

BERRYBURG MINE DISASTER, WEST VIRGINIA,

Which occurred November 2nd, 1900.

(By JAMES W. PAUL, Chief Mine Inspector.)

The Berryburg Mine is situated in Barbour County, W. Va., about six miles from the town of Philippi, on a branch line of the Baltimore and Ohio Railroad. The mine is the property of and is operated by the Southern Coal & Transportation Company.

The bed of coal which is being mined is the Pittsburg and has a thickness of seven to nine feet.

The Berryburg Mine, which is a drift, was opened the forepart of 1900. On February 16th, 1900, the writer was at this mine and at that time the headings had been driven not over 200 feet.

The extent of the mine workings increased rapidly, and by November the main headings had reached a distance of 600 to 800 feet. From these headings had been turned lateral headings and from the latter rooms were turned. The plan of the mine consists of one main heading running due south and two headings running due west, each of which pairs has separate drift mouths 260 feet apart. These headings are called respectively the South and the West Mine.

The plan of the working of these two mines may be seen on the accompanying map.

These two mines are connected by a tunnel called the Fan entry, which is used for the return air current on its course to the fan. At the middle point of this Fan entry is the fan slope at the mouth of which is located a ventilating fan, which is used to exhaust the air from the two mines.

This fan, driven by an electric motor of constant speed, is twelve feet in diameter; and runs at 450 revolutions per minute and produces 300,000 cu. ft. of air per minute.

By reason of the constant speed of the fan when running and the absence of regulators in the air course the volume of air in circulation was greater than the development of the mine required, but the fan was intended to furnish the ventilation of the mine when the mine had reached a very much greater development. Had the fan been run regularly and at a lower speed it would have been better adapted to the requirements of this mine in its state of development.

THE EXPLOSION OF THE MINE.

By reason of the effort to increase the producing capacity of this mine as rapidly as possible both a day and night force of workmen were employed.

It was while the night force was on duty on the night of November 2nd, 1900, at 11:30 o'clock that the mine exploded, resulting in the death of 14 persons, and doing practically no damage to the mine.

The coal within this mine is frequently disturbed by the appearance of clay seams, and at the time of the explosion the East headings were being driven through one of those clay seams (washouts.) The coal is typical of the Pittsburg deposit, but from a physical point of view the coal, when cut with machines of the cutter bar type is broken up into small cuttings and a dust, which latter is of an apparently volatile nature and deposits itself upon the floor and walls throughout the mine.

PROBABLE PRESENCE OF FIRE DAMP.

From all the evidence obtained at the investigation of the disaster nothing was produced to show that at any time had gas been found in any part of the mine. Two days after the explosion, and after the ventilation of the mine had been stopped for 12 hours, a party of experienced mine men visited the workings of the mine and made a close inspection for gas, but failed to find a trace.

No deduction could be drawn from the foregoing conditions as to the cause of the explosion. Further testimony revealed the exact condition of the mine immediately after the explosion, and also the location of and the condition of the bodies of the men who lost their lives in the explosion. Referring to the map of the mine it may be observed that within the neck of No. 2 room, which had been abandoned, on the first east heading at 11 and 12 were found the dead bodies of Charles Goff and another man who, at the time of being recovered, was not identified. The body of Goff showed signs of having been badly burned, as did his companion. It appears that these two men in their confusion took the wrong course to get out of the mine and became victims of the gases of explosion (after gases). Four men who at the time of the explosion were working at the face of the second east heading came out uninjured through the first east heading and passed the room, where the two men were found, so it is clear that at the time the four men came out it would have been possible for Goff and his companion to have escaped if they had been able to maintain a light and had not been so badly burned.

Of the two men found on the main heading at 5 and 6 one was Richard Johnson, the other was not identified when found, but was probably W. A. Brown. Both of these men were burned quite badly. On the main air course at 9 was found "Nat" Mosby, who had no sign of having been burned. He was killed by the after gases, and as his duties did not require him at the point where he was found it is probable he was coming from the face of the main air course. At 10 Lewis Pack's body was found. His body having no sign of having been burned, he was a victim of the after gases.

At 7 and 8 the bodies of J. A. Crawford and one unidentified were found, neither of which were burned externally.

On the outside about 75 feet to 100 feet from the entrance at 1, 2, 3 and 4 were found Andrew Blackburn, with all his hair burned off and face and hands burned, also three unidentified bodies badly mutilated. Two of these bodies were completely severed at the waist and the head of one body was almost completely gone. On the outside and in line with the

course of the main heading are several poles upon which is strung the electric wires. Against one of these poles the head of one man had struck with such force as to completely destroy the head. The poles nearest the mine were canted several inches from a vertical position, showing that the force coming out of the mine was very great.

At the time of the explosion there were, in addition to the above, four other men in the South Mine—Ollie Marks, L. A. Duncan, William Marks and Joe Jackson. These men escaped to the outside, but each was badly burned, so badly that Duncan died the following day and Ollie Marks on the third day after the explosion. Will Marks recovered and Joe Jackson subsequently died.

This mine is ventilated by a fan of ample capacity—and from the evidence submitted at the inquest it appears that when the fan was run at its regular speed the volume of air made to circulate in the mine was so great that the men on the headings and air-courses had trouble keeping their lamps burning, and for this reason the fan was often stopped, but being started again upon the mine becoming filled with smoke from the powder combustion and from the lamps.

At the time of the explosion the fan was not running and there was no evidence to show that it had been running for several hours previous to the explosion.

Near the face of the fourth west heading a large fall of roof slate had fallen and on the night of the explosion this slate was being broken up with dynamite in charge of L. A. Duncan.

Simultaneously with this work the shot firer, Andrew Blackburn, was shooting down the coal, in different sections of the mine, with powder.

At the star on the main heading is where the shot firer usually kept two kegs of powder.

About twenty minutes before the explosion occurred Mr. A. J. Rock, the night watchman, was near the West Mine, and in his evidence says that he saw Andrew Blackburn and another man come out of the South Mine and go to the powder magazine, which is a short distance from the fan slope, and while they were unlocking the magazine heard Andrew Blackburn say, "I never wanted to see any one hurt." Mr. Rock left immediately, saying, in his testimony, that he thought the men intended blowing up the powder magazine.

To go back to the dynamite shooting, Mr. Duncan was directing the shooting of the dynamite to break the slate in the fourth West heading. Several sticks of dynamite were placed to break the slate, and at some distance from the slate a box containing 18 sticks of dynamite was left. The fuse was lighted and the men were making their escape when the mine exploded, with the loss of life above mentioned. The box containing the dynamite was never found.

The assumption might be that this dynamite shot caused the mine to explode, but, while it may have been the primary cause, it was not the ultimate, as the condition in another section of the mine indicates that the explosion in its greatest violence came from the powder box on the main heading.

Upon exploring the mine after the explosion it was found that the coal

was on fire near the star; the powder box was blown down the main heading to E; the switch lever at the entrance to the Fourth West heading was bent toward 9; the door at D was blown to K; the stopping at F was blown toward G; the door at H was blown toward 7, and the force came out of the mouth of the mine at A with great destruction.

That dust took an active part in this explosion was fully demonstrated, as the dust was completely charred along the main heading from J to F and as far up the Fourth West to the first room at K. Some charred dust was also found at the face of the fourth west, but not to the extent as found in the vicinity of the powder box.

Evidently an explosion of some element or elements took place within the vicinity of the powder box on the main heading.

An inference may be drawn as to probable cause of the explosion at this powder box from the evidence of Mr. A. J. Rock and from the fact that the body of Andrew Blackburn, the shot firer, was found on the outside of the mine.

Had there been powder in the powder box there would have been no occasion for Blackburn to go to the outside for powder.

Taking the four circumstances, namely: 1st, that there was powder in or near the powder box; 2nd, that A. J. Rock heard Andrew Blackburn say at the powder magazine, "I never wanted to see anyone hurt;" 3rd, that Blackburn's body was found on the outside of the mine, and 4th, that an explosion did occur in the vicinity of the powder box, these may have been the chief points which led the Coroner's jury in its verdict to say that the men killed in this explosion "came to their death by an explosion * * * caused by the firing of powder or dynamite in the South Mine intentionally or accidentally by some one unknown to this jury."

The following is a part of the most important testimony given to the Coroner's Jury:

Dr. C. B. Williams, company physician, said:

"Have been in employ of the company since June 18th, 1900. Have examined persons burned with fire. Examined two of the persons burned in this explosion and they are now dead, one of which, L. A. Duncan, I treated 18 hours. On Sunday morning (Nov. 4th) I examined all the dead bodies and found that they were burned externally only. Duncan died from external burns, he being burned all over his body. Men who wore woolen clothes were not so badly burned as those who wore cotton clothes.

"Lewis Pack had no burns, and it is my opinion he was smothered or asphyxiated by smoke or bad air. The first to be brought to the power house were L. A. Duncan, Will Marks, Ollie Marks and Joe Jackson, all of which were burned."

Chas. E. Priest, mine boss for the company:

"I have been in and about a coal mine for 25 or 30 years. The explosion occurred about 11:30 Friday night (Nov. 2, 1900). I was at home asleep when it occurred. Was notified by Geo. Carey and Ed. Mitchell.

"I took my safety lamp and went to the mine and found at the entrance to the south pit some clothing and ties burning, which I put out.

I then went in a short distance and found a body and a team of horses. The smoke was too thick to go further, so I had to come back. Went to work to get the fan started, but could not do so, as it was too badly wrecked. By this time the smoke had cleared away sufficiently so I could go in.

"A post on the main heading near the fourth west was on fire, and going in I found the first trap door (J) open, it being blown out.

"It is the night foreman's duty to run the fan at night. Ollie Marks was in charge of the mine Friday night.

"Duncan said (told me) that "they were shooting dynamite at third west and had about 18 sticks of it." They were using it to break up a large boulder. Duncan says he was thrown up against a pole when the explosion took place, and says he does not know how he got out. He was found outside of the mine. The rest of the dynamite could not be found, and I suppose it went off.

"I examined the mine every day and never found any gas. I think the cause of the explosion was a keg of powder ignited at the powder box.

"I found Richard Johnson and a man I did not know at trap door near the horses, but neither one spoke. I helped carry out nine men, Lewis Pack, Nat Mosby, R. A. Crawford, R. Johnson, Chas. Goff, W. A. Brown, Andrew Blackburn and two unidentified. Some of those men had their clothes burned off. Lewis Pack was not burned at all.

"I left the mine 5:30 p. m. Friday.

"Since the explosion I have thoroughly examined the mine and find no gas.

"I found Mr. Blackburn fifty feet from mouth of mine outside. Crawford and Brown were found nearest the powder box badly burned.

"Johnson and Blackburn are the coal shooters and were the worse burned of all.

"The fan has been run about four hours since the explosion. It took from 11:30 Friday night to 8:30 Saturday morning to repair the fan."

W. S. Brydon, superintendent Laurel Creek C. Co.:

"I arrived at Berryburg Saturday morning between nine and ten o'clock and offered my services. I went into the mine with the mine foreman, Mr. Shonk, Mr. Hollihead and others, whom I do not know, and found the mine in a very good condition. There was an odor of sulphur, also a slight fume of dynamite.

"It is my opinion the explosion was caused by dynamite and powder on the main entry at the powder box.

"I found no sign of gas or after damp in the mine."

Ernest Chilson, Superintendent of Berryburg Mine:

"It was customary to have in the mine two kegs and part of two other kegs of powder and no dynamite except for immediate use. Miners were not allowed to carry powder into the mine.

"There were usually employed about eighty men in the mine at one time.

"Small particles of dust were on the sides of posts and mine car next to the powder box, at which point I believe the explosion originated. I believe the powder in the box was exploded by the act of some person, either intentionally or accidentally.

"The capacity of the fan is 300,000 cubic feet of air per minute under a water gauge of one inch.

"My instructions to the mine bosses were to run the fan whenever they should want it. I visit the mine nearly every day.

"An ordinary mine lamp will not burn in a current of 300,000 cubic feet of air per minute.

"Our power plant consists of two hundred and sixty (260) horse power. We have eleven mine machines, but do not operate over three at one time. In addition to running mine machines, the power plant runs a locomotive, a fan and two small motors and furnishes power for twelve lights. The locomotive requires 110 horse power for maximum capacity, the fan 47 horse power, two drills each 1 1-2 horse power, one motor four horse power, one motor seven horse power and the lights, one horse power each."

Nelson Male, laborer in mine:

"At my own request I have been allowed to shoot my own coal at times.

"The fan did not run at all times, sometimes I have had to go to the pit boss and ask for fan to run. I did not want it to run all the time.

"I have often gone to the pit boss to get him to stop the fan, as I could not work without getting too cool."

Edward Mitchell, coal loader in mine:

"On Friday night I was clearing up stone on the second left heading, and there were three others with me.

"I heard two sisses, saw a flash and then felt force of the explosion.

"We started down the second left and came through a cross cut to first left and came out of the mine. As I came out I heard some fellows hollering, help, help.

"No shots had been fired on our side.

"The powder box was up in second left quite a piece. I would not have passed it coming out of second left."

George Carey, coal loader in mine:

"Some boys with me said there was fire in the mine, and I felt heat. We started down second left, but couldn't get through, but got out first left.

"As I came on outside of the mine I saw Marks and Duncan. The explosion had the effect of making me vomit and feel sick.

"The fan quit running fifteen or twenty minutes after I went into the mine. I could tell by the air and my lamp."

Richard Anderson, day laborer in mine:

"I was loading a car when the explosion took place. Ed. Mitchell and George Carey were with me.

"When the explosion occurred I heard a sharp shot and after two or three minutes a blaze and hot smoke.

"Mitchell said the mine was on fire, so we came down to the first left and out.

"The air was good until the flash occurred.

"In coming out I passed some one hollowing and the horses. Some one was under the truck. I do not know who it was. I crawled out for fifty feet."

H. L. Larew, timber man and tracklayer:

"I was at work in the est Mine Friday night.

"They did not run the fan all the time, said tehy had not power to run it. I heard different men say this. No official ever told me about not having sufficient power to run the fan.

"The air Friday night was the worst since I have been here (since Aug. 24th)."

John Simpson, Superintendent with J. W. Ellsworth & Co., Washington Co., Pa.:

"I came to Flemington last night (Saturday) and heard about this explosion. I called up the officers and they wanted me to come over to see it. I went through the mine this morning with the superintendent, mine boss and one other gentleman. We were down main No. 1 east and returned through No. 2 east to the main heading, then up main heading and back through its parallel and then up No. 4 West, where we examined the rooms and then back to the main heading and to the outside.

"From my observations my opinion is that the seat of the explosion is on the main entry and near tne mouth of No. 2 east. My reason for this conclusion is that I found the box or part of the box said to have contained powder, carried up the main heading above No. 4 west, also the lever that turns the switch at the mouth of the No. 4 west entry was bent toward face of the fourth west entry. The trap door that stood on No. 4 west between main entry and parallel (D) was carried down No. 4 west possible eighty-five to one hundred feet (K), and the next cross cut beyond No. 4 (F) was blown toward the parallel. On the other hand, on the outside of the main entry, the force of the explosion has come out toward the pit mouth, and evidence of it is clearly shown on the poles erected there to carry the electrical power. Am also informed three or more bodies had been blown clear out of the pit mouth.

"The timbers and facings of the coal at and near to No. 2 east, were charred more there than any other place, and as we went away, either south, east or west, the evidence of the explosion diminished.

"At the face of the east entries there was no evidence of any explosion. These entries were, so far as I could see, the highest elevation in the mine, also from the fact that they had just cut through a clay vein would make it the most likely place to find gas, had there been any in the mine, but I could not detect any evidence of any gas there.

"At or near the face of No. 4 west entry, where the rock was said to have been broken by dynamite, there was some evidence of an explosion; that is, there was charred coal or dust on the facings, but nothing in comparison to what was near the mouth of the entry.

"The miners' tools in the cut-through between No. 3 and 4 west were just where they had left them, and in the last room on the entry, which is on a higher elevation than where the rocks were lying, I found a full car and miners' tools undisturbed.

"There is a possibility that there was not a thorough explosion of the dynamite, and the crustations on the coal facings indicate that coal dust had exploded and generated carbonic oxide gas that killed the remaining men.

"My opinion is, that some one, carelessly or otherwise, ignited the powder that was there and that brought about the explosion."

Arie Marks, electric drill runner in West Mine:

"At the time of the explosion I was in the little shop to the east, was just out to get my dinner bucket.

"I saw a flash at the mouth of the South Mine and in a moment one at the West Mine. I ran into the South Mine for my brothers. I saw L. A. Duncan on the outside and his shirt was burning and found my brothers quite a ways in the mine, and brought Ollie out and returned and got Willie, who I found just this side of first entry sixty feet from the powder box.

"The air in the West Mine was not bad on that night, but some time before there had been complaint about bad air."

A. J. Rock, watchman:

"I have been employed as watchman since the 20th of March (1900.) On Friday night I had been over my beat and I saw two men come from the South Mine to the powder magazine, and they had a conversation. One was Andrew Blackburn, and he had a box under his arm and he turned his face from me; he set the box down and commenced unlocking the magazine, and I heard him say, "I never wanted to see any one hurt."

"I came down to the powder house and just then heard the explosion. This was 15 or 20 minutes after the men arrived at the powder magazine. I then ran up the track as fast as I could and saw that it was not the magazine. Just at that time Duncan raised up before me and exclaimed, "O God, somebody tear my clothes off." I tore them off and took hold of him and laid him down on my overcoat. Then I went up the line farther and saw Ollie Marks, who was burning. Mr. Tabbott and I saw another man by a car, we also saw another man.

"The fan was not running when I saw the men go up to the magazine.

"Blackburn was killed and was found in the mine.

Thomas Hillhead:

"The mine had been explored before I went in. I found the mine in very good condition. To me the cause of the explosion is an unsolved problem."

Following the taking of the testimony the Coroner's jury rendered a verdict as follows:

STATE OF WEST VIRGINIA,

Barbour County, to-wit:

An inquisition taken at Berryburg, in the County of Barbour, on the 4th and 5th days of November, 1900, before W. G. Keys, a Justice of Barbour County, upon the view of the bodies of Charles Goff, Lewis Pack, William A. Brown, Andrew Blackburn, J. A. Crawford, "Nat" Mosby, George Murphy, Richard Johnson, Lawrence A. Duncan and four other unknown and unidentified bodies there lying dead.

The Jurors, sworn to inquire when, how and by what means the said named persons came to their death, upon their oath do say, That the above named Charles Goff, Lewis Pack, William A. Brown, Andrew Blackburn, J. A. Crawford, "Nat" Mosby, George Murphy, Richard John-

son, Lawrence A. Duncan and four other unknown and unidentified persons, and each of them, came to their deaths by an explosion on the night of November 2nd, 1900, caused by the firing of powder or dynamite in the South Mine of the Southern Coal and Transportation Company's Mines at Berryburg, in said county, intentionally or accidentally by someone unknown to this Jury.

In testimony whereof the said Justice and Jurors hereto set their hands.

W. G. KEYS, J. P.,
C. T. PETERSON,
M. N. LOUGH,
J. S. KENNEDY,
IRA GREEN,
LEWIS MALE,
CLAUDE PAYNE,
Jurors.

A PROBABLE THEORY.

A probable theory of this explosion, based upon the conditions within and at the mine at the time of the explosion is ventured.

In the first place the fan had not been running for several hours, and as the mine has no natural ventilation the air within the mine was at a standstill.

Heavy powder shots had been discharged throughout the mine and dynamite had been used in the breaking of slate.

Under these conditions the mine would be full of powder and dynamite smoke, and it is probable that in the heavy powder shots a part of the powder was not entirely consumed, or so incompletely consumed as to evolve a considerable volume of carbon monoxide gas (carbonic oxide), which is inflammable and will explode.

It is further safe to say that the last dynamite shot fired caused the eighteen sticks of dynamite nearby to discharge. This would have the effect of stirring up the dust within the mine. Following immediately upon this the powder at the powder box was discharged by some unknown means, and this in turn ignited the carbonic oxide gas and dust, and the mine explosion was the result.

The resulting gases would be composed largely of carbon dioxide, which will not support life.