

REPORT OF EXPLOSION

at

BANNER MINE

NEAR LITTLETON, ALABAMA.

APRIL 8, 1911.

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This disaster was the greatest one in the history of coal mining in Alabama insofar as the loss of life was concerned. At least 128 men lost their lives, of whom about 90 per cent were negro convicts. The other men in the mine were white convicts and free negroes who were employed as shot firers and foremen. The machine runners and helpers and the foremen and assistants had not yet entered the mine for work when the explosion occurred, with the exception of O. W. Spradling, an assistant foreman, and Lee Jones, the shot firer, (both free white men), who were in the mine and were killed. They were found on the left haulway.

Location:

Banner mine is near the station named Littleton, Jefferson County, about twenty miles northwest of Birmingham, on the Southern Railway, and the Cane Creek division of the Louisville & Nashville Railroad.

Management:

The mine is owned and operated by the Pratt Consolidated Coal Co. The labor was composed of short-term county convicts sent to the State

Penitentiary and from which they were leased to the coal company by the officials of the State Penitentiary. A barrack<sup>s</sup>, surrounded by a stockade, was provided at the mouth of the mine for the convicts.

The Explosion:

The explosion occurred at about 6:20 A. M. Saturday, April 8, 1911 as indicated on the Fan<sup>R</sup> record, Plate 1. It was customary to allow the convicts to cease work sooner on Saturday than on other days, and accordingly they entered the mine at an earlier hour than usual on this day, or about 6:00 A. M. Mr. John Cantly, the mine foreman, and Mr. J. T. Massengale, his assistant, were standing near the mouth of the slope when the explosion occurred. Mr. Massengale reports that he heard a sound resembling a distant shot and at once observed smoke coming out of the mouth of the slope, accompanied by a shower of loose gravel. This smoke and gravel appeared about one minute after the sound was heard. On looking toward No. 2 <sup>shaft</sup> he saw a cloud of smoke arising from it also. Mr. Massengale went down the slope at once, passing several negroes enroute, who were shouting and crying out as they ran up the slope to the entrance of the mine. He proceeded with a naked light to the scale house near the bottom of No. 1 shaft, where he procured safety lamps. He took these lamps to the outside, cleaned and filled them and then returned with several men, went down the slope and proceeded through the four<sup>th</sup> left above through No. 20<sup>29</sup> room into the third left. His party heard three shots after the explosion as they were going inbye after obtaining the safety lamps. He brought 16 or 18 men alive, out of the third left (third left above shaft) whom he found at work as if nothing had happened. These men reported that they felt a disturbance of the air, but did not attach much importance to it. Moreover they were convicts and were under strict discipline and would only leave when ordered.

REPORT OF EXPLOSION AT BANNER MINE, ALABAMA, April 8, 1911, by J.J. RUTLEDGE.

Map of Banner Mine.

Photograph A. Affected Area, Banner Mine.

Photograph B. Recording Gauge of Fan, No. 2 Shaft, morning of explosion.

Photograph C. Empty Cars wrecked at mouth of 7th Left Entry.

Photograph D. Coke in situ, Fifth Right Entry, 10 feet inbye No. 8 room.

Coal Analysis, Face section sample inbye rib No. 4, 5th right, Lab. #12083

do do do No. 2, 8th left, Lab. #12084

do do right rib main, 9th left, Lab. #12085

Composite Analysis of Lab. No. 12083, 12084 and 12085.

Report of T. W. Dickinson, Associate mine inspector to Gov. O'Neil, April 19.

Report of Robert Neill, Associate mine inspector to Gov. O'Neil, April 20, 1911;

List of articles found in a box in the mine.

Report of A. R. Brown, Foreman in charge of Birmingham Rescue Sta. April 29.

Report of Wm. A. Raudenbush, First Aid miner, Car No. 6, April 8, 1911.

Report of Dr. Walter O. Snelling on the sample of residue found in 5th right.

One man, Arthur Frost, came out of the fifth left out of No. 41 room, one and one-half hours after the explosion. He carried an open light. Another convict, Clarence Nixon, came to him and told him of the explosion. Six or eight men who worked in the fourth or fifth left entries got out in safety; all but two or three escaped. These men reported that they had dug from fourth left to third left, through a small piece of coal at the face of No. 47 room. Four of these men were hoisted out of No. 2 shaft at about 8:00 A. M., April 8, by means of the bucket which was still serviceable. These came out of the fourth or fifth left.

Previous to Massengale bringing out this party, two drivers and a powder man had come out of the mine by way of the slope. Massengale reported that when he came inbye, thirty minutes after the explosion, there was a team of mules lying dead in the left haulway at the mouth of the second left but there were bodies of men at that point, at that time; but when he returned about one hour later there were three men lying there. Two of these he revived, the third lay with his face in the water of the ditch and was dead. These men had been in the main air course. The bodies of Jones and Spradlin shot miners, were found on the left rib going inbye, left haulage between third and fourth left, and both headed outbye.

Mr. A. H. Brown, in charge of the Birmingham station, left Birmingham about 9:30 A. M. on the day of the explosion, with Mr. James Hillhouse, chief mine inspector. Mr. Hillhouse and Mr. Dickinson, one of the associate mine inspectors, remained at the mouth of the slope near the prison stockade and worked into the mine from that point. Mr. Brown was instructed by Mr. Hillhouse to proceed to the mouth of No. 2 shaft, where associate mine inspector Neill was in charge. The casing of the main fan placed near the mouth of No. 2 shaft had been partially destroyed by the force of the explosion, and repairs were being made when Mr. Brown arrived.

At the time the explosion happened, the Birmingham rescue station of the Bureau of Mines had not been fully equipped, and Mr. Brown had only mouth pieces for his rescue apparatus, no helmets having been sent him. Moreover, he had no connecting tubes for charging the apparatus, and, as he had been using his apparatus for training purposes in Birmingham, the oxygen bottles on his rescue apparatus were not fully charged. Mr. Brown made several attempts to persuade some of the men about the mouth of No. 2 shaft to put on the apparatus and assist him in exploring the mine, but failed. He descended No. 2 shaft and explored some of the workings, without using helmets and then wired for Car No. 6 which was then at Chatanooga.

Car No. 6 was at the Terminal station, Chattanooga, giving demonstrations before the City Police and Fire Departments. A telegram from Mr. Brown was received about 10:30 A.M. April 6 announcing the explosion at the Banner Mine and requesting that the rescue car be brought to the mine at once. Requests for movement were at once made of the officials of the C. N. O. & T. P. R. R., but owing to the fact that the car was not provided with a pass over that road and the officials were insisting that all orders for movement of rescue cars originate at the Cincinnati headquarters it was not until about 4:00 P. M. that the car was attached to a local passenger train on the C. N. O. & T. P. R. R. enroute to Birmingham. The Terminal station at Birmingham was reached at about 9:30 P. M. The car was soon transferred to the L. & N. R. R. tracks and finally reached the L. & N. R. R. station Birmingham. While at the L. & N. station the car was attached to a train the other cars of which were a baggage car and day coach. The latter carried the prison officials of the State of Alabama. While at the L. & N. station, some of the members of the Wyland first aid team, Doctor Caraway, Dr. W. S. Roundtree, physicians of the Tennessee C. I. & R. R. Co., Doctor Wright, a young physician of Wyland, Mr. J. D. Weldon, Superintendent

in charge of construction of the by-product coke ovens of T. C. I. R. R. Co., at Corry, Alabama and G. F. Gambill, his assistant, joined the party. These last two named gentlemen were members Wylam first aid corps and joined the car of their own volition, with a desire to be of any possible assistance. Doctors Garway and Roundtree had previously done excellent work at the Milga and Palos explosions at the first of which A. R. Brown's and James Brown's lives were probably saved by use of the pulmator in Doctor Roundtree hands, the first use of this instrument in the south.

When the train arrived at Littleton, the rescue car was placed on the side track on the hillside above the mouth of No. 2 shaft and about one-eighth of a mile from it. Only three of the four rescue apparatus on the car were serviceable and these together with two pulmators, were taken from the car and carried over to the mouth of No. 2 shaft by J. W. Kay, foreman, and W. A. Rundenbush, first aid miner on Car No. 8. When the party arrived at the mouth of No. 2 shaft, they found Mr. Robert Neill, associate mine inspector, in charge, and reported to him. Mr. Brown and H. H. Hamilton of the Du Pont Powder Co. and I. W. Newby of the Jefferson Powder Co., both of Birmingham met the party at the mouth of No. 2 shaft; Mr. Neill stated that it was the general opinion that some men were left alive in the fourth left and he desired the rescue party to explore that part and bring out any men found alive. A second bucket attached to a three quarter inch wire rope in poor repair, was hung from the small shaft tower over No. 2 shaft. This bucket had been used to hoist the coal for the boilers at No. 2 shaft and had been employed to hoist the four men from No. 2 shaft bottom a short time after the explosion. It had also been used to lower men and supplies down the shaft on April 8, while efforts were being made to restore ventilation. At the time the rescue men reported to Mr. Neill, (which was about 2:00 A. M., April 9) a party of miners who had descended No. 2 shaft some time previous, were engaged

in restoring the ventilation in the seventh left.

Doctor Rutledge inquired as to the condition of the ventilation at the bottom of No. 2 shaft and Mr. Neill assured him that it was good and that a party of men were at work below restoring the ventilation. On being thus assured, the party, composed of Messrs. Rutledge, Brown, Key, Rendenbush, Hamilton and Newby descended No. 2 shaft by means of a bucket. Doctors Roundtree and Garaway and Messrs. Waldon and Gorbill followed voluntarily, and were not requested to do so. Harry McGrory, a mine foreman, who had had some training with rescue apparatus followed at Brown's request, since it was thought that his services would be desirable. Hamilton and Newby had rendered excellent service at the Dulga and Pales explosions; at the latter explosion, Hamilton had worn the rescue apparatus and Newby had been trained by Rutledge at the Knoxville station in September, 1910. McGrory had had helmet training and Doctors Roundtree and Garaway had done excellent work at Dulga and Pales explosions. Waldon and Gorbill had not previously performed rescue work but were members of the first aid corps. Gorbill was a graduate mining engineer.

The rescue party carried five rescue apparatus into the mine, four having helmets and one mouth breathing pieces. This was all the rescue apparatus available and serviceable. On arriving at the shaft bottom, it was found that some of the shaft sets near the bottom of the shaft had been displaced by the explosion. There was a man at the shaft bottom attending to the bucket signals. The party found the air good at the shaft bottom, as Mr. Neill had stated, and they advanced along the main entry away from the shaft bottom toward the fourth left "above shaft". Enroute they passed through a canvass brattice thrown completely across the main entry. This had been done to allow the men to work on the seventh left entry where they were restoring the ventilation at this time. During the trip from the shaft bottom

to the mouth of the fourth left, two rather heavy falls were passed over with little difficulty. These falls were caused by the dislodgment of the overcasts by the force of the explosion. In passing through the canvass, the party went into the return air current. Arriving at the mouth of the fourth left, good air was found but there was an odor of afterdamp. Brown, wearing the rescue apparatus fitted with mouth breathing piece, Baudenbush and McCrory each wearing rescue apparatus equipped with helmets, went into the fourth left to explore it. Newby and Hamilton, wearing rescue apparatus equipped with helmets, acting as a reserve, were stationed at the mouth of the fourth left. The remainder of the party were unprovided with rescue apparatus. A dead negro was lying at the mouth of the fourth left, at the place where the party stopped. Brown was instructed by Rutledge to explore for thirty minutes, fifteen minutes going inbye and fifteen minutes coming outbye and then return to the main party at the fourth left. This was done and Brown reported "no living men found". As all the rescue party were in good condition, Brown was instructed to go for one hour, thirty minutes going inbye and thirty minutes coming outbye, and then to return to the main party. The face of the fourth left was in 3200 feet from the main entry and it was thought that the party could easily make the round trip in one hour.

The entire reserve party was at the mouth of the fourth left, Hamilton and Newby with apparatus, and Rutledge had just looked at his watch and remarked that Brown's party had been gone thirty minutes and would, at that moment, be starting to return, since his own and Brown's watch had been set together. At this time, Key complained of not feeling well; Doctor Caraway gave him oxygen from the pulmotor and Key soon reported that he felt better. Rutledge started to rise to his feet. The remainder of the party were sitting. Rutledge noticed that Walden who was next him, was nodding his head and moaning; at the same instant Gambell fell over on his face and the Wolfe Lamp on the switch at the mouth



4th left suddenly went out. Rutledge then grasped hold of Weldon's jacket and began to drag him toward the bottom of number two shaft, Doctor Roundtree doing the same with Gambell. Both Gambell and Weldon were wholly unconscious by this time. Rutledge instructed Hamilton to go out at once for help and to tear down the brattice of canvass curtains. After Rutledge and Roundtree had proceeded about thirty feet outbye, dragging Weldon and Gambell, they heard Doctor Caraway calling on Roundtree for assistance. Roundtree replied that he was unable to help him. Rutledge reports that he had only taken about three breaths, each one becoming more difficult than the preceding, when his knees began to strike together and the back of his head to throb so painfully, that he was compelled to relinquish his hold on Weldon's jacket. He then staggered over towards the left rib, meanwhile instructing Roundtree who had dropped Gambell to go out for help, and to tear the brattice down, and then fell, as his knees could no longer support him, and the left side of his head struck the left rib. Rutledge has no further recollection until he found Brown and Sandenbush working his arms as he lay on his back after him on the top of the large fall. He immediately instructed them to go back after the others as he was then all right. Soon afterwards he was carried out to the shaft bottom and hoisted to the surface in the basket. On reaching the surface, he checked his men and was then laid out in front of the boilers in company with Roundtree and Caraway. All were very cold and felt nausea. Upon feeling somewhat relieved, Rutledge attempted to walk but collapsed again and was unconscious for about twenty minutes.

From best information obtainable, the party was unconscious for one-half to three-quarters of an hour before being found by Brown's party. Doctor Jackson, T.C.I. & E.R. physician at Elostburg, Ala., and I. C. Dalrymple, Superintendent at the same place, together with John and Will Weill, sons of the inspector, Robert Weill, rendered valuable assistance in reviving the party. Doctor

Jackson had been left outside with Doctor Wright as a reserve. Doctor Wright descended the shaft and rendered valuable assistance to the rescue party. Dalrymple, because of previous injuries, could not go below, but gave valuable assistance on the surface. Doctor Jackson reported that he and Gambill were the worst affected, Gambill's pulse being about forty and his body perfectly rigid. Key was revived first. The pulmotors were used very effectively as well as the aromatic spirits of ammonia. In fact, the latter restorative won great favor among the negro convicts who were in the rescue party. Rutledge, Roundtree, Weldon, Caraway, Gambill and Newby were removed to the rescue car and placed in the berths. By 4:00 P. M. all had recovered sufficiently to walk about but still complained of having a violent headache.

The noxious gases were evidently in a mass, and came out at one time. There was good air at the mouth of the fourth shaft up to the time the rescue party was overcome, and there was good air there soon after, for the men who came from the surface worked without rescue apparatus.

The sudden outflow of noxious gas may have been caused by the stoppage of the fan or by the crew of men brushing out some gas from the seventh shaft entry, when they were advancing the ventilating current at that point. Some of those on the surface reported that the fan at No. 1 shaft was not running and the fan at No. 2 nearly stopped at the time the rescue party was overcome.

About 1:00 P. M., Sunday April 9, Raudenbush and Hamilton took the emergency cage and cable from the car at the request of Mr. Webb, chief engineer of the Pratt Consolidated Coal Co., and hung it at No. 2 shaft in place of the defective rope and buckets, previously used. The men who were overcome had recovered sufficiently to walk about by 6:00 P. M., April 9 (Sunday). Weldon

Webb and Doctors Roundtree, Wright and Caraway returned to Birmingham. As some of the men still complained of severe headache, it was decided to defer further rescue work until the next day, since Brown's explorations had shown that no living men remained in the part of the mine most likely to contain survivors of the explosion.

During the evening and night of April 9, the Chief Mine Inspector's party working from the main slope removed thirteen bodies from the main haulage way, as well as some mules and horses. The rescue party in the seventh left, which went down No. 3 shaft, found and removed twenty-two bodies from the seventh left. Early on Monday morning, April 10, the rescue party reported at mouth of No. 2 shaft with rescue apparatus, but they were informed that they would not be allowed to enter the mine for six hours, as the air was to be reversed, following completion of repairs to the fan at No. 2 shaft. All the rescue work would be suspended and every living person removed from the mine until the air was thoroughly reversed to an exhaust.

The rescue party transferred operations from No. 2 shaft to the mouth of the main slope, at the prison stockade. The Chief Mine Inspector and his associate, Mr. Dickinson, were in charge at this point. As the Director had wired that he was enroute to the mine from Birmingham, Hutledge awaited his arrival at the mouth of the slope, meanwhile, sending Hamilton and Raudenbush with rescue apparatus down the main slope. They reported to associate Inspector Hill and he instructed them to inspect the fifth right entry, which they did, locating sixteen bodies. The Director arrived about 4:00 P. M., accompanied by Mr. Erskine Hawsey and the former accompanied the rescue party into the mine. The Director, Hutledge, Key, Raudenbush, Brown, Hamilton and Hesty, working in crews of three men each, with rescue apparatus explore the following working places and returned to the mouth of the main slope about 2:30 A. M., Tuesday, April 11:-

Fifth right, in which Raudenbush and Hamilton previously located sixteen bodies. The helmets were used to assist Mr. Webb's men in removing bodies from

rooms in which it was not possible for unprotected men to enter.

Sixth right, where four bodies were found on the sidetrack near the mouth of this entry, four bodies between switch and main slope, and two bodies in room, making a total of ten bodies.

Main slope air course, in which Newby, Eadsenbush and Brown went through a brattice placed across the main slope and found twelve bodies in about two feet of water at the face of the left slope air course.

In the ninth left there were found some heavy falls on the entry and two bodies were found in each of Nos. 1, 2, and 3 rooms.

The Director, Hamilton, and Brown explored the eight left for a short distance but had to return as the roof was too dangerous to permit of safe passage under it. So far as examined it was found to be dry and dusty. The party left the mine at 2:00 A. M., April 11. The Director left about 10:00 A. M. on April 11 and the remainder of the party re-entered the mine at noon and continued the work of examination and exploration, assisting the local men in locating the bodies and occasionally using the rescue apparatus to remove bodies from places, full of gas, into which the local men could not go.

#### Coal Seam

The coal seam worked is the Big or Mary Lee seam. This seam is also worked at Dale, Alabama, where an explosion occurred on May 7, 1914, killing eighty-seven men. The section of this seam is as follows:

COAL SAMPLE SECTION.

Roof (Main) Sandstone and shale.

Roof (immediate) Grey shale

(1)	Coal	- - - - -	1 ft. 2 ins.	)	
(2)	Gray shale(x)	0 - 1		)	High Top.
(3)	Coal	- - - - -	0 8	)	
(4)	Coal	- - - - -	1 - 8		
(5)	Dark slate (x)	- - - - -	0 - 1		
(6)	Coal	- - - - -	0 - 6		
(7)	Hard, dark shale (x)	- - - - -	1 - 6		(Middle man.)
(8)	Coal	- - - - -	2 - 5		
(9)	Grey shale (x)	- - - - -	0 - 1		
(10)	Coal	- - - - -	<u>0 - 7 1/2</u>		
			8 - 7 1/2		

The Mary Lee seam at Banner is quite level and free from faults and serious disturbances of the bed.

The Mary Lee bed is really two beds of coal together with eighteen inches of hard, dark shale or "middle seam" between. The lower five to seven feet of the entire seam is mined in the advance workings and the upper portion or "high top" left as a roof to be recovered when the pillars are drawn. This "high top" carries a great deal of methane as does also the same coal at the Palms and Bossie mines which are in the same bed and in a direct line with Banner. To quote the miners "the gas from the 'high top' lights before the coal has reached the floor."

#### Character of Coal.

When rescue car No. 8 stopped at Banner for several hours on February 22, 1911, Mr. Rosemond, the Division Superintendent of the Pratt Consolidated Coal Co., gave Mr. Rutledge, who was in charge of the car, a very cordial invitation to visit the surface plant and underground workings. In company with Mr. Rosemond, Mr. Rutledge inspected the surface plant at No. 1 shaft and noted the fine coal dust lying on the surface of the ground about the tipples and remarked about the coal being evidently high volatile and making very fine dust.

On account of the short stay of the car at Banner, there was not sufficient time to visit the underground workings. Moreover, as it was a convict mine and the foreman and his assistants were required to keep the convicts in the mine, they could only visit the car in relays and there was no opportunity to have them act as guides during the visit to the underground workings. The stop at the mine was made at the express request of the Chief Inspector as he stated that he desired the Banner mine foreman to see the car and its equipment.

## Method of Working

Banner mine was first opened October 14, 1904 by a slope and this slope is now used as a main entrance for men and mules only. Subsequently, the main hoisting shaft, or No. 1, was sunk and recently No. 2, the air shaft. Both No. 1 and No. 2 shafts have double hoisting compartments with an air chamber at one end and over which the fans were placed. Only enough coal is hoisted from No. 2 to supply the fan boilers.

The method of working is pillar and room, entry and air course. Rooms are turned to the rise. As a rule there are two roads in every room, the curved road branching off from the straight road just inside the neck of the room. All coal is cut by electric chain mining machines and the coal bed is worked in two lifts, the coal under the "middleman" being first removed, then the "middleman" which is gobbed in the rooms, cross entries and air courses. Finally the coal above the "middleman" is shot down and loaded out the upper portion of this twin bed, the so called "high top" being left up as a roof in the advance work, but is recovered in some cases when the room is worked to its limit. Up to the time of the explosion, no pillars had been worked as it was a new mine and the plan evidently was to work all the coal to the boundary and recover the greater part of the "high top" when the pillars were robbed on the retreat.

The main entries were driven about 18 feet wide with 40 chain pillar, the cross entries and air courses were driven so that the "middleman" can be gobbed in them. The clear space in the entries and air courses is about seven feet high by nine feet wide. The remaining space is tightly gobbed with "middleman". This gob in rooms, entries and air courses gives a lodgment for dust.

The mine was splendidly laid out. Each entry and air course had its own air, there being an overcast across the mouth of each entry. There was a main air course on each side of the main slope, which slope extended from the

slope south to the limit of the advanced mine workings. The main slope had no doors nor were there any of the cross entries with the exception of an unimportant door on the third right, which door was not actually required by the system of ventilation.

About forty per cent of the coal was said to be taken in the advance workings. Main entries were driven eighteen feet wide, with roof coal taken down to the slate and no gob left. Cross entries and air courses were driven eighteen feet wide with roof coal left and about half the width filled with gobbled "middlesmen".

The main entry pillars were forty feet thick and side entry pillars twenty feet thick. Room pillars were twenty feet thick and barrier pillars twenty five feet thick. Rooms were driven forty two feet wide to a depth of 260 feet and were widened out at one side and the nooks were about nine feet wide by twenty feet deep and six feet high. With the possible exception of the gobbing of the "middlesmen" in the cross entries and air courses their plan of working could hardly be improved on for Alabama mining conditions.

#### Blasting Methods and Explosives.

All blasting was said to have been done by special shot crews though this rule may not have been strictly adhered to, as Dr. Macsangale's testimony indicates.

Bituminite No. 1, a permissible explosive, made by the Jefferson Powder Co., Birmingham, Ala., was used for blasting both coal and "middlesmen". That this explosive was used exclusively except for blasting the overcasts, needs to be have been quite well established. Fuse and S-I detonators were used for blasting. The explosive was carried into the mine in gunny sacks containing from 40 to 50 pounds each.



### Explosives:

For blasting coal and rock No. 1 Bituminite was used. Detonators and fuse were kept in the entries and the explosive kept in the air courses. Each shot firer had two boxes one for detonators and fuse and the other for explosive. This plan was followed as a result of the explosion in November, 1910 and had the approval of the Chief Mine Inspector.

### Haulage:

The haulage on the main roads and cross entries was by means of electric trolley motors, mules being used to gather the mine cars in the rooms and faces of cross entries and air courses. Supplies were sent down the main slope by means of a slope haul.

### Sprays:

There were at least seventy five water sprays in the mine all located in the cross entries and they were run continuously. No exhaust or live steam was used. In the seventh left the water sprays were placed at distances of seventy five feet. These sprays were of the type made by the American Moistener Co., and they were under a pressure of 150 lbs. per square inch. Banner coal bleeds moisture very readily and water was found at nearly every working space in some considerable quantity when the examination was made.

The Chief Inspector of Mines for Alabama always referred to Banner mine as one of the best watered mines in Alabama and he took great pride in referring to the water sprays in that mine. The sprays were placed in the cross entries along as the slope and its air courses were usually quite damp.

### Electric Power:

Electric power was used in the mine for lighting, pumping, haulage and coal cutting. The lights were 250 volts D. C. system as were also the pumps and haulage motors. For coal cutting, eleven Sullivan short wall

mining machines on a 250 volt D. C. system were employed. There were five electric haulage motors on 250 volt D. C. current.

#### Feed Wire:

The power was said to have been on this wire at the time the explosion occurred. This machine feed wire was insulated and when necessary the insulation was scraped off for a distance of about two inches at the rock mouths in order to apply the clips for the connection to the machine feed wires. The return wire was bare.

#### Fans:

The volume of air circulating through the mines the time of the explosion was about 180,000 cubic feet per minute. There was a small fan for emergency use at an air chamber at No. 1 shaft; this fan was operated by electric power. At the top of No. 2 shaft there was a large fan, placed near an air chamber and operated by steam power; this was generally used as an exhaust fan and was fitted with an explosion door. There was a wooden conduit about twenty feet long which connected this fan with the air chamber. The explosion destroyed this conduit. After some repairs had been made, this fan was made a blowing fan and the hoisting compartment was kept covered with boards and canvas to prevent short circuiting of the air. To assist this fan at the air shaft, the fan at the hoisting shaft was also started exhausting. The lower thirty feet of the partition between the air chamber at No. 2 shaft of the hoisting compartment had been blown out by the force of the explosion.

#### Ventilation:

The fan at air shaft (No. 2) was exhausting at time of explosion. The hoisting shaft (No. 2) was intake, also the slope.

Shaft No. 1 hoistway was intake.

Shaft No. 1 air chamber was exhausting.

All entries were intake, air courses return. All separate splits

and substantial concrete overcast had been erected over the mouth of each cross entry and regulators at the mouth of each air course. There were six air splits in the mine.

#### Previous Explosion:

On the day previous to Thanksgiving Day, November 25, 1910, there was an explosion, presumably of Bituminite, on the seventh left entry between Nos. 14 and 15 rooms in which three men were killed. One man was blown against the rib opposite to the box and badly mangled. It is reported that 100 sticks of Bituminite exploded about 10:00 A. M. on the date just given. Two negroes working nearby were not injured but the force of the explosion blew the masonry stopping immediately behind the power box into the air course. The bodies of the dead were found eighteen feet upbye of No. 14 room. There was a crow of men engaged in putting in a spray and also a switch near the magazine at the time of the explosion. Five trackmen and two pipemen comprised a crew of company men. One of the pipemen was badly burned and also one of the trackmen, and they were in the hospital three weeks. At the time of this explosion there was one shot firer for each heading and they fired all day time. The old magazine was between No. 14 and No. 15 rooms, and the new one between Nos. 17 and 18 rooms counting lobby from the main shaft.

#### Fire:

There was said to be a mine fire in the first left but it was a very considerable distance from the main slope. It was well stoped off and carefully watched, and had given no trouble for sometime previous to the explosion. It could not have had any connection with the explosion.

#### The working places in the mine were in the following condition:

First left not working.

Second left not working.

Third left not working.

Fourth left, some four or five rooms were working "high top".  
Fourth left "above No. 1 shaft" not working but coal from third left above  
No. 1 shaft was hauled through it.

Fifth left was worked from the fourth left by a cross cut and  
about five rooms were working.

Sixth left not working.

Seventh left had twenty rooms working and two rooms necks turned.  
It was worked out up to No. 10 room.

Eighth left was working and had been driven in a considerable  
distance from the slope.

Ninth left was working and had been driven in some distance.

Tenth left was working and had been driven in 350 feet from the  
slope.

Eleventh left was working and had been driven in about 200 feet  
from the slope.

Twelfth left was the last entry turned and was in eighty feet  
from the slope.

First right was not working.

Second right not working.

Third right not working.

Fourth right not working.

Fifth right working and twelve rooms turned, last eight rooms  
nearest face working. The mouth of this entry was nearly opposite the  
mouth of the seventh left.

Sixth right was working and had some five or six rooms turned.  
Together with the fifth right this was the only right entries working.

Seventh right not working.

Eight right not working.

Ninth right not working.

Examination of the Mine After Explosion:

Messrs. Rutledge, Randonbush and Kay of Car No. 6, Brown of the Birmingham station, James Williamson, a practical miner working in the Cardiff, Alabama mines and Messrs. Hamilton and Howby of the Du Pont and Jefferson Powder Companies respectively were in the party making the examination. They were later joined by Mr. Rice. This rather large sized party was necessary on account of the fact that at least one half of the men acted as a reserve, waiting with helmets fitted, while the others examined the working faces; moreover at least two of the examining party were necessarily employed in testing for gas, examining the roof, and locating bodies which had escaped the first party's search. A number of bodies were found by the examining party during the period of examination. Mr. Williamson's services were paid for by the Pratt Consolidated Coal Co., while the Messrs. Hamilton and Howby's services were rendered gratis.

5th Right Entry.

This entry had been idle for the three months previous to the explosion while the entry track was being raised. This work was completed and the entry had been opened and inspected by John Cantly, mine foreman, and J. T. Haasengale, assistant mine foreman on Thursday preceding the explosion. The Saturday shift was probably the first to produce coal since this entry had been reopened.

The face of this entry was squared up and across cut to the air course had just been started. Two shovels filled with fine coal were found at the place where the cross cut had been started. There were two open cross cuts through to the air course. The track led through the entry one from the entry to the air course. There were no canvas curtains or doors in the cross cut. There was 5 inches of heavy caked coal dust on ribs of cross cut through which the track led from the entry to the air course. In the face of the 5th Right Air Course the middleman had been shot down and there were several inches of water at the face. The face was clear of gas.

Immediately outside the track leading through the cross cut in the air course, there was found an open box containing 58 sticks of No. 1 Bituminite. The paraffined paper about the sticks of Bituminite was blackened but not burned. There was also found on the gob, on the outside rib of this cross cut, a scorched and blackened newspaper bearing the date of April 4, 1911. The 5th right air course was found to be quite dusty but it was not possible to go outside through it to the main slope as there were 4 feet of water near the mouth of the air course. The stopping in the 5d-cross-cut from the face of the 5th right air course was

up and in good condition as was also that in the 4th crosscut. The air course was dusty, but at the fourth crosscut there was sufficient water to prevent further progress. The explosives were usually kept in one box in the air course while the fuse and detonators were kept in another box on the entry. This was reported to be in accordance with the chief mine inspector's instructions.

#### 5th Right Entry.

The overcast at the mouth of the 5th right was out and the debris had been blown outbye.

In this entry 12 rooms were turned and 8 of them were working, the 8 nearest the face of the entry. Two bodies were found at the mouth of No. 5 room, or what was known as No. 5, but was really No. 7 counting in byt from the slope. These men were found on April 10, by Hamilton and Hamilton using helmets. Thick, colored road dust was found on the inbye side of the props in the room neck of No. 5 room. The coal in the room was shot down and there was a half loaded car at the face.

On the entry inbye of No. 7 room (or what was known as No. 7) there was colored road dust at least 2 inches thick on the inbye side of the props. There was coke in situ on the roof of No. 7 room. A gray rat found on the entry, half way between rooms Nos. 7 and 8. A body was found 10 feet inbye No. 8 room on the entry with head placed outbye. This body was burned to the waist and the shoes scummed down to the counters. Presumably this was the body of a yellow negro who was carrying powder for use in this heading. Long flakes of gray coke - coke in situ - hung from the coal roof just outbye this body (see photograph No. \_\_\_\_). Near this body was found 24 sticks of No. 1 bituminite unburned, one broken in two at the middle, 200 feet of Crescent fuse, smoked but not burned,

and also 1 coil of fuse burned up entirely and only the ashes remaining and the remains of a burlap sack. The explosive was carried in this sack. On the track, near the unburned powder, was found a quantity of whitish material evidently the residue from the burned powder. This was analyzed and results of analysis are appended. In a crosscut about 10 feet outbye of No. 9 room was found what was evidently the magazine for this entry. This consisted of a masonry wall placed about 5 feet in front of the stopping. An open doorway about 2 1/2 x 3 feet was cut in the outer wall and in the door way was found, undisturbed, a miner's full dinner pail. Inside the magazine was found 25 sticks of No. 1 Bituminite, a box containing 100 detonators, and 3 primers made up. The explosives were fresh and the magazine was uninjured. Just outbye the magazine was a badly damaged spray. One body, a negro, was found in front of the magazine. The flakes of gray coke were from 2 to 3 inches in length and 1 to 1 1/2 inches thick (see photograph).

Caked road dust was found on the inbye side of the road props in room No. 10 at the cross cut at No. 9. There was also coke in situ on the roof near the cross cut. At the face was a car half loaded. Three dinner pails were found in this room (No. 10), also a new cap, lamp, and shovel. The body of a white convict, not burned, was found lying face upward on the left rib of the room. Saturday was said to have been this man's first shift in the mine. One body, that of a negro, badly burned was found on the entry just outbye of No. 10 room. There was an open-ended oil berral in the mouth of No. 10 room. The machine was found in No. 11 room, and 2 bodies of negroes were found near it. The "bug dust" was still at the face of the room. The coal in No. 12 room had been partially loaded. There were no bodies in No. 12 room. Considerable coke in situ was found on the roof at the mouth of No. 12.



There was a lock  
 load of fresh probe in it. The face of the entry was squared up and a  
 No. 6 room had just been cut in had also No. 7 and there was a  
 mounting of wood just on the right side of the probe.  
 at the fireplace out in No. 4 room, and in this room there was a heavy  
 leaning the top of the end of No. 4 room. A medicine was found  
 was found here. Opposite the mouth of No. 4 room was found a box con-  
 siderable was found in No. 2 room, and the body  
 There was one small between rooms No. 1 and 2 and also one between rooms  
 empty area was found on the side track. They were blown away.  
 The top of the entrance of this entry had been blown off and

THE NORTH ENTRY

was full of water and inaccessible.  
 between the entry and air course. The face of the air right air course  
 opposite the entry 12 of No. 12 room. This made three open passages  
 had no stepping in it. The last open area out to the air course was  
 air course opposite the mouth of No. 12 room and this was open and had  
 were found at the face of the air right. There was a crosscut to the  
 clothes having been burned partially off. The bodies of two negroes  
 The body of another negro was found just outside of No. 12 room, the  
 at the mouth of No. 14 room the body of one negro was found.  
 passed on the roof generally at the mouth of No. 12 room.  
 the neck of this room the bodies of four negroes were found. Come up-  
 No. 12 room. Come in with was found on the roof of No. 12 room and in  
 The body of a negro, badly burned, was found at the mouth of  
 been no door here.  
 The switch into the air course was just outside No. 12 room and there had

shot down and water at the face of this air course. No gas was found there.

The last 2 breakthroughs between the 6th right entry and air course were open and another one was started. The outbye breakthrough had the track in it leading from the entry to the air course. The door in the stopping at the mouth of this air course was blown outbye.

#### 7th Right Air Course.

The regulator was out, having been blown inbye.

#### 7th Right Entry.

The left rib of the cross cut from air course to entry was scored and brightened, and coked road dust was found on the right rib towards outbye end. The overcast at the mouth of entry was cut and on the bottom of the entry. Going outbye on the main slope the first stepping on the left was blown out toward main slope.

#### 8th Right Entry.

Water extending to within 20 feet of the mouth of this entry prevented access to the face. There were several small falls at the mouth of the entry. There were two 10-ft. arches in the concrete overcast at the mouth of this entry and these had been entirely destroyed.

#### 8th Right Air Course.

About 20 feet inbye the mouth of this entry an empty car had been pushed to the left rib. There was dry dust on everything in the entry. A concrete overcast had been blown across the main slope from the left to the right rib of the slope going inbye into the mouth of the

8th right air course. This overcast consisted of two 10-ft. arches in order to save height with a center support built between the two tracks.

#### 8th Right Entry.

Two demolished mine cars were found in the mouth of this entry; they had been blown from left to right inbye this entry and 9 empty cars on the side track were broken and blown to the left on the inbye side. No. 1 room was not working, neither was the entry. There was a pronounced covering of dust on the top of the water in this entry that looked exactly like the floor of the entry. On the main slope outbye 8th right, the first stopping on the right had been blown outward to the main slope. The sump on the main slope was opposite this stopping and on the left rib going outbye.

#### 9th Right Air Course.

Dry dust was found on everything in this entry. An empty mine car was pushed to the left rib 20 feet inbye the mouth.

#### 9th Right Entry.

A small fall of rock was found at the mouth of this entry and water prevented access to the face.

#### 7th Left Air Course.

The observations in this air course were taken from the mouth of the air course inbye. The regulator at the mouth of the air course was blown inbye and totally destroyed. No. 1 stopping was intact. No. 2 stopping was also intact but the pillar near it was scored. No. 3 stopping was standing but had a small hole, the size of a lead pencil,

at the bottom and this apparently had been blown through from the entry. No. 4 stopping was in good condition. No. 5 stopping was out and had been blown violently from the entry to the air course. No. 6 stopping was out, but it was not possible to decide from the air course side which direction it had gone. Stoppings Nos. 7 and 8 were blown out and into the air course. No. 9 stopping was standing intact. No. 10 stopping was out and had been blown into the air course. No. 11 stopping was standing, but two stones had been blown off at the top next on the air course side. Still the stopping did not leak. No. 12 stopping had a hole about one foot square blown through at the top. A small piece of canvass had been blown from the entry into the air course. No. 13 stopping was cracked but still standing. It had evidently been subjected to violent pressure from the entry side. No. 14 stopping had been blown through at the bottom as dust on the bottom showed but it was not possible to see through the stopping. No. 15 and No. 16 stoppings were intact. No. 17 stopping was standing but air had been blown through at each corner and in the center as evidenced by the position of the dry dust on the floor. No. 18 stopping was not damaged. No. 19 stopping was entirely out, having been blown into the air course from the entry.

Up to this point (the examination was inbye on the 7th left air course), the inbye side of the props was clean and the outbye dusty, but opposite No. 19 stopping coked road dust appeared on the inbye side of the props. This was the first coked road dust observed in this air course. A cloth sticking in the gob had been blown outbye. Several props between stoppings Nos. 19 and 20 had coked road dust on the inbye side, except for that opposite No. 19 stopping, this was the first coke seen in this air course.

No. 20 stopping was out and had had a canvass sheet in it at the line of the explosion. This cloth was blown outbye, on the air course, to a point opposite No. 19 stopping, where it had caught on the gob. The loose end was extended outbye, thus indicating the direction of the final movement of the explosion. The road dust had been blown inbye at this point. No. 21 stopping was open and the track led through it from the entry to the air course. There was probably a canvass curtain in this cross cut at the time of the explosion. A loaded mine car was found at the face of the air course, the inbye end being indented. No bodies were found here. The face of the air course was almost squared up.

In going through the cross cut to the 7th left coked road dust was found on the outbye edges of the ribs. The 7th left entry had 20 rooms, 10 of which were worked out and 10 being worked at the time of the explosion, and two room necks were turned. The entry was being explored by the local men at the time the party from the rescue car was overcome and Sunday night 22 bodies were found and removed from the entry out to the main slope. During Sunday evening Hamilton was able to be on duty and he, together with Jas. Williamson, a practical miner from Cardiff, Ala., assisted in exploring the 7th left. Necessarily, much of the evidence as to the appearance of the bodies found in this entry was hearsay except for the facts given by these two observers. The rescue party explored this entry Monday night and carefully examined it later when the ventilator had been restored.

On April 11, 12, and 13, the 7th left entry was carefully examined and beginning at the face the following observations were noted. There was coked road dust on the inbye faces of the ribs. A mine car loaded, level full with "bug dust" was within about 16 feet of the face.

The entry had been cut on the night of April 7, and it is believed that the men in the face of the entry had loaded the car of "bag dust" on the morning of the 8th, previous to the explosion. Three bodies, all badly burned, were found crouching against the outbye end of the car, and one badly burned body was found at the face. The position of these bodies indicated suffocation, rather than death from the force of the explosion. No 24 room had been necked and one body was found at it. On the entry from room No. 24 to room No. 22 there were heavy falls on the roadway and the roof was in a very dangerous condition. The rescue party worked under dangerous roof all along this entry. No. 22 room had been just undercut by the machine. No. 18 stopping was intact. Three bodies were found in No. 21 room. There was coke dust on the inbye edges of the props in the neck of this room. No. 17 stopping - a small one - was intact.

No. 20 room had just been undercut. The entry road props between rooms Nos. 20 and 21 were pushed inbye as were the gob props between rooms Nos. 21 and 22. No. 16 stopping was intact with several inches of water against it. In No. 19 room there was a loaded car on the straight track and also one on the curved tracks. One body was found at the face and also one at the mouth of this room and both were badly burned. In No. 18 room there was heavy coked road dust on the inbye sides of the road props and there was a loaded car on the straight track and no car on the curved track.

No. 15 stopping was in good condition. This stopping like all others in the cross entries was made of rock and cement and appeared to be about one foot thick. There was another wall similar to it built outside the stopping at a distance of 1 foot at one end and four feet at the other. A wooden powder box with the lid broken in and downward from the outside

was just behind this outer wall. The outer wall had been blown away from the inner wall or stopping. Inside the box were seen at the first visit, and without disarranging the contents of the powder box, a number of sticks of No. 1 Bituminite - eighteen- were counted. There was also an unburned gannysack in which powder was usually carried, in the box. The box and the sticks of explosive were not burned or even discolored by flame or smoke. The outer wall was said to have been standing before the explosion occurred. An empty oil barrel with one head out lay in front of the stopping and about 15 feet distant having the closed end towards the stopping. The barrel showed no signs of violence and had apparently not been disturbed. No detonators were seen in the magazine at this time. This was the magazine for this entry. In this entry three men were killed on November 25, 1910, by an explosion of 75 sticks of No. 1 Bituminite.

On April 9, 1911, two bodies badly burned and in a crouching position, were found just inside the magazine and on the left side next to No. 19 room. In No. 17 room two empty cars were found on the curved road. In No. 16 room there was a half loaded car on the curved track and two bodies were found here. No. 14 stopping was standing and intact. Against this stopping was a powder box containing 7 rolls of paper, 325 feet of Crescent fuse, 1 pair cap crimpers, 5 new files, 4 sticks of No. 1 Bituminite; about 40 No. 5-X detonators, and 2 rolls of friction tape; one-half gallon miner's oil, 2 balls lamp cotton, and 1 new hatchet handle. All the supplies were fresh and in good condition. In No. 15 room there was 1 empty car in the curved roadway.

In No. 14 room there was coked road dust on the inbye side of

the props in the room neck, also on the inbye edges of the coal in the ribs of the room neck. The roof coal in the room neck was blasted as if it had been subjected to great heat and flame. This room was finished and about ready for drawing the "high top" or roof coal on the retreat. In the entry the magazine was between No. 17 and No. 18 rooms while the powder box was between No. 14 and No. 15 rooms.

No. 13 stopping was out and a canvass sheet was in its place; this stopping was opposite the mouth of No. 13 room. In the neck of No. 12 room there was a heavy fall of roof coal. Air was blowing through from the air course at several places near the bottom of No. 12 stopping. A prop just outbye of No. 10 room was bent outbye at the bottom, as if the force of the explosive acted outbye. There was a bad fall at the mouth of No. 11 room.

No. 11 stopping had been blown out. This stopping was just outbye the neck of No. 10 room. This was the scene of the explosion of November 25, 1910.

In the neck of No. 9 room coked road dust was found on the inbye side of the props. One of the water sprays had been situated at the inbye side of the neck of this room. The roof coal at the mouth of No. 8 room was found to be in a dangerous condition.

No. 10 stopping was out and a canvass curtain had been placed in it. This was just outbye from No. 7 room. No. 9 stopping was out and had a canvass curtain in it. There had been a spray in front of this stopping and between rooms Nos. 6 and 7.

There was a heavy fall at the mouth of No. 6 room. No. 8 stopping was intact. At the mouth of rooms No. 4 and No. 5 large drops of moisture were observed on the roof. At the mouth of No. 3 room the coal



roof was in a very dangerous condition. Just outbye the mouth of No. 2 room there was a mine car badly damaged.

On the entry between rooms No. 2 and No. 1 were four empty cars badly broken and piled together by a force that evidently came outbye the entry. No. 1 room was at the beginning of the side track. There were two loaded cars on the outbye end of the side track. The overcast at the mouth of the 7th left was blown out, evidently outbye into the main slope air course. Five empty cars were piled in a heap where the overcast had formerly stood. (See photograph No. \_\_\_\_\_) These cars had stood on the side track and had been blown outbye at the other two (there were always seven cars in a trip) remained on the side track loaded. On the loaded track at the mouth of the 7th entry two loaded cars were found and three empty cars just outbye of the inbye end of the parting. The car on inbye inbye/end of parting had been broken. The switch was open and a large rock was lying against the outbye end of the car and ~~was~~ from appearance the car had been pushed inbye.

#### 6th Left Air Course.

This air course was found to be dry and dusty and there was very little coked road dust observed. The regulator at the mouth of the air course was blown inbye. The two stoppings on the main slope between the 6th left and 7th left were in good order.

#### 8th Left Entry.

The top of the overcast was blown inbye, but the sides were still standing. No. 1 stopping was up. There were six loaded cars on outbye end of the side track undisturbed and two empty cars on the inbye end of side track, both blown outbye against the loaded cars. A spray was

located just inbye No. 2 room and an empty car was in this room.

No. 2 stopping was up. No. 3 room had an empty car on each track and there was coked road dust on the inbye ends of the cars. One body was found in No. 1 1/2 room and one body in left hand road of No. 2 room. No. 3 room had 3 empty cars in it, coke in situ showed on the roof in front of each crosscut. This room had been worked up and the work of bringing down the high top on the retreat had been started.

In No. 4 room there were two empty cars on the left road; coked road dust was thick on the inbye side of the props. A mining machine was found at the mouth of this room. No. 5 stopping was standing and a powder box found near it which contained 75 detonators, 50 feet of fuse, but no powder. There was a spray at the outbye rib of No. 5 room. In No. 5 room, two bodies were found on the straight track. A loaded car was on each track. Coked road dust was visible on the inbye sides of the room props, especially opposite the crosscuts. Gas was found at the face of this room.

No. 4 stopping was up. In No. 6 room there was an empty car on each road and two bodies on the left hand track. There was also a heavy fall of roof at the mouth. No. 5 stopping was out. In No. 7 room three bodies were found on the straight track inside the room, and one at the room neck with arms about a prop. In No. 7 room there was coked road dust on the inbye sides of the props, especially up to the first crosscut. There was an empty car on the straight track and a loaded car on the curved track. There were minute coke globules on the coal roof at the face of the room and a heavy spattering of coked road dust on the inbye end of the loaded car. This room was undercut, and there was the bottom of an old shot hole on the solid along the left rib.

No 6 stopping was in place. No. 8 rock was squared up, and neither cars nor bodies were found in it. The middleman was ready for shooting. No 7 stopping was out. There had been a spray opposite it. A body was found under a fall at the mouth of No. 9 room. One body was found on the switch of No. 10 room.

No. 8 stopping opposite No. 10 room was out. In No. 10 room the face was squared up and an auger in the drill hole. Three bodies were found in this room. There was a spray just outbye No. 11 room.

No. 9 stopping between No. 11 and No. 12 rooms was out. Nos. 11 and 12 were room necks. The "bug dust" was still in No. 11, and the rock in No. 12 room. No. 13 room had just been started, a body was found in the neck of this room.

No. 10 stopping, opposite No. 13 room neck, was out. There was a one-half inch layer of coke globules in the neck of No. 13 room. Two bodies were found on the entry between rooms Nos. 13 and 14. One body was found outbye No. 14 neck. No. 14 room neck had been undercut and was ready for shooting. No. 15 room had been turned and the bottom coal was out and rock ready for shooting. No. 16 stopping was last open stopping. There was a loaded car in the face of the entry. It was also explored for a short distance on the night of the 10th. Heavy falls and dangerous roof prevented a complete inspection at that time. The entry appeared dry and dusty and the force of the explosion had evidently come outbye the entry and through crosscuts from the air course. There was found a broken wooden powder box in No. 1 crosscut. Two bodies were found, evidently suffocated, under the middleman at the face of the air course to 8th left. These men were doubtless at work when the explosion occurred, as they lay on their sides. The fire boss reported a small cap of gas in this place on the morning of the explosion and stated that

he had cleared the place of gas by brushing it out.

#### 9th Left Entry.

This entry was explored by means of rescue apparatus on the night of the 10th in advance of the men who were restoring the ventilation and taking out the bodies. The bottom of the overcast at the mouth of this entry was out but the side walls were standing; the bottom had been blown out by on to the main slope.

In a powder box in front of No. 1 stopping were found the following objects: 1 box of "Twin Oaks" tobacco and matches, 300 feet of Crescent fuse, uninjured; 327 sticks of No. 1 Bituminite, uninjured; 6 primers made up and uninjured; 7 rolls paper; 2 balls lamp wick. The only detonators found were those in the primers. The props in front of No. 4 room were blown in by. There were two bodies in the first room, or the one at the beginning of the side track, 7 empty cars and 1 loaded car were on the side track near the mouth of the entry.

#### 9th Left Air Course:

The face of this air course was not working. Coked road dust was found on the inbye sides of the props and ribs of the air course. This decreased in quantity toward the mouth of the air course, at which place there was none. The stoppings were not in the first two crosscuts, while the stopping in the third crosscut was in place. No. 5 crosscut had the track in it from the entry to the air course and was open at the time of the explosion. There was coked road dust on the inbye side of the props. There was coke on the pillar and the inbye edges of the slate showed action of flame.

been blown to the left or to the 10th left entry. The air course was

slope. Going into the air course the first stopping was out, having

mouth of the 10th left air course had been blown outward toward the main

course at the mouth of the 10th left was out, and the regulator at the

The stopping between the main slope and the left slope air

10th Left Air Course.

mouth of this entry. There was not much violence shown in this entry.

There were 2 loaded and 2 empty cars on the side track at the

The greatest at the mouth of the 10th left was downward resting on a load-

fixtures and evidently made in situ. The room was about 100 feet deep.

Some coke was found on the roof of No. 2 room; this was in line

undisturbed.

toys in 1/2 store No. 4, 4 empty, 50 feet across, also

powder box was found which contained 100 lbs. of dynamite, 50 lbs. of

and coal loaded out of it. Opposite No. 2 room, on the 8th side, an open

found in the right side. In No. 2 room the middle man was down

will undisturbed. On the entry between rooms Nos. 4 and 5 coke was

mining machine was found in the back of No. 4 room and the middleman was

four bodies were found at the face of the 10th left entry. A

loaded was at the face, the outside end of which had been blown in by

was heard boiling and bubbling at the bottom. A ear about one-eighth

feet from the slope. The face was found to be freshly cut and some gas

entry. The entry appeared to be quite dry. It had been driven in 243

rescue apparatus. One body was found on the side track at the mouth of the

This entry was explored on the night of the 10th by means of

10th Left Entry.

very dusty and shale was mixed with coal dust. There was no coke on the ribs. The second crosscut was open. The track extended through it from the entry to air course. The ribs of the cross cut were spalled, but no coke was visible. The third crosscut was open and there had been no stopping in it previous to the explosion. The props had all been blown outward. There was a loaded car just outbye the last cross cut, and some coal at the face. Gas was found here in small quantity. Access was had to the 10th left entry by means of a small hole through the last crosscut.

#### 11th Left Entry.

The main slope was quite dry at the mouth of this entry and a pair of trousers unburned, was found at this point. A large sump was just outbye this entry on the main slope. The roof at the mouth of this entry was being shot down in order to make room for an overcast, but it appeared that the men engaged in this work were not at work at the time of the explosion.

A small quantity of coke was found on both ribs of this entry between the mouth of the entry and No. 1 room, also between rooms No. 1 and No. 2 and in the neck of No. 2 room. There was also coke on the inbye side of the props in the neck of No. 3 room. Along the 11th, left necks between rooms No. 2 and No. 3 coke was found on the inbye side of props and on the projecting coal of the ribs. A cloth was found at this point which had been blown outbye. The face of this entry was not working, neither was the air course. There was coke formed in situ in the cross cut.

#### 12th Left Entry.

This was the last entry turned and the face was only inbye,

water was such that the men were constantly mistaking it for solid ground located on the water. The appearance of this dust as it floated on the this was full of water and could give in considerable quantities

Main Slope Air Course

courses

were the remains of 16 men who worked in the main slope and its two air passages proved that there were 16 bodies near this point. These bodies on each other in the water. Later search under more favorable circumstances found about 4 feet of water at the face and located 12 bodies lying piled nearby, Brown, and Handman, being among the bodies appearing on the face.

Left Main Slope Air Course

course was in place but door was blown out. The first stopping on the main slope going out from the left extended out to about 50 feet beyond of 12th level. Gas could be heard bubbling up through the water which water covering it. The electric pump nearby was put out of commission by the explosion, the face of the main slope was inaccessible by reason of the several feet of gas all the water entering the mine drained to this point and

Face of Main Slope

at the face of the 12th level entry. the left rib of the main slope beyond of 12th level. One body was found the face of the ribs. Coals was also found on the face of the ribs. In the first cross cut out of 12th level. Good road dust was found on of the slope 80 feet. An electric mining machine, off the track, was

and wetting their feet consequently. No bodies were found at this point.

#### Right Haulway.

This portion of the mine workings was examined very minutely, every foot of surface being carefully inspected and the results of the inspection are given on the sketches Nos. \_\_\_\_\_ This was done because it was thought by some that the explosion originated at this point since 9 bodies, some of them greatly mangled, were found on this haulway between the 3d and 4th right. There is some uncertainty as to whether or not the electric power was on the insulated feed wires at the time of the explosion, but that there was no power on the trolley wire seems to be quite well established.

A machinist's broken hammer found on the right haulway between the 3d and 4th right entries corroborates the statement, noted elsewhere, that John Wright, the mine electrician, with his helper, was at work on the trolley wire on this haulway at the time the explosion occurred. At one place on the haulway a considerable quantity of explosives was found undisturbed. At another point two legs were found, consisting of the legs from the knee downward, with about 6 inches of the splintered thigh bone projecting above the knees. Sketches showing conditions on the right haulway are appended.

No coked road dust or coke in situ was found on the right haulway although every foot of the ribs and breakthroughs was carefully examined. At numerous points the ribs were found to be scored and spalled from the force of the explosion, but absolutely no coke was found.

#### Tool House.

In the tool house near the mouth of the 4th left, near where



rescue party was overcome, was found 10 sticks of No. 1 Bituminite, 1 roll fuse, 3 primers, 1 box of detonators. The brattice in the front of the tool house had been blown outward.

Dynamite.

In the first cross cut off main slope outbye 11th left, 3 sticks of Jefferson dynamite were found, which looked quite fresh and could have been placed there since the explosion. It was stated that a one-armed negro convict shooting for the overcast near the mouth of the 11th left entry used dynamite and this may have been part of his supply.

Location of Bodies:

Main haulage slope (face)	15
Left haulage	15
Right haulage	11
5th right entry	16
6th right entry	11
7th left entry	22
8th left entry	19
9th left entry	10
10th left entry	7
5th left entry	1
Shaft bottom	5
	<u>129</u>

Gas.

The fire boss reported a small gas cap at the face of the 8th left the morning of the explosion. He cleared it. Gas was found at the face 12th left, April 13. Gas face 10th left air course, also face 10th left entry. There was gas in 5th room from face 9th left. Gas was also found in No. 3 room 6th right, in considerable quantity. The mine generated gas through though not in great amounts.

Conclusion: Three possible causes if the explosion are suggested by the observations.

FIRST: One suggested cause of the explosion is the possibility of a short circuiting of the feed and trolley wires and the consequent explosion of permissible explosives and ignition of dust on the roadways, especially on the right haulway. The feed wire was thoroughly insulated. When seen after the explosion the trolley wire and feed wire (the latter for operating mining machines and electric pumps) were one tangled mass which had been thrown aside into the open crosscuts off the right haulway in order to allow a passageway through that entry into the mine workings when the bodies were being removed. This mass of wires was so cut and hacked in numerous places and so closely entangled that it was not possible to locate any definite points of arcing. Nine bodies were found at this point, one of which consisted only of the two legs from the knees down, with five or six inches of the bare splintered thigh bones protruding from the knees. There was a mass of broken empty mine cars on the right haulway. It was reported that the mine electrician, John Wright, and his helper were at work on the trolley wire at this point when the explosion occurred? This statement is supported by the fact that a broken handle and head from a machinist's hammer were found at this point. The management of the mine asserted that the power was never turned on the trolley wire until 7:00 a.m. and this is supported by the probable fact that Wright and his helper were at work on the trolley wire at the moment the explosion occurred. The ribs on the right haulage were spalled and glazed but there was absolutely noncoke present. Broken insulation pins, switch ties and shreds of canvas were all blown outward. There could not have been an explosion from arcing of the trolley wire at this point. From appearances the force moved from this haulway toward No. 2 shaft.

SECOND: The right haulway is down grade inbye and some of the survivors stated that the first convicts entering the mine in the morning sometimes took several empty mine cars from the point near the top of the grade where they were left at the end of the shift and coasted down the right haulway in them. They may have done this on the morning of the explosion since nine bodies were found in the wreckage on the right haulway. It is possible that a collision between the car or cars running down the grade full of convicts, and some empty cars left on the parting may have occurred and thus exploded some of the explosives carried by the men on the way to the interior of the mine. However, the finding of two sacks full of unexploded permissible explosives near the wreckage seems to preclude this, as the force of a powder explosion would have been likely to explode this also.

THIRD: The initial cause may have been an ignition of gas. This seems the most probable of the three causes suggested. The facts supporting this hypothesis are as follows: The explosion occurred about 6:20 a.m. when only a portion of the men has just reached their working places. The mine was known to be gaseous and the fire boss had reported gas in one or more places on the morning of the explosion. The Mary Lee or Big Seam generates inflammable gas at most places where it has been opened. Even at Mulga where the Pratt seam is worked and a shaft open to the Mary Lee seam several hundred feet below, the gas coming from the Mary Lee seam bubbles up through several hundred feet of water and its escape can be observed on the surface of the water in the sump in the Pratt seam. Banner, Palos and Bessie mines are all in the Mary Lee seam and in one straight line. Gas is found in all three, and two of them, - Palos and Banner, have experienced explosions, the former of which undoubtedly originated from gas.

The "High Top" or roof coal which is left up in advancing work and recovered on the retreat in some instances when the room is finished, in others when pillared, always carries gas, and to quote the miners, "this gas frequently ignites before the coal has reached the bottom." Some of the rooms on the seventh left had been bringing down the "High Top" on the retreat and the rescue party found gas at several points.

Extent of the Explosion:

The explosion did not extend its force to all the mine workings; it was not a general explosion, but was confined to the live workings. The greater part of the violence exhibited, with the exception of that shown on the right haulage, was in the seventh left and fifth right entries, which were turned opposite each other. It died out inbye these entries on the main slope. Both the seventh left and the fifth right had several rooms either worked up and standing or bringing back the high top. Gas would be given off by this high top, and it would accumulate in the worked up rooms. A fire-boss is extremely apt to ignore places not working, especially deep rooms, and fail to examine them for gas if he is in a hurry. This probably happened in both the seventh left and the fifth right.

DEAD MEN AS EVIDENCE.

The position of the two men found dead and who were evidently at work under the middle man at the face of the eighth left air-course, indicates that they had received little warning of the impending danger. The finding of the 16 bodies near the face of the left slope air course and lying piled one on another, would indicate that they had retreated to this point to avoid either flame or noxious gases, which come inbye and probably from

out of the seventh left entry. The men in the face of the seventh left entry were in a crouching position and were severely burned. They had not succumbed to the afterdamp, but to the flame, for if they had been suffocated they would have been stretched out on the floor instead of crouching near the car. The man in the neck of No. 7 room, eighth left entry, was also in a crouching position, and had been burned. The force of the explosion came into the seventh left air-course from the entry by way of No. 19 stopping.

#### THE POWDER MAGAZINE.

It is true that the outer wall of the magazine in the seventh left had been blown out, but on the other hand the rear wall was still standing and the force of the explosion could have easily dislodged the front or outer wall. The barrel immediately in front of the magazine was not disturbed as it would have been had the magazine exploded. Moreover the pine box in the magazine contained fresh unexploded explosives and the box was broken in from the outside, as would have been the case if some of the stones from the outer wall had fallen on it. There was no debris about the magazine nor was the gob disturbed or entry floor pitted as would have been the case if the explosive in the magazine or a portion of it, had exploded.

#### DIRECTION OF FORCE OF EXPLOSION.

The props at No. 19 stopping in the seventh left air course and at No. 10 room seventh left entry, show the direction and origin of the force as do also empty cars piled together at the mouth of the entry. Opposite No. 19 stopping seventh left air course the position of the coke changed; outbye this point the inbye sides of the props were clean and there was coke on the outbye sides, but opposite No. 19 stopping the inbye sides of the props contained coke, while the outbye sides were clean. This was the first point

where coked road dust was met with in this air course. A prop on the seventh left entry just outbye of No. 10 room was bent outbye at the bottom showing that the force acted outbye. In the neck of No. 7 room eighth left there was a body in a kneeling position with arms around a prop.

The explosion evidently originated in the seventh left, either in one of the deep rooms which had been completed, or at the face of the entry, and extended from thence outbye through the intervening left entries to the main slope and thence inbye ~~through the intervening left entries~~ to the face of the slope and the corresponding aircourse, and across the main slope into the fifth right entry. In the fifth right the flame of the explosion was fed by gas in the worked-up rooms and that accumulated at the face of the entry by reason of the open break-throughs.

The man carrying the explosives in the fifth right was overtaken by the flame and one coil of the fuse and several sticks of the explosive which he was carrying were ignited, causing him to drop them and leap forward toward the face of entry, where his body was found. The flame lingered here some time as evidenced by the long flakes of coke in situ on the roof immediately over where the powder lay. There was not much movement subsequent to the distillation and deposition of this ~~black~~ coke or the long flakes would have been dislodged from the roof. The men in the rooms, more especially the white men, were suffocated as there were no burns on them and they lay either on their faces or on their backs.

In going outbye of the seventh left on the main slope the force of the explosion met the empty cars on the right haulway and spent a great part of its force on them and then passed through the break-throughs, pushing over, en route, one of the heavy sidewalls of the overcast, and finally to the surface by way of No. 2 shaft 140 feet deep. Very little force was manifested outbye the third right, and the cages at the meeting point in No. 1 shaft were

not disturbed nor was there any disturbance shown at the mouth of the slope.

#### LESSONS FROM THE EXPLOSION AND RESCUE WORK.

(1) All members of a rescue party should be equipped with rescue apparatus, fitted to the person and in use when the mine is entered.

(2) One member should be left outside to watch the fan and to warn the rescue party the instant the fan slows down or stops.

(3) Even if equipped with rescue apparatus the rescue party should decline to work in the return air. Experience at Mulga and Banner mines demonstrated that this is not prudent and is even dangerous.

(4) Rescue parties should decline to work in the rear of or outbye of other men in the mine. Preferably there should be only one rescue party in the mine at one time and this under good discipline.

(5) Even when working in good air and equipped with rescue apparatus the helmets or mouth pieces should be in place ready for instant use and the mouthpieces closed or mouth breathing devices fitted as soon as the bird shows signs of distress. The noxious gases act so quickly that unless the man wearing the apparatus has some warning of their approach before they reach him, he will either be unable to adjust the apparatus before he is overcome, or will have inhaled so much of the poisonous gases before he is able to isolate himself that he will drop even while breathing the pure oxygen. This happened to one of our men at a mine fire, and also to Mr. Hamilton at Banner. Although he had on the apparatus and closed it successfully, yet the gas that he had inhaled before so doing, affected him in spite of the oxygen. In the writer's opinion, this is a very serious danger in using the rescue apparatus. Birds should be used by all means, either when wearing the apparatus or when without it.

(6) All break-throughs between entries and air courses should be

closed by tight stoppings, except the one nearest the face. If track is laid through a break-through there should be a tight door in it, closing automatically.

(7) The experience at Banner mine was that mouth breathing devices are preferable to helmets when working under bad roof.



# BOARD MAY WANT REVISED CONTRACT

## Trip to Banner Satisfies the Members That the Rescue Work Is Adequate

The members of the Board of Revenue have returned from their trip to Banner mines and state that they found every possible means had been taken by the company and the government rescuers to recover the bodies of those who were caught underground at the time of the explosion.

The board went to Banner on Monday to make investigation into the affair in so far as the county was responsible for the convicts who were leased to the Pratt Consolidated company as coal miners. They also inquired regarding the cause of the explosion and the other details of the accident which fall within the scope of the duties having charge of the rescue work, and they stated their belief that every possible means was being made in that direction.

The members of the board have discussed among themselves the propriety of the proposition of revoking some of the articles of agreement entered into with the Pratt Consolidated Coal and Iron company in regard to the lease of convicts. None of the board would discuss the report yesterday afternoon during the absence of John Goin, president of the board, and no action is expected until the direction of the board.

# RESCUE OF BODIES IS NEARING END

Only Nine More Victims Remained in Banner Mine To Be Recovered

Government Bureau Chief Returns to Washington

Banner, Ala., April 11.—With 119 bodies removed from Banner Mine up to 9 o'clock to-night, it was expected that the remaining nine would be above ground before morning. The rescuers are near the end of their work.

Dr. J. A. Holmes, chief of the bureau of mines, returned to Washington this morning. He was accompanied by a party of men who were found alive after eight days, we wish to take no chances. We went to every corner of the mine to see that no one was alive. The mine is in excellent shape, is well laid out, and there were only the remotest signs of gas. We did not come out of the mine until we were sure that there was not a human being down there who still lived.

# RESCUE WORK IS NEARING AN END

## Only Ten Bodies Remain in Mines—Many Visitors Are Leaving

Practically all the work of removing the bodies of the dead convicts from the Banner mine was completed yesterday and by this morning, only a few scattered bodies remained in the mine and these will be removed as soon as possible.

Late advices from Banner state that 119 bodies have been removed from the mines and it is expected that more will be removed early this morning. According to the official figures of the company there are 10 bodies yet in the mine.

The trains leaving Banner yesterday were crowded with doctors, miners, and others returning to their homes, and no new developments are expected.

According to the opinion of most of the men at the mines the incident of the explosion is practically closed. The first indication of this was the arrival this afternoon of a batch of prisoners for the prison. There were 18 in the party, 10 of whom are from Jefferson county and the remaining seven from Escambia, Chilton and Tallapoosa counties.

The officials of the company still refuse to give out the descriptive list of the convicts, stating that this will be done as soon as all the bodies are removed from the mine.

Deputy Sheriff Dave Kennebrook came upon a gang of negroes searching the clothing of the dead convicts yesterday morning and found a considerable quantity of the negroes' clothing and were reaping a rich harvest.

Numbers of bodies were shipped away from Banner yesterday and more will follow today. It is thought that all bodies that are to be shipped will be disposed of today. It is estimated that the bodies of the convicts will be prepared near noon this morning.

The tired miners began to rest up a bit last night and stretch their aching limbs. Many of them have been constantly at work for the past 24 hours without sleep. All of them were accommodated last night.

Within a short time the work of repairing the mine for re-entering will begin and then it will be only a short time until normal conditions are restored.

The first case of an unruly miner was reported last night when Dr. Ted Bridges of Birmingham was forced to

on account of an attack made upon him. This is the only instance on record of the convicts who worked long and faithfully to remove the dead bodies of their comrades.

**"Birmingham Special"**  
To one block from  
**BROADWAY, New York.**

# NEGRO GHOULS LOOT DEAD MINERS' CLOTHES

## Sheriff Surprises Crowd Searching Garments of Convict Victims

### OVER 100 BODIES NOW OUT

Cause of Explosion is as Yet Not Ascertained And Government And State Experts Refuse Information In Advance of Their Official Reports

BANNER, ALA., April 11.—Deputy Sheriff Dave Kennebrook this morning discovered a number of negroes from adjoining mining camps going through clothing of victims of the explosion. The negroes had forgotten that the clothing was worn by convicts and would hardly contain any valuables. For fear that disease might be spread the ghoulish negroes were surprised with arrest if they did not do so at once.

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The recovery of bodies is still going on. More than one hundred are now out. Dr. J. A. Holmes, chief of the bureau of mines at Washington, returned to Banner this morning. He was accompanied by a party of men who were found alive after eight days, we wish to take no chances. We went to every corner of the mine to see that no one was alive. The mine is in excellent shape, is well laid out, and there were only the remotest signs of gas. We did not come out of the mine until we were sure that there was not a human being down there who still lived.

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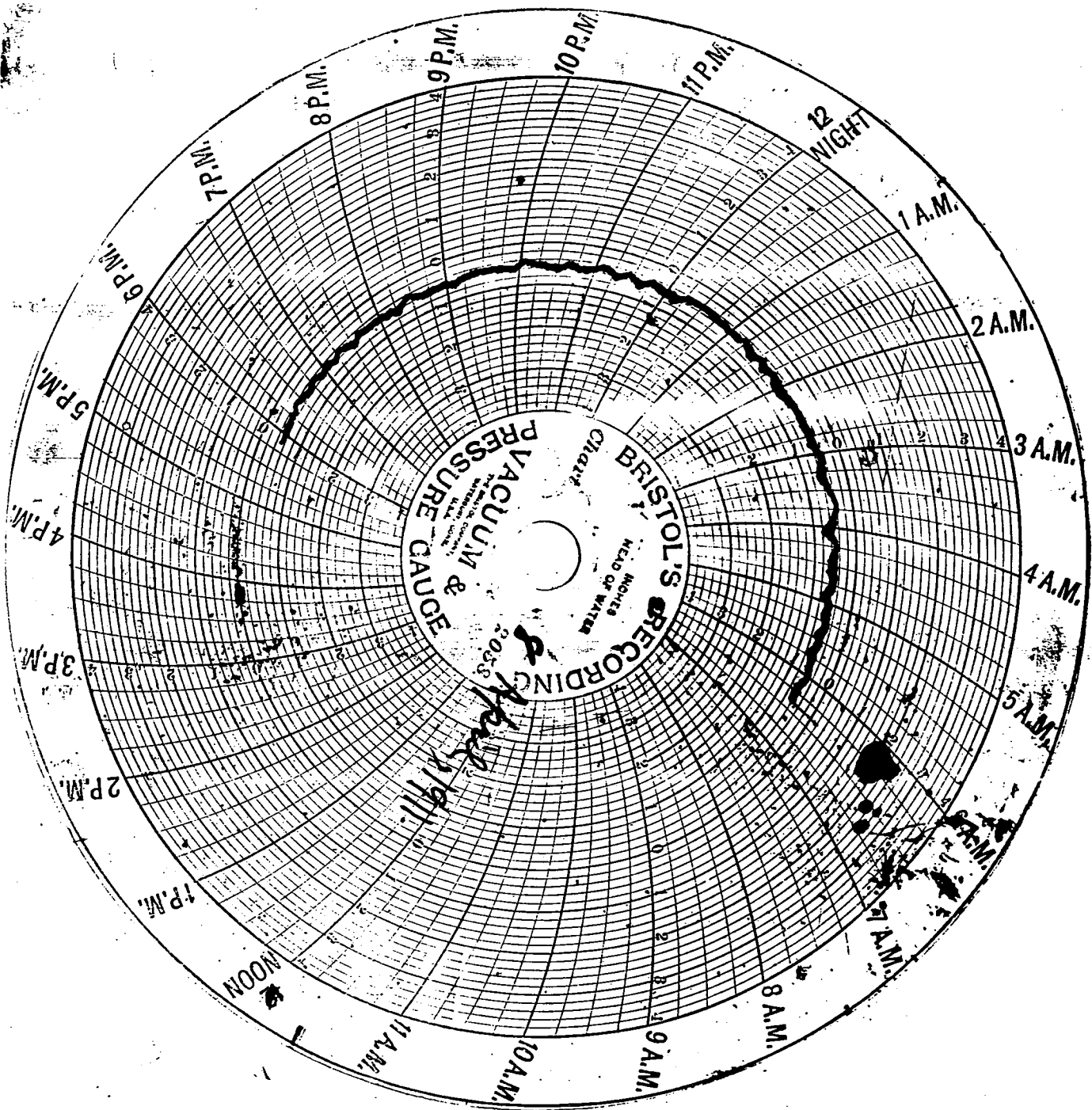
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RECORDING GAUGE OF THE FAN ON MORNING OF THE EXPLOSION, APRIL 8, 1911.

*5 copies*

LIST OF ARTICLES FOUND IN A BOX  
IN A MINE ~~IN ALABAMA.~~

Banned

300 feet fuse.

7 rolls of paper for dummies.

2 balls lamp wicking.

Tobacco & Matches in a cigarette box.

*6 files* → 1 gallon can filled with oil without stopper.

327 sticks of No. 1 bituminite.

6 sticks of No. 1 bituminite with detonators & fuse inserted in each.

The above was found in a small wooden box at the mouth of a crosscut in one of the headings. The cover was made of loose fitted boards which would allow sparks to fall through.

G.S.R.

April 20, 1911.

( )  
DEPARTMENT OF THE INTERIOR  
BUREAU OF MINES

PITTSBURG, PA.

April 29, 1911.

IN ANSWERING REFER TO

No. 2292

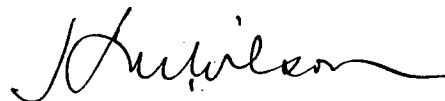
SUBJECT: Rutledge's report Banner mine  
disaster.

Memo. Mr. Paul:

Your attention is particularly directed to that portion of the enclosed report concerning four rescue apparatus only on car No. 6, which was supposed to have eight or ten on it, and to the lack of apparatus at the Birmingham station for re-charging apparatus with oxygen.

I am sure the Director, to whom a copy of this report is being sent, will want a statement regarding this.

Very truly yours,



Engineer in Charge.