

sion, to ascertain, if possible, the cause of the disaster. These inspectors made a report of their findings to the Department under date of March 20, 1917.

A coroner's inquest was held at Canonsburg, March 22, 1917.

The reports of the Inspectors and the verdict of the Coroner's jury are printed herewith together with a map of the mine.

Pittsburgh, Pa., March 15, 1917.

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

Dear Sir:

On Tuesday, March 13, 1917, about 6.30 o'clock A. M. an explosion occurred in the Henderson Mine No. 1 of the Henderson Coal Company, located on the Montour railroad at Hendersonville, Cecil township, Washington county.

The undersigned inspectors were requested by P. J. Callaghan, Inspector of the 26th Bituminous District, to go to the mine at once, which we did. Upon our arrival we went into consultation with William Henderson, President of the Henderson Coal Company, Arthur McCune, Superintendent, and P. M. Willis, Mine Foreman. We also examined the map of the mine. We found very little had been done toward rescuing the entombed men from the mine.

We examined the fire boss's record book and the fan and machinery connected therewith. This is a shaft opening penetrating the Pittsburgh thin seam of coal at a depth of 270 feet, and is electrically equipped throughout, voltage 500. The mine is worked exclusively with electric lamps and safety lamps. The coal cutting machines are self-propelled, receiving their power from the trolley wire.

Seven main entries are driven from the bottom of the shaft into the interior of the mine; the butt entries are worked under what is known as the three-entry system and the rooms are turned off at 39 foot centers.

The mine is ventilated by a Sirocco fan, 11 feet in diameter, running at 75 revolutions per minute, with 1 inch water gauge, capable of producing a large volume of air. We found the fan very little damaged by the explosion, only a few boards having been blown off the fan casing, which was soon repaired sufficiently to proceed with the work of exploring the mine. We then detailed Howard Burns, Superintendent of Montour No. 1 mine, and N. Laureman, Inspector for the Youghiogheny and Ohio Coal Company to enter the mine with us to make the examination.

We entered the mine by the supply shaft and main intake opening. We found the shaft very little damaged. After reaching the bottom of the shaft, we proceeded along the manway to No. 3 face, where the mule stable is located, and found five mules unharmed and no damage done the stable. We proceeded along No. 3-face, finding the stoppings and overcasts in that section all blown out. We then returned to the outside and completed our organization, forming

squads of men under leaders to put up temporary stoppings, so as to carry off the deadly gases which we found very prominent, and to care for the dead or injured. We also arranged to check all persons entering and leaving the mine.

We proceeded along No. 3 face entry to Nos. 4, 5 and 6 butt entries, where the first body had been located. We then proceeded along No. 3 face to Nos. 7, 8 and 9 butt entries, after getting ventilation established. We found six bodies between Nos. 3 and 6 rooms on No. 9 butt entry, and three more bodies between Nos. 19 and 23 rooms. All these victims seemed to have been on their way out, but were overcome by the effects of the after-damp. On three of the bodies we found that their electric lamps were still in operation and giving light.

By this time the helmet men from the Federal Bureau of Mines had joined us and they explored No. 3 face from No. 9 butt entry to the remaining portion of this section of the mine, which consisted of Nos. 1 and 3 faces and rooms off No. 1 face, Nos. 10, 11, 12, 13 and 14 butt entries. Advancing by short stages we found the air current very much obstructed, especially in the return airway near No. 9 butt on No. 1 face, where three cars were blown against the wall of an overcast and the roof. The after-damp at this point was very dangerous, and it took us some time before we could get the cars removed sufficiently to allow the air-current to pass through. This being done, we proceeded with the work of exploring and found the eleventh body in the second cut-through in No. 10 butt entry. We then proceeded to the sixth cut-through where we found the twelfth body. We found the thirteenth body at the seventh cut-through, and found a coal-cutting machine a short distance ahead of this body. The last three bodies were badly burned. The machine was about 200 feet from the face of the entry.

We found considerable explosive gas all through this section of the mine, and also found the mine very little damaged. H. Parker, Chief of the Bureau of Mines, and his rescue crew of ten helmet men very ably assisted in recovering the bodies by exploring ahead of the rescue parties. William Ferguson, Division Manager for the Pittsburgh Coal Company, and Thomas Kayle, Inspector for the Pittsburgh Coal Company, also assisted in the work of exploring the mine. William Lockhart, Sr., Superintendent for the Pittsburgh Coal Company, assisted in organizing rescue parties.

Respectfully submitted,

CHARLES P. MCGREGOR,
Inspector, 7th Bituminous District.

JOHN I. PRATT,
Inspector, 17th Bituminous District.

JOHN F. BELL,
Inspector, 22nd Bituminous District.

Pittsburgh, Pa., March 20, 1917.

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

Dear Sir:

In compliance with your letter of instruction of March 14, 1917, we, the undersigned, made an inspection of that part of the Henderson No. 1 mine, of the Henderson Coal Company, affected by an explosion that occurred March 13, about 6.30 a. m., to ascertain, if possible, the cause of the explosion by which fourteen persons lost their lives.

This mine is located on the Montour railroad at Hendersonville, Washington county. The Pittsburgh thin seam of coal is being mined and the coal hoisted from a shaft 270 feet in depth. The mine is comparatively new, the workings not being extensive.

The ventilation is produced by a Sirocco fan eleven feet in diameter, running at 75 revolutions per minute, with a water gauge of one inch, producing 126,000 cubic feet of air per minute. The fan casing was slightly damaged by the explosion, but otherwise the fan was uninjured.

The mine is electrically equipped throughout. Gathering locomotives operate on the producing entries gathering the coal from the working places with a winch reel, the trolley wire being carried up to the last cut-through in the entries. The voltage in the mine is 550.

The coal-cutting machines are self-propelled, receiving their power from the trolley wire. The mine is worked exclusively with electric cap lamps and safety lamps. Permissible powder is used in all narrow and pillar work, and black powder is used in rooms. Shot firers fire all shots.

We entered the mine by way of the supply shaft and proceeded along the manway to No. 3 face. We observed the first evidence of force of the explosion in a cross entry to the left of No. 3 face near No. 4 butt. Continuing along No. 3 face to No. 7 butt entry to the face and thence to Nos. 8 and 9 butts, we found Nos. 8 and 9 butts generating gas, and also found explosive gas in No. 5 face entry off No. 9 butt. We found the forces had traveled up these entries, being most prominent in No. 9 butt. Indications of flame were found at several points in No. 9 butt. Dinner pails and wearing apparel were found in several rooms near the top of No. 9 butt. The bodies located in this entry were found at some distance down the entry, which would indicate that the miners had arrived at their working places when the explosion occurred and had made an effort to escape.

Continuing along No. 3 face to No. 10 butt, we found evidence of force towards No. 9 butt. Proceeding up No. 10 butt, we found that the force of the explosion had traveled out this entry towards No. 3 face. A body was found in the second cut-through in No. 10 butt badly burned. Two other bodies were found on this entry badly burned, one the body of a machine scraper and the other of a machine runner. A coal cutting machine was found about 250 feet from the face of No. 10 butt. The body of a machine runner was found about 40 feet out-by from the machine and the scraper's body about 120 feet.

The fire boss in this section informed us that this machine was standing on the side track on No. 3 face between Nos. 9 and 10 butts when he examined this section on the morning of the explosion. This would indicate that these machine men were moving the machine up No. 10 butt when the explosion occurred. We found Nos. 10, 11 and 12 butt entries generating explosive gas, and strong evidence that the force of the explosion traveled down these entries towards No. 3 face. Near the entrance to No. 11 butt three cars were blown against the lower side of the chute and demolished. Evidence showed that the forces traveled into Nos. 3 and 1 faces from No. 12 butt and into Nos. 13 and 14 butt entries. At the face of No. 13 butt a loaded car was found with the front end crushed down and spread out in fan shape. We found Nos. 1 and 3 face entries and Nos. 13 and 14 butt entries generating gas.

On No. 1 face the force of the explosion traveled into the rooms off this face and towards No. 9 butt. Near No. 9 butt on No. 1 face several cars were blown against the wall of the overcast on No. 1 face. In No. 6 room off No. 1 face a body was found up on the fall, evidently blown there, as the cars in this room were blown against the gob fall. Coked dust was found in a number of the rooms off No. 1 face.

After very carefully considering all the evidence as demonstrated by the various forces occasioned by the explosion, in conjunction with the fact that no shot firers were in that section of the mine in which the explosion occurred and no open lights were being used and no locomotives or mining machines were being moved, save the coal cutting machine found on No. 10 butt entry, we are forced to the conclusion that the explosion originated in No. 10 butt entry off No. 3 face, and that the initial point of the explosion was at or near the coal-cutting machine, which machine was found about 250 feet out-by from the face of said No. 10 butt entry, and that the accumulation of gas which caused the explosion was ignited from an arc or flame discharged from the trolley wheel as it traversed the trolley wire at or near said point.

From the fire boss's records and his statements, we learned that he had examined Nos. 10 and 11 butt entries about 5 a. m. and found gas generating, that these entries were fenced off at the last cut-through, and that he found the ventilation traveling as usual through those entries. It is difficult to conceive of such a large body of gas accumulating in such a short time, even admitting that there was some disarrangement of the ventilation, and nothing appears to have happened to occasion a disarrangement of the ventilation between the time of the fire boss's examination and the time the men entered the mine at 6 o'clock a. m., the explosion occurring at 6.27 a. m., and since these entries were not found exceedingly gaseous.

Respectfully submitted,

ALEXANDER McCANCH,
1st Bituminous District.
JOHN I. PRATT,
17th Bituminous District.
JAS. J. STOKER,
19th Bituminous District.
JOHN F. BELL,
22nd Bituminous District.

VERDICT

"We, the Jury, find that Mike Phillip and 13 others named above, came to their death in the mine of the Henderson Coal Company, Washington county, Pennsylvania, on March 13, 1917, from burns and asphyxiation as the result of an explosion of gas.

We find further that this explosion was due to sparks from the trolley caused by moving a mining machine from entry No. 3 face to entry No. 10 butt, the initial point of the explosion, the machine being moved by Mike Phillip and John Miller.

We believe further that the accumulation of gas on butt entries Nos. 10 and 11 was caused by a short circuit in the air ventilation to the door in the chute between Nos. 10 and 11 butt entries being left open in some unknown manner.

We believe further that this accumulation of gas and short circuit of the wire was overlooked by the Fire Boss John McGurk. However, we do not believe his neglect was willful. His inspection of his section of the mine appears to have been too hurriedly and too carelessly made.

We find occasion to censure Mine Forman Percy Willis on the indefinite, incomplete and inaccurate reports of conditions inside the mine, as shown by his daily reports for the 6 days prior to the explosion.

We recommend that the Legislature of Pennsylvania so amend the existing mining laws as to prohibit the use of electric haulage in all existing gaseous mines and thus prevent the recurrence of such distressing accidents."

 EXPLOSION AT THE ISABELLA NO. 1 MINE

An explosion of gas occurred Sunday, March 18, about 4.30 p. m. at the Isabella No. 1 mine of the Hecla Coal and Coke Company, by which 4 persons were killed. The mine is situated about fifteen miles above Brownsville, on the Monongahela River, in Fayette county. The report of the Committee of Inspectors appointed to investigate the cause of the explosion is printed herewith.

 Brownsville, Pa., March 24, 1917.

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

Dear Sir:

We, the undersigned Inspectors, beg to submit the following report concerning the explosion in the Isabella No. 1 mine of the Hecla Coal and Coke Company, Sunday, March 18, about 4.30 p. m., by which four persons were killed. This report is based upon information received from the officials of the mine, relative to the conditions