

Station at Pittsburg should be enforced; the holes should be properly placed and charged with only sufficient explosives to bring down the coal, and tamped with incombustible material; the coal should be properly undermined; that is, it should be undermined a little deeper than the holes are laid; and in dangerous mines the coal should be sheared in addition to undermining before it is blasted. If these precautions are taken, and intelligent workmen who understand the English language well enough to read the rules of the mine are employed, the dangers from explosions of gas and dust in the mines of this State would practically be eliminated. In gaseous mines where locked safety lamps are used, in addition to the preceding precautions, shot firers should be employed to charge, tamp and fire all holes with electric battery when the employes are out of the mine, and they should have the power to refuse to charge any hole not properly placed.

This, briefly, is the only way to safeguard life and property in coal mines from such catastrophes as have occurred in the past.

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### THE EXPLOSION AT ORENDA NO. 2 MINE

On the 25th of January 5 persons lost their lives in an explosion at the Orenda No. 2 mine of the Merchants Coal Company.

Immediately upon receipt of information regarding the explosion, which reached the Chief of the Department of Mines while in attendance at a meeting of the Mine Law Commission in Pittsburg, instructions were given to Inspectors D. R. Blower, T. D. Williams, Joseph Williams and Nicholas Evans to accompany the Inspector of the district, T. S. Lowther, to the mine to assist in removing the dead and injured, and in making a thorough inspection to ascertain the cause and the initial point of the explosion.

The Inspectors went at once to the mine and after making an inspection as directed submitted their report to the Department, under date of February 17. On the same date they sent a letter to the General Superintendent of the Merchants Coal Company, at Pittsburg. The report of the Inspectors and the letter to the General Superintendent are printed herewith; also a map of the portion of the mine affected by the explosion.

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### REPORT OF INSPECTORS

"Somerset, Pa., February 17, 1909.

Hon. James E. Roderick,  
Chief of Department of Mines,  
Harrisburg, Pa.

Dear Sir:

In compliance with your orders, we, the undersigned Mine Inspectors, on being informed that an explosion had taken place at

Orenda No. 2 mine of the Merchants Coal Company in Somerset county, at about 8.00 P. M., on January 25, 1909, proceeded at once to the scene of the accident, arriving on the morning of January 26th. We rendered such assistance and made such suggestions as we deemed necessary for the protection of those engaged in exploring the mine and locating and removing the bodies. We found the Mine Inspector of the district on the ground directing the temporary restoration of the ventilation. This was successfully accomplished and the bodies located and recovered by 6.30 P. M. of the same day. This mine is located on the Boswell Branch of the Baltimore and Ohio Railroad.

The opening is a slope penetrating the C Prime seam and extending a distance of 5,000 feet or more at an average gradient of about 15 per cent dip. Levels are driven to right and left off the slope and productive headings are driven in pairs to the rise and dip off these levels. Rooms are driven to the right and left off these headings and the pillars are drawn when the rooms are driven to their destination, or as soon thereafter as practicable.

Hauling is done by animal power in the rooms, and by stationary electric hoists and locomotives on cross headings and levels. The coal is delivered to the main slope at different points and is hauled to the surface by rope haulage.

Ventilation is produced by a 16 x 6½ foot blowing fan, driven by an electric motor at a speed of 126 revolutions, producing 119,370 cubic feet of air per minute and developing a pressure equal to three inches of water gauge. This volume is divided into five different splits by means of overcasts at different points, and is guided and directed to the face of the workings by a system of doors.

On being notified by the management of the Merchants Coal Company that the ventilation was sufficiently restored, we again returned to the mine February 9th for the purpose of determining the cause and locating the initial point of the explosion. On entering the mine we proceeded to No. 7 left level and there found evidence of the force of the explosion having come up from No. 8 left level. We then proceeded to No. 8 left level and in a place known to us as No. 3 south off No. 8 left level (where two bodies had been found) we found evidence that much heat had been produced there at the time of the explosion.

After examining the workings of No. 8 left level (except the faces of the dip headings which were filled with water) we proceeded to No. 8 right level, as the main slopes were filled with water. On going into No. 8 right level we found Nos. 1 and 2 dip headings off No. 8 right level filled with water also; hence we were unable to examine these places. We found at the bottom of Nos. 1 and 2 dip headings off No. 7 right level, where they intersect with No. 8 left level, evidence of the force having come down these headings and having divided at this point, one part going across the main slope into No. 8 left level. We followed the evidences of the other force going into No. 8 right level and up the No. 3 dip off No. 7 right level where the evidence of the force diminished. We then examined the faces of No. 8 right level and found very little evidence of force having been exerted there. We then returned to the bottom of Nos. 1 and 2 dip headings off No. 7 right level, where we found strong evidence of the force having returned up these headings, showing

that the greatest force had been exerted at the intersection of No. 1 dip and No. 7 right level.

Upon re-examining these headings we found explosive gas on falls in pillar workings, also in a cavity in the roof on No. 1 dip heading between Nos. 3 and 5 rooms. This, connected with the facts that gas had been ignited near this same point at three different times between the hours of 5 and 6 P. M. on the day of the explosion; that the bodies of the two officials, Morris and Cole, were not found in the return current from No. 1 dip off No. 7 right level; that no other persons were known to have been in this vicinity at the time of the explosion and that the electric current had been cut off the entire mine at 6.30 P. M., led us to agree in the opinion that the cause of the disaster was an explosion of gas, the gas having been given off the falls immediately preceding the explosion by the subsidence of the overlying strata in the pillar workings off No. 1 dip off No. 7 right level. It was ignited by a feeder of gas left burning from the previous ignition about 5.40 P. M.

DANIEL R. BLOWER,

Inspector of Sixth Bituminous District,

THOMAS D. WILLIAMS,

Inspector of Ninth Bituminous District,

JOSEPH WILLIAMS,

Inspector of Tenth Bituminous District,

NICHOLAS EVANS,

Inspector of Eighteenth Bituminous District,

THOMAS S. LOWTHER,

Inspector of Twentieth Bituminous District."

Letter to the General Superintendent of the Merchants Coal Company:

"Dear Sir:

Having in view the future safety of the Orenda No. 2 mine and persons employed therein, we, the undersigned Mine Inspectors, recommend the following:

1st. That locked safety lamps, without exception, be used in all pillar workings, and in any other working places in and through which fire damp is being generated or carried in the ventilating current.

2nd. That the best known safety explosives be used for blasting down the coal in all pillar workings and in all other working places where fire damp is being generated, the same to be fired by competent shot firers, who shall have the power to refuse to fire any shots that in their judgment may endanger the lives of persons within the mine.

3rd. That the ventilating currents be so conducted as to make all haulage roads and traveling ways on intake airways.

DANIEL R. BLOWER,

Inspector of Sixth Bituminous District,

THOMAS D. WILLIAMS,

Inspector of Ninth Bituminous District,

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THOMAS S. LOWTHER,

Inspector of Twentieth Bituminous District. "

For some reason unknown to the Chief of the Department of Mines, the Coroner of Somerset county did not empanel a jury or hold an inquest on the bodies of the victims of this explosion. The Inspectors who had investigated the cause of the explosion were therefore instructed to repair again to the mine to examine witnesses, under oath or affirmation, in accordance with the law, to ascertain the facts in the case. The evidence herewith is the result of their examination:

Peter Donohue, a track layer, who was laying track in No. 10 room, first dip, 7th right, said: "About or a little after 5 P. M. I experienced what I judged to be a sort of explosion of gas coming from the fifth room in 7th right. I didn't see the flame, but felt the heat passing over my head; then I went up the heading and saw the boy who runs the engine and stayed there a few minutes. When the fire boss, Axon, came along, I told him of the explosion, but he paid no attention to my statement. I then went straight up the heading, and the place was very smoky and full of dust. I went up the track and met the track boss, and we fixed the track for the night shift. This took possibly fifteen minutes or more, and went down the heading the second time, and this time I felt the same experience I did the first time and started to run. I had run possibly thirty feet when I saw the gas lit. Judged it was gas; then I went through the first dip heading and started for the outside. On my way out I saw Logan, Morris and Cole. They told me to blow out my light, and Morris asked me about lighting the gas, and why I hadn't reported it to some of the officials. I told him I had reported it to Watson and fire boss. Mr. Logan took me to the manway with his safety lamp. This was nearly seven o'clock."

James Low, a miner, testified: "I and my partner were working in No. 8 room taking out pillars on the day of the accident, and in the afternoon we had a large cave-in in that place. About twenty minutes before we quit working the fire boss came and we told him we had heard that an explosion of gas had occurred in 7th right. He said if the gas was lit we would know about it. We felt the force of the wind from the explosion, but having never had any experience in gas before thought nothing of it. We left work a few minutes before six, and while going through to the heading to 7th right and when between Nos. 5 and 6 rooms, were knocked down. My buttty having lit the gas and we saw the flame. Our light was blown out, and we went back to No. 7 room and got light from the men working in there. While going outside the rope rider said Logan and Morris had gone down the manway. Afterwards we met Cole going down; he asked about the explosion and as to the whereabouts of the fire boss; we said we didn't know."

David Malcolm, a loader, testified: "I was working on the day of the accident in No. 8 room, first dip. Between five and six I felt a gust of wind passing over me, but didn't know what it was, and kept on working. The fire boss came to us; I asked him if it was so that the gas was lit. He just looked at me and said, 'If any gas would be lit you would know about it.' We started for home a little before six, and came out of my room up the dip heading through 7th right, and when we went through the canvas we fell down and had to sit there; didn't know whether I was knocked down or not,

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but saw flames over my head and the timbers were all over with sparks. I met Mr. Cole about second right going down. He asked me where the gas was lit. I told him about 5th room."

William Axon, fire boss, testified: "I am the fire boss of part of Orenda No. 2 mine, comprising 1, 2, 3, 4, 5, 6, 7 and 8 dips in first east, 7th right, first and second dip No. 8 proper and back heading. January 25, about 4 P. M., I started out to inspect for the night shift, but was sent out of my district, and examined part of the 7th left first south and the pillar workings. The people were working, but when I came to the top of first dip of 7th right, saw several people I didn't know. One of them said, 'Hello, man, I lit the gas down in the dip heading.' I went down the dip heading and examined the cavity in the roof of room 4, but found no gas in the cavity. There was nobody working in rooms 4 and 5. I examined all the places in the several entries, but found no gas. In No. 9 the roof was working and thought from the cracking of the roof that a fall would occur. On my return I stopped at 6th right and 7th left and heard that Mr. Logan had just left. It was about 6.10 P. M. when I left second dip 6th right on my way out."

John Mayko, pumper, testified: "I was working in Orenda No. 2 and on the night of the accident I was going to work as usual about seven. When I reached the mine foreman's shanty a crowd of night shift men were standing there. I asked, 'What is the matter?' Mr. Hartshorn said he didn't know; that Logan, Morris and Cole had gone inside and that something was wrong. I started down the slope and at 4th right I met Tom Noel, who said I had better not go in; it was too dangerous. I went then to 5th left and to the big air pump. I met Mr. Logan on 5th left on slope at my tool box. He asked me to go with him to 6th right. We passed down the left slope below the 6th. After we passed the hole to 6th right I asked

- Mr. Logan where he was going, and he said to 6th right. Mr. Logan didn't know that we had passed it. We then went back to the hole and went across to 6th right. Mr. Logan tested for gas there. He said I should stay there and stop all persons going down the slope, and that I should keep my light on the bottom. Mr. Logan said, 'Stay here, Joe, until I come back.' Mr. Logan had gone from me about fifty feet; was talking to me. He had his safety lamp in his hand when the explosion occurred. It sounded like a big heavy shot and knocked me down. I went right up the slope towards 6th right 'phone. I couldn't open the door but a little and saw the flame. Went back again and called on Mr. Logan, but the after-damp was too strong; I couldn't speak. I fell down again. I went to left slope, and fell down, my head inside that hole, and the good air coming through the broken door saved my life."

F. L. Driggs testified: "I work at the power plant at Orenda No. 2 and was at work the day of the accident. Went to work about 6.30 P. M. and cut off the mine circuit at that time. I was ordered to do so by Mr. Hartshorn. The power was not put on again that night."

From the evidence gathered at the mine it was found that word had been sent to Superintendent Logan regarding the first ignition of the gas and as soon as possible he headed a party, consisting of himself, the Assistant Superintendent and the Mine Foreman, to make a personal investigation of the rumor that gas had been ignited.