haulage road from No. 3 shaft to 8 west gangway. The men who had worked during the night reached the surface Friday at 5:40 A. M. At 6:00 A. M. an explosion occurred which destroyed the concrete fan drift on the surface. Fortunately there were no persons in the mine when this explosion took place. We believe the explosion occurred in the Baltimore vein; however, some are of the opinion that it occurred in the Hillman vein. It was then decided to build seals in the mine and to cover the shaft with a temporary seal. The shaft seal was completed at 2:00 A. M., May 28. On Sunday, May 29, at 1:35 A. M., a terrific explosion occurred which destroyed the shaft seal, lifting the steel tower from its foundation and in a leaning position clear of the shaft. The buildings connected with No. 3 shaft were more or less damaged, as well as the shaft concrete casing.

On May 31, the officials of the Glen Alden Coal Company with the State Mine Inspectors held a consultation at No. 3 shaft and decided to continue sealing, to isolate the workings of No. 1 Baltimore shaft and No. 1 Red Ash shaft from No. 3 shaft. These shafts are connected in several veins over a large territory. Three shifts with a large force of workmen are still engaged in building seals. Work on the returns is done with helmets. Carbon monoxide gas testers are carried on each shift.

On June 5, No. 3 shaft was again temporarily sealed. The seal has been strengthened gradually and has been completed for some time. The pressure is now up the shaft equal to 1.5 W.G.

Everything is being done to place the mine in condition to extinguish the fire which has been causing the explosions. The shaft casing which was cracked in many places allowed the gas to escape to the atmosphere. The rock filling around the shaft is being removed by a compressed air shovel and when a fracture is discovered in the shaft casing, a wood fibre quick plaster is used, which gives very good results.

No explosions have occurred since the explosion of May 29. The mine is now gradually filling with gas which is sufficiently high so that it does not support combustion. The carbon monoxide per cent still keeps high, but shows signs of gradually becoming less.

In conclusion it is my opinion that the squeeze occurred in Old 8 west gangway and finally extended to 9 west. The officials of the mine believe that the trouble was caused by the top coal or top Baltimore vein."

Owing to the conditions existing at this mine and the possibility that all danger had not been passed, the inspector was directed to make weekly inspections and report promptly to the Department. Five bodies of the victims of this disaster still remain in the mine notwithstanding the fact that the work of recovery has been carried on as continuously as possible under rather dangerous conditions ever since the accident occurred.

It is believed now that the last of the falls will soon be cleared away and such repairs made as will enable the officials of the mine to recover the bodies that have been entombed since May 26, 1927.

EXPLOSION OF GAS AT BALTIMORE NO. 5 COLLIERY HUDSON COAL COMPANY

Another catastrophe with very serious results occurred May 25, 1928, when an explosion of gas took place in the Red Ash vein of the Conyng-

ham shaft section, Baltimore No. 5 Colliery, Hudson Coal Company. Ten lives were lost in the explosion.

A report of the Commission appointed by the Secretary of Mines to investigate the cause of the explosion is printed herewith.

June 28, 1928.

Hon. W. H. Glasgow,
Secretary of Mines,
Harrisburg, Penna.

Honored Sir:

Herewith find report of the accident that happened on May 25, 1928 in the Red Ash Vein of the Conyngham Shaft Section of Baltimore No. 5 Colliery of the Hudson Coal Company.

The accident occurred in the section known as the second west gangway off No. 1 Slope extension in the Red Ash Vein. This section of the mine was a part of the former Hillman Shaft Colliery, an independent colliery acquired by the Hudson Coal Company a few years ago.

The Hudson Coal Company did not have mining rights in several important areas in this locality, having but a narrow strip that they could mine for a distance of about 300 feet (as shown on the accompanying print).

Owing to the failure to secure mining rights in this territory, it made it quite difficult to conduct the ventilation in the proper manner. The ventilation depended mainly on a door placed on the gangway at miner No. 5110's place and known as Mike Morga's door in the testimony.

There was also another door outside of this on the gangway in the pillar between No. 11 slope and slope airway which deflected the air current through the basin workings east of the slope, and then was brought back up the old No. 11 slope to the airway, from where it continued into the face workings along the barrier pillar where a booster fan was in operation. This second door, or the outside door, (as shown on the map) was not as important as the inside door, and if it was left open only short circuited the air from the dip workings, which, according to the testimony, was not of a gaseous nature, as gas had not been found in these workings.

The line chamber along the barrier above the airway (namely Miner No. 5104's place—George Oko) had been driven up a distance of 50 feet and had struck a roll or fault in the face; they had started to drive a cross cut in the bottom bench at the face and the coal, being of a very shaley nature, had run away up the pitch along the fault to a height of 30 or 40 feet. The place was timbered right to the face and a box brattice, or chute, had been put in to try and keep ventilation up into the cavity along the roll so as to keep it clear of gas.

After this chute had been installed it was found that there was not a sufficient amount of air to keep the cavity clear of gas, so an electric booster fan was put in to create a greater velocity and a vent tube attached to throw the air up into the cavity along the fault. This fan was put in behind a wing of brattice at the face of the airway (see sketch) and had been in use about three weeks.

According to the testimony of the Fire Boss Werner, gas had been found in large quantities in this place (the line chamber) every morning since the fan was put in, and that the gas had been removed by Werner by this electric fan. The fan being stopped at night allowed the gas to accumulate down to the top of the timbers, and Werner used to start the fan when he came to this place and blow the gas out before proceeding further with his morning examination.

According to his testimony, on the morning of the accident there was 25 feet of gas in the place, and he had stayed there after starting the fan for 25 or 30 minutes until the place was clear, or cleared within 2 or 3 feet of the roof in the high spot along the roll; this height being as high as he could reach.

After he had started the fan, and as he says cleared the gas out, he then proceeded to make his round and he reported the place and section clear of gas. The report book does not show any record of gas being found in this section on the day of the accident.

According to the testimony, the miners working in this section were using locked safety lamps and electric cap lamps. All firing was done by electric batteries, but black powder was used as the explosive. A battery motor was used as the means of haulage, and at the land line at the face of the gangway an electric booster fan had been installed and was running at the time the accident happened.

The commission, after visiting this section of the mines on several occasions for personal investigation and observation, and after interviewing witnesses and taking their testimonies, are of the opinion that the testimony of Jos. McLaughlin, the motorman, is the most important.

The testimony of Werner, the fire boss, shows that gas had been found the morning of the accident and that gas had been frequently found in the line chamber, or Oko's place; it was at or near the face of this place where the ignition took place. This is substantiated by the fact that the most evidence of flame and the destructive force of the explosion started from this place.

According to the testimony of the foreman Nolan, the fire boss, Werner, did not report gas in the place that morning, but reported it clear, and that he was not aware of the quantity of gas being found by Werner was of such a dangerous amount as Werner's testimony showed it to be.

The testimony of Assistant Superintendent Loftus and of Superintendent Lambert is to the effect that they were not acquainted with the actual conditions, as to the quantity of gas given off in this place.

Nolan's testimony shows that he was responsible for the installation of the electric fan, and that he states that the quantity of air was not sufficient to keep the place clear, hence he had the fan put in. He states he was there when the wooden box, or chute, was put in and "we had about 10,000 cu. ft. of air in there but it was not strong enough to keep that place clear." Note: See first page of Nolan's testimony.

The testimony as given to this point shows that gas had been found in this section on the day of the accident and several days prior to the accident, and that the officials were aware of the fact that gas was and had been found there, but that this gas had been cleared or brushed out by the starting of the electric fan and had not been reported. There is no testimony of the Mine Foreman Nolan, the Assistant Superintendent Loftus and the Superintendent Lambert to show that they

knew of the dangerous amount of gas that was found in this place for several days prior to and on the day of the accident. Each of these officials stated that they did not know the actual conditions. It seems from the testimony that the Fire Boss Werner was the only one who knew of the actual amount of gas given off in this place.

The testimony of the officials and the other witnesses does not throw very much light on what happened, or how the gas was ignited, as no one seemed to know the actual conditions of Oko's place until we had the testimony as given by McLaughlin, the motorman. He (McLaughlin) was the only survivor of all the men who were on the gangway road at the time the explosion occurred.

McLaughlin's testimony shows that he had taken out Mike Morga's car, and that the door at his place had been left open for several minutes; that during the time the door was open miner No. 5104, George Oko, came out to Morga's place and was talking to McLaughlin and the motor crew; and that Oko said he had just fired a hole in the cross-cut and had blown a lot of coal out on the road in front of his loaded car. He, Oko, asked to have an empty car placed in his place so that he could load up the coal; that it was not possible to run his loaded car out of the place until the coal had been loaded up.

McLaughlin sent Norton, his brakeman, in with Oko to see if the rope with which they pulled the car from the curve to the face was free to allow the empty car to be pulled up. Most of the time that this conversation took place Morga's door was open.

By perusal of the accompanying sketch showing the location where the bodies were found, it shows that Norton had gone in with Oko and had returned almost out to the motor. McLaughlin said that Norton and Oko had gone in together. The place where Oko's body was found shows that they had reached at least to his branch, if not to the face, and that Norton had returned and had almost reached the outside door when the explosion happened.

McLaughlin said that the door had been closed about two or three minutes when the explosion occurred and that he was on the motor and was blown off. The motor was between the two doors on the gangway at the time of the explosion, as the outside door was found in under the motor after the explosion and it appears as if the motor was moving out.

Possible causes of ignition:

1. The battery motor
2. Arc from electric fan
3. Defective lamps
4. Smoking or lighting matches
5. Ignition of gas from feeder left burning after blast in Oko's place was fired.

1st. In our opinion the battery motor did not ignite the gas, as it was 380 feet from the point where the gas was ignited.

2nd. The electric fan may possibly have caused the ignition of the gas, as it was in close proximity to the point of ignition and showed evidence of being in the path of the flame.

3rd. Defective lamps. We do not think that any lamp caused the explosion, as all of the lamps were removed from the mine intact.

4th. Smoking or lighting of matches. While some evidences of smoking were discovered in this section, it was very meagre, and from all the testimony given it seems very remote that smoking caused the explosion.

5th. Ignition of gas from burning feeder. We are of the opinion that the point of ignition was at or near the face of the land line chamber, Miner No. 5104, George Oko's place. We are of the opinion that after firing the blast that is mentioned in the testimony of McLaughlin, a feeder was lighted by this shot and was burning; that there was an accumulation of gas in the face of the cross-cut, or the high cavity along the rock fault; that due to the fan running it mixed the air with the gas at the high point, resulting in an explosive mixture; that upon the shutting of the door on the gangway outside of Mike Morga's chamber (which door on being left open short circuited the entire volume of air except that being generated by the fan directly behind the brattice and into the return) restored the ventilation to its normal course and brought the explosive mixture down into contact with the burning feeder, thereby causing the explosion.

Very truly yours,

THOMAS J. WILLIAMS
Inspector—11th District

D. T. DAVIS
Inspector—12th District

EDWIN C. CURTIS
Inspector—9th District

MINE FOREMEN'S AND ASSISTANT MINE FOREMEN'S EXAMINATIONS, 1927-1928

In 1927 the examinations of applicants for certificates of qualification as Mine Foremen and Assistant Mine Foremen were held in six districts designated by the Secretary of Mines on June 29 and 30. The places where the examinations were held, the Mine Inspectors in charge as Chairmen of the Examining Boards, and the successful applicants who were granted certificates by the Department of Mines, are as follows:

Place	*Chairman of Board*
ASHLAND	*JAMES QUIGLEY, MINE INSPECTOR, 22nd DISTRICT*

MINE FOREMEN

John Andrew Brennan, George V. Brecker, Edward F. Burke, William J. Byrne, Roland M. Culton, Edward J. Donahue, Harry Edwards, William Elsworth, James Fisher, Samuel Griffith, James H. Kane, Thomas Francis Kane, Thomas M. Kane, Frank Kopfinger, Bernard Edward Kramer, John Laukaitis, William Howard Lewis, Michael Joseph Mannion, William M. Manney, Jr., Peter W. McDonald, Joseph A. Morlock, Leonard Leo Noble, Thomas J. Reardon, Alex Rokos, Thomas I. Schickley, Arthur Boyd Singley, Charles F. Tighe, Thomas Walsh, William Joseph Wynne.