. R. R.
90	Harts.	Thomas Hart.	Clearfield.	Joseph Hart.	Munson.	B. C. R. R.
73	Horse Shoe.	Altoona Coal and Coke Company.	Cambria.	John Munro.	Coupon.	P. R. R.
73	Huntingdon.	W. H. Sweet.	Huntingdon.	W. H. Sweet.	Dudley.	H. & E. T. R. R.

TABLE II.—Gives the total number of tons of coal mined and tons of coke produced in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Tenth Bituminous District for the year ending December 31, 1898.

Name of Collieries.	County.	Total production in tons of coal.	Total production in tons of coke.	Quantity of coal in tons used for steam and heat.	Sold to local trade and used by employes.	Railroad and water shipments of coal in tons.	Number of days worked.	Number of persons employed.	Number fatal accidents.	Number non-fatal accidents.	Number kegs powder used.	Number pounds dynamite used.	Number horses and mules.	Number steam boilers.	Number mine locomotives.	Number coke ovens.
Blands	Cambria	26,462			464	26,028	265	26			200		3			
Bradley	Blair	33,387		240	830	38,317	196	80			12		12	2		
Bloomington No. 3	Clearfield	172,251		900	550	171,351	234	81	2		1,620		6			
Bloomington No. 4	Clearfield	146,104			95	145,153	236	80			1,677		18	3		
Bonsuet	Huntingdon	50,981			734	49,247	31	34			50		3			
Bonsuet	Cambria	50,981			734	49,247	31	34			50		3			
Cato	Centre	4,004			50	3,500	75	15	1		230		2			
Carbon	Huntingdon	11,650			50	11,600	240	24	1		30	2,500	3			
Cambria No. 1	Bedford	32,238			630	32,238	240	63			400		9			
Cambria No. 3	Cambria	8,031		610	630	6,791	52	58			25		6	4		
Carytown	Centre	17,861				17,861										
Cuba	Bedford				34	10,317	78	68		1	50		10	2		
Cumberland	Bedford	16,559		268	132	27,048	196	86			110	100	10	3		18
Cunard	Bedford	32,696		1,748	300	42,700	160	78			52		7			
Cherry Run	Centre	43,000			789	42,211	206	169	1		172		15	2		
Crescent	Bedford	32,917		789	422	31,706	206	169	1		1,000		22	4		72
Delaney	Cambria	201,738		1,800	2,000	178,715	231	235	1		30		4	1		
Delta	Clearfield	4,113				4,113	66	30					4	1		
Dundas Slope	Clearfield				178	6,966	177	13			26		9			
Dougherty	Cambria	7,112			178	6,966	177	13			26		9			
Durham	Bedford	57,200		811	1,324	55,085	264	24	1		24	100	5	1		
East End	Blair	41,855		1,800	1,300	38,755	150	135	1		760		17	4		50
Eagle	Cambria	4,000				4,000	150	9					1			
Elldorado	Cambria	8,000		25	100	7,875	200	21			200		1			
Edmiston	Cambria															
Eureka	Bedford				280	63,404	216	92			375		9			
Forest Nos. 1 and 2	Clearfield	63,684			60	11,081	196	29			100	500	3			
Fisher	Huntingdon	31,141				43,127	280	72			500	400	4			
Fricks	Cambria	43,127				43,127	280	72			500	400	4			
Grass Flat	Clearfield	183,317	46,454		1,107		297	275	1		4,010	500	10	3		100

Gazzam No. 2,	Clearfield,	87,668	367	579	86,196	281	117	736	390	14	1
Gazzam No. 4,	Clearfield,	21,537	.....	.....	21,537	215	57	266	150	5	.....
Great White,	Blair,	14,197	1,508	822	38,492	265	145	560	125	3	60
Great Bend,	Cambria,	24,420	.....	.....	24,420	246	44	250	50	3	.....
Glenwood No. 2,	Indiana,	36,363	580	.....	25,789	98	59	275	.....	3	.....
Glenwood No. 4,	Indiana,	179,893	.....	1,491	178,492	236	212	390	.....	21	.....
Harvey Slope,	Bedford,	11,985	480	279	11,226	70	54	75	.....	1	.....
Harts,	Clearfield,	11,249	.....	575	10,674	160	26	.....	700	3	.....
Horse Shoe,	Blair,	34,963	.....	.....	33,000	272	56	60	2,000	1	.....
Huntingdon,	Huntingdon,	24,000	.....	150	23,850	240	49	.....	.....	1	.....
Hickes,	Huntingdon,	4,388	.....	60	4,348	55	979	780	50	11	.....
Irvona,	Clearfield,	124,934	80	493	9,957	179	179	131	.....	16	.....
Kearney,	Bedford,	18,971	785	463	9,957	190	21	227	.....	3	158
Kelly's,	Clearfield,	18,971	.....	235	18,736	190	190	.....	.....	3	.....
Knox Run,	Clearfield,	182,335	.....	235	132,119	254	100	.....	.....	8	.....
Kry,	Blair,	38,144	145	284	37,632	150	59	415	10	8	.....
Lebanon,	Clearfield,	21,636	32	600	21,036	91	151	309	19	6	100
Mountaindale,	Blair,	27,943	275	2,679	119	122,819	252	96	.....	6	50
Moravian,	Cambria,	123,018	.....	.....	122,819	252	165	.....	.....	6	.....
National No. 1,	Clearfield,	22,625	200	50	6,451	265	68	80	.....	3	100
National No. 2,	Clearfield,	46,853	100	50	15,311	274	77	200	.....	5	.....
New Hampshire,	Clearfield,	21,162	.....	20	21,112	193	65	50	.....	4	.....
O'Shanter,	Bedford,	27,334	.....	376	26,958	163	63	211	.....	3	.....
Oakland,	Clearfield,	9,571	25	136	8,490	213	42	88	.....	3	.....
Ocean No. 1,	Clearfield,	32,350	.....	358	32,002	270	54	70	3,500	4	.....
Ocean No. 2,	Huntingdon,	26,866	.....	258	44,202	270	54	.....	.....	6	.....
Ogle,	Huntingdon,	96,929	645	40	35,552	199	50	101	.....	3	.....
Oriskany,	Blair,	32,336	.....	.....	32,326	120	42	290	.....	12	.....
Pennsylvania,	Blair,	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Porter Shaft,	Blair,	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pleasant Hill,	Clearfield,	117,978	1,656	.....	116,322	252	170	.....	.....	10	.....
Royal Slope,	Clearfield,	57,991	550	.....	57,441	199	130	535	.....	7	.....
Robertsdale,	Clearfield,	198,047	5,315	2,053	130,678	231	253	2,100	2,750	50	16
Somersville,	Huntingdon,	116,886	.....	.....	109,611	207	110	.....	.....	16	.....
Sugar Camp Nos. 2, 3 and 4,	Centre,	242,739	.....	958	241,307	233	340	70	3,050	27	1
Sugar Camp Nos. 5 and 6,	Centre,	84,083	213	273	83,595	194	112	.....	.....	1	200
Tunnel,	Centre,	13,837	.....	29	13,817	204	18	.....	.....	6	.....
Trey No. 1,	Indiana,	32,689	.....	.....	32,649	195	35	68	15	.....	.....
Trey No. 2,	Indiana,	14,800	.....	.....	14,800	219	33	.....	.....	3	.....
Trey No. 3,	Indiana,	14,800	.....	.....	14,800	219	33	.....	.....	3	.....
Warrior,	Blair,	16,862	.....	50	16,862	192	50	.....	.....	4	.....
Woodvale Shaft,*	Huntingdon,	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total,	.....	3,401,581	23,163	14,382	2,941,621	11,454	5,653	20,233	19,800	510	83
											2

*Woodvale production is included with Robertsdale.

TABLE III.—Showing the number of employees at each colliery in the Tenth Bituminous District, during the year 1898.

Names of Collieries.	Occupations of Persons Employed Inside.							Occupations of Persons Employed Outside.							Grand total inside and outside.
	Occupations of Persons Employed Inside.							Occupations of Persons Employed Outside.							
	Inside foreman or mine boss.	Miners.	Miners' laborers.	Drivers and runners.	Door boys and helpers.	All other employes.	Total inside.	Outside foreman.	Blacksmiths and carpenters.	Engineers and firemen.	State pickers.	Employed in the manufacture of coke.	Superintendents, book-keepers and clerks.	All other employes.		Total outside.
Blands.	1	26		3	1	1	32							1	26
Bradley.	1	65	1	2	1	1	71		1	1		1	1	4	80
Bloomington No. 3.	1	10		1	1	1	13		1	1		1	1	5	18
Bloomington No. 4.	1	152	1	10	1	2	167		3	1		1	1	13	180
Benedict.	1	25		2	1	1	31							1	32
Burnside.	1	25		2	1	1	31							1	32
Carbide.	1	12		1	1	1	15							1	16
Carbide.	1	20		1	1	1	23							1	24
Cambria No. 1.	1	43		1	1	1	46							1	47
Cambria No. 3.	1	39		5	3	2	59		1	2		1	2	8	67
Careytown.															
Cuba.		50		6	2	2	60		1	1		1	1	6	68
Cumberland.	1	54		4	4	4	66	1	1	3				20	86
Cunard.	1	6		1	1	1	10		1	1				3	14
Cherry Run.	1	65		4	4	4	76							6	82
Crescent.	1	134		13	5	3	155		2	1		2	6	13	168
Dalany.	1	53		1	1	1	56		2	2			13	17	75
Dalany.	1	23		6	5	1	35		2	2			1	7	42
Defta.	1	25		1	1	1	28							1	29
Douglas Slope.		10		1	1	1	13							2	15
Durham.	2	45		1	3	3	54		2	2		2	3	10	64
Durham.	1	90		2	2	20	115	1	1	2		1	3	10	125
East End.	1	9		10	1	1	21		2	2				4	25
Eagle.	1	9		1	1	1	12		2	2				4	16
Eldorado.	1	16		1	1	1	19							1	20
Edmiston.															
Eureka.	1	80		4	1	1	86		1	1		2	1	5	92
Forest Nos. 1 and 2.	1	26		1	1	1	29							1	30
Fisher.	1	26		1	1	1	29							1	30
Ficks.	1	59		4	1	1	65		1	1				3	73
Grass Flat.	1	164		5	6	3	183	1	2	1		40	25	23	213

Gazam No. 2,	1	106	4	7	4	5	127	2	3	2	2	20	147	
Glen No. 4,	1	98	2	6	3	2	35	1	1	1	1	1	37	
Glen White,	1	82	1	3	3	12	107	1	2	4	6	98	145	
Great Bend,	1	83	1	1	1	41	41	1	2	1	22	4	44	
Glenwood No. 2,	1	48	3	3	1	53	53	1	2	1	2	6	59	
Glenwood No. 4,	1	190	1	6	3	2	204	2	2	2	4	6	212	
Harvey Slope,	1	40	1	1	1	49	49	1	1	1	2	5	54	
Harts,	1	22	1	3	2	24	24	1	1	1	2	2	26	
Horse Shoe,	1	46	1	3	2	53	53	1	1	1	1	2	55	
Huntingdon,	1	35	1	3	2	40	40	1	1	1	1	2	46	
Hickes,	1	9	1	1	1	9	9	1	1	1	1	2	11	
Irvona,	1	157	1	11	5	5	179	1	2	5	2	30	220	
Kearney,	1	98	2	11	2	114	114	1	1	1	4	41	172	
Knox,	1	66	1	1	1	68	68	1	1	1	1	6	72	
Knox Run,	1	159	1	6	9	178	178	2	1	1	10	140	331	
Kyler,	1	47	1	3	1	53	53	1	1	1	1	4	59	
Lemon,	1	109	4	15	2	17	148	1	2	2	1	4	159	
Mountaineale,	1	39	2	3	3	45	45	1	1	1	1	3	51	
Moravian,	1	135	6	6	5	153	153	1	1	10	2	13	181	
National No. 1,	1	29	1	2	1	33	33	1	1	1	11	12	48	
National No. 2,	1	64	1	4	1	72	72	1	2	2	2	5	83	
New Hampshire,	1	54	1	4	1	60	60	1	2	2	4	5	77	
O Shanter,	1	28	1	2	2	43	43	1	1	1	1	3	48	
Oakland,	1	16	1	1	1	19	19	1	1	1	1	1	22	
Ocean No. 1,	1	38	1	4	1	44	44	1	1	1	1	3	48	
Ocean No. 2,	1	43	1	6	1	51	51	1	1	1	1	1	54	
Ogden,	1	30	1	3	1	34	34	1	3	1	2	10	44	
Penn.	1	30	1	6	1	38	38	1	1	1	2	4	49	
Pennsylvania,														
Porter Shaft,														
Pleasant Hill,	1	145	2	10	3	161	161	1	1	8	9	170		
Royal Slope,	1	115	5	5	1	123	123	1	2	1	7	190		
Robertdale,	2	172	25	3	25	227	227	5	10	3	7	26	253	
Somerville,	1	89	6	1	3	100	100	1	2	1	5	10	110	
Sugar Camp Nos. 2, 3 and 4,	1	304	9	6	8	328	328	1	2	1	12	340		
Sugar Camp Nos. 5 and 6,	1	97	4	1	2	105	105	1	1	1	2	9	112	
Tunnel,	1	14	2	1	1	18	18	1	1	1	1	2	21	
Urey No. 1,	1	39	1	3	1	44	44	1	1	1	1	4	48	
Urey No. 2,	1	30	1	3	1	34	34	1	1	1	1	2	38	
Urey No. 3,	1	44	1	1	1	48	48	1	1	1	1	2	50	
Warner,	1	44	1	1	1	50	50	1	1	1	1	4	54	
Woodvale,	1	44	1	1	1	50	50	1	1	1	1	4	54	
Total,	64	4,367	59	330	97	152	5,069	64	57	24	190	64	584	5,633

TABLE III.—Continued.

Names of Collieries.	Number of Days Worked Each Month During 1898.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Blands,	22	19	16	22	22	22	21	22	22	22	23	23
Bradley,	17	18	17	14	15	15	16	16	16	15	16	16
Brighton No. 3,	15	22	23	23	21	23	14	11	20	14	20	20
Bloomington No. 4,	22	20	23	24	24	23	21	11	12	13	23	20
Benedict,	26	17	19	16	19	20	21	20	20	20	22	22
Burnside,	24	19	12	14	9	24	21	11	10	21	25	25
Cato,	15	26	19	13	17	18	20	16	21	21	22	22
Carbon,	21	19	20	20	20	18	20	18	20	20	20	23
Cambria No. 1,	21	19	21	18	15	19	13	18	9	20	20	23
Cambria No. 3, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Careytown, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cuba, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland,	15	17	21	21	1	23	14	11	10	11	8	20
Cunard,	15	24	19	13	16	15	17	13	10	11	15	18
Cherry Run,	15	1	12	13	13	12	17	16	20	25	20	25
Delaware,	15	9	12	13	13	12	17	16	21	25	20	25
Delta, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Douglas Slope, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dougherty, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Durham,	23	21	22	22	22	22	21	22	22	23	23	23
East End, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eagle, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
El Dorado,	20	20	20	21	22	15	15	9	9	15	20	23
Edmiston, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eureka, .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Forest Nos. 1 and 2,	24	15	18	22	21	20	11	11	15	20	17	22
Fisher,	24	15	18	22	21	20	11	11	15	20	17	22
Frick's,	25	21	20	24	9	23	21	26	21	25	25	24
Grass Flat,	25	23	25	25	25	24	23	26	25	25	25	26

TABLE IV.—List of fatal accidents that occurred in and about the mines of the Tenth Bituminous District, during the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Number of wives made widows.	Number of orphans.	Name of Colliery.	County.	Nature and Cause of Accident in Brief.
Jan. 11.	Lewis Pool,	Mineer,	40	M.	1	.....	Carbon,	Huntingdon, ...	This man in company with Charles Fleck was at work in a room; he was undermining and the draw slate fell upon him, killing him.
22.	Thomas Collins,	Driver,	19	S.	.....	.....	Kyle,	Clearfield,	Collins had just been employed as driver and this was his first day's work, and the foreman was showing him the road for several trips, and while going out with a loaded trip he jumped off the trip and was running behind his mules when he fell, and before he could recover himself he was caught by the trip and rolled head for a short distance and fatally injured.
Apr. 13.	James Hignet,	Laborer,	14	S.	.....	.....	Delaney,	Cambria,	The boy was working with his father, who had sent him to the blacksmith shop for an auger drill, and in going along the heading he caught up with the driver who was making up his trip, and as the driver started up the boy jumped on the bumpers between the second and third, or last car, and the trip did not move over two car lengths before the mules stuck, and it was found that the boy's head and shoulders were wedged between the top of the coal on the floor, and he was so severely injured that he died in a few hours.

June 17.	Grover Stagard,	14	S.	.....	National No. 1,	Clearfield,	This boy in company with an older brother worked in National Mine, and had finished their work and gone outside when the boy jumped into a trip that was going into another portion of the mine where another brother was working, and on arriving there as he was passing between the mule and coal pillar, a large piece of the roof slate fell upon him, killing him.
30.	Thomas Pearson,	69	W.	..... 2	Sugar Camp No. 4,	Centre,	Was caught between two empty railroad cars standing on the railroad track, just at the moment some of the tippie men were dropping down an empty car, and this empty car bumping against the ones he was passing between which caused the cars to come together, and he was caught between the Janney couplers and when released was dead.
July 8.	Michael Cheslock,	38	M.	1 3	East End,	Blair,	Killed by a fall of coal while undermining, he had neglected to set sprags under the loose end of the fall of coal he was working under.
Sept. 16.	James Brady,	24	M.	1 2	Glenwood No. 4,	Indiana,	While working undermining a fall of coal it fell upon him from a clay slip that could not be seen at the time.
Oct. 25.	Levi A. Quick,	22	S.	.....	Sugar Camp No. 5,	Centre,	These two men were employed in taking a skip off the side of a heading, and had just commenced work when a stone fell from the roof upon them with fatal results.
Oct. 25.	Waston Eye,	33	M.	1 4	Sugar Camp No. 5,	Centre,	Was engaged with other men in pulling out heading stumps, and while he was undermining, a piece of top coal fell upon him, killing him.
Dec. 13.	Andrew Hanya,	30	M.	1 3	Sugar Camp No. 3,	Centre,	While at work undermining a fall of coal fell upon him, crushing him so severely about the shoulders and chest that he died two days afterward.
23.	Con. McCue,	52	M.	1 6	Kearney,	Bedford,	

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the Tenth Bituminous District, during the year ending December 31, 1898.

Date of accident.	Name of Person.	Occupation.	Age.	Married or single.	Name of Colliery.	County.	Nature and cause of Accident in Brief.
Jan. 27.	Thomas Lutrick.	Miner.	30	M.	Bloomington.	Clearfield.	Leg hurt by being caught by haulage rope.
Mar. 14.	H. L. Bumgardner.	Car shifter.	42	M.	Cumberland.	Bedford.	Fall from overhead car at tipple; shoulder badly bruised.
16.	Grant Edwards.	Miner.	30	S.	Robertsdale.	Huntingdon.	Leg broken by a fall of coal.
22.	Andrew Olsen.	Miner.	18	S.	Sommerville.	Clearfield.	Back hurt by fall of bone coal.
Apr. 12.	Ferdinand Gabello.	Miner.	42	M.	Delaney.	Cambria.	Collar bone broken by fall of coal.
May 4.	Steve Loadmark.	Miner.	.....	.....	Sugar Camp No. 5.	Centre.	Head cut and shoulders bruised by fall of coal.
15.	I. J. Lutess.	Miner.	45	M.	Cato.	Centre.	Back dislocated by a fall of rock.
25.	Stacey Kunmouck.	Miner.	28	S.	Bloomington.	Clearfield.	Left hand cut off by a fall of rock and coal.
June 24.	Samuel Mitchell.	Miner.	47	M.	O'Shanter.	Clearfield.	Right side squeezed by a fall of coal.
28.	William Founnan.	Miner.	.....	.....	Kearney.	Bedford.	Back hurt and ankle sprained by a fall of rock.
July 13.	John Hitchens.	Miner.	28	M.	Durham.	Bedford.	Burned by an explosion of powder; a spark fell on his coat pocket.
20.	James Adamson.	Mine foreman.	48	M.	Grass Flat.	Clearfield.	Leg broken while climbing shaft.
22.	Andy Galinska.	Miner.	30	S.	Sugar Camp No. 5.	Centre.	Collar bone broken by a fall of coal.
25.	Thompson Sloppey.	Miner.	26	S.	Gazzam No. 4.	Clearfield.	Shoulder fractured and five ribs broken by a fall of coal.
Aug. 3.	Thomas Lodge.	Miner.	50	M.	Kearney.	Bedford.	Hurt by fall of ripping.
16.	Lewis Price.	Mine foreman.	38	M.	Sugar Camp No. 5.	Centre.	Hurt in the stomach by being struck by rope slipping off the sheaves on the plane.
Oct. 2.	J. F. Marsteller.	Superintendent.	44	M.	Sugar Camp No. 6.	Centre.	Leg broken by being caught between cars and engine house.
4.	Harrison Mack.	Miner.	58	M.	Kearney.	Bedford.	Ankle sprained by a fall of coal.
6.	Y. C. Williams.	Miner.	58	M.	Kearney.	Bedford.	Collar bone and leg broken by fall of coal.
10.	Theodore Williams.	Miner.	61	M.	Crescent.	Bedford.	Seriously hurt on shoulder and also injured by fall of coal.
12.	James Francis.	Miner.	45	M.	Glen White.	Blair.	Collar bone broken by being struck by mine car.
25.	Charles Bendon.	Driver.	19	S.	Glen White.	Blair.	Foot lacerated by being drawn against wheel.
26.	Rolley Sloppey.	Miner.	20	S.	Gazzam No. 4.	Clearfield.	Leg broken by a fall of coal.

28.	James Mills,	Boss driver,	34	M. Glen White,	Blair,	Back hurt by fall of coal.
1.	John Koraffa,	Miner,	23	M. Ogle,	Clearfield,	Middle finger cut off while helping put mine car on track.
4.	Richard Snelden,	Miner,	45	M. Ogle,	Clearfield,	Finger cut off; run over by loaded mine car.
24.	Charles Rilkeard,	Driver,	28	S. Warner,	Bedford,	Hurt by running into a loaded car.



INDEX.

	Page.
Communication to the Governor,	i
Letter of transmittal,	ii
Table of contents,	v
Introduction to report,	vij
Reduction in number of accidents,	viii
New method of mining in bituminous region,	xiii
Abstract of contents of reports of bituminous Inspectors,	xvi
The Cornellsville coke region, history of,	xx
Violations of mine laws,	xxxii
Injunction proceedings,	xxxlii
Defendants' request, finding of facts,	xlili
Finding of law,	xlvi
Commonwealth vs. Elk Hill Coal and Iron Company, <i>SECUN. APPELL.</i>	lvii
Narrow escape at Richmond mine,	lviii
Fire in Ferguson mine,	lix
Cave-in at Hallstead mine,	lx
Disaster at Empire mine, near Brownsville,	lxi
Report of Anthracite Miners' Examining Boards,	lxiv
Fatal accidents per each 1,000 employes about anthracite and bituminous mines for a series of years,	lxix
Production of coal and coke in tons,	lxx
Number of employes, fatal and non-fatal accidents,	lxxi
Production of anthracite coal and number of employes in and about mines, by counties,	lxxii
Quantity of coal shipped by rail, used for steam and heat, kegs powder, pounds of dynamite, etc., used in and about anthracite mines,	lxxlii
Production of bituminous coal and coke and number of employes, by counties,	lxxiv
Quantity of coal shipped by rail and river, used for steam and heat, kegs powder and pounds of dynamite, etc., used in and about bituminous mines,	lxxvi
Average thickness of coal seam, tons secured per acre, etc., in bituminous region,	lxxvii
Table showing cause of accidents, etc., anthracite region,	lxxviii
Nationality of persons killed and injured in and about anthracite collieries,	lxxx
Table showing causes of accidents, etc., bituminous region,	lxxxi
Nationality of persons killed and injured in and about bituminous collieries,	lxxxlii
Laws relating to coal mining,	lxxxv

Page.

An act to protect miners in the bituminous coal region of the Commonwealth, approved June 1, 1883,	lxxxvii
An act to provide payment to the miner for all clean coal mined by him, approved June 13, 1883,	lxxxix
An act to provide for the recovery of bodies of workmen enclosed, buried or entombed in coal mines, approved May 9, 1889,	lxxxix
An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith, approved June 2, 1891,	xc
An act relating to bituminous coal mines and providing for the lives, health, safety and welfare of persons employed therein, approved May 15, 1893,	cxxi
An act equalizing and fixing the compensation and mileage of members of the several examining boards, etc., etc., approved June 26, 1895,	clvii
An act for the better protection of employes in and about coal mines, by preventing mine superintendents, mine foremen and assistants from receiving any sums of money or other valuable consideration from men while in their employ, and providing a penalty for violation of the same, approved June 15, 1897,	clviii
An act establishing a Bureau of Mines in the Department of Internal Affairs of Pennsylvania, defining its purposes and authority, providing for the appointment of a chief of said Bureau and assistants and fixing their salaries and expenses,	clix
An act requiring the weighing of bituminous coal before screening, and providing a penalty for the violation thereof,	clxiii
An act to protect the lives and limbs of miners from the dangers resulting from incompetent miners working in the anthracite mines of this Commonwealth, etc., etc., approved July 15, 1897,	clxiv
An act to amend the tenth section of an act, entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith," approved the second day of June, A. D. 1891, providing that self-acting doors are used, approved April 20, 1899,	clxviii
An act to amend section four of article eight of an act, entitled "An relating to bituminous coal mines and providing for the lives, health, safety and welfare of persons employed therein," approved May 15, A. D. 1893, permitting the use of mineral oils in bituminous mines when used in approved safety lamps, approved April 28, 1899,	clxviii

FIRST ANTHRACITE DISTRICT:

Letter of transmittal,	1
Table "A," showing production of coal and number of employes for each company in district,	4
Table "B," number of fatal accidents and quantity of coal produced per life lost,	5
Table "C," number of fatal and non-fatal accidents and tons of coal produced per accident,	5
Table "D," occupations of persons killed and injured,	6
Table "E," classification of accidents,	6
Table "F," nationality of persons killed and injured,	6

Page.

Table No. 1, with map, showing location, etc., of collieries,	7
Table No. 2, number of tons of coal mined, number of days worked, etc., in each colliery, etc.,	9
Table No. 3, number of each class of employes and number of days worked each month by each breaker,	14
Table No. 4, list of fatal accidents,	18
Table No. 5, list of non-fatal accidents,	27

SECOND ANTHRACITE DISTRICT:

Letter of transmittal,	33
Table "A," showing production of coal by each company in the dis- trict, number of employes, etc.,	36
Table "B," showing number of fatal accidents, and tons of coal produced per each fatality,	36
Table "C," showing number of fatal and non-fatal accidents and tons of coal produced for each accident,	37
Table "D," classification of accidents,	37
Table "E," occupations of persons killed and injured,	38
Table "F," nationality of persons killed and injured,	38
Table No. 1, with map showing location, etc., of collieries,	39
Table No. 2, number of tons of coal mined, number of days worked, etc.,	41
Table No. 3, number of each class of employes and number of days worked by each breaker,	47
Table No. 4, list of fatal accidents,	53
Table No. 5, list of non-fatal accidents,	60

THIRD ANTHRACITE DISTRICT:

Letter of transmittal	67
Number of fatal and non-fatal accidents and tons of coal produced for each accident,	68
Number of persons employed by each company and number of em- ployes for each accident,	69
Annual examination for mine foremen,	69
Recapitulation of fatal accidents,	70
Table showing number of each class of serious non-fatal accidents, number of each class of employes and their nationalities,	71
Colliery improvements for 1898,	72
Mine accidents,	76
Table No. 1, with map showing location, etc., of collieries,	78
Table No. 2, showing number of tons of coal mined, number of days worked, etc.,	80
Table No. 3, number of each class of employes and number of days worked by each breaker,	84
Table No. 4, list of fatal accidents,	88
Table No. 5, list of non-fatal accidents,	91

FOURTH ANTHRACITE DISTRICT:

Letter of transmittal,	99
Production of coal by each company during year,	100
Table "A," showing number of lives lost and tons of coal produced for each accident,	101

	Page.
Classification of accidents,	102
Description of a fire in Alden colliery,	102
Lessons derived from mine fires in district,	104
Examination for mine foremen and assistants,	107
Table No. 1, with map, showing location, etc., of collieries,	109
Table No. 2, number of tons of coal mined, number of days worked, etc.,	111
Table No. 3, number of each class of employes and number of days worked by each breaker,	117
Table No. 4, list of fatal accidents,	122
Recapitulation of fatal accidents, causes, occupations and nation- alities of victims,	126
Table No. 5, list of non-fatal accidents,	127

FIFTH ANTHRACITE DISTRICT:

Letter of transmittal,	129
Production of coal for each company,	129
Number fatal accidents and tons of coal produced per life lost,	130
Number non-fatal accidents and tons of coal produced per person injured,	130
Number of accidents, fatal and non-fatal, and production of coal for each accident,	131
Comparative statement showing number of tons of coal produced, number of fatalities, etc., for ten years,	131
Nationality of persons killed and injured,	131
Comparative table showing causes of fatal accidents in the district for ten years,	132
Recapitulation of fatal accidents as per Table No. 4,	133
Recapitulation of non-fatal accidents, as per table No. 5,	134
Examination of applicants for mine foremen and assistants,	135
Colliery improvements during 1898,	135
Remarks on fatal accidents,	144
Table No. 1, with map, showing location, etc., of collieries,	153
Table No. 2, number of tons of coal mined, number of days worked, etc.,	154
Recapitulation, Table No. 2,	156
Table No. 3, number of each class of employes and number of days worked by each breaker,	160
Recapitulation, Table No. 3,	165
Table No. 4, list of fatal accidents,	166
Table No. 5, list of non-fatal accidents,	170

SIXTH ANTHRACITE DISTRICT:

Letter of transmittal,	173
Examination of applicants for mine foremen's certificates,	173
Number of employes and nature of their employment,	173
Comparison of production of coal between 1897 and 1898,	174
Table showing number fatal accidents and quantity of coal produced per life lost,	174
Comparative table for five years,	175
Table of comparison of death rate per thousand, etc.,	176
Fatal and non-fatal accidents and nationalities of victims,	176

	Page.
Fatal and non-fatal accidents and their causes,	177
Summary of district for 1898,	177
Remarks on fatal accidents,	178
Compressed air haulage at Buck Mountain,	183
Table No. 1, with map showing location, etc., of collieries,	189
Table No. 2, number of tons of coal mined, number days worked, etc.,	191
Table No. 3, number of each class of employes and number of days worked by each breaker,	195
Table No. 4, list of fatal accidents,	199
Table No. 5, list of non-fatal accidents,	203

SEVENTH ANTHRACITE DISTRICT:

Letter of transmittal,	207
Table "A," comparative table of fatal accidents for 1896-97, 98,	208
Table "B," production of coal by each company, number of fatalities and tons mined for each fatality,	208
Table "C," comparisons of non-fatal casualties for 1896, 97 and 98,	208
Table "D," quantity of coal shipped, used and sold at collieries for 1896, 97 and 98,	209
Table "E," general comparisons between years 1896, 97 and 98,	209
Table "F," number of employes of the several companies and number of fatalities,	209
Table No. 1, with map showing location, etc., of collieries,	210
Table No. 2, number tons of coal mined, number of days worked, etc.,	212
Table No. 3, showing number of each class of employes and number of days worked by each breaker,	216
Table No. 4, list of fatal accidents,	220
Table No. 5, list of non-fatal accidents,	222

EIGHTH ANTHRACITE DISTRICT:

Letter of transmittal,	227
Summary of production, etc.,	228
Improvements during 1898,	229
Collieries abandoned during 1898,	232
Description of a mine fire,	232
Kaska-William colliery disaster,	235
Injunction proceedings,	240
Arbitration,	244
Examination of candidates for mine foremen and assistants,	248
Table showing number of each class of employes,	249
Classification of accidents, nationalities of killed and injured, names of collieries where accidents occurred,	250
Table No. 1, with map showing location, etc., of collieries,	251
Table No. 2, number of tons of coal mined, number of days worked, etc.,	253
Table No. 3, showing number of each class of employes and number of days worked by each breaker,	257
Table No. 4, list of fatal accidents,	261
Table No. 5, list of non-fatal accidents,	263

FIRST BITUMINOUS DISTRICT:

	Page.
Letter of transmittal,	271
Mining statistics,	272
Condition of mines,	273
Description of an explosion at Umpire mine,	275
Description of mines continued,	281
Descriptions of fatal accidents,	285
Table No. 1, with map showing location, etc., of mines,	289
Table No. 2, number of tons of coal mined, number of days worked, etc.,	291
Table No. 3, showing number of each class of employes, number of days worked in each month,	294
Table No. 4, list of fatal accidents,	298
Table No. 5, list of non-fatal accidents,	300

SECOND BITUMINOUS DISTRICT:

Letter of transmittal,	305
Classification of accidents,	305
Summary of statistics,	307
Description of mine improvements,	308
Description of fatal accidents,	320
Table No. 1, with map showing location, etc., of mines,	329
Table No. 2, number tons of coal mined, number of days worked, etc.,	331
Table No. 3, showing number of each class of employes, number of days worked in each month,	334
Table No. 4, list of fatal accidents,	338
Table No. 5, list of non-fatal accidents,	340

THIRD BITUMINOUS DISTRICT:

Letter of transmittal,	343
Classification of accidents,	343
Table of comparison between 1897 and 1898,	344
Modification of the single entry system, etc.,	345
Ventilation,	346
Description of mines,	347
Table No. 1, with map showing location, etc., of mines,	354
Table No. 2, number tons of coal mined, number of days worked, etc.,	356
Table No. 3, showing number of each class of employes, number of days worked in each month,	358
Table No. 4, list of fatal accidents,	362
Table No. 5, list of non-fatal accidents,	365

FOURTH BITUMINOUS DISTRICT:

Letter of transmittal,	367
Mining statistics,	367
Classification of accidents,	368
Description of mines,	368
A coroner's inquest,	372
Table No. 1, with map showing location, etc., of mines,	374
Table No. 2, number tons of coal mined, number of days worked, etc.,	376

Page.

Table No. 3, showing number of each class of employes, number of days worked in each month,	378
Table No. 4, list of fatal accidents,	382
Table No. 5, list of non-fatal accidents,	383

FIFTH BITUMINOUS DISTRICT:

Letter of transmittal,	385
Summary of statistics,	386
Classification of accidents,	386
Condition of mines,	386
Description of a mine fire,	388
Condition of mines, continued,	389
Another mine fire,	394
Condition of mines, continued,	395
Table No. 1, with map, location, etc., of mines,	400
Table No. 2, number tons of coal mined, number of days worked, etc.,	402
Table No. 3, showing number of each class of employes, number of days worked in each month,	404
Table No. 4, list of fatal accidents,	408
Table No. 5, list of non-fatal accidents,	410

SIXTH BITUMINOUS DISTRICT:

Letter of transmittal,	415
Statistics of production, etc.,	415
Accidents and their causes,	416
General condition of mines,	417
Report of mines by groups,	420
Table giving name of mine, method of haulage, ventilation, etc.,	425
Table No. 1, with map showing location, etc., of collieries,	427
Table No. 2, number tons of coal mined, number of days worked, etc.,	430
Table No. 3, showing the number of each class of employes, number of days worked in each month,	432
Table No. 4, list of fatal accidents,	436
Table No. 5, list of non-fatal accidents,	440

SEVENTH BITUMINOUS DISTRICT:

Letter of transmittal,	443
Mining statistics,	443
Copy of a decision,	444
Copy of an affidavit,	445
Inspectors' duties and qualifications,	448
Improvement in mining methods since 1885,	450
Improvement in ventilation,	451
Mine maps,	452
Mine foremen of former years and those of to-day,	452
Description of mines,	453
Table No. 1, with map showing location, etc., of mines,	456
Table No. 2, number tons of coal mined, number of days worked, etc.,	458
Table No. 3, showing the number of each class of employes, number of days worked in each month,	460
Table No. 4, list of fatal accidents,	464
Table No. 5, list of non-fatal accidents,	466

EIGHTH BITUMINOUS DISTRICT:

	Page.
Letter of transmittal,	469
Table "A," statistics of district,	470
Classification of accidents,	470
Report of fatal accidents during year,	470
Report of mines in Clearfield county,	472
Report of mines in Centre county,	478
Report of mines in Jefferson county,	479
Table No. 1, with map showing location, etc., of mines,	481
Table No. 2, number of tons of coal mined, number of days worked, etc.,	484
Table No. 3, showing number of each class of employes, number of days worked in each month,	487
Table No. 4, list of fatal accidents,	493
Table No. 5, list of non-fatal accidents,	495

NINTH BITUMINOUS DISTRICT:

Letter of transmittal,	499
Table of accidents, 1898,	500
Summary of statistics,	500
Mines on the B. & O. Railroad,	500
Mines on the Mount Pleasant Branch,	502
Mines on the P. & L. E. Railroad,	504
Mines on the Belle Vernon Railroad,	505
Description of accidents,	506
Table No. 1, with map showing location, etc., of mines,	512
Table No. 2, number tons of coal mined, number of days worked, etc.,	514
Table No. 3, showing number of each class of employes, number of days worked in each month,	516
Table No. 4, list of fatal accidents,	520
Table No. 5, list of non-fatal accidents,	522

TENTH BITUMINOUS DISTRICT:

Letter of transmittal,	525
Summary of statistics,	525
Description of mines,	526
Table No. 1, with map showing location, etc., of mines,	538
Table No. 2, number tons of coal mined, number of days worked, etc.,	540
Table No. 3, showing number of each class of employes; number of days worked in each month,	542
Table No. 4, list of fatal accidents,	546
Table No. 5, list of non-fatal accidents,	548

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