THE RED ASH MINE EXPLOSION.

Memorandum of James W. Paul at Inquest on Red Ash Mine disaster held in a school house at Rush Run March 13 and 14, 1900, by Dr. Lawrence Montgomery, Coroner for Fayette County, West Virginia.

State representatives present: Charles Dillon, Prosecuting attorney for Fayette county, James W. Paul, Chief Mine Inspector, Edward Pinkney, Mine Inspector for third district, Jerry Meade, Mine Inspector for second district; for the Red Ash Coal Co. J. W. St. Clair.

Coroner for Fayette County, L. C. Montgomery.

The following Jurors were summoned:

Isaac Dodd.
B. F. Bailey.
C. G. Brown.
J. A. Collins.
Lee Trummel.
B. E. Bare.
Mr. Barker.

B. F. Bailey, absent, being sick, R. J. Thrift was summoned after Mr. Barker was rejected for reason of his being an employe of the Rush Run Coal & Coke Co.

Jury sworn at 11:50 A. M., March 13th.

Mr. Charles Dillon read to the jury the law pertaining to inquests and explained the purport of the inquest about to be conducted.

General St. Clair disclaimed the right to hold the inquest under the mining statute, but consented to allow the inquest to proceed under that statute.

J. W. Paul outlined the object of the investigation and requested that the jury attempt to arrive at the cause of the disaster from the testimony given.

Witnesses as called.

Edward Pinkney, Mine Inspector:

Says explosion was due to gas, supplemented by dust.
Seat of explosion on 8th Left.
Gas found on inspection on 7th and 8th Left.

Dr. B. R. Smith. Physician for Red Ash Coal Co.:

Black Long died from suffocation and had no fractures.
Examined 44 persons dead. There are 3 injured yet alive. Charles Perfader not as yet taken out. Sore on right leg.
None burned sufficiently to cause death.

F. Howald, General Manager, Red Ash Coal Co.:

Read letter of instruction to Fire bosses. Long had experience gained at Red Ash.

John Laing, Superintendent of Red Ash Coal Co.:

Did not know who had charge of the safety lamps. On morning of 6th, do not know when Long went into mine. Fan is supposed to run 17 hours per day. Do not know who had charge of the fan at night since the holidays. Black Long was in charge of the safty lamp. The lamp was the property of the Red Ash Mine.

Richard Thompson, Fire Boss, at Red Ash:

Working here since Oct. 3, 1899. First time as fire boss. Worked in fiery mines in Pennsylvania and Colorado.
No particular time set for going into the mine. Have gone in the mine before fan started. Have written on board "Keep out of mine until fan was started."
Went in 5:30 to 6 o'clock. Miners entered as early as 6:50.
Had two safety lamps belonging to the company.
All beyond the 8th Right and Left gas was given off.
Duties to look after the gas and ventilation. My duties to start the fan since holidays.
Compressor usually started at 5:30 A. M.

Reported at the parting at the 7th Left.
Attribute explosion to gas, followed by dust.
Originated inside of 8th Right on Main Heading.

John Laing, recalled:
Some of the men had reached their working places. One-half out of 29 had gotten to their working places.
The men on the 8th Right followed Long in before Long returned.
I have examined the8th Left and found no bodies there.

Thos. Boyd:
In company with Mr. Nesbitt I found Black Long.

J. I. Absalom, Former Mine Inspector:
Explosion occurred on main entrance. No dust explosion in connection with the gas. Approved plan of operation.

Mr. Geo. Bryant, miner at Red Ash:
Worked in the mine on Monday night until 12 o'clock on 7th Left heading. The air was not sufficient to operate the cutter machine.
When I came out I opened the door on the 7th Left. It drug on the rails and was hard to open. I gave it a kick but did not look back to see if it had closed. When a driver in the mine I had occasion to pass through a door and this door was kept open one-third of the time. I once ran through the door and broke it and it was several days before it was repaired. A trapper boy was employed to attend this door.
I do not understand the systems of ventilating a mine.

March 14th, 1900. 9:50 A. M.

John Long, Mine Boss:
My duty is general supervision of inside of mine. The Supt. employed the fire boss.
Men started the mine and trips at 6:30 A. M. Fan to start anywhere from 5:30 to 6:30 A. M.
Considered Black Long competent.
I have had very little experience in gas mines.
The fire boss was the man to start the fan.
The Drum runner and fire boss usually started it since the holidays.
Arrived at mine at 7 A. M. on morning of 6th.
Explosion occurred a few minutes after 7.
Went up the incline on a trip with some miners, drivers and day men.

Miners had instructions to wait at inside partings until the fire boss reported.
Instructed men to not wait on the outside when fan was running.
Do not know how much air the law requires and do not know how much air a man requires in a mine.
Have not read the mine law.
Usually 70 men and 10 mules are employed in the mine.

Geo. Thurbom, Drum runner:
Explosion by my watch occurred at 7:16 A. M.
Was at top of hill at 6:30 A. M.
Safety lamp usually kept in the "Cab." Every two or three days the lamp was taken out of the mine and cleaned.
Long never marked on the board on outside.
The regular fire boss did mark on the board.

Completed at 11 A. M.

Jury reported at 11:25 that they could not agree as to the extent of report. The oath was then re-read to them. Retired at 11:35. Returned with signed verdict at 11:55 A. M.

VERDICT.

We the Jury find that B. B. Long and others came to their death by reason of an explosion of gas in the Red Ash Coal mine in the County of Fayette and State of West Virginia on the 6th day of March, 1900, caused by the lack of proper ventilation on that date.

Signed,

R. J. Thrift,
Isaac Dodd,
J. A. Collins,
C. G. Brown,
B. E. Bare,
Lee Trimble.

Jurors.

Following is an editorial from the columns of the Engineering and Mining Journal, New York, under date of June 9th, 1900:

"The Red Ash Mine accident, which occurred in West Virginia in March last, and in which 46 persons were killed, is clearly explained in the report of State Mine Inspector J. W.

Paul, which is given on another page. From his statement it appears plainly that it comes under the head of those accidents which are the cumulative result of several apparently slight acts of negligence. The mine was fairly well ventilated, and so far as the company operating it is concerned the only serious fault in its equipment was the absence of any provision for wetting the gangways to lay the dust. The disaster was not a dust explosion, it is true, but one of gas, but there is little doubt from Mr. Paul's report that the dust aided materially in spreading the explosion and adding to its force. There would have been an explosion had the mine been wet, but probably it would have been much less disastrous in its results.

The various incidents which preceded the accident show a loose state of discipline and a disregard of the mine regulations which is not very creditable. The rules forbade the miners to enter the headings until the fire-boss had completed his rounds; but on this occasion they decided not to wait, although the fire-boss was known to be in the mine. The ventilating fan was of sufficient capacity, but there was general uncertainty as to whose business it might be to see that it was started up at the proper time. A miner on leaving work the previous evening had left open an air door, which it was his duty to close. Possibly there were some other acts of commission or omission which will never be known. Now it is not probable that all this carelessness and disregard of precaution had occurred on the day of the explosion for the first time. The fact that that they did occur and that in conjunction they caused a disastrous explosion, is pretty strong evidence that such things were common in the mine, although they had never before occurred under just the right conditions to make trouble. They go to prove that there was a general disregard of the rules and an absence of the close watch of details which is always required in a fiery mine. Perhaps the wonder is not that the explosion occurred, but rather that it did not occur sooner.

Mr. Paul calls attention to the insufficiency of the present mining law of the State, which was passed at a time when few or none of the mines could be called fiery, to provide for conditions which have arisen as mining operations have been extended. His suggestions are practical and useful, and it is to be hoped that the Legislature will heed them. We must still adhere to the opinion which we have often expressed, that the most effectual protective law would be one strictly enforcing the liability of the mine-owners and operators to damages in all cases of death or injury, their only defense to be found in direct and positive proof of contributory negligence on the part of the sufferer for whom such damages may be claimed.

A point to which attention is called in the report, and of which we do not remember any previous mention, is that the

use of machines in mining is accompanied by a marked increase in the quantity of dust to be found in a mine. This can, of course, be met by proper arrangements for sprinkling or wetting; but it is a point which should be borne in mind."

THE RED ASH MINE DISASTER.

(By James W. Paul, Chief Mine Inspector.)

The Red Ash mine in West Virginia is operated by the Red Ash Coal Company. The mine is located on the line of the Chesapeake and Ohio Railroad on the South side of New River in Fayette County and is a drift mine about 450 feet above the river, being reached by an incline 1350 feet long. The mine has a covering (coping) about 500 feet thick.

The bed of coal is known as the Red Ash or Fire Creek, and is at present being mined at Rush Run, Dimmock, Echo, Fire Creek, Beechwood Alaska, Red Ash and other mines. The coal has a thickness varying from 3 feet to 6 feet. The coal in the Red Ash mine averages 5 ft. 6 in. in thickness and is practically free from partings.

This Red Ash mine was opened in 1892 about one and one-half miles from the Rush Run mine and adjacent to the latter mine lease.

This Red Ash coal is faulty in places and is often cut out by rolls (washes) and is frequented in some sections by clay and shale penetrating the deposit. Such irregularities have been encountered in most of the mines working this coal deposit, and the Red Ash mine has been no exception. For a distance of 500 feet the main heading was driven through solid shale and sandstone.

The coal from this mine is used for steam generation and for the manufacture of coke.

The proximate chemical analysis of the coal is as follows:

Moisture	.76 per cent.
Volatile matter	22.60
Fixed Carbon	75.46
Ash	.71
Sulphur	.47
	100.00

The roof of the mine is a stronger shale and in some places a micaceous sandstone. Practically no timber is required on the

main and latteral headings. The roof remains well intact without the aid of props, even at the passways where the headings are sufficiently wide to accomodate two tracks each of 44 inch guage. In the rooms props are judiciously used where there is the slightest pretext of danger.

The general safety of this mine may be judged of by the accident list prior to the recent disaster. Since 1892 three men have been killed by falls of slate and coal and eight have been injured by falls of slate and coal, a record commendable for a mine of its development. The question arises "Were the conditions in this mine such as to arouse apprehension of a casualty due to the presence of explosive gas." The history of this mine will best answer this question.

The ventilation of this mine up to the late spring of 1898 was produced by means of a furnace located near the crop line on the first right heading. The conditions not being favorable for furnace ventilation the furnace was abandoned and a fan installed on the left return aircourse during the spring of 1898. The fan had a working capacity of 25,000 cu. ft. of air per minute and the record of inspections show that it actually caused 23,790 cu. ft. of air to pass through the mine.

As early as 1897 this mine was known to generate, in the advance workings, gas of an inflammable nature, in small volumes. In the advance workings of the adjoining Rush Run mine gas was given off, and through a miner entering an abandoned heading in this mine, after being warned not to enter, his open light exploded the gas and he lost his life. This had the effect of causing extreme caution to be observed in the Red Ash Mine. A fire boss was employed as is required by the mining statutes and a letter of instruction was issued by the Red Ash Coal Company outlining in detail the method to be followed in the examination of the mine, and in this letter the fire boss was instructed to comply with the State mining laws in every particular.

Gas was known to be generated at the face of all headings beyond the 8th right heading, and it was generally known in the mining community that the Red Ash mine was a gaseous mine in the most advanced workings. The miners are fully aware of the existence of the gas and it was the custom of the miners to wait at the parting on the main heading between the sixth and seventh right headings until the Fire boss had made his inspection and reported to the men its condition before they advanced beyond this point.

On the morning of March 6th, 1900, the men did not wait at the accustomed place until the fire boss had made the examination of the mine, but proceeded on their journey to their respective working places. Only a few workmen, trapper boys

and mule drivers had reached their places when at 7:16 A. M. the explosion occurred. The fire boss had entered the mine at not earlier than 6:35 o'clock and as he had a long journey to make and had over forty different places to examine it is quite probable that he had made no more than one examination, since he was found at the place near the face of the 8th right heading where it was customary to make the first test. It appears that gas was found there by the fire boss, for he had opened a valve on the compressed air line near the face of the heading, this with a probable view of diluting and driving out the gas.

This explosion was not due to a lack of proper legislation. In fact it was due to a positive violation of the mining law. Section 10, chapter 50 of the Acts of 1887 says in part, "and no workman shall enter or be permitted to enter, any mine or part of a mine, generating fire damp, until it has been examined by the fire boss and reported by him to be safe."

Had the workmen remained at their accustomed places until the fire boss had made the examination of the mine the explosion would not have occurred, unless some accident had happened the lamp of the fire boss.

The greatest force of the explosion was on the 8th left heading. The direction of the force was towards the mouth of the main heading and towards the face of the cross headings.

The greatest destruction having been on the 8th left heading does not necessarily prove that the explosion originated there. No bodies were found on the 8th left heading or air course or rooms on either of said 8th left entries.

It is probable that the open lights carried by the men found on the 7th left heading were responsible for the ignition of the gas. In other sections of the mine there may have been small volumes of gas which under normal conditions would not have exploded, but the explosion on the 7th and 8th left would have the effect of creating a rush of air and a compression of the air throughout the mine. This compression occurring in the presence of a small percentage of gas and dust would instantly be ignited by any open light that might be present, thus extending the explosion to other sections where a similar favorable condition would be made for an explosion. This would follow in such rapid succession as to appear at the drift mouth that one general explosion had occurred. This is in line with the close observations made by Mr. Pinkney and noted in his report.

The probable cause of there being an accumulation of gas sufficient to cause an explosion is explained by the evidence secured at the coroner's inquest. A machine runner being the last to leave the mine at midnight on the 5th of March stated that he opened the door on the 7th. left heading and after coal

ing through the door gave it a kick and did not look to see if it closed. When opening the door he claimed it met with some obstruction and that he had to push hard to overcome it. It is very reasonable to conclude that this door remained open the remainder of the night. Chapter 9 sec. 14 Acts of 1890 says, "No miner, workman or other person shall knowingly..... open a door used for directing ventilation and not close it again,...." Here was another violation of the law which in itself would render the mine dangerous for the use of an open light beyond the 7th left heading.

A new and dangerous condition has arisen in the mines in this State in recent years. That is an excessive amount of dust as the result of mining machinery. Our laws provide for the watering down of dust in mines generating gas. A similar provision should be made for all mines wherein dust accumulates. Incident with mining machines comes the necessity of heavier shots. These shots often being prepared by men of little experience in blasting often "blow out." A blown-out shot is often the occasion of a dust explosion. In the Red Ash mine mining machines of the Harrison type were used. Large quantities of dust had accumulated in the mine and this dust was the principal agent of extending the scope of the explosion. A number of kegs of powder exploded in various sections of the mine, and these aided the explosion.

Of the forty six persons killed in this Red Ash explosion no one had sufficient external burning to cause death. Only a few of the dead had the hair burned off the head. The force of the explosion was quite violent as was attested by the condition of some of the bodies. A large number had fractured skulls and in some cases a large part of the skull was gone; arms and legs were broken in many cases, showing that the bodies had been hurled violently.

Aside from the 46 deaths resulting from the explosion three men were injured a short distance inside the drift mouth by the force of the air coming out of the mine with great velocity. This force was sufficient to wreck and pile up several cars on the outside of the mine.

Miners as a rule are a fearless class of men and take many risks of danger. A great many miners do not realize the danger of a gaseous mine which is dry and having dust in the rooms and gangways. A less number know the requirements of the State Mine law.

Ignorance of the law excuses no man, but in this case a knowledge of the law would often save the lives of many men.

I still contend that extracts of our mine law should be posted at all mines. Without the co-operation of the officials and em-

ployes at the mines the efforts of the Mine Inspectors are attended with unsatisfactory results.

Coroner's juries, sitting on mine disasters, should endeavor to render a verdict which would show wherein the mine law had been violated, if violated at all.

The following is the verdict of the Coroner's jury on the Red Ash mine disaster:

"We, the jury, find that B. B. Long and others came to their death by reason of an explosion of gas in the Red Ash Coal mine, in the County of Fayette and State of West Virginia, on the sixth day of March, 1900, caused by the lack of proper ventilation on that date."

Until we have some legislation governing the acts of workmen inside the mines of this State similar disasters are liable to occur.

Within the past five years a number of mines in this State have become gaseous. This department knowing of the encroaching danger endeavored at the last meeting of the State Legislature to have enacted a bill which had for its object the reducing to a minimum this liability of accidents from mine explosions and other causes.

I trust that this great disaster may awaken our legislature to a duty demanded by the conditions surrounding our great mining industry, and enact a few specific laws which may inspire a greater degree of discipline which is much needed at the mines in this State.

Our present laws are equal to any ordinary emergency that may present itself in a non-gaseous mine, but not for mines generating gas.

The fact that the mine boss at the Red Ash mine did not know how much air per man is required by the State mine laws to be admitted through the workings of the mine shows that little discipline would be inspired by his knowledge of the law. However, the ventilation was ample, had the doors been undisturbed. The evidence at the Coroner's inquest divulged the fact that there was some question in the minds of some of the employes of the Red Ash mine as to who had charge of the fan, but it was shown that either the fire boss or the drum runner had been starting the fan for two months previous to the explosion.

For the details of the rescue of the bodies from the mine and of the restoration of the ventilation of the mine the report of Mr. Edward Pinkney, Mine Inspector of the Third District, is hereby submitted.

The accompanying map shows the workings of the Red Ash mine. On it will be found the location of stoppings, doors,

regulators, overcast, fan, direction of air currents and location of bodies found.

Respectfully,

James W. Paul,
Chief Mine Inspector.

Charleston, West Virginia, May 1st, 1900.

List of persons killed March 6, 1900, by an explosion of gas in Red Ash Mine, Fayette Co.

No.	Name.	Color	Age	Mar S	Wid.	Orph.	Total Dep.	Occupation	Date found	Where killed and found.	No.
1	John Day	W	22	S					Mch. 6	Main heading, near drift mouth 7.30 A. M.	1
2	William Day	W	15	S					" 6	" " " " " " " " " "	2
3	Mathew Quarles	C	40	M	1	4	5		" 6	" " " " " " " " " "	3
4	Samuel Jackson	C	20	S					" 6	" " " " " " " " " "	4
5	James Hackey	C	28	M	1		1		" 6	" " " " " " " " " "	5
6	Charles Foute	C	26	S					" 6	M. H. Bet. 4 and 5 Rt 10 P. M.	6
7	Jas. Washington	C	32	M	1	3	4		" 6	" " " " " " " " " " 10 P. M.	7
8	Novella Dewes	C	28	M	1		1		" 7	" " " " " " " " " " 1.15 A. M.	8
9	Simoen Fitch	C	25	M	1	1	2		" 7	" " 5th L. turnout 1.20 A. M.	9
10	Novel C. Ramsey	W	25	M	1	1	2		" 7	5th L. at Cab 1.40 A. M.	10
11	John Stone	C	35	M	1		1		" 7	M. H. double parting bet. 6 and 7 Rt 6 P. M.	11
12	Edward Hamrick	C		S				Trapper	" 7	" " " " " " " " " "	12
13	L. E. Dotson	W	20	S					" 7	" " " " " " " " " "	13
14	Robert Ball	C	22	M	1	1	2		" 7	" " " " " " " " " "	14
15	Isaac Morris	C	23	S					" 7	" " " " " " " " " "	15
16	Beverly Agee	C	21	S					" 7	" " " " " " " " " "	16
17	Smith Franklyn	C	19	S					" 7	" " " " " " " " " "	17
18	Holister Noel	C	18	S					" 7	" " " " " " " " " "	18
19	Walter Dennis	C	23	S					" 8	5 Rt, 75 ft. inside 4 A. M.	19
20	A. P. Chappel	C	20	S					" 8	" " 200 " " " " "	20
21	C. C. Stewart	W	30	M	1	5	6		" 8	" " double parting by room 13 7 P. M.	21
22	Charles Downey	W	23	S			1		" 8	" " 50 ft. inside room 13 11.15 P. M	22
23	William Sledd	C	42	M	1		1		" 9	M. H. XCut 230 ft. from 8 Rt 4 P. M	23
24	Granville Holmes	C	45	M	1	5	6		" 9	" " 100 ft. from 8 Rt 4 P. M.	24
25	John Clein	W	25	S					" 9	" " near 8 Rt	25
26	Fred Arnold	W	20	S					" 9	" " " " "	26
27	William Massie	C	20	S					" 9	" " " " "	27
28	A. J. Pritt	W	35	M	1	4	5		" 9	" " " " "	28
29	Berry Tucker	W	22	S					" 10	8 Rt 4 A. M.	29
30	Julius A. Sanner	W	30	M	1	1	2			" "	30
31	Samuel Shuff	W	25	S						" "	31
32	B. B Long	W	49	S				Fire Boss	" 10	" " near face 10 30 A. M.	32
33	Ernest Long	W	12	S				Trapper	" 10	7 L 6 P. M.	33
34	Moses Daniel	C		S					" "	Rescuers kept no record	34
35	Carl Downey	W	28	S					" "	do	35
36	William Wood	C	30	S					" "	do	36
37	John L. Word	C	20	S					" "	do	37
38	Arthur Haut			S					" "	do	38
39	Luther Thaxton	C		S					" "	do	39
40	Abbert Collins	W		S					" "	do	40
41	Edward Harvey	W		S				Trapper	" "	do	41
42	Wm. Hammick	W		S					" "	do	42
43	Thomas Long	W		S				Trapper	" "	do	43
44	James Long	W		S				Trapper	" "	do	44
45	Charles Perfader	W		M	1	3	4		" 19	XCut on M. H. at 5 Rt	45
46	Thos. L. Johnson	C	16	S				Trapper	" 23	left return air course 150 ft. from 4 R. overcast.	46

State of W. Va.,
Office of District Inspector.

Edward Pinkney,
Inspector of 3rd Dis.
Montgomery, W. V

James W. Paul, Esq.,
Chief Mine Inspector,
State of W. Va.

Dear Sir:—

I hereby report accident which occurred at the Red Ash mine situate in Fayette County, and belonging to the Red Ash Coal Co., on the 6th day of March, 1900, whereby 46 lives were lost including miners and other workmen, by an explosion, caused as is supposed by the igniting of an accumulation of marsh gas on the 8th left hand entry by some miner or other unauthorized workman entering said entry with a naked light before the fire boss had made his examination and given the said workman permission to proceed to their respective working places. The accident occurred about 7 A .M. I received a dispatch from the Company sent immediately after the occurrence at 11 A. M. It was not any lack of promptness on the part of the telegram or mining Company that caused me not to receive the message sooner, but on account of my being from home at the time the message arrived. I desire to also state that the Railroad officials extended to me all the assistance in their power by allowing me permission to ride on a fast freight in order that I might not be delayed in arriving at the scene of the disaster which I accomplished about 12:40 P . M. On arriving at the mine I found some men at work already and every effort was being made to restore the ventilation as early as possible. I immediately took charge of the work and from that hour on until your arrival at about 9 o'clock P. M. in company with Mr. Meade, Inspector of the Second Dis. I immediately superintended the work and in conjunction with you and Mr. Meade after your arrival until the ventilation was entirely restored and all the bodies of the unfortunate workmen recovered, which was accomplished by Sunday morning at 4 o'clock, March 11th, except two bodies, which however, were found a day or two latter. On my arrival at the mine much excitement and some feeling naturally existed, many stories, ideas, suggestions and rumors as to the probable cause of the accident were in circulation among the people assembled, notably among which was, that the fan had not been working for several days, this however, proved to be a false idea as it was proven conclusively at the inquest that the fan had been working all day Monday and far into the night on Monday, the day preceeding the accident.

The next idea suggested was that Mr. B. B. Long, who was acting as temporary fire boss on the fatal morning, was not an experienced man, and had that morning gone into the mine with an open light and not a safty lamp and had undoubtedly set fire to some accumula'ion of gas in some of the places, thereby causing the explosion. This, however was proved to be a false idea from the fact that when the body of Mr. B. B. Long was found and his safety lamp, a short distance from where he fell, all surrounding indications, together with the conditions of his body, clothing and safety lamp, even the hair on his head and other parts of his body not being burnt, was proof of a conclusive nature that the force created by the explosion came from another direction, and that Mr. B. B. Long was suffocated by after damp. Three other men were found on the same entry in rooms closely contiguous to where Mr. Long's body was found near the head of what is known as the 8th Right Hand Entry. It is a thoroughly understood fact by all men that in all branches of business, where large numbers of men are employed, that danger of some kind exists. Mining beyond all question of doubt has an equal number of dangers if not more and exist in a greater variety of forms than any other source of employment. Explosion in coal mines is one of the worst forms of accidents and singular to say, although true, have occurred periodically from some cause or other in every coal field of prominence in the world and invariably in the best arranged and most systematic operations in the different coal fields. It is an open secret to all coal miners that where marsh gas or any gas of an inflamable character is encountered the best system of ventilation is always adopted otherwise the seam would not be worked and it is from a knowledge of those facts that men stake their lives in mines of this description.

The verdict of the Jury on the day of the investigation was that the Red Ash accident was brought about by improper ventilation on that date, however, they failed to state or pass any opinion as to the nature of the improperness or by what means it was brought about. No evidence was produced to prove that any negligence in regard to conducting the air currents in a proper and systematic manner around the various workings previous to the explosion existed or had been complained of. During all my visits prior to the explosion I found this mine's ventilation arrangements in good shape and in good repair with the material used, and complying in every instance with the requirements of our Mining Laws. At the last visit paid to this mine previous to the accident the volume of air passing down the main intake was 23,790 feet per minute. At that time there were 96 men and boys all told working in the mine, making 248 feet per minute per man em-

ployed; the requirements of our Laws designate not less than 100 feet per man. By those figures it will be seen there was a surplus of 148 feet per man every minute. Now as the Jury failed to point out or pass an opinion how this improper ventilation was brought about which caused this accident, it is right and proper to point out causes which could bring about an accident of this character. Having been over forty years constantly employed in and around coal mines I can readily perceive there are various ways by which an explosion in a mine such as the Red Ash Mine could be brought about, by a combination of the actual causes existing and those which may be brought about by careless workmen. If care, caution, good judgment and a reasonable amount of discretion is not observed by workmen and officials alike, for instance, if a ventilating door is left open for some time; workmen passing designated stations and entering working places before having been authorized to do so, with naked lights; the exploding of a keg of powder; by the blowing out of a heavy shot, thereby stirring up a large cloud of fine dusty coal, which in a dry mine is invariably of a highly combustible nature, and especially so after having laid in the old worked out and abandoned room and air courses for some time, with currents of dry air passing over it; and sudden and unexpected outbursts of gas, or stopping the fan for an indefinite period. Those are causes which are liable to exist and for which there is no remedy except good judgment and care on the part of the men in charge and the workmen in general, and may be brought about at any time by accident, carelessness, insubordination or recklessness on the part of either workmen or any one filling an official position and not doing his duty. It has been a well known fact by the proprietors, officials and all workmen that marsh gas in more or less small quantities has been given off in this mine for some time, therefore it was not only the duty of the officials but also all workmen to use all precautions necessary and within their province for their own safety, but the thorough and efficient system on which this operation was conducted, so far as the driving of entries and breakthroughs, together with fan power, the large volumes of air which was being conducted on the most approved system throughout the mine during the working hours and part of the night, it was therefore considered by all parties connected, operators, mine officials and workmen, that there was no serious danger to be apprehended. No explosion of even the smallest calibre to injure any one had ever occurred at any previous time in this mine. There is also no record of at any time any large accumulations of gas having been encountered in any part of the mine, or of any unusual bodies of gas being given off unexpectedly or otherwise. There are several entries in the mine where gas has never been known to exist and the places where

it was usually found were the innermost or advance entries, or in other words, at the head of the main entries. All entries either cross entries or otherwise situate at the greatest distance on a bee line from the drift mouth into the interior of the mountain generated gas at their face. All cross entries have parallels thereto. In other words the entire operation is conducted on the double entry system, so far as cross entries are concerned, and of the main or advancing entries there are three. These entries are driven fifty feet apart. These main entries dip steadily at about 1 1-2 or 2 per cent. The grades on the cross entries however are somewhat irregular, sometimes on the rise and sometimes dipping. The driving of breakthroughs was somewhat governed by the grades encountered, when going to the rise seventy or seventy five feet being the usual distance driven apart, when level or dipping, one hundred feet or less. It is at the head of those entries when advancing up steep grades that gas is found usually by the fire boss when making his examination each morning and there is strong reason to think that the first cause of this explosion, which occurred on the morning of the 6th of March, was caused by an accumulation of marsh gas on the 8th Left Entry, which accumulation was brought about by one of the ventilating doors being left open on the night of the 5th by some workmen who left the mine after quitting time, This is very frequently done by miners when there exists any impediments, such as a chunk of coal or other obstruction; not however with any intention of wilfully causing any injury but from force of habit, acquired in mines where no danger exists. This, of course, would at once cut off ventilation from the remainder of the mine and especially that portion which is known to be the only portion of the mine generating explosive gas, and thereby establish a short circuit to the return air-way and thence to the fan way, however, from practical observations made in this mine both before the accident and since the restoration of the ventilation arrangements, I am of the opinion that had the fan ventilation of this mine been suspended for a much longer period than it possibly could have been on the night of the 5th and especially during the night and at this season of the year no body of gas sufficiently large could have accumulated to have created any explosion equal in magnitude to the one which occurred at the Red Ash Colliery on the 6th day of March at 7 o'clock A. A. The fact was established by testimony on the stand on the 13th of March when the Coroner held the inquest, that the men had been working in the mine during Monday the 5th as late as 12 o'clock at night and left the mine at that late hour, which conclusively proved that the fan was working and the ventilation in proper form up till that time. It was also stated

the fan was started about 6:35 A. M. on Tuesday. According to those statements the fan stood about 6:35 hours at the most, allowing that the fan stopped immediately after the power plant was stopped which I understand does not occur. The plant is left charged at 70 pounds pressure and the fan is allowed to run until this force is exhausted. The temperature is much lower, especially at this season of the year, outside of the mine than it is inside and particularly so during the night. This mine going steadily to the dip, say at 1 1-2 per cent, and the head of the main entry being 4500 feet distant from the mouth, in a straight line, makes the head of the main entry at least 70 feet below the level of the drift mouth of the mine. The system of ventilation in operation at the time of the accident was to conduct the fresh air directly to the head of the main entry along the middle entry of the three driven and split it into two currents, allowing an equal amount to return on each side, thereby ventilating each side of the mine separately. This of course was accomplished by the use of ventilating doors placed in the respective air ways where necessary and by the construction of an overcast or air bridge at the No. 4 entry. Hence, allowing the temperature on the outside to have been on this particular night as much as 40 degrees, which would be a high temperature during the hours between 12 and 6 o'clock in the night, at this season of the year, the mine on the inside would not be less than 70 degrees and this difference in altitude and temperature would have undoubtedly caused considerable natural ventilation and to some extent have aired this mine during the hours the fan was stopped, particularly in a mine dipping as this mine does and at an altitude of 400 feet up the mountain, had the ventilating doors at the mouth of the cross entries all been in proper position. It is a well known fact to all miners that cool, dense air will always force its way down a dip working and drive the light and rarefied air and gases out and especially in a mine of this description where the roof is exceptionally good and the seam thick, few falls of slate exist to cause any obstructions of a serious nature in the return airways.

For some years the mining has all been done in this mine, practically speaking, by machines operated by compressed air. A large quantity of the coal mined out by those machines, while preparing the seam for blasting, is pulverized into a fine dust and more particularly so in the New River seams. In many instances it is almost as fine as flour and of a very inflammable character, this is usually thrown to one side by the machine operators' assistant; other men are employed to load the coal produced by those machines. This being a very dry mine, when the rooms have been driven in a short distance from the entries, this fine dusty coal produced by the machines

during the process of mining is somewhat disagreeable to load, from the fact when thrown from the shovel into the car the very fine particles rise and to some extent create a cloud of dust which makes it rather disagreeable and undesirable for breathing purposes, hence the people employed at this particular class of work do not clean the floor of the rooms up as clean as a pick miner would have done, however, the quantity left being only small, inasmuch as this class of coal is a desirable commodity for coke making purposes, it was to the Company's interest to get all they could of this product and the quantities left were never considered dangerous. In this mine, like all other extensive operations, there are large quantities of blasting powder regularly used. It is customary all through this region for the miners to take powder into the mine by the keg. It is a well known fact that this mine was no exception to the rule. Judging from observations and inquiries made at several other mines closely contiguous to this mine and using Rush Run, Brooklyn and Cunard Mines for instances, as a criterion by which to be governed, it is safe to say that there was not less than twelve or fifteen kegs of powder or probably more in the Red Ash Mine at the time of the accident. Especially is this true during the fore part of the month as the miners get in their supply on the 1st of the month. Many old scorched and battered powder kegs were found at various points after the ventilation was restored, and one keg, nearly full, unexploded, was found in the return air way by myself and Mr. Laing. Taking powder into the mine in large quantities is a considerable source of danger and may at any time, through carelessness on the part of a workman, cause an accident of a more or less serious nature and would beyond all doubt add materially to intensify and prolong an explosion caused by any other source in a mine so pronouncably dry as the Red Ash Mine.

There is yet another source of danger, which, had the accident occurred in the latter part of the working hours, might have been taken into a considerable extent as a factor in the explosion. I refer to the consumption of powder in the blasting of the coal prepared by those machines and miners, thereby creating large volumes of dense smoke or what is generally known as carbonic oxide, which, under some circumstances, is explosive and beyond doubt has caused many serious accidents in the various coal fields of this and other coal producing countries. There are few old and experienced miners who have not on many occasions seen the smoke light up all around what is known in mining parlance as a hanging shot, in other words, when the charge of powder was only sufficient to crack the coal seam up the ribs of the room and cause it to bag down from the roof thereby forming an actual opening all around

the coal mined and hanging as it were by small undetached fragments along the line of fracture at the back of the coal so mined. On many occasions old miners, when it is thoroughly understood by them that no danger exists, apply their lamps and set fire to this product for a double purpose, first to burn the smoke and secondly, some times by the expansion the cut is forced to the floor. I do not wish you to understand that I entertain the idea that powder smoke cut much of a figure in the Red Ash explosion. I have merely mentioned those facts above in order to call your attention to the fact that I do entertain the idea that powder was to some extent, a factor in the recent disaster at the aforesaid mine. As before stated the position of all the wreckage of doors, cars, rails, posts, powder cans, brattices, etc., plainly indicated from what direction the force started and the courses traveled. This point is conceded by all men of recognized ability in mining circles and particularly so by those who have had previous experience in matters of this description, who have examined the mine since the restoration of the ventilation and before the effects of the explosion were cleared up. It is also conceded by the same Commission of experts that B. B. Long the acting Fire Boss on the fatal morning and those men found on the 8th right entry with him died from suffocation in the black damp which was produced by the explosion, that was started in the 8th left hand entry by some persons entering the said 8th left hand entry before the Fire Boss had got around to that point. It is a very well understood fact by all men who follow Fire Bossing as an employment that a regular system is generally adopted; it being the usual custom to start in at the right hand side of a mine and work around towards and finish on the left hand side of a mine. This custom or custom of a similar nature is as old as the mining business, and has been adopted beyond any question of doubt by force of habit in all mining localities where Fire Bosses are employed.

In referring to the point from where the explosion first had its origin, the question naturally comes to the front—Why should this accumulation of marsh gas have taken place at this particular point in preference to any other point closely contiguous also to this part of the mine, where it was known marsh gas was being generated? In answer to this question I desire to state in going over the ground, and commencing at the mouth of the 8th left entry, I find the following conditions to exist: That is to say, the face or head of the main entry is 700 feet distant from the mouth of the aforesaid 8th Left Entry, going directly or near about North at a dip of about 1 1-2 per cent. along this same line of route. and about 400 feet distant from the 8th Left Entrys, there are two other Entries turned off at right angles from the main Entry and

known as the 9th Right and 9th Left Entries. Those entries are each in from the main entry about 200 feet and though it may seem singular, it is nevertheless true, both those entries are dipping, although traveling in opposite directions from the Main Entry, equally as much as the Main Entry, and at the time of this accident occupied about the same level.

Again, commencing as before at the mouth of the 8th Left Entry, which is turned at right angles from the main entry, I find it in a distance of 450 feet to the face and is running a westerly direction, and for a distance of about 350 feet going up grade at about 2 per cent at which point it turns over and is now going down grade at about the same rate, at the time this accident occurred, the difference in the altitude between the highest point on the 8th Left Hand Entry and those of the head of the main entry would at least be 15 or 16 feet. By taking into consideration those existing conditions, it is very easy to determine that this entry would become a natural gathering point for all gases of a light and inflamable character which was being generated in this section of the mine, that is, the Main Entry, the 9th Left and any rooms situate on the left of the Main Entry on the in-by side of the 8th Left Entry, in case the ventilation arrangements were in any manner damaged or any doors in an improper form or left open on the out-by side of this 8th Left Entry. It is also a well known fact that this is the principal section where marsh gas is being given off; hence, there is no doubt but that all the gases generated in those places during the period that the ventilation was cut off, from some cause, accumulated in this concave on the 8th Left Entry, from the fact it is natural for them to gravitate to the highest point when the movement of the ventilating column is suspended.

The question at this point arises—In what manner could this ventilation be so effectually cut off as to allow the entire body of gas generated during the night to accumulate on this entry at a point some distance from the face of this entry, and at a point where, if any air was traveling at all in this section, it would have to pass this point, and where no accumulation of a dangerous character has heretofore been known to exist? Had a sudden outburst of gas occurred at or near this point, this would have been a reasonable cause, but no indications whatever of this kind are in existence, except it came entirely from the coal seam and exhausted in a short time. The fan has no doubt on many occasions previous stopped for a much longer period and at seasons of the year when conditions for natural ventilation were less favorable than it was on the night of the 5th, and no explosion even of the smallest calibre occurred; or has there ever been any reports or complaints made to me

of any large quantities of gas being found at any particular parts, caused by the stoppage of the fan or otherwise. At the examination on the 13th day of March, Mr. George Bryant testified on the stand that he and his laborer were at work in the mine on the night of the 5th, the night preceding the explosion, on the 7th Left Entry until 12 o'clock at night. When asked if he closed the door at the mouth of the entry when he came out, he answered, "That he gave the door a push." Now, the chances are very strong that some obstruction in the shape of a chunk of coal or other material prevented that door from closing, if that man ever tried to close it. It would not have been policy for that man to convict himself of a violation of the Mine Laws, after an accident like that which had just occurred. If such was the case that this door was left partly open, this would form a short route direct to the return and so on to the gang way, cutting off the entire ventilation from the inner entry where the generation of gas is only known to exist, and would bring about an accumulation of gas at the point from whence this explosion started. After having gone over the mine since the ventilation has been restored, having carefully noted at what points the most damage was done, the class of property damaged and to what extent damaged, and for what purpose used previous to the explosion, at what points the most intense heat and pressure seemed to have been exercised, together with the courses traveled by this cyclone of fire and dust, I desire to say my opinion as to the first probable cause and the attending causes which contributed largely as factors in this serious accident, is that I am strongly of the opinion that the 7th Left hand entry door was left partly, open on Monday night the 5th of March, and stood open until work time Tuesday morning. As Mr. B. B. Long, the acting fire Boss was late that morning and did not get up to the mine until the first trip was run on the incline; it is quite evident that some of the miners went in with him from the fact that three men were found on the same entry and closely contiguous to where he was found. I am also of the opinion that where B. B. Long was found it was the first place he had been in on that morning. Other men and drivers followed in immediately after him as far as the Double parting where the motor hauls from. At this point eight bodies and some mules were found. Some men, however, were found above the upper double parting near the mouth of the 8th Left Hand entry and had the appearance from the condition they were in of having been hurled by the blast for some distance, it is quite evident those men found above the upper double parting had proceeded on to their work without waiting to see the Fire Boss and in all probability caused the explo-

sion of gas on the 8th Left Entry. When this gas was ignited the rapidity of the expansion and the intense heat generated had also created an intense pressure at this particular point which had rushed off in four different directions, which was plainly indicated by the positions of the damaged property after the ventilation had been restored. The directions referred to were mainly forward towards the heads of the 8th Left and Main Entries, backwards toward the 7th Left, and also towards the mouth of the 8th Left Entry, and thence principally along the line of the main entry towards the mouth of the mine. As no damage of any moment or indication of intense heat existed at the head of the main or on 8th Right, excepting the blowing out of the stoppings, which, was no doubt, caused by the excessive pressure, it is not necessary to make here any special comment on those entries. As before stated, the rapidity of the expansion and the intense heat generated by the ignition of this body of marsh gas, undoubtedly created a powerful pressure. It is natural that this pressure would rush along the line of least resistance. From this point forward to the head of the main entry, the work developed is very limited, of recent date, and principally, narrow places. On the other hand, leading back towards the mouth of the mine, the developments are very extensive and some sections of this work have been in service as return air ways for several years. It is a well known fact by all men employed in coal mines that strong currents of air, kept in constant motion, such as existed at the Red Ash Mine, carry off regularly from the main Hauiways and other working places, quantities of very fine coal dust, and when the air currents enter the old workings and are allowed to scatter, thereby reducing the speed of the currents, this dust is then deposited on the floors and small shelving projections on the ribs of those old rooms and return air courses. Thus it will be seen what keeps a dry mine safe at one point, under certain circumstances creates a source of danger in time at another. This body of dust thus carried in the air currents is not only more excessive, but is also more dangerous in the winter than in the summer months. From the fact, when the air enters the mine cool and becomes heated, it takes up moisture during its progress if any exists in its line of route. On the other hand, in the summer, the air enters the mine warm and cools off and all the moisture it contains is deposited on roads, roof and sides, and assists to keep the dust down at all points of the mine; and a large quantity of our old and experienced miners are aware of this fact from observation. As before stated, there is no doubt but that the pressure created rushed along the line of least resistance, stirring up by the speed and pressure

exercised in every avenue of escape, the fine dry coal dust which in turn exploded, and at various points received an impetus both in force and heat, by the explosion of powder, this was especially noticeable at some points where there is every reason to believe that powder existed, by the presence closely contiguous of scorched and battered powder kegs, also pieces of roadways torn up, the rails twisted out of shape and thrown violently against the ribs. At points where boxes for the storage of miners tools and other requisite supplies were stationed before the explosion, there was also every evidence of exceptionally increased intensity of heat and pressure at those particular points. By the cakes of charred and frissled dirt which it would seem had been torn from the roadbed, hurled with immense force and pressure against the ribs of the rooms near the entry, or in other words, in the narrow necks, and there cooked into coke by the intense heat; when in the same locality and not far distant, no damage of any consequence or any indications of extreme heat or force seem to have been exerted. This is especially the case on the 7th Left Entry at the No. 7 Room and also on the Back entry or air way of this 7th Left Entry. At those special points I have not the least doubt, powder existed and was exploded. On the 5th and 6th Left hand entries, no especial damage was created. At no points were there any roadways damaged and only on the double parting closely contiguous to the main entry was there any indications of any intense heat or excessive pressure. At the head of those entries, there was absolutely nothing to indicate that anything of an unusual character had occurred, excepting a couple of mine cars which had been left standing on a steep grade, had been started by the concussion and had run down the entry a short distance and jumped the track. From the 5th Right through the air-ways to the fan, there was nothing unusual in appearance excepting small fragments of lumber here and there which had no doubt been blown in by the pressure exerted from the other sections of the Mine. And, at one point where the returns are being straightened by driving new places, a keg of powder with a roll of paper laying on the top of it was found in an undisturbed condition. Returning from the fan and again commencing at the 8th Left Hand Entry and coming along the line of the main entry and meeting the fresh air currents, the force seems to have been very strong and fierce. Although the road was damaged, several mine cars were badly damaged and twisted around in various forms on the double parting where eight men were found, and the trolley wires were also torn down all along the line of route. There is no doubt but the same conditions of support existed on the line of Main Entry

that was found in other sections of the mine, namely, kegs of powder. From information gained, I understand at least 4 or 5 kegs were taken in by miners on the morning of the accident, which must have been on the road when the explosion occurred and none has since been found. It has now been ascertained that four kegs of powder were taken in by men found at or near this parting. There was also every indication on the double parting that the force had received an impetus of a radiating character from the position occupied by the empty cars in particular, and some fragments of powder kegs were, I understand, found, but I did not see them. Those cars weighing at least 1800 pounds, having four metal wheels 18 inches in diameter and each wheel weighing at least 120 pounds, standing on a railroad laid with 30 pound steel rails, and on in line with the course of the blast and only a few of them, as the bulk of the cars were loaded, would undoubtedly have been drawn out of the parting along the entry at least some short distance if some counteracting force had not existed; but instead were twisted and torn in every direction in the middle of the parting. It is also certain that a proportionate amount of fine dust stirred up in the return airways and old rooms, closely contiguous together with what was already on the main line largely assisted to intensify the blast along the line of this main entry, which entirely destroyed the ventilation arrangements, including doors, brattices and overcast. When the force reached the overcast which is situate at the inner end of the Rock drift, which drift is about 500 feet in length, it would seem it became congested at this point and split—one portion, no doubt, all the drift would contain in proportion to the pressure exerted, going straight toward the drift mouth, the other portion rushing along the line of least resistance open for its course, which was the 4th right hand entry, and turning to the left of this entry, rushed down the No. 20 room, coming up from the 5th right, carrying a truck with a machine, and no doubt, a keg with powder in it thereon, adistance of some 75 or 80 feet, and dashing the whole outfit with such violence against the left hand rib of this right entry, as to break the truck into smithers and damage the iron man almost beyond repair. Here again is evidence that powder, no doubt, assisted materially to intensify this explosion, as the indication was present of intense heat and pressure by the roadways being torn and twisted and scabs of congealed coal, dirt on the wall sides, was found in the neighborhood of where the truck had been standing, and some short distance from the entry which had undoubtedly been hurled there by immense radiating pressure and roasted to coke by intense fresh heat. Apart from the

last quoted damage, there was very little damage done on this 5th Right Entry excepting, however, the destruction of the doors, brattices and few mine cars to some extent displaced; but very little damaged on the double parting; the trolley was also down. About the same conditions existed on the Double parting on the 5th Left Hand entry. Three or four mine cars were displaced and twisted round to some extent and partly turned over. The loaded cars were somewhat jammed up but few of them had sustained any damage worth mention.

And now having gone over the entire ground where any men previous to the explosion were employed, excepting the 8th right hand entry, I desire to call your attention to the fact that none of the miners or other workmen who were lost in the accident, had reached their working places, excepting, however, those men on the 8th Right hand entry with Mr. B. B. Long and one man in No. 10 Room on the 5th left entry. One man, however, was found on the main entry about 50 feet below the mouth of the 8th Left Entry and, I understand, in a badly mutilated and burnt condition. There was also a man and a boy found about 150 feet on the inside of the 7th Left hand entry door. Those bodies were also in a bad condition, however, I do not think that they had anything to do with the explosion of the gas, but they were in line to be right with the explosion when it had reached that point. It also strongly points to the fact they were on the road to their respective working places before the Fire Boss had made his round. I furthermore desire to call your attention to the fact that this Red Ash Coal Company had a system of rules in typewritten form, instructing their Fire Bosses as to the duties required of them. There is no doubt the majority of the miners were aware of this fact; if not, in my opinion, it was the duty of the Mine Boss and Fire Boss both to instruct them. If those rules had been rigidly observed, no accident could have occurred at the hour this one occurred. From the fact there could be very little fine dust in the atmosphere of the mine at that early hour. On Friday night, March the 9th, I personally superintended the building of seven stoppings, one each across the 8th left and main entries and five on the 8th Right entry, this restored the ventilation to the innermost holed breakthrough on the 8th Right Hand entry leading to the back entry or air-way of said 8th Right hand entry, the entry on which the Fire Boss was found next day at the head or thereabouts. When the ventilation was restored, I found the following conditions to exist: First, There was no damage created whatever, excepting the brattices blown out. There was one empty car which had doubtless been left standing on the track in the mouth of the first room on the right handside of the entry; this

car had been lifted off the track by a force coming from the direction of the 8th Left Entry and thrown over to the rib of the room on the left side. In the No. 3 Room on the 8th Right entry, there was standing on a tolerable steep grade a machine truck with a small scotch of wood about four inches square and one inch in thickness in front of the wheel nearest the mouth of the room. The machine was sitting on the operating platform undisturbed. A man was found in the mouth of the No. 4 Room on the left side rib close against the rib, stretched out with a chunk of coal under his head for a pillow. In the back entry in the No. 6 Room, another man was found stretched out close to the left hand rib on his loose coal and an empty car beside him. He had no doubt taken this car in from the mouth of his Room just before the explosion occurred. A short distance down this back entry another man was found lying face downwards, in a rather humped up position, by the side of the roadway and closely contiguous to the rib of the entry. When found, none of those men had any indications of being scorched. I am also informed that the Fire Boss, Mr. Long, was not burnt on any part of his body or clothing, as it has been very currently reported and no doubt earnestly believed that Long caused this accident by either carelessness or his reputed inability to fill this position. Setting aside all opinions which have been formed by the different parties who formed and have expressed them, and for the information of the mining people in general, I desire to call your attention to the following facts:

This 8th Right hand entry is turned off the main entry at right angles and running in an eastern direction, starting at the mouth, it is in about 550 feet to the face; for about the first 150 feet it is dipping moderately as near as I can judge, at about one per cent. For the next 200 feet it is practically level and not only damp, but at some points in this 200 feet there is considerable water standing on the road-ways, and also in the Breakthroughs between the entry and air-way, which is an exception in this Mine. The development on this entry is also very limited and of recent date. There are some rooms turned on it. The innermost three rooms are, practically speaking, only turned off the entry and are in but a very short distance. The 8th Right Entry and air-way have no connections with any other part of the mine, excepting where it is turned off the main entry and crosses the main entry air-way; or in other words, none of the rooms have been sufficiently advanced as yet, to break into any rooms coming from any of the surrounding entries. Mr. Long's body was found at or near the head of the entry. It is plain, the body of gas in this entry was very small or he would not have been

at that point, from the fact the men found at or in the back entry or air-way ,would have to pass through the innermost Holed Breakthrough, and no doubt did so with naked lights about the time Mr. Long started up to the face of the entry.

It is usually the custom for Fire Bosses first to test or examine the place with the safety lamp and see how much gas there is in the place; they then step back, plant their safety Lamp in a safe place on the floor and proceed to brush it out. It was the custom at this Mine for the Fire Boss to use the compressed air to brush the gas out where he could do so. Mr. Long's lamp was found just 24 feet back from the face of the entry and close to the rib; the place no doubt where he had set it preparatory to commencing to brush the gas out. It is plain he set it down for where his body was found, he was lying with his head towards the face of the entry on his back and legs spread apart, in the position of a man who had fallen backwards; his vest with a gold watch in the pocket, at his feet, an indication that he had taken it off and had attempted to use it as a protection against the suffocating effects of afterdamp, which is frequently done by men under such circumstances, and the lamp was closely contiguous to where his body was found. If he had the lamp in his hand when he fell it would undoubtedly have been found in a different position and more towards the middle of the entry. From the point where Mr. Long was found, the grades are very gentle and the amount of gas tailing back or stretching even to where his body was found would have been very small, and even supposing that this amount had been ignited, which there is not the slightest evidence to justify that it was, all the surrounding circumstances were such that it could have received no support of importance until it had traveled a distance of over 600 feet and had crossed the main entry and made connections with the gas on the 8th Left entry and the old working behind with all the accumulations of fine, dry dust, and from the fact that the workings were of such a limited character and the greatest part of the distance, the roadways had water standing on them, therefore, it would have contributed nothing in the shape of dust to assist its progress and would undoubtedly have spent its force before doing any serious damage or reaching any other point where gas might be standing. In regard to the man B. B. Long, some comment has been made in reference to his ability to fill the position of Fire Boss. This seems a little singular, from the fact he was a man 40 years of age and has been a miner for over 20 years, to my knowledge. Mr. Long worked under me for a period of eight years or over, and I feel it my duty to state that I always found him straightforward, trust-worthy, sober, reliable, anxious to acquire knowledge and improce his condition in life,

The officials of the Red Ash Coal Co. and all unbiased people have this to say of him. He had been at the Red Ash Mine for a period of at least eight years; had mined coal in places generating marsh gas; had acted in the capacity of temporary Fire Boss for nearly two years. It is a well known fact to all men in connection with the mining business, who have been employed in fiery mines, that it does not take a man of exceptional educational ability or one to be thoroughly versed in the Chemistry of gases to make a good Fire Boss. For numbers of men, who could not write their own names, heretofore, have been known far and wide as very efficient Fire Bosses, where gaseous mines exist, as useful and valuable men and men in whose hands workmen would trust their lives without scruple or fear. The charge raised is that he has had no experience. If eight years service, in a mine where gas is generated, by a man of Mr. Long's age and aggressiveness is not considered enough of experience, because he was a West Virginian, it must be very humiliating indeed for us people who are still in the land of life to think we are measured by such a standard. With no disrespect to the people of other and older mining countries, and where more rigid mining laws exist our casualties will compare favorably with any of them. It is no doubt true we have much yet to learn in the Science of mining, but very much like our neighbors, *in time* we will undoubtedly get there. On the 16th day of March, at three o'clock in the afternoon I was making an investigation on the 8th right hand entry, where Mr. B. B. Long was found, in company with Mr. George MacKintosh, Mine Boss from the Quinnimont Mine, and Mr. John Laing of Red Ash Mine, and found in presence of these gentlemen, Mr. B. B. Long's safety Lamp lying on its side partly covered up with fine dust, but otherwise uninjured, immediately against the left hand rib of the entry, and about four feet above the in-by corner of the Breakthrough which is being put over to the back entry. On this entry there is no evidence of intense heat whatever. And it is my opinion that no gas was exploded at all on the 8th Right entry, and that the Fire Boss, together with the three men found on the same entry were suffocated by afterdamp created by the explosion at other points. Having had a good knowledge of the mine for sometime previous to the explosion, judging from past observations made in regard to the keeping up of doors, brattices, driving of Breakthroughs, etc., I would say I have always found them in good shape and have never had one single complaint from any of the workmen employed at this mine. Since the accident I have assisted to restore the mine to a safe condition and have carefully looked over the entire situation in an unbiased manner and through the eyes of a practical miner. I have introduced no scientific theories

or argument in regard to the cause of the accident or the manner in which it might be brought about, but those which can be understood by the plainest and most unlearned of men. As before stated, the ventilation of the mine has been restored to a safe condition, the bodies of the unfortunate workmen all removed from the Mine, and the mine resumed operations again on the 26th day of March, after a suspension of twenty days. The air currents passing through the mine on the 9th day of April, 1900, was 22,000 feet per minute, and the number of workmen all told inside, 98. In order to further insure the safety of this mine in the future, the Company has assured me they will put in another fan in addition to the one already installed, as soon as it can be secured, and the arrangements established for a double system of ventilation. This is the only practical way that can be adopted from the fact that the air currents on the present intake if increased, would be so strong and swift that it would be impossible for the workmen to carry open lights thereon. After having made careful inquiry in regard to the names, ages and family relations of the men lost in this accident, it becomes my painful duty to submit to you the following list of miners names, together with the number of widows and orphans as a result of this dreadful occurrence:

Name of Person.	Married or Single.	Age.	Dependent.
A. J. Pritt	Married	35	Wife and 4 children.
Arthur Hart	Single		None.
Albert Collins			
Berry Tucker			
B. B. Long	Wife dead	40	
C. A. Fonte	Single	26	
C. C. Stewart	Married	30	Wife and 5 children.
Charles Downey, and		23	Invalid Mother.
Carl Downey, brothers	Single	20	" "
Charles Perfader	Married		Wife and 3 children.
Edward Hammick	Single		None.
Ernest Long		12½	
Ed. Harvey			
Fred Arnold		20	
Granville Holmes	Married	45	Wife and 5 children.
Hollister Noel	Single	18	None.
Isaac, Morris		23	
James Hackney	Married	28	Wife.
James Washington		32	Wife and 3 children.
John Stone		35	Wife.
John Day	Single	22	None.
John Clair		25	
J. A. Sanner	Married	30	Wife and 1 child.
Joe Long	Single		None.
John L. Ward		20	
L. E. Dotson		20	
Luther Thaxton			
Moses Daniels			
W. C. Ramsey	Married	25	Wife and one child.
Novella Dewes	Married	26	Wife.
Robert Ball	Married	22	Wife and one child.
Sam. Jackson	Single	20	None.
Simeon Fitch	Married	25	Wife and one child.
Smith Franklin	Single	19	None.
Simon Chapple		20	
Sam. Shull		25	
Thomas Long			
Tom. L. Johnston		16	
Beverly Agee		22	
Wm. Day		16	
William Quarles	Married	40	Wife and 4 children.
William Massie	Single	20	None.
William Sheda	Married	42	Wife.
William Ward	Single	20	None.
William Hammick			
Walter Dennis		21	

And now having reported all the information possible in regard to this serious accident, having expressed my opinion in a truthful manner, and to the best of my knowledge and judgment, I desire to particularly return my sincere thanks to the officials of the various Coal Operators, who spontaneously and without any solicitation came forward with crews of workmen and placed their services at the disposal of the Inspection department and rendered such valuable services toward the restoration of the Mine's ventilation and the recovery of the bodies of the unfortunate workmen. I also desire to thank you for your kindly advice and valuable assistance.

Hoping the above remarks will have your approval and the approval of the public in general, I have the honor to be,

Yours very respectfully,
Edward Pinkney,
Inspector Third District,
State of West Virginia.

List of persons killed March 6, 1900, by an explosion of gas in Red Ash Mine, Fayette Co.

No.	Name.	Color	Age	Mar S	Wid.	Orph.	Total Dep.	Occupat'on	Date found	Where killed and found.		No.
1	John Day	W	22	S					Mch. 6	Main heading, near drift mouth	7.30 A. M.	1
2	William Day	W	16	S					" 6	" " " " " "	" "	2
3	Mathew Quarles	C	40	M	1	4	5		" 6	" " " " " "	" "	3
4	Samuel Jackson	C	20	S					" 6	" " " " " "	" "	4
5	James Hackey	C	26	M	1		1		" 6	" " " " " "	" "	5
6	Charles Foute	W	26	S					" 6	M. H. Bet. 4 and 5 Rt	10 P. M.	6
7	Jas. Washington	C	32	M	1	3	4		" 6	" " " " " " "	10 P. M.	7
8	Novella Dewes	C	28	M	1		1		" 7	" " " " " " "	1.15 A. M.	8
9	Simoen Fitch	W	25	M	1	1	2		" 7	" " 5th L. turnout	1.20 A. M.	9
10	Novel C. Ramsey	W	25	M	1	1	2		" 7	5th L. at Cab	1.40 A. M.	10
11	John Stone	C	35	M	1		1		" 7	M. H. double parting bet. 6 and 7 Rt	6 P. M.	11
12	Edward Hamrick	W		S				Trapper	" 7	" " " " " " " "	" "	12
13	L. E. Dotson	W	20	S					" 7	" " " " " " " "	" "	13
14	Robert Ball	C	22	M	1	1	2		" 7	" " " " " " " "	" "	14
15	Isaac Morris	C	23	S					" 7	" " " " " " " "	" "	15
16	Beverly Agee	C	22	S					" 7	" " " " " " " "	" "	16
17	Smith Franklyn	C	19	S					" 7	" " " " " " " "	" "	17
18	Hollister Noel	C	18	S					" 7	" " " " " " " "	" "	18
19	Walter Dennis	C	21	S					" 8	5 Rt. 75 ft. inside	4 A. M.	19
20	A. P. Chappel	C	20	S					" 8	" " 200 " "	" "	20
21	C. C. Stewart	W	36	M	1	5	6		" 8	" " double parting by room 18	7 P. M.	21
22	Charles Downey	W	23	S			1		" 8	" " 50 ft. inside room 18	11.15 P. M	22
23	William Sledz	C	42	M	1		1		" 9	M. H. X Cut 230 ft. from 8 Rt	4 P. M	23
24	Granville Holmes	C	45	M	1	5	6		" 9	" " 100 ft. from 8 Rt	4 P. M.	24
25	John Clair	W	25	S					" 9	" " near 8 Rt		25
26	Fred Arnold	W	20	S					" 9	" " " " "		26
27	William Massie	C	30	S					" 9	" " " " "		27
28	A. J. Fritt	W	35	M	1	4	5		" 9	" " " " "		28
29	Berry Tucker	W	22	S					" 10	8 Rt	4 A. M.	29
30	Julius A. Sanner	W	30	M	1	1	2			" "		30
31	Samuel Shuff	W	25	S						" "		31
32	R. B Long	W	40	S				Fire Boss	" 10	" " near face	10 30 A. M.	32
33	Ernest Long	W	12	S				Trapper	" 10	7 L	6 P. M.	33
34	Moses Daniel	C		S					" "	Rescuers kept no record		34
35	Carl Downey	W	20	S					" "	do		35
36	William Wood	C	20	S					" "	do		36
37	John L. Ward	C	20	S					" "	do		37
38	Arthur Haut	C		S					" "	do		38
39	Luther Thaxton	C		S					" "	do		39
40	Abbert Collins	W		S					" "	do		40
41	Edward Harvey	W		S				Trapper	" "	do		41
42	Wm. Hammick	W		S					" "	do		42
43	Thomas Long	W		S				Trapper	" "	do		43
44	James Long	W		S				Trapper	" "	do		44
45	Charles Perfader	W		M	1	3	4		" 19	X Cut on M. H. at 5 Rt		45
46	Thos. L. Johnson	C	16	S				Trapper	" 23	Left return air course 150 ft. from 4 R. overcast		46