

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF MINES

MINE EXPLOSION

File No. D-1070

Mine JAMISON No. 8 Location Farmington Marion County, W. Va.  
Company JAMISON Coal & Coke Co Mailing address Same  
Date Jan 14, 1926 Time of day a.m. 10<sup>00</sup> p.m. Mine working or idle working  
Total employment ~~170~~ 235 Underground \_\_\_\_\_ Shifts worked 2 Daily production (tons) 1400  
Number men killed 19 Injured — In mine 47  
Number men escaped unassisted 8 Rescued 20 Barricaded 20  
Type (gas or dust) Dust Ignition source Probably open elect. machinery Rock-dusted No  
Was breathing apparatus used No Gas masks — Self-rescuers —  
Time required to reach explosion area \_\_\_\_\_  
Classification (gassy or nongassy) Gassy Methane exhausted (24 hours) \_\_\_\_\_  
Number of main fans 8 x 15 Cent. Quantity air per minute 109,000  
Ventilation (continuous or split) Split Face (line brattice or fans) \_\_\_\_\_  
Mine openings 2 shafts - 250' deep Principal shaft  
Coalbed Pgh. Thickness 6' to 8' Volatile ratio — Roof \_\_\_\_\_ Floor \_\_\_\_\_  
Mining system Modified Room & Pillar Pillars extracted \_\_\_\_\_  
Room support: Main entries — Intermediate — Section —  
Transportation: Main Locos Intermediate Locos Section Animals  
Electricity (voltage ac or dc) \_\_\_\_\_ Face \_\_\_\_\_ Portable lights Permissible Cap Lamp  
Principal mining machinery (continuous miners, conventional, etc.) mining machines  
\_\_\_\_\_  
Was machinery permissible type No Was it permissible —  
Blasting and explosives: Coal Permissible Grading or special use \_\_\_\_\_  
Cause of explosion Probably open - elect. machinery - electric arc (?)  
\_\_\_\_\_  
Did explosion result in fire or were fires found No (?)  
Point of origin 7<sup>th</sup> Right entries  
Area affected 2000' area  
Was Bureau report made Yes Author(s) G. S. Rice and S. W. Paul.  
If no Bureau report, what and by whom \_\_\_\_\_  
Remarks \_\_\_\_\_

Report on the Explosion in  
Jamison No. 8 Mine  
Jamison Coal & Coke Company  
Farmington, Marion County, West Virginia  
January 14, 1926  
by  
G. S. Rice and J. W. Paul  
Bureau of Mines

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REPORT ON THE EXPLOSION IN THE NO. 8 MINE, JAMISON COAL & COKE  
COMPANY, near FARMINGTON, MARION COUNTY, WEST VIRGINIA.

JANUARY 14, 1926.

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General Statement.

An explosion in a section of the No. 8 Mine of the Jamison Coal & Coke Company, at 10 P. M. on January 14, 1926, resulted in the loss of the lives of 19 men. There were 47 men in the mine of which 28 received no injury. Seven men in or near a cabin a short distance from the bottom of the main hoisting shaft immediately escaped to the surface on the hoisting cage. Four men remained in a wireman's shop on the 20 right entry and 15 men remained in the unaffected part of the mine for 2 or 3 hours and then found refuge in a feed storage room adjoining a stable on the 20 left entry. These 20 men, after 15 hours made their way to the shaft without assistance, the afterdamp in the meantime having been cleared by the recovery crews erecting brattices.

LOCATION:

The mine is located about 9 miles west of Fairmont, near the town of Farmington, Marion County, W. Va., and ships its product over the Baltimore & Ohio Railroad.

OWNERSHIP:

The company owning and operating the mine is an extensive one owning operations in West Virginia and in Pennsylvania, principally in the Greensburg Basin. The general offices are in Greensburg, Pa., the following being the principal officials:

President: J. M. Jamison  
Vice President: W. W. Jamison  
General Manager: George B. Taylor  
Mining Engineer: C. E. Cowan, all of Greensburg.  
General Superintendent, Jamison Nos. 8 and 9 Mines,  
West Virginia: W. C. Dobbie, Fairmont.  
Superintendent No. 8 Mine: P. D. Costello, Farmington.  
Mine Foreman: Walter Brown, Farmington.

DEVELOPMENT:

The mine, about 26 years old, is developed in the Pittsburgh Coal bed, 6 to 8 feet thick, and is reached by two shafts each 250 feet deep. The coal bed is almost flat, having a few undulations and is troubled little with water in any of the advance workings. The present capacity of the mine is 1400 tons per day and employs 260 men.

Several methods of mining have been used. The older method was the room and pillar; another was advancing rooms in pairs with narrow pillars between rooms and a wide pillar between the pairs which was later recovered. The present method consists of narrow rooms 10 to 12 feet wide with pillars, 90 to 100 feet and resembles the pillar and stall or checkerboard plan. With this method only about 15% of the coal is mined in the advance, the pillars being removed on the retreat.

In the section of the mine most effected by the explosion four chain breast machines with drilling attachment, electrically driven were in service. In the remaining parts of the mine, all mining machines were driven with compressed air, save one electric cutter in the 20 right section. Machine cutting is done only on the night shift.

COAL:

The coal is typical of the Pittsburgh bed in the Fairmont

field, being high volatile and suitable for coking, 100 bee hive ovens constitute a part of the plant.

An analysis of the face coal gives the following on the "as received" basis: Moisture 2.2; volatile matter 36.7; fixed carbon 56.2; Ash 5.9; Sulphur 0.8; B.T.U. 13940.

WATER AND MOISTURE:

The mine may be considered as dry in all the live or advance workings, although the main headings for several hundred feet from the 4th Right to the 10th Left have standing water in places especially in the air courses, and the floor of the haulageway is muddy over long stretches. In the advance workings and along dry haulage roads it was the practice to apply water with hose supplied by iron water pipes with nipple and valves at regular intervals. It was presumed that the water was being applied in ample quantity since it was necessary to install pumps at several depressions to remove the surplus water remaining from the applications to the rib, roof and floor.

COAL DUST:

Coal dust in a dry state was much in evidence in parts not influenced by standing water. At and near the workings faces the dust was dry and in dangerous abundance, both on the floor and ribs. The analyses of a number of samples of road and rib dust had a range of 19.0% to 50.7% inert material - moisture plus ash. However tests on the explosibility of dust for the Pittsburgh coal requires at least 63% inert to prevent ignition of a cloud of coal dust.

Wet coal dust when blown by an explosion generally may be found adhering to vertical faces, timber and other exposures, even though it may have become dry, and nowhere was this condition found except where standing water was found, after the explosion. The indications therefore, are that the coal dust was not sufficiently wet to prevent the propagation of a dust explosion, although it was assumed by the management that water was regularly applied in excessive quantity. However, no sampling of the areas treated was done to determine the degree of efficiency of the watering, a neglect that is most universal where water has been used to wet the dust in coal mines.

GAS AND LIGHTING:

This mine had been classed by the State Inspection Department as gassy and it was conducted as a gassy mine with respect to the type of miners lights used, which were approved portable electric cap lamps for lighting and approved flame safety lamps for tenting for gas, and as stated later, permissible explosives were used. However, these safety precautions were completely nullified by the use of open type, non-approved electric coal cutting machines supplied with power by bare wires strung along both intake and return air courses.

At the time of the investigation of the explosion the ventilation had been mostly restored by the building of brattices and the hanging of curtains, so no appreciable quantity of standing gas was found. A sample taken on the No. 1 Butt between rooms 6 and 8 gave 1% gas in a current of 5290 cu. ft. per minute. This is equivalent to 75, 176 cu. ft. of methane for 24 hours and is sufficient to fill

a 6' x 10' entry for a distance of 900 feet with an explosive mixture of gas and air within one hour.

A sample of gas taken near the air shaft from the main return air current from the entire mine gave .25% in a volume of 108700 cu. ft., the equivalent of 422616 cu. ft. of methane per 24 hours.

#### EXPLOSIVES AND BLASTING:

The holes for blasting the coal were drilled by an attachment on the mining machine, these holes being placed in the face of the working place, center and ribs. Coalite B, a permissible explosive was used in blasting, two to three sticks in the center, and 1-1/2 to 2 in the rib shots, fired separately by single shot battery by shot firers who charged the hole and fired while all other men were out of the mine.

#### INSPECTION:

Fire bosses were employed to test the mine air for the presence of inflammable gas. These men made a visit to all parts of the mine before the beginning of each shift and during the shift tests were made by them and by the mining machine runner. A written report was made daily in a special book on the surface, by each fire boss.

#### HAULAGE:

The coal was loaded into steel cars having a capacity of 2 tons, the cars having lift end gates to facilitate their dumping on the self-dumping cage, at the top of the hoisting shaft. All main line haulage was accomplished by electric trolley pole locomotives



which were confined to the intake air currents. In the advance workings and on lines leading to the main line haulage, the cars were moved by horses. The gauge of the mine track is 44 inches, and the track is well constructed on all main lines of traffic. In rooms and in the advance work, the track is held by steel ties without ballast.

VENTILATION:

At the top of the air shaft is located a steel double inlet steam driven fan 9 x 15 feet, operating exhausting and installed with suitable arrangements for reversing the air. After the ventilation had been reestablished in the mine, the volume of air passing through the fan was about 109,000 cu. ft. per minute with a water gage reading of  $3/4$  to  $7/8$  inch. The air current is divided into a number of splits for the different sections of the mine, there being two splits on the 7th Right group of headings.

DUST:

In addition to the application of water by the use of hose to allay the coal dust, sprays were installed to apply water on the loaded mine car. No attempt was made to apply water on the machine cuttings at the time of undercutting the coal. The mine cars were filled with coal to a distance of 10 inches to a foot above the top and held in place by lumps of coal arranged along the sides and ends of the car. Some spillage of coal from the cars resulted in its being broken up on the track, thus adding additional dust.

THE EXPLOSION:

The explosion originated in that part of the mine known as the Seventh Right. The Seventh Right consists of a group of 7 parallel entries which are called headings Nos. 1 to 7 inclusive. From the No. 7 heading are turned a number of rooms, driven the same as the headings, about 10 to 15 feet, and numbered from 1 up to 9. No. 5 heading is used as a haulage for the several headings and room 5 for the several rooms. Flanking the seven headings, to the right, are a pair of entries called the No. 1 butt and air course. The No. 3 heading and the No. 5 room are on intake air. The air splits near the inner end of the No. 3 heading, part going to the left and part to the right, each split being controlled by regulators at the point where the air goes into the main return current.

In this 7 Right section there were 15 men at work and all were killed by either burns or violence. All but four of these men were employed in operating four electric coal cutting machines. The other four were engaged in installing a pump in a butt entry near the entrance of No. 1 Room.

The explosion extended into the main entries with decreasing violence and with flame that extended to a point near the 18th left entry. Four men were at work on the main haulage track between the 11th and 18th left entries and were killed by violence, and some burned, the hair of each having been partially burned. These four men and the 13 on the 7 Right, or a total of 17, were all killed by the explosion and none had moved any distance from the place

where he was at work. Two additional lives were lost about 12 hours after the explosion when two men attempted to escape from the 20 Left section where they had been detained by the machine boss along with 20 others. Their bodies were found on the main entry between the 15 and 16 left butts, having been overcome and died through breathing the afterdamp. The 20 men who remained, as previously stated, escaped 18 hours after the explosion.

INVESTIGATION:

The Bureau of Mines men who took part in the investigation of the mine following the explosion were G. B. Rice, J. W. Paul, J. B. Ceyer and H. C. Howarth and this report embodies the data collected by each.

Physical Condition:

No damage was done to either shaft equipment. The fan continued operating. The hoisting engineer did not know that an explosion had occurred until he had hoisted the 7 men who were at the bottom of the shaft.

No physical damage was in evidence until the 4 Right entry was reached. Here a brick stopping had been blown out. From the 4 Right to the 10th Right, all stoppings had been blown out toward the main haulage. At the 7th Right headings a hollow brick pier had been blown down and carried toward the left rib of the main entry. The evidence of direction of forces on the main entry was from the 7 Right toward the shaft. Evidence of charged or coked dust was found as far out as the 6th Right and as far in as the 9th Right. Between the

7th Right and the 10th Right, the direction of forces was confusing since the pressure waves appeared to have come through the cross cuts on the right, or the entrances to the 7-1/2, 8, and 9 right entries.

At the 11th right, the force broke a discharge water pipe and in the vicinity of the 14th and 16th rights, some timber was blown down resulting in a number of falls of the roof.

#### Seventh Rights:

This section of the mine may be likened to a bottle having only one neck connected with the main entry. Between the main entry and the seven headings are two parallel return airways which contained standing pools of water on each side of the 7 Right for several hundred feet outby to the 4th Right and inby to the 7-1/2 Right.

Where the 7 Right crosses these main return air courses, there was an overcast constructed of brick side walls and brick and concrete top supported by T rails. This was demolished as by a force acting immediately under the structure and a force moving outby toward the main entry.

In advancing along the 7 headings, the evidence of mechanical force was all in a direction toward the main entry, as evidenced by wrecked mine cars. Headings 1, 2, 3, 4 and 5 had been on the intake air and headings 6 and 7 on the return from the left side of the district outby room 5. The return from the right side traveled to the face of No. 1 Heading and crossed through the face entry to the No. 1 butt and thence to No. 2 room at the head of which there was a regulator. On the split on the left side a regulator was on the No. 7 heading near its connection with the main return air course.

To deflect the return air on the right side into No. 2 room, a single door had been placed on the No. 1 butt between No. 1 and No. 2 rooms.

In the No. 3 heading was the haulage track, well laid and ballasted, and showed no disturbance.

In the second cross cut to the left were five empty mine cars off the track and resting against the left or outby rib. In the fourth cross cut to left were three empty mine cars, the two outer being off the track and the one near the No. 3 heading had been turned on its side against the right rib and both sides of the car were bent towards the middle of the car.

On No. 3 heading just inby No. 3 room was a trip of four loaded cars, little disturbed, having their lands ends bent outby and there being coiled dust on the outby ends of the cars and on the outby exposures of the iron frames.

Beyond this trip of loaded cars, about 80 feet, was another trip of four loaded cars having similar evidence of force and heat.

At the intersection of room 5 and No. 4 heading, a trip of four empty cars had been on a track leading inby on No. 4 heading. These cars had been hit by an outgoing breeze, blowing one car against the left outby rib of room 5, the outer and inner ends of the 3 cars had been bent outby, one end gate had been blown loose from one car and the inby rail on No. 5 road had been bent outby.

In room 5 between No. 5 and 4 headings, was found the remains of a door lying on the track. The post to which the door's

hinges were fastened was lying near the right rib. Coked dust was found in the outby side of a square timber against the left rib at this place.

In room 8, at intersection of No. 6 heading, a 15-ton electric locomotive was standing on the track having a broken trolley pole and the outer end, consisting of a perforated steel plate, bent inby. The rim of the headlight was found at No. 6 heading. The sheet iron top was found along the track <sup>to 50</sup> 10 feet inby the locomotive and the motorman's seat cushion about 50 feet inby. A track extended into No. 6 heading and turned into No. 8 room, used as a passing siding, along this siding were 23 empty cars off the track. The outby car evidently had become detached from the trip, had its endgate detached, and apparently had been hit by the locomotive causing the endgate end of the car to be bent in. This is based upon the assumption that the force of the explosion coming out of No. 8 room had moved the locomotive from some position inby, otherwise an explanation should be given for a force moving inby on No. 6 room emanating from No. 6 heading. This evidence of conflicting forces will be discussed under probable origin of the explosion.

In Room 2 a cross cut was being started by a machine which had its power cable attached to the feed line in Room 3. The machine had an auger attachment and the auger had drilled a hole near the right rib, the drill remaining in the hole. A piece of the cover of the starting box was missing, apparently broken by a hard blow, probably prior to the explosion, since the missing piece was not found. The two machine men were found at the machine.

The control lever was in the off position. Coked dust was found on the ribs and the track at the entrance had been moved outby and against the outby rib of the cross cut. The truck frog was moved outby 18 or 20 inches.

At the faces of all the rooms and crosscuts, on this left side of the district, there was coke and charred coal dust on the ribs, roof and in some cases, the faces of the coal. There was bright coke at the face of No. 5 room and also on the roof and ribs for 50 feet from the face. Gas was detected at the face. The place had been undercut and three holes drilled.

The mining machine in the cross cut being driven from the No. 2 Butt midway of rooms 7 and 8 had its power cable attached to the feed wire at No. 5 room. The machine cable had been pulled in two near the No. 5 room. The machine in this cross cut had made two cuts and had two feet of the third cut completed. The machine runner was found at the left rib opposite the machine and the machine helper was found on the No. 2 Butt between rooms 6 and 7. Granular coke and soot was found on the face of the place where the machine was operating. The control lever was in the off position.

In the No. 2 Butt air course the seal had been unsealcut, three holes drilled and the center hole had been shot, but none of the coal had been loaded.

Passing along to the face of the No. 7 heading, gas was detected here giving an explosive mixture three feet from the roof. A sample taken in a cavity in the roof analyzed 35.4% methane. An

empty car had been blown against the face of the entry and the outer end of the car was bent inby. The ribs back to the open cross cut had some granular coke covered with soot. No. 9 room had been undercut and a new breakthrough had been started by undercutting the right rib at the face, and 5 holes had been drilled. Coke was found on the outby and inby exposure of a prop along the left rib.

GAS WELL:

At the head of Nos. 3, 4, 5 and 6 headings is being reserved a block of coal 200 feet square in the center of which is a gas well, No. 136. Along the right hand boundary of this block of coal an entry has been driven a distance of 150 feet and near the face there has been turned an entry which will be a continuation of No. 4 heading. There was no gas detected in either of these places. The remains of the canvas used for ventilation was found extending along 50 feet of this entry. Some timber and debris had been blown out of this entry and lodged against the rib of No. 3 heading.

No. 3 Heading:

The face of this heading was dipping slightly and the floor had an accumulation of water. The face was undercut and drilled. The safety lamp indicated 1-1/2% methane. Gas was blowing out of a drill hole near the left rib. Two samples taken from the drill hole gave 73.4% and 51.0% methane respectively. The left rib near the face had spalled off due to heat. Bright coke adhered



to the roof. An electrically driven 5 H. P. pump located in the last open breakthrough to No. 3 heading was used to pump the water from the No. 3 heading. The suction pipe was broken at an elbow near the pump. No electric switch could be found. The ground wire extended along the floor from the pump to the third cross cut from the face and passed through to the No. 2 heading where it connected to the return grounded wire.

The feed wire had been supported on insulation set in the roof but after the explosion this wire was found in a tangled mess just outby a fall of the roof coal. It appeared that a fall of roof coal had broken the wire and under the tension of the wire it had rebounded to the place where it was tangled and had escaped being held under the roof fall which extended for 40 feet outby from the pump. This roof material was down at the time or it fell coincident with the explosion, since the fallen material was covered with dust and soot and the roof immediately above also had a coating of soot. This feed wire was traced and found to be continuous over to the out off (face entries) entries connecting the No. 1 Heading with the No. 1 Butt.

#### No. 3 Headings

At the face of this heading was an accumulation of water. The track had been disarranged, part blown toward the left and part toward the right rib. A gas cap in a safety lamp was detected at the face. Part of a pile of new bricks had been blown into this heading, the original location of the brick being in the cross cut

to No. 3 heading where the pump was located. Four empty mine cars were wrecked just outby the second cross cut to No. 1 heading by a force going inby; the outer ends of the cars all being bent inby and one car was blown partly on top of the next inby car.

No. 1 Heading:

An empty car was resting against the face of the entry, the endgate of the outer end had been blown to the front end of the car. Water was standing in a pool for 15 feet from the face. The safety lamp gave an indication of 1-1/2% gas. The track was blown apart.

Face Entries:

These entries, only one of which is completed, connect the No. 1 heading with the No. 1 Butt air course. The second of the face entries required 50 feet advancement to complete the connection. In this second entry, going toward the No. 1 Butt air course, was a mining machine with the cutter under the coal. The machine runner was found near the motor end of the machine. The cover of controller box was off and immediately below the box was a machinist's hammer, presumably being used by the machine runner to move the control contact, since the insulated handle had been removed. The machine helper was found decapitated about 25 feet from the No. 1 heading, one of his hands having been blown off and found on the No. 1 heading. The body was 21 feet outby the end of the power wire which terminated at an insulator placed in the roof. The power wire had been bent around the insulator and twisted upon itself

leaving a free end of the wire. On this free end was a piece of a man's glove, the material having been punctured by the wire. The free end of this wire was pointing toward the No. 1 heading. The track in this face entry was shifted and at three places the rail joints were separated by as much as two feet and the rails were moved both to the right and left ribs. A water pipe line had been broken by a force going inby. The direction of force through the face entries was well pronounced toward the No. 1 Butt.

No. 1 Butts:

These two entries are turned off the No. 3 heading and cross Nos. 2 and 1 headings. The No. 1 Butt has a haulage track but no trolley wire, however, a power wire extended along this entry for the operation of mining machines and a pump.

At the intersection with No. 2 heading there was an empty car upside down blown against the outby rib and just inby No. 2 heading there were four empty cars badly wrecked, the force having come out of No. 2 heading as indicated by the ends of the cars being bent outby. At the intersection of No. 1 heading there were eight loaded mine cars none of which were damaged. One car was in the immediate intersection of the entries and the remaining seven were inby.

The door on No. 1 Butt remained attached to its hinges but was wide open. The jamb on the right rib had been blown outby about 40 feet. The jamb on the left rib to which the door was hinged, had been moved at the bottom outby about two inches. The

lower hinge had been bent as by a force striking the inner side of the jamb. The mechanical movement on the No. 1 Butt was all toward the No. 1 heading of the 7 Rights.

Room No. 2 of f No. 1 Butt: At the head of this room had been a regulator all of which had been blown into the worked out area. This is the only room having connection with the worked out area.

Room 5. - Some timber that was stored in the mouth of this room was blown onto No. 1 Butt.

Room 6. - The greatest quantity of coke and charred coal dust was found at the head of this room, the roof, ribs and floor for 50 feet being thickly covered with coked dust. In the mouth of this room had been stored a large supply of props and ties, a large amount of which were blown out onto the No. 1 Butt.

From rooms 6 to 8, the No. 1 Butt had been timbered and lagged, most of which had been blown down.

Room 8. - At the face of this room an empty car had been blown against the face and the endgate stoved inby. In the last cross cut to the left, an empty car was near the face and having the endgate turned up over the car and the outby end stoved inby.

Room 9. - At the face soot covered all exposures. The last cross cut to left is driven in 30 feet and a 1/4-inch gas cap (1-1/2") showed in a safety lamp, and the roof coal showed evidence of coking in place. An empty car near the mouth of the cross cut was lying on its side.

Near the mouth of room 9, but in a cross cut between No. 1

Butt and its air course, was an electric 5 H. P. pump, having no electric switch in evidence and the wires were blown loose from the motor. Some timber was blown out of this cross cut against the right rib of No. 1 Butt.

From room 9 to the face of the No. 1 Butt there were small patches of coke on inby exposures along the ribs, and just inby the last open cross cut two empty cars were wrecked, having their outer ends bent inby, and the track shifted to the left rib. At the face of the ontry was an empty car standing across the track with the inner and outer ends bent outby or toward the right rib. There was a cross cut nearing completion at the face of the No. 1 Butt and the track in it was blown apart.

Room 10. - This room was about to be turned from a slant driven from No. 1 Butt just inby No. 9 room. A Jeffrey breast machine was at the face of the slant and had made three cuts and drilled two holes. An Edison storage battery lamp was found in good condition lying on the machine. There were three bodies of men in the vicinity of the machine, and from their position it appeared that they had started to leave the machine, since the machine runner was 10 feet, the helper 20 feet and the machine base 25 feet from the machine.

#### Compressor Room:

A compressor room was located between the No. 4 and No. 5 headings near room 5. A drilled hole had been put down from a surface stream and intercepted the mine on No. 5 heading just opposite the compressor room. In this hole were two pipes for

the conduct of water to and from the air compressor. At the surface a concrete block encased the pipes, one of which was conducted up the stream and the other down the stream. The difference in the elevation between the ends of the pipes being 40 feet. The compressor room was 20 feet by 30 feet, and was made by widening a gress cut. It was lined with brick walls, was closed on the side nearest No. 5 heading and had a door entrance on the No. 4 heading side. The roof consisted of steel I beams, the webs of which held concrete slabs. A compressor and electric motor had been placed and within a week would have been ready for use. The purpose of the station was to supply compressed air for mining machines and pumps which were to be substituted for the electrical equipment.

After the explosion this station was a wreck. The brick walls, which were not built against the coal, were collapsed; the I beams and concrete roof were fallen and the machinery was mostly concealed by the debris. The brick walls at the entrances to the No. 4 and 5 headings had been blown out toward each heading as from an internal force. The track which led in from the No. 4 heading had one curved rail torn loose from the ties and blown toward the right rib of the No. 4 heading.

The two pipes which entered the mine from the drilled hole, prior to the explosion were held in place by a large iron clamp bolted around the bottom of the pipes and the clamp rested on two timbers on the floor. After the explosion the clamp was

found against the roof and the lower ends of the two pipes were curved toward the head of No. 5 heading.

PROBABLE ORIGIN OF THE EXPLOSION.

All evidence is conclusive that this explosion was propagated through the affected parts by the presence of coal dust. As to the source or origin of the explosion, the evidence is not conclusive. The conditions favorable for the start of an explosion would be (1) the ignition of an accumulation of gas by an electric spark or arc; (2) the stirring up of a dense cloud of coal dust in the presence of an electric arc; and (3) the discharge of a high non-permissible explosive in the presence of dry coal dust.

An explosion of coal dust started by the exploding of a body of gas would prove the most disastrous since it would travel at a relatively high velocity and produce maximum pressures, whereas one started by the slow combustion of coal dust would be expected to have less velocity and pressure until after it had gotten under way and been augmented by sufficient dry coal dust.

This explosion did not manifest other than a mild explosion, therefore the initial ignition is not believed to have been gas, although the indications are that small percentages of gas may have added to the sensitiveness of the explosibility of the dust in the advance workings and caused localized zones of high pressure which obtained relief only by retraversing entries and rooms and thus adding to the confusion of directions of its travel.

It is not believed that the door on No. 1 Butt was standing open at the time the explosion started, but it is believed that an advance pressure wave opened it prior to the arrival of the main explosion wave. The probable source therefore points to the explosion having originated in a cloud of coal dust. One of the authors points to the probability of the explosion having started in the No. 3 heading in the vicinity of the pump located in the last cut-through. The assumption being that a fall of roof coal raised a cloud of dust and at the same time broke down the power wire causing an electric arc which ignited the dust.

A second and third visit was made to this place to study the details and it was found that the piece of power wire which was held under the fall was a dead end and that the live part of the wire was not under the fall; that the wire had parted under the tension produced by the falling material and the end connected to the source of power had sprung by its elasticity and fell in a tangled mass, free from the fallen material, and at this point an electric arc may have been established in the presence of a cloud of dust. The pump location on the No. 3 heading presented the only probable source of a cloud of dust being blown into the air by a fall of roof material, presumably just prior to the explosion, and while this place is under suspicion as the origin there are indications that it may have originated in another location in the mine.



To place the source of the explosion upon the ignition of gas it must be conceded that the ventilation current had been interrupted and that gas had accumulated. The source of ignition most probable would be an electric spark or arc in the vicinity of one of the four mining machines or the two pumps. It is understood that the pumps were operated only on the day shift, but a study of the electric power lines indicated that the wires were live up to the location of the pumps.

It was claimed that the door on the No. 5 room between Nos. 5 and 6 headings, was used only for emergency purposes and normally was kept open. On No. 5 room a door was reported near the No. 2 Butt entry and there was a door between rooms 4 and 5 in the third crosscut inby No. 7 heading. There is a possibility, and a probability of this door being left open for about three hours by the four men who were engaged in the installation of pipes and wires for an electric pump near the mouth of No. 2 room. With this door open there would be a short circuit of the air current leaving the heads of rooms 1, 2, 3, 4 and 5 and all the workings to the right of No. 5 room, over to No. 7 heading, without an active ventilation current and since gas was found to be liberating in a number of these working places, there would be opportunity for it to accumulate. If

such sequence of events occurred the ignition most probably occurred either at the mining machine or its cable rips operating in the cross cut off No. 2 Room. The direction of mechanical forces indicate that the source of the explosion may have been in this section of the mine. In any event the greatest number of mechanical movements such as stoppings, timber, track and wires were the result of a high pressure developed in this section of the mine, namely Room No. 2. The advance pressure wave from the explosion in this section or in the compressor station could have opened the door in the No. 1 Butt before the violence of the explosion came out of No. 1 Butt.

Safety Features:

1. The management of the mine evidently has been pursuing a safety schedule, as evidenced by the changing of electric to compressed air power for the operation of mining machines and pumps which had been accomplished in its adjoining No. 9 Mine, and all of No. 8 Mine except the 7 Right section, and this section was about to go over to compressed air.
2. The plan of confining the electric trolley haulage to the intake air current is in accordance with good practice for safety.
3. The use of approved portable electric lamps for illumination and approved flame safety lamps (magnetically locked) for testing for gas is in accordance with the Bureau's recommendation.

4. The use of permissible explosives in coal that has been undercut; the charging and firing electrically of single shots by special shot firers when other men are out of the mine is in accord with good practice.

Poor or Bad Features:

Although the management's attitude toward safety was good, three points of vital importance had not been adopted to the extent of their actual application.

- (a) Rock Dusting.
- (b) The exclusive use of permissible electric motors.
- (c) Proper wiring near the working face and the use of permissible switches.

(a) The method of neutralizing the coal dust was watering. The management claimed that the watering was very well done. It is thought, from the appearance, that it was very well done on the main roadways and it was a fortunate circumstance that this was supplemented by natural wetness at the mouth of the 3rd entry of the 7th right headings and by natural wetness in the main haulage road and the main return air courses in the vicinity of the junction of the 7th right headings. Probably the watering in the outer part of the main roads tended to slow up the explosion, but it is a striking illustration of the inadequacy of watering as a preventive of a disastrous explosion. The officials of the company, while claiming that the watering was well done and in accordance with the State Law, said that they were rock dusting in

their adjacent No. 5 mine and planned to introduce rock dusting in the No. 6 mine.

(b) The use of mining machines which are not of the approved or permissible type was the most serious error in equipment noted in this mine which was rated as a gassy mine.

(c) The use of non-permissible machines employing also cables connected by nips to bare power lines in the return air, or air which has circulated around faces, practically neutralizes the advantages of using closed lights. For example, the machine in the slant off the first right butt was located in an entry in which the air had ventilated 8 headings all entering more or less gassy territory.

(d) Although the mine ventilation was apparently adequately planned and carried out, the detailed ventilation, as indicated in the area traversed by the explosion, was, in the opinion of the undersigned, inadequate, in the sense of insufficient fresh splits of air. This is due in part to the complicated method of mining and in part to an insufficient number of air splits and to reliance on single doors; as, for example, in the ventilation of the extensive series of faces to the right of the 3rd heading, there was but one door which was located in the first right butt. A suggested possibility was that this door had been open prior to the explosion. Our investigative party found it open with the opposite jamb gone. The thought was that had this door been closed it would very likely have been blown off the hinges. If it was open the ventilation circuit of 12 faces would

have been cut off and the gas content of the air might have arisen to a dangerous point and at least very much increased the inflammability of the coal dust as known by the testing work at the Bureau's Experimental Mine, however, as previously stated, it is believed that as this door was closed when the explosion started and was probably opened by the advance pressure wave, that the probability of a door being left open between Nos. 4 and 5 rooms was responsible for any accumulation of gas that may have been ignited.

(e) Method of Mining. The present system and lay-out of the mine on the basis of taking only 15 per cent of the coal in advance and the remainder in retreating is excellent, but the workings appear to be laid out in a manner too complicated for haulage and for ventilation, involving too much reliance on canvas for the proper ventilation of all working places.

CONCLUSION:

While the point of origin cannot be given with any degree of certainty, it may be stated with certainty that the explosion was propagated by coal dust and in any event the explosion would have failed to develop from the initial cause, if the coal dust had been rendered inert by the application of rock dust or by a more thorough application of water.

RECOMMENDATIONS:

Since the management has on its agenda a number of safety features which are in process of installation, there remains little to recommend except as to the method of application.

1. Open circuit electrical equipment should not be used at the working face or in the return air from gassy sections, this applies to pumps or other types of machinery including mining or loading machines.

2. When electrical equipment is used, it should be of the approved type bearing Bureau of Mines approval plate. Trolley locomotives, if used, should be confined strictly to fresh air intake currents.

3. Telephone stations, underground, should be installed in intake air currents.

4. Next in importance to ventilation is the neutralizing of coal dust against explosibility. It is recommended that the mine be treated with rock dust at all places where it is not naturally and decidedly wet through natural causes. The rock dust should be applied as near the working face as is found practicable and from this point to the face, the roof, ribs and floor should be kept wet by the application of water. It is believed if rock dust is kept within 50 feet of the workingface there will be no opportunity for a coal dust explosion to get started.

Where it may be found impracticable to rock dust air

courses and trackless entries, there should be installed concentrated rock dust barriers at intervals of not over 1000 feet and the floor, ribs and roof should be heavily rock dusted for 200 feet on each approach to the barrier. The only types of barriers that have so far proven effective in stopping explosions in the Bureau's Experimental Mine are those illustrated in the Bureau Technical Paper 84 and Bulletin 167, a copy of the first being attached. Copies of Bulletin 167 may be had only from the Superintendent of Documents, Government Printing Office, Washington, for which a charge of \$1.00 is made.

At the mouths of abandoned panel entries, barriers should be installed. In the active or live workings reliance should be placed upon efficient application of rock dust. Sufficient rock dust should be applied so samples of the mixture should show at least 70% inert material, since tests conducted in the Bureau's Experimental Mine with Pittsburgh coal dust, have shown that this is required when explosive gas is present in the ventilation current, a condition that may arise in this mine through interruption of the ventilation.

Acknowledgment is made of the full cooperation given the Bureau of Mines' engineers by the various officials of the company in the conduct of this investigation, particularly to

Mr. W. C. Dobbie, General Superintendent; Mr. G. E. Cowan, Chief Engineer; and P. D. Costello, Superintendent; and Walter Brown, Mine Foreman, who gave free access to the mine, its records, and supplied much information, all of which is most gratefully acknowledged.

Respectfully submitted,

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G. S. RICH, Chief Mining Engineer.

*J. W. Paul*  

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J. W. PAUL, Chief of Coal Mining  
Investigations.



A P P E N D I X

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Barricade of Miners.

Sketch of Barricade (Feed Room).

Analyses of Coal and Mine Dust.

Analyses of Mine Air.

Map of Mine.

Map of 7 Rights.

Sketch of Compressor room.

Recovery Operations.

Fires in the Mine.

Coroner's Inquest (Abstract of Testimony).

Coroner's Verdict.

### BARRICADE OF MINERS.

There were 20 lives saved in the interior of the mine by the men remaining within unaffected parts. A group of 4 men remained in a wireman's cabin on the 20 Right entry and did not leave until notified by men in the stable on the 20 Left that the mine air had cleared. This cabin consisted of an enclosed space between two brick walls built in a cross cut, the outer wall having a steel door. The cabin was 12 feet wide by 8 feet deep and 6-1/2 feet high, and was provided with a bench 3 feet wide by 12 feet long. At this cabin was located a stretcher and two or three blankets which latter the men utilized in keeping warm.

Eighteen men had retired to the feed room adjoining the stable on the 20 Left entry but after 12 hours three of these men made an effort to get out of the mine, against the advice of the leaders, and two of these lost their lives through suffocation, the third man retreating to the feed room when he saw the other two men succumb, one of whom he attempted to assist in retreating.

The feed room on the 20 Left entry offered a pre-arranged refuge chamber in that it consisted of a part of a disused entry which had been enclosed with double doors at its entrance and a door frame at its inner end, although the door was missing. Heles of hay found in the feed room was used to close this doorway. The doors at the entrance were unusually well installed and the crack at the floor was stuffed with hay to add to its air tightness.

Adjoining the feed room and at right angles was an old

room which had been utilized as a stable for horses. There were 15 stalls provided and at the time of the explosion 13 horses were quartered here, all of which survived the explosion. A concrete water trough 14" deep by 20" wide by 15 feet long was full of water and this provided the men with drinking water.

The stoppings controlling the ventilation had been blown out by the explosion from the 4th Right up to the 15th Left and this permitted the afterdamp from the exploded area to short circuit before reaching the 20 Left, and no doubt added to the security of the men in the feed room.

About 3 hours before attempting to escape, two of the men from the feed room explored the return airway as far out as the 16 Left and here encountered the afterdamp too strong to risk going further.

At the expiration of 18 hours the air on the main heading was discovered to be moving in by and as it appeared to be good air, the leaders decided it would be safe to try to make their escape and the entire party of 15 men proceeded to travel out and when they reached the 12th Left entry, were met by men engaged in recovering the mine, replacing stoppings for the conduct of ventilation.

When the explosion occurred, the electric power was interrupted and the air compressor station on the 20 Right entry was without power, and it was observed that the ventilation current had ceased to travel. The men in this section were engaged in cutting the coal with machines driven by compressed air, and the ma-

chine boss, Lee Petty, began to look for the trouble and visited the compressor station which was in charge of John McNeil. Upon arrival at this station it was apparent that something unusual had happened and Petty started and rounded up all the men and assembled them at the compressor station, where they were held by McNeil. After all had been assembled, it was decided that the station was too small for all the men so it was decided to go to the feed room at the 20 Left. All but 4, who went to the wireman's cabin, followed Petty and McNeil to the 20 Left. Petty and McNeil proceeded some distance out the main entry and found after-damp and then knew that an explosion had occurred, and upon the return the men were assembled in the feed room where most of the men spent the time sleeping.

The presence of live mice in the feed room gave the men confidence in the purity of the air and occasionally the horses were visited to see if they were being affected by the mine air.

Lee Petty appears to have been the leader of the men, and he was ably assisted by John McNeil.

TABLE No. 1.- Analyses of Coal, Road and Rib Dust, Jackson No. 8 Mine, January, 1926.

Kind of Sample	Lab. No.	Location where taken	Analyses as Received					Remarks	
			Moisture	Volatile Fixed Carbon	Ash	Fixed Carbon	Moisture		
Road	A 18980	Composite	2.2	29.7	55.2	5.9	4.1	32.7	Free coal
Road	B 204	A 18987	2.5	20.5	28.7	47.1	31.7	41.6	0.2% coke particles present End of flame zone.
Rib	C 197	A 18988	5.0	25.9	42.3	35.3	30.8	25.9	Coke particles less than 0.1%.
Rib and Roof	D 603	A 18959	4.6	22.2	42.3	29.9	34.5	25.3	Coke less than 0.1%.
Road	F 892	A 18980	4.5	33.4	45.4	17.7	25.3	41.7	Only flame zone. No coke particles.
Road	E 201	A 18951	5.5	20.9	50.1	12.4	19.0	33.2	In exploded zone Coke particles 0.5%.

Return aircourse between 4 and 5 Right headings.  
No. 7 Right, No. 5 Right.  
3 specimens in by overcast.

TABLE NO. 2. ANALYSES OF MINE AIR, JAWISCH NO. 8 MINE, JANUARY, 1926.

Date	Sample tube.	Laboratory No.	Location of Sample	CO <sub>2</sub>	O <sub>2</sub>	CO	N <sub>2</sub>	CH <sub>4</sub>	air per 24 hrs.	Gr. ft. CH <sub>4</sub> per 24 hrs.	Remarks.
1/19/26	72	42162	At roof, Face of No. 7 Hdg. 7 Right	1.4	18.1	0.0	80.1	88.4	Still		
1/19/26	183	42164	Drill hole face of 3 Hdg. 7 Right	2.8	2.7	860	15.1	78.4	Still		Return air from
1/20/26	186	42165	No. 1 Butt between rooms 6 and 7 Right	0.24	20.30	0.0	78.47	9.99	5290	76.176	No. 7 Right.
1/21/26	291	42167	Drill hole face of No. 2 Hdg. 7 Right	1.8	9.4	0.0	87.8	51.0	Still		Return from
1/21/26	289	42166	Main return 25' from airshaft	0.17	20.59	0.0	78.97	.87	108,700	422625	entire mine.
1/21/26	294	42168	do	0.19	20.58	0.0	78.96	.27	108700	422625	do
1/21/26	298	42169	No. 1 Butt between rooms 6 and 8. 7 Right	0.34	20.27	0.0	78.28	1.25	2484	45072	Return from 7 right.

### Recovery Operations.

The men who were at the bottom of the shaft at the time of the explosion, and who were quickly hoisted to the surface, returned to the mine with some of the officials and other volunteers and succeeded in reaching the entrance to the 7th Right by midnight, or two hours after the explosion. It was shortly after midnight of this day that the Associated Press advised the Pittsburgh Station of the Bureau of the occurrence of the explosion, and D. J. Parker, Chief Engineer of the Safety Service, immediately got into communication by telephone with General Superintendent G. W. Bobbie. The latter stated that the Bureau's safety car was not necessary but that he would be glad to have the assistance of two men. Accordingly Mr. Parker and Mr. G. S. McOaa left Pittsburgh by auto at 4:20 A. M. on January 15, arriving at the mine at 1 P. M. and immediately went underground. Before they arrived 17 bodies had been recovered and sent to the surface. Mr. McOaa and the Assistant Mine Foreman then tested the air for possible mine fires several hundred feet in advance of the base of operations. (That is, the fresh air base advanced from time to time as temporary stoppings were put up). They saw the lights of the 16 men who had barricaded themselves in the horse barn located about a mile from the base of operations. These 16 men had walked unassisted about three-fourths of a mile before their lights were observed. They advised that 4 men were barricaded in the foreman's shanty in the 20 Right section. These men were discovered in good condition and were conducted to the outside with no difficulty.

No breathing apparatus was used in connection with the mine recovery work. CO gas masks were used in all operations and were of particular value in connection with the location and the extinguishment of some 15 incipient fires. Since only a few stoppings were destroyed outside of the 7th right entries, general ventilation of the mine was quickly re-established, so there was not so much chance of there being a deficiency of oxygen which would have required self-contained breathing apparatus.

Mine Fires:

In the first recovery operation a number of fires were found smoldering, several of which were in the rooms in the 7 Right district and two on the main entry in the vicinity of the 11th Right. In all, 15 fires were found and easily extinguished.



INQUEST INTO THE EXPLOSION AT THE NO. 8 MINE  
OF THE JAMISON COAL & COKE COMPANY, FARRINGTON,  
WEST VIRGINIA, HELD AT FARRINGTON, WEST VIRGINIA,  
FEBRUARY 25, 1926.

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J. W. PAUL.

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INQUIRY INTO THE EXPLOSION AT THE NO. 8 MINE )  
OF THE JAMISON COAL & COKE COMPANY, FARMING- )  
TON, WEST VA., HELD AT FAIRMONT, WEST VA., )  
FEBRUARY 26, 1926. )

The following is a summary of the evidence given by the different witnesses:

EDWARD CARP, SR., 64 years old, Fire Boss at No. 8 Mine:

The explosion occurred on January 14, 1926, at 10 P.M. On the day of the explosion I found no gas and no dust and the condition of the mine was good. There were four coal cutting machines working on the different parts of the 7 right. The mine was free of gas and dust and cannot tell cause of explosion. Have had fire boss certificate since 1910. On the day of the explosion I examined the left side of the No. 7 right entries. Have worked at this mine for 25 years. Since the explosion no electric cutters have been used but punching machines now are used in other parts of the mine and punching machines will be used hereafter in the 7 right section.

WILLIAM LEXPER, 59 years old, Fire Boss since 1912, at the No. 8 Mine:

On day of explosion examined right side of the 7th right entries. Found no dust at all. Gas found in another part of the mine, 2 miles away from this section. Cannot answer question as to cause of the explosion. There may have been some disarrangement of the ventilation. If the door on the 1st butt had been left open there would have been gas accumulate sufficient to cause the explosion. Machine No. 4 was in this section in the slant off the No. 1 butt.

WILLIAM DEUGLASS. 57 years old, Asst. Mine Foreman at No. 8 Mine, for the past 12 years.

Came out of the mine at 4 P.M., January 14. Had examined 7th right section. Found it clear of gas. The mine was sprinkled every day. Could not say as to the cause of the explosion. There must have been a shortage of air.

WALTER BROWN. 47 years old, Mine Foreman at No. 8 Mine for 2 yrs. & 5 mos.

Since 12 years old have had mine experience. On January 14 left at 4 P.M. Visited 7 section in forenoon 8 A.M. mine was in normal condition. Some section of 7 right is sprayed every day. If the air would be diverted there would be chance for an explosion. Do not know where or how it started. Gas started it and coal dust kept it going. The mining machines began to operate about 3:30 or 4 P.M. Explosion occurred around 10 P.M. I descended the shaft half hour after the explosion and went back to the mouth of No. 7 heading. All the machines I saw had the controllers closed in the off position. The controllers do not release automatically when the power goes off. It was understood that these machines were to be gradually taken out, an understanding with the State Mining Department. I have Mine Foreman Certificate No. 421 issued about 1909. The pump which the pipeman and wiremen were installing had been delivered in that section of the mine two days before on the left side of No. 7. Have worked for four other companies. This company gives the greatest attention of any for which I have worked in regard to safety. Any experienced man would know in 10 or 15 minutes if anything

goes wrong with the air current in the mine. Ten punching machines and two electric machines were in use in the 20 section of the mine at the time of the explosion. Most gas in the mine was found at the faces of No. 1 butt, 7 right. There is snap coal in this section and roof is bad for some distance. With the door open on the No. 1 butt the regulator in No. 2 room would not have cut off the air on the left side of the 7 right entries.

LEE FORTY, 34 years old, Machine Boss in 20 right section:

Have had 36 years mine experience. Entered the mine at 3:30 P.M. on January 14. The mine was damp and the air was good. I was in the mine at the time of the explosion but did not hear the explosion. Felt a puff of wind like that produced by a fall of roof. There were 22 men working in my district which is 8,000 to 9,000 feet from the exploded section. We found that we had no air. I went around and gathered up all the men in that section and took them to 20 left stable. Gas probably the cause of the explosion. 19 hours elapsed before we got out. I have worked at No. 8 mine for one year on the 15th of this month. I had been down to 16 left and ran into the after-damp and upon returning sent for the men at the 20 right compressor station. Three colored men, one of whom was a preacher, started out and I told them that no person could live through the after-damp that I encountered. The preacher said that the Good Lord would allow him to get out; I told him that He might save his soul but not his body. These three men started out, one man came back in bad condition. The two others were lost. Between 12 and 1 o'clock we started to build a seal in the

20 left entry. It was after 12 when the three colored men left. I collected all these men, met some of them coming out to see what was wrong with the compressed air for their punching machines. There is a swag between 7 right and 12 right and water had collected along the roadway and the place was wet. After sealing off in the 20 left entry I made two explorations and a foreigner made one at 3:50 P.M. and we started out at 4:20 P.M. McNeil and I were on the main heading at 4 P.M. and the air was clear. On our way out I met some men not far from the 11th left. I am still working in No. 8 mine as Machine Boss.

JOHN McNEIL, 59 years old, Compressor Engr. at No. 8 mine for 6 months:

At the time of the explosion I was in the compressor room in the 20 right section. Have worked for 44 years in mines, mostly in West Virginia, mostly in shaft mines. Worked in 20 right and entered about 2:20 P.M., January 14. I was about two miles away from the 7th right where the explosion occurred. It stopped the air compressor. I just heard the wires give a little sing and I knew that something was wrong. I stepped out into the entry and found that there was no ventilating air moving. With Mr. Petty I went out to the 16 left and there we found after-damp. I stayed at 20 right and held the men there while Mr. Petty was gathering up the other men in that section. Some of the men stopped at the wiremen's shanty which was about 7 x 8 x 20 feet, enclosed with brick walls. When we went to the 20 left entry we found two doors at entrance but we did nothing with the outer door but we closed the second door and battened as tight as we could with anything

we could find. We went to the inner end and closed up the door space, using baled hay. There were 14 horses in the stable adjoining. After-damp reached the stable about 3:30 P.M. The damp was going right over the horses. We went out and looked at the horses occasionally to see if they were being affected and they did not show any signs. I could not tell you what caused the explosion. I have not been in 7 right for 6 months. I was in this mine when it exploded before when operated by the Georges Creek Company. In coming out of the mine I first met Ed Capet, my son-in-law, between 12 and 13 right. Then I met Leeper, Brown and Costello. It was about 2 P.M. before we noticed that the rescuers were sending the air into our section of the mine.

P. D. COSTELLO, 39 years old, Supt. No. 6 Jamison Mine for 6 years.

Have had 19 years' experience. A rock dusting machine had been purchased and an order placed for rock dust prior to the explosion. Since the explosion rock dusting has been started in No. 8 Mine. Arrangements have been made to have holes drilled from the surface in advance of the workings of the mine and to put exhaust pumps on these holes when they are finished with the idea of draining out the gas. All controllers on machines were closed when I first saw them after the explosion. Q. Therefore, the machines could not be the cause of the ignition," suggested Mr. Lambie.

A. Have no idea as to the source or place of the explosion. All machines were equipped with safety lamps."

WILLIAM FINCHES, colored man, one of the men who was in 20 left entry near the stable;

I was in front going out with Rev. Thomas and another man following. They had pieces of wet canvas over their face. I also had a piece of wet cloth over my face. We continued out to 16 left. Rev. Thomas made two or three steps and went down. The other man began to stagger and I tried to hold him back some distance but he says, "I am gone." I didn't feel very well. My heart went patty-pat inside and I hurried back to the 20 left and returned to the shanty. All of us had lights. After getting out I didn't go back in the mine for a week or two. I was too glad to get out.

FRED L. DORRINGER, aged 32, Ambulance Driver for R. O. Jones, Undertaker;

As the bodies were brought out of the mine he helped to identify them by noting their looks and things in their pockets. He read the names of those bodies brought out of the mine and turned over to him and to the undertaker.

JAMES BROWN, 28 years old, colored, Motor Brakeman;

Nine years mine experience. Went in the mine on January 14 at 2:30 P.M. My business was to get coal with a punching machine, two miles away from the exploded part. Since my place was not cleaned up, I was working on the track that night and was near the bottom of the shaft. When the explosion occurred, strong smoke and strong breath of air blew Johnson and me down near the bottom of the shaft. We

crawled to a shanty and called to the top to lower the coal cage. We were about 50 feet from the bottom of the shaft. I came up and then went down with the first crew of men and went as far as No. 7 right. No bodies were found until 8 or 9 the next morning. I never seen an explosion before and not knowing how they start I couldn't know how it occurred. Mine is sprinkled every day. I don't work on 7 right. Have never observed any gas in the mine. Have no idea as to the cause of the explosion.

FRANK LOGAN. 22 years old, Snapper:

A trip-rider on the motor entered the mine January 14 at 6:40 A.M. Was on the bottom and heard the explosion. I was in the shanty near the bottom of the shaft. Two colored fellows came in and all three held the door closed. Six of us, 4 white and 2 colored, went up on the cage. I returned with others and got up to the 7 right. Have worked here for 8 years. I considered the mine in good condition.

ANDY J. COTLER. 55 years old, Pumper:

Worked 8 years at No. 8 Mine. Entered 7 A.M. Came out at 3:30 on January 14. Worked on main heading up to 16 right. Do not have any idea as to cause of explosion. Two of my boys were on No. 7 right. Another man was on the bottom of the shaft at the time of the explosion. I considered the mine in good condition.

A. I. MILLER. 41 years in the Engineering Dept. of the Jamison Coal

& Coice Company:



Have 14 years experience,- transit man, roo-man, chain-man, conducts the survey and prepares the notes from which the maps of the mine are made and extended at the Greensburg, Pa., office. He identified the map of No. 8 Mine and the location of the No. 7 right.

C. D. M. CRAMER, Dist. Mine Inspector of West Va., for 4 months:

Has had 35 years experience in West Virginia. Occupied many positions about mines from mule driver up to operating the mine. First visited No. 8 Mine on January 15. Cause of explosion accumulation of gas ignited by flame and coal dust carried it on. Not certain as to location of source. Two places looked favorable. Might have occurred by hanging on or taking off the cable from the feed line. One of these points is at No. 1 machine and the other is at No. 2 machine on the left side of the 7 right entries. Believe it was the end of the cable where it connected to the feed line on the left side of 7 right.

THOMAS JARRETT, 57 years old, Dist. Mine Inspector for West Va. since 1921:

Connected for 49 years with mining in West Virginia. Arrived at No. 8 Mine about 3 A.M., January 15, and helped to recover the bodies in 7 right. The most suspicious point of origin to me was No. 5 room where the cable attached to the power line for machine in room 7 or at No. 1 machine.

EVAN GRIFFITHS, 68 years old, Mine Inspector since 1917:

50 years mining experience, 33 of which was in West Virginia mines. Was Mine Foreman in this No. 8 mine for 8 years when it was first opened out by the Georges Creek Co. I have seen gas blowers in this mine that would sound like a steam whistle and scare the miners. In 1925 I found things in this mine in first class condition. Following the explosion of January 14 I arrived at the mine 11:50 P.M. having driven over from Clarksburg. I went in the mine and found Inspector W. B. Rigglesman in charge with a bunch of men. We found several fires,- the first one was at the overcast at No. 7 right and we found several fires on the left side and two fires near the 9th left along the main. As to the cause of the explosion I believe it was due to an accumulation of gas caused by interrupted ventilation being ignited by electric spark in the vicinity of No. 1 or No. 2 machine on the left side of 7 right.

W. B. RIGGLEMAN, 56 years old, State Mine Inspector for the past 15 years:

37 years experience. No. 8 Jamison Mine is in my inspection district. On November 19 and 20, 1925, I made the last inspection previous to the explosion. It is common to have gas blowers which may blow out in a short time. We found a fire at the overcast of 7 right. Fires were found in several breakthroughs before we came on to the bodies of the pipe and linemen on the left side of the 7th right. It was necessary to explore the 7th right to see that no fires were left before exploring the workings in advance of the 7th right entry. As to the cause of the explosion it was due, in my judgment, to an accumulation of gas on the left

side of the 7th right and ignited by an electric arc in the vicinity of No. 1 or No. 2 machines. These undercutting machines were made by the Goodman Manufacturing Company and had plates attached to them reading as follows:

"Flameproof electric coal cutting machine  
approved by Dept. of Mines of West Virginia. Goodman  
Manufacturing Company, Chicago, U.S.A."

These plates were authorized by the State Mine Department nine or ten years ago before the U. S. Bureau of Mines issued approval. The machines in use in the No. 8 Mine were not of the type approved by the U. S. Bureau of Mines.

P. D. COSTELLO, re-called, in answer to a question stated that the mining machines in use in the 7 right section did not have magnetic control of the starters.

R. N. LAMBIE, Chief, Department of Mines:

Has occupied said position for 6 years. Has had 26 years experience in mines. Was never in No. 8 Mine prior to the explosion. Arrived 3 P.M. on July 15, after all bodies had been recovered and was on the way into the mine with Robert Lilly and others when I learned that live men had come out of the workings beyond the 7th right. I made an examination of the 7th right section but there were many details

that I did not get. In my judgment, the explosion originated either at No. 1 or No. 2 mining machine caused by igniting gas by an electric arc or spark. The door in No. 1 butt may have been opened by the advance wave of the explosion before the main violence of the explosion passed this door since if it had been closed when the main violence struck it, it would have been destroyed. The short circuit of the air current was caused by some interruption of ventilation and this could have been caused by the pipeman who went through a door to install a pump on the left side of the 7th right. I do not feel that it was the fault of the company or do not think it was the act of an employee.

E. B. RIGGEMAN, re-called.

In answer to question stated that the machine cables ordinarily were equipped with nips for attachment to the power wire and the track. He did not, however, state that all of the machines found in the exploded section did not have nips but that the cable wires were apparently wrapped around the power line and track rail. He was under the impression that when the electric power went off the controller lever on the mining machines would automatically close.

This concluded the testimony offered.

In referring to the mining machines in the 7th right, reference is made by a number of witnesses to these machines by numbers and it appears that the numbers assigned were in the order in which they were observed in making the first trip thru the mine following the explosion: No. 1 machine being in a breakthru driven from No. 2 room; No. 2 machine in a breakthru driven from a butt entry between rooms 7 and 8; No. 3 machine in one of the face entries connecting No. 1 butt with No. 1 7 right heading; No. 4 machine in a slant driven from No. 1 butt inby room 9.

Coroner's verdict:

"We, the jury, find from the evidence that the said (giving names of the deceased) came to their deaths on the 14th day of January, 1926, in Jamison No. 6 coal mine near Farmington, Marion County, West Virginia, by an explosion of gas ignited by causes unknown to the jury."

CONCERN'S VERDICT.

STATE OF WEST VIRGINIA,

COUNTY OF MARION, TO WIT:

An Inquisition taken in the City of Fairmont, in the County of Marion and State of West Virginia, beginning on the 14th day of January, 1926, and concluded on the 28th day of February, 1926, before L. C. Fitzhugh, Coroner of said County of Marion, upon a view of the bodies of W. E. MYERS; NIEL MAHANEY, HERBERT MYERS, F. D. LESTER, LEO CUTLIP, COY LOUGH, W. P. CARR, ARCH CUTLIP, JOHN SEMAN, JOHN STANINSKY, JOHN DENNIS, WASSIL PROSKOFF, NICK SZOLOSKY, JOE FLAHERTY, CLARENCE FARMER, P. J. BELL, CHARLES FARMER, JOHN THOMAS and LONNIE BEE, THERE LYING DEAD.

The Jury was sworn to inquire when, where, how and by what means the said W. E. MYERS, NIEL MAHANEY, HERBERT MYERS, F. D. LESTER, LEO CUTLIP, COY LOUGH, W. P. CARR, ARCH CUTLIP, JOHN SEMAN, JOHN STANINSKY, JOHN DENNIS, WASSIL PROSKOFF, NICK SZOLOSKY, JOE FLAHERTY, CLARENCE FARMER, P. J. BELL, CHARLES FARMER, JOHN THOMAS and LONNIE BEE came to their deaths, upon their oaths do say:

We, the jury, find from the evidence that the said W. E. MYERS, NIEL MAHANEY, HERBERT MYERS, F. D. LESTER, LEO CUTLIP, COY LOUGH, W. P. CARR, ARCH CUTLIP, JOHN SEMAN, JOHN STANINSKY, JOHN DENNIS, WASSIL PROSKOFF, NICK SZOLOSKY, JOE FLAHERTY, CLARENCE FARMER, P. J. BELL, CHARLES FARMER, JOHN THOMAS and LONNIE BEE, came to their deaths on the 14th day of January, 1926, in Jamison No. 8 coal mine near

Farmington, Marion County, West Virginia, by an explosion of gas  
ignited by causes unknown to the Jury.

L. C. FITZKUGH,	CONORER.
F. L. HOLLAND,	JUROR.
W. H. MARTIN,	JUROR.
F. W. HOLSTEIN,	JUROR.
BERNARD WASHINGTON,	JUROR.
F. G. BOYDSON,	JUROR.
H. F. SMITH,	JUROR.

IN WITNESS WHEREOF, the said Jurors hereunto set their hands and  
seals this 26th day of February, 1926.





