ACCIDENTS

The accident record for 1915 was comparatively a good one, being very close to the remarkable record of 1914 when the number of fatalities was the lowest for several years. There were 1,030 fatal accidents in 1915 as against 1,013 in 1914, of which 442 occurred in the bituminous region and 588 in the anthracite region. The year 1914 had the exceptional good fortune to pass without any great catastrophes, while the year 1915 was marred by three serious explosions of gas and dust, two in the bituminous region and one in the anthracite region, by which forty-one persons were killed.

In the twenty-fourth bituminous district an explosion of gas and dust occurred at the Smokeless No. 1 mine of the Smokeless Coal Company, May 24, by which nine persons were killed, and in the twentieth bituminous district an explosion of gas occurred at the Orenda mine of the Merchants Coal Company, August 31, by which nineteen persons were killed.

A brief history of these catastrophes is given herewith.

EXPLOSION OF GAS AND DUST AT THE SMOKELESS No. 1 MINE

The Smokeless No. 1 mine is situated in the Twenty-fourth Bituminous District, Cambria county, near Johnstown, and is operated by the Smokeless Coal Company. An explosion occurred at the mine May 24 about 3.15 p. m., causing nine deaths and considerable material damage to the mine.

Upon notification of the catastrophe, the Department directed Inspectors C. B. Ross, Isaac G. Roby, T. D. Williams and P. J. Walsh to accompany Inspector Nicholas Evans, in whose district the mine is located, to ascertain if possible the cause of the explosion. The report herewith shows that the initial point of the explosion was no doubt at a place where a shot had been fired releasing a small quantity of gas that was ignited by the workmen's lamps on their return to note the result of the shot. The concussion produced by the ignition of the small body of gas raised the dust in suspension which in turn ignited, causing the explosion.

An unusual feature of this catastrophe, and one that adds to the general sadness of the tragedy, was the death by asphyxiation of Mr. Gomer Phillips, who had charge of the First Aid Team from the Cambria Steel Company. Mr. Phillips was equipped with the most modern mine rescue helmets, but was overcome by the afterdamp and died from its effects.

The reports and correspondence relating to the case are published herewith, together with the verdict of the coroner's jury.

"May 25, 1915.

Messrs. Isaac G. Roby, Chairman,
P. J. Walsh and C. B. Ross,
Commission of Inspectors.

Gentlemen:

As stated in my telegram of this date, I have named Inspectors Roby, Walsh and Ross as a commission to make an official inspection of the Smokeless No. 1 mine of the Smokeless Coal Company at Johnstown.

I am anxious that your report shall show the cause, if possible, of the explosion that occurred yesterday, whether by gas or dust or by a combination of the two. Give this information without regard to whom the blame for the loss of life may be attached, so that possibly we may prevent a recurrence of such explosions by removing the cause.

Report fully to the Department at your earliest convenience. Before you receive this you will have made the inspection. I may attend the inquest.

Very truly yours,

JAMES E. RODERICK,
Chief of Department of Mines."

REPORT OF THE COMMISSION OF INSPECTORS

"Johnstown, Pa., June 5, 1915.

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

Dear Sir: We, the undersigned Mine Inspectors, on the 26th day of May, 1915, made an inspection of the Smokeless No. 1 mine of the Smokeless Coal Company, said mine being situated in Ferndale Borough, near Johnstown, Cambria county.

The object of this inspection was to ascertain, if possible (as per your instructions of the 25th instant) the cause of the explosion that occurred in the Smokeless No. 1 mine, May 24, about 3.15 p. m., by which nine persons were killed, and to locate the initial point of the explosion.

The "C" or Upper Kittanning seam of coal is being mined in this mine, lying at a depth beneath the surface from about 180 feet over the north workings to 400 feet over the south workings, where the explosion occurred. The coal is hoisted from a slope at a dip of about 20 per cent. A second opening, a shaft, located a short distance south of the slope, contains two compartments; one is used for ventilation and the other is equipped with a stairway for the purpose of ingress and egress to and from the mine.

The ventilation is produced by a Robinson fan, 5 feet in diameter and 4 feet wide, located at the top of the shaft, driven by electric power, which under normal conditions produces about 30,000 cubic feet of air per minute, at 155 revolutions against a water gauge of $\frac{1}{2}$ inch. The construction of the fan is such that it may be used either as an exhaust or force, the latter principle being in use.

Fortunately, the force of the explosion did not injure the ventilating machinery, which continued in operation. The frame building erected for the purpose of reversing the air current was slightly damaged, thereby reducing the volume entering the mine until temporary repairs were made, which was accomplished in a short time.

The main slope entry running in a westerly direction was used as a main return from the entire mine; the parallel entry driven on right side of slope was used as an inlet from the fan shaft for No. 2 or north side air split; the two entries driven on the left side of slope from the main dip entry back to the fan shaft were used as inlets from the fan; the third entry running parallel with the main slope entry and on left side of same from the main dip entry was used to carry the air current from No. 1 or south side air split to a portion of the north side workings, which were included in this split. From the main slope entry the developments were continued north and south on the two entry systems, the mine being ventilated by the two air splits or divisions of the main air current.

We entered the mine by way of the main slope opening and proceeded along this entry to the dip entry. Following this entry a short distance we observed a door that had been destroyed, this being the first evidence of force produced by the explosion. Continuing along this entry we found evidence of greater force at No. 2 entry left where another trap-door had been demolished. Turning into No. 2 entry right we followed this entry to No. 3 room, where we observed a loaded car derailed and evidence of much force. We turned into No. 3 room and in a cutthrough near the face of this room two shots had been recently fired, with no evidence to indicate anything unusual at this place. We proceeded to examine carefully the faces of Nos. 3, 4 and 5 rooms in which six men had been working and found evidence of very little force in these rooms. We were informed by the rescuing party that some of these workmen were found on the entry. As a result of the pumps not being in operation since the explosion an accumulation of water prevented us from making a satisfactory examination. We did, however, find caps, fuse, permissible powder, et cetera, after which we returned to the entry. Here we found unmistakable evidence of the primary force coming down this entry, as the tracks were torn up in some places, a car upset and badly demolished, posts along the entry blown out toward the entrance to the slope and the stoppings between No. 2 entry and parallel also blown out. We proceeded up the entry to the upper or last group of rooms, where much force was shown and a division of forces clearly indicated.

As we traveled up this entry, we carefully examined Nos. 11, 12 and 13 rooms and found a small quantity of gas at the face of each room. At this point on the entry a group of the three rooms above mentioned had been driven in between two and three hundred feet from the entry. A space was then left on the entry in which no rooms were turned, as the mine map will show, after which a group of seven rooms were turned and driven in quite a distance as shown by the map. Upon careful examination of these rooms, gas was indicated in small quantities at the face, and there was no evidence of work having been done during the day in any of the rooms.

Near the entrance of No. 7 room much force was shown, the haulage track being torn up and a loaded car derailed. We were informed by those with us who assisted in the rescue work, that a body had been found near the car, and that this man's place of work was

near the face of this entry. As hereinbefore stated, the major force from this point traveled toward the mine opening, while the lesser force traveled toward the face of the entry.

Proceeding up the entry where two men were employed near the face blasting down roof slate, where a shot had been recently fired with very favorable results, we were informed that one of the bodies was found lying near the edge on the outside of the slate, and that a cap and miner's lamp had been picked up between the slate that had been blasted down and the face of the entry.

After carefully considering the direction of the forces produced and the conditions as they were found to exist in the various parts of the mine affected by the explosion, we agree that the initial point is at the place where the shot had been recently fired near the face of this entry, said shot having liberated a small quantity of gas which was ignited by the workmen's lamps on their return to note the result of the shot. The concussion produced by the ignition of the small body of gas raised the dust in suspension, which in turn ignited, causing the explosion.

The flame produced spread into the room workings at this point where it was reinforced by a small accumulation of gas at the room faces. This, in connection with the dust thrown into suspension, would develop a very fierce explosion, and this would account for the division of forces in coming out of the rooms at this point.

On June 4 we made a second inspection of the mine, but failed to find anything that would warrant any change in our conclusion arrived at on our first inspection.

Further, we have agreed that two elements of danger existed in this mine, both having entered into said explosion, viz., explosive gas and coal dust; and in order to guard against and prevent the occurrence of another disaster we herewith offer the following recommendations:

1. That the use of permissible explosives be continued for the purpose of blasting coal or other material in this mine, such explosives being those that have passed the Government test and are noted on the permissible list.

2. That non-combustible material be used exclusively for stemming all shot holes.

3. That the mine be kept as free as possible from coal dust, and, if necessary, to prevent any accumulation of dust from floating in the atmosphere, that the dust be kept thoroughly watered, loaded and sent out of the mine.

4. That extreme caution be exercised in blasting and in handling explosives.

5. That no shot be laid deeper than the undercutting and that competent shot-firers be employed to charge, tamp and fire all shots, and that batteries for firing the same be such as to comply with the requirements of the mine law.

6. That locked safety lamps approved by the Chief of Department of Mines be used exclusively in all parts of said mine.

7. That rigid discipline be maintained and enforced at all times.

Respectfully submitted,

NICHOLAS EVANS,
Inspector of 24th Bituminous District.
C. B. ROSS,
Inspector of 2nd Bituminous District.
I. G. ROBY,
Inspector of 5th Bituminous District.
THOS. D. WILLIAMS,
Inspector of 6th Bituminous District.
P. J. WALSH,
Inspector of 9th Bituminous District."

At the request of the superintendent of the mine, Inspectors Evans and Williams were directed to make a further examination of the north side of the mine to see if that section could be worked safely with open lights. Their report follows:

"Johnstown, Pa., June 10, 1915.

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

Dear Sir: Having complied with your request that we make an inspection of the Smokeless No. 1 mine operated by the Smokeless Coal Company, near Johnstown, for the purpose of determining if it would be safe to allow the Company to operate the north side of the mine as an "open light" section, and thus modify, to that extent, the recommendations of the commission as made to the Coroner's Jury on June 8th, relative to the requirements for working the mine in a safe manner, we beg to say that we have made such an inspection and cannot find sufficient cause, or change of conditions, to justify us in asking for any less precaution for the safe working of this mine than was recommended by your Commission of Inspectors appointed May 25, 1915.

Respectfully yours,
NICHOLAS EVANS,
24th Bituminous District.
THOS. D. WILLIAMS,
6th Bituminous District."

REPORT OF INSPECTOR NICHOLAS EVANS

"Smokeless No. 1 Mine Disaster. About 3.15 p. m., Monday, May 24, an explosion of fire damp augmented by coal dust occurred in the Smokeless No. 1 mine of the Smokeless Coal Company, resulting in the death of eight persons (all that were in that section of the mine). Later one of the rescuers was overcome by afterdamp and died while engaged in rescue work.

The mine was not in operation on the day of the explosion, and as a result only three miners and four drivers and the rope rider were in the mine, the drivers and rope rider mining and loading coal on days when the mine was not in operation. The mine has always generated gas and a fire boss has been employed since 1911. There are no pillars taken out in the mine and every abandoned place in

the mine is easy of access, as there are no falls in any part of the mine. It was examined for standing gas every week, and the working and adjacent places were examined twice every day. On my last inspection made May 11 there was no gas that could be detected with an improved safety lamp and all the headings except No. 2 right off the main dip were very wet under foot. The last crosscut in the split had 11,550 cubic feet of air passing in it and 61 men were working in the split. Permissible explosives were used for all blasting and open lights were used by all the employes. On the day of the explosion two miners, John Hoffman and Jacob Wolf, were working at the face of No. 2 right heading, and having loaded the wagons allotted to them proceeded to blast down some top slate that had been left up for a distance of about 40 feet. Brattice cloth was used to direct the ventilation from one cut-through to another, and a cut-through had been made at the face of the heading on the previous working day, Saturday, but most of the air current returned at the second cut-through back from the face.

The evidence found after the explosion shows that the men had blasted down a shot of roof slate with favorable results and evidently liberated a small quantity of gas, which was ignited by the miners' lamps on their return to note the result of the shot. The concussion produced by the ignition of the small body of gas raised the dust in suspension, which in turn ignited, causing the explosion. The body of Jacob Wolf was found at the slate that had been blasted down and the body of John Hoffman was found down the heading about one hundred feet from his working place. The other men, with one exception, were all found on the heading near their working places and about 1,300 feet below the initial point of the explosion.

While the work of rescue was in progress, one of the First Aid teams from the Cambria Steel Company mines, equipped with the most modern mine rescue helmets and under the direction of the first aid instructor, Mr. Gomer Phillips, proceeded to travel up the air course of the No. 2 right heading with the hope of being able to rescue the miners, Hoffman and Wolf, who worked at the face of No. 2 right heading. While they were going up the air course Mr. Phillips was overcome by the afterdamp and died from its effects."

VERDICT OF THE CORONER'S JURY

"The deceased came to his death May 24, 1915, as the result of asphyxiation and bodily injuries caused by an explosion of gas resulting in a combined explosion of gas and dust in the Mine No. 1 of the Smokeless Coal Company. Said explosion being due to the failure of the aforesaid company to provide safety lamps in accordance with the recommendations of the Mine Inspector; we recommend that the Smokeless Coal Company adopt and put into effect all of the recommendations made by a commission of State Mine Inspectors and submitted by them to the State Department of Mines."

A separate verdict was rendered in the case of Gomer Phillips.

"The deceased came to his death May 24, 1915, as a result of asphyxiation due to going into the mine of the Smokeless Coal Company in attempting to rescue victims of the explosion. He died a hero and his courage was commendable."

EXPLOSION OF GAS AT THE ORENDA MINE

The Orenda mine is situated in the Twentieth Bituminous District, Somerset county, near Boswell, and is operated by the Merchants Coal Company.

An explosion of gas occurred at this mine on the forenoon of August 31, causing the death of 19 persons. The Department directed Inspectors T. D. Williams, Nicholas Evans, C. B. Ross and Joseph Knapper to report at the mine at once to assist Inspector F. W. Cunningham, in whose district the mine is situated. The extent of the catastrophe was not known and the inspectors were urged to make every effort to rescue the living men in the mine and recover the dead.

The report shows that the initial point of the explosion was at or near the entrance to No. 1 room on No. 8 dip entry, off No. 10 entry left, and that the gas that caused the explosion was ignited from a spark or flame produced by the trolley wheel as it traveled the trolley wire at or near said point. The spark or flame ignited the gas on No. 8 dip entry and the flame therefrom coming in contact with gas at the entrance to No. 1 room caused the explosion. There is no evidence to show that coal dust increased the violence of the explosion to any material extent The coroner's verdict shows that, with two or three exceptions, the loss of life was caused by the afterdamp.

The reports of the inspectors, correspondence in regard to the explosion, together with the report of the coroner's inquest, are printed herewith.

REPORT OF COMMISSION OF INSPECTORS

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

Dear Sir: We, the undersigned Mine Inspectors, on the first day of September, 1915, made an inspection of that part of the Orenda No. 2 mine of the Merchants Coal Company affected by an explosion that occurred August 31, about 8 o'clock a. m., by which 19 persons were killed and several others slightly injured.

The object of the inspection was to ascertain if possible (as per your instructions of August 31) the cause of the explosion and to locate its initial point.

The "C" Prime or Cement seam of coal is being mined here, lying at a depth beneath the surface of about 1,000 feet over the left side workings where the explosion occurred. The coal is hoisted from a slope with an average grade of about 13 per cent.