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PROCEEDINGS

of

Meeting of Coal Operators

Of West Virginia
and Other States

January 8, 1908, Washington, D. C.

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Call for a Meeting of West Virginia Operators

WASHINGTON, D. C., *December 30, 1907.*

In view of the recent explosions, resulting from which legislation affecting the interest of every mine in the State is sure to follow, and in view of the fact that some such legislation may be inimical to the true interests of labor and capital, we think it advisable that the principal mining interests of the State should meet in Washington, D. C., at rooms 402 and 403, National Metropolitan Bank Building, Wednesday, January 8, 1908, at 11.00 a. m., for the purpose of discussing the subject in general, and if possible agree upon some plan to meet the present conditions impartially and fairly toward all interests involved, including the State, labor and capital.

You are, therefore, cordially invited to attend this meeting, and extend the invitation to any other operators whom you think would join heartily in the movement.

The list of operators to whom this letter has been addressed is herewith enclosed.

Respectfully,

WM. N. PAGE.
NEIL ROBINSON,

The following telegram was sent to Governor Dawson, to which no reply was received:

WASHINGTON, D. C., *January 7, 1908.*

HON. W. M. O. DAWSON,
Charleston, West Virginia.

There will be a meeting in Metropolitan Bank Building, Washington, at eleven o'clock tomorrow, eighth, of principal mining interests from West Virginia, Pennsylvania, Illinois and elsewhere, including the director and heads of U. S. Geological Survey. The purpose of the meeting is to devise methods for preventing mine disasters and promote best interests of State, labor and capital. Would like to have you present.

WM. N. PAGE.

PROCEEDINGS

OF A

Meeting of the Principal Coal Operators of the State of West Virginia and Other States

The meeting was held in the office of Major Wm. N. Page, National Metropolitan Bank Building, Washington, D. C., on Wednesday, January 8, 1908, at which meeting the following gentlemen were present:

Mr. Edward Cooper,	Bramwell, W. Va.
Mr. Eli T. Conner,	Thurmond, W. Va.
Mr. Wm. N. Page,	Washington D. C.
Mr. Chas. R. Thorne,	New York, N. Y.
Mr. Azel Ford,	Washington, D. C.
Mr. Arthur Lee,	Washington, D. C.
Mr. B. F. Bush,	Baltimore, Md.
Hon. N. B. Scott,	Washington, D. C.
Hon. H. G. Davis,	Washington, D. C.
Hon. J. H. Gaines,	Washington, D. C.
Hon. J. A. Hughes,	Washington, D. C.
Hon. G. C. Sturgiss,	Washington, D. C.
Mr. Neil Robinson,	Charleston, W. Va.
Mr. M. L. Hutchinson,	Fairmont, W. Va.
Mr. Frank Ehlen,	Fairmont, W. Va.
Mr. F. W. Scarborough,	Richmond, Va.
Mr. S. Dixon,	Macdonald, W. Va.
Mr. E. O. Dana,	Dana, W. Va.
Mr. J. R. Thomas,	Charleston, W. Va.
Mr. Wm. McKell,	Glen Jean, W. Va.
Mr. T. A. Deitz,	Hawks Nest, W. Va.
Mr. G. C. McIntosh,	Charleston, W. Va.
Mr. G. H. Caperton,	Fire Creek, W. Va.
Mr. Geo. Wolfe,
Mr. M. T. Davis,	Charleston, W. Va.
Gov. A. B. Fleming,	Fairmont, W. Va.
Mr. John Laing,	Charleston, W. Va.
Mr. Enoch Carver,	Charleston, W. Va.
Mr. J. W. Heron,	Hinton, W. Va.
Mr. Wheelwright,	Baltimore, Md.

Mr. W. A. Ohley,	Charleston, W. Va.
Mr. J. J. Tierney,	Elkhorn, W. Va.
Mr. Harry Bowen,	Vivian, W. Va.
Mr. J. K. F. Steel,	Keystone, W. Va.
Mr. L. E. Tierney,	Powhatan, W. Va.
Mr. S. W. Patterson,	Bramwell, W. Va.
Mr. J. C. Pack,	Bramwell, W. Va.
Mr. D. H. Barger,	Dott, W. Va.
Mr. Philip Goodwill,	Bramwell, W. Va.
Mr. Jairus Collins,	Bramwell, W. Va.
Mr. D. C. Jones,	Pittsburg, Pa.
Mr. A. S. Taylor,	Pittsburg, Pa.
Mr. F. E. Arnold,	Pittsburg, Pa.
Mr. R. B. Drumm,	Pittsburg, Pa.
Mr. Hamilton Stewart,	Pittsburg, Pa.
Dr. Geo. Otis Smith,	Director of the U. S. Geological Survey.
Dr. J. A. Holmes,	U. S. Geological Survey.
Dr. Walter O. Snelling,	U. S. Geological Survey.
Mr. Clarence Hall,	U. S. Geological Survey.

The meeting was called to order by Major Wm. N. Page.
Mr. Page said:

I presume you all know the object of this meeting. It was called as a result of the terrific explosions we have been having throughout the country. I do not think they are confined to the State of West Virginia, but they extend from Pennsylvania to Alabama. The press, as you know, has gone rabid over the subject. Now the object of this meeting is to get together to determine, first, the causes of these explosions, if possible, and, second, to co-operate thoroughly with the National and State Governments to avoid them as far as possible. I do not think there is an operator in the State of West Virginia, who would not place life ahead of property. That has been my experience and I think the operators of West Virginia are perfectly willing to co-operate with the Government to ascertain the causes of these explosions and to take the necessary steps to save life. A single individual can accomplish nothing. We stand to-day in the position of a sick man, and we have the Legislature and Congress as doctors. They want to prescribe medicine when they have not diagnosed the disease. We have with us the Director of the Geological Survey, Dr. Holmes, the chief of the technological branch, and Mr. Hall, a government expert on explosives. The object

of this meeting, as I stated before, is to get together, to organize the operators and mines so as to be able to appoint permanent committees to confer with and co-operate with the National Government and State Legislature in order to arrive at the causes of these troubles, and, second, to cure them. I suggest that before going further we organize in regular form.

Mr. Neil Robinson suggested that Mr. Page be made chairman of the meeting. Mr. Robinson's suggestion was unanimously adopted and Mr. Page took the chair.

Mr. Page: Gentlemen, I appreciate the honor, though I would have preferred that you should name a more prominent man, but I will do the best I can. I suggest that we appoint a Secretary.

Mr. Neil Robinson was chosen as Secretary of the meeting.

The Chairman (Mr. Page): The first thing I think that we ought to take up and discuss is the cause of these explosions as far as we can ascertain the facts. In the meantime we ought to have a committee on organization. The Association should have no jurisdiction whatever in regard to local matters but should confine itself entirely to the collection and dissemination of information, with a permanent committee to confer from time to time with Congress, with the President, if necessary, and with the Geological Survey and State Legislature. Such Committee ought to represent every mining district in the State. I make this merely as a suggestion. I now suggest that we appoint a Committee on Organization.

Senator Scott: Mr. Page, may I butt in? Why limit it to West Virginia?

Mr. Page: Senator Scott, this meeting was originally called by the operators of West Virginia, but the Chamber of Commerce of Pittsburg asked if we would admit nine of its members to this meeting. A cordial invitation was extended to them and I think they are here as well as some gentlemen from Ohio and Indiana. It is our intention to

consult with all of these gentlemen, and it is possible that after the movement is inaugurated by the West Virginia operators it may be made a national movement.

Mr. Page: Gentlemen, I desire to introduce to you Director Smith of the United States Geological Survey.

Senator Scott: I do not want to take up the time of you gentlemen, but I wish to state that I introduced, at the suggestion of Governor Dawson, in the Senate, a resolution appointing a joint committee to look into the causes of the recent disasters. I am not sure as to the number, but my recollection is that the Committee was to be composed of two Senators and three Representatives, and power was given them to send for persons and papers. The resolution was referred to the Committee on Mines and Mining. I made a personal request at the time that it be referred back as soon as possible. I understand that Senator Dick has been absent from the city but will be back today and I am going to press the passage of that resolution. I would suggest, however, that if I am to be a member of that committee that I will be governed largely by the advice you gentlemen and the Geological Survey will give me, in order to enable me, as far as I am personally concerned to look into this matter to see what the cause is and the remedy for it. I am heartily in favor of this movement, and so far as I am concerned I will do everything in my power to carry out the instructions of that committee. I hope now that you will excuse me because I have an appointment for a committee meeting, but if you decide to have a night session I will be glad to meet with you.

Mr. Page: I think I can safely say, Senator, that the object of this meeting is to carry out the suggestions you have made. First, to diagnose the disease, and, second, to apply the remedy and to co-operate with the United States Government, and the State Legislature to apply the remedies when once the disease had been thoroughly diagnosed. This meeting is not solely in the interest of the

mine owner or operator. It is not for economy and, as I said before, I do not think there is a mine operator in the State who would kill a man to save money. Now, the whole question is: How can we remedy this trouble? If we knew the cause we could take some definite action. Personally I must say that I do not know the cause for the terrific explosions that have been occurring in the mines where the mining laws had not been violated and where the proper precautions have been taken. I do not understand the cause of these explosions occurring in mines, so far as I know, that were practically perfect and passed on by the best mine inspectors in the State. What we want to do is to find out the cause. We can not do it today, but it must be investigated thoroughly and carefully, and the object of this meeting is to organize the mining interests of the State of West Virginia in order to assist in every possible way; not to oppose legislation, but to secure legislation and co-operate with it. When they show us the cause we will, if necessary, insist upon proper legislation, but we do not want a lot of legislation that is not properly considered. You can not stop explosions by an act of the legislature. No act of the legislature will stop powder from exploding if you put a lighted match into it.

Senator Scott: I should say, in justice to my colleague, Senator Elkins, that he is sick in bed, but I know he will co-operate with any measures you gentlemen may approve of, and I am sure I can say the same thing for the Members of the House, although Mr. Gaines is here to speak for himself.

Mr. Page: I suggest that you gentlemen appoint a committee on organization composed of a member from each of the districts in the State to report to this meeting.

Mr. Cooper: I think it would be a good idea for the operators present from each district to name the member of that committee. There are a number of operators from every district who are in here now.

Senator Davis: I do not want to see the General Govern-

ment do more than it properly can do, than the States themselves. The foundation of our Government is local self government. Therefore, the matter of this committee is a very important one, and it is important to get men on that committee who can devote the time to it. As I take it, the Chairman ought to be the man to select the members of that committee of this Association, and we ought to be pretty careful to get men who have the time and experience. While we ought to have the committee it is a question as to whether we ought to be hasty, and whether we ought not to consult and look around. I understand from this morning's paper that the Governor has called an extra session of the legislature. I saw in the Baltimore Sun this morning an article which stated that he had named a day for the legislature to meet, so it looks like early action will take place. The mining interest of West Virginia is the most important of all, other than the railroads, and we do not want to do anything to stop its progress. We ought to do whatever we possibly can to prevent accidents and prevent the loss of life. We all know that what is thought best for one mine, if adopted, would be disastrous to another, and what would be proper for one mine would be very improper for another.

Mr. Page: I think you ought to have a Committee on Organization, and I think you also want a committee to help the Government and the Legislature to frame and pass the proper laws.

Mr. Dixon: It seems to me, Mr. Chairman, that that committee might be increased one from each district. I am not in favor of a large committee. I rather think the committee should be composed of two members from each district. We are all anxious to learn the cause of these terrific explosions, and we have had our share of them I think. We have had some experience ourselves and it is possible we have gone to the other extreme and taken extra precautions. We all have our theories—what we need is education. We should employ teachers to educate our

miners. A course of lectures, or night schools for the proper education of our men I think could possibly be managed by a committee of this kind. I think that is where this committee would be of great benefit, and I would like to see that committee selected with great care, and see that the men who compose the committee have the time to attend to it. I would therefore suggest that the committee be composed of two members from each district.

Mr. Page: I would say that the committee I proposed was not to be a permanent committee, but a small committee to report some line of permanent organization. Do I understand you to suggest two from each district on this committee?

Mr. Dixon: No, sir.

Mr. Page: I think Mr. Cooper's suggestion to allow each district represented at this meeting to name the members of the Committee on Organization should be adopted. I will say that the Chair will leave it to the members from the different districts to select one or two members of the Committee on Organization.

Senator Davis: Will the Committee on Organization report during the present meeting or at an adjourned meeting?

Mr. Page: We will leave it to the committee. I think this committee will be the business end of the meeting. I would suggest that we discuss matters as far as we can, and I would like to hear from Mr. Smith, the Director of the Geological Survey, as to what has been accomplished by Government investigation.

Dr. Smith: I told the Chairman that I came here to represent my branch of the scientific bureau of the Government. It is for the purpose of scientific investigation and it is our policy to receive information before we give it out. So I would prefer very much to listen to the proceedings rather than give any views that I might have on the subject, because those views are purely tentative. It is, however, the policy of our Bureau, as part of the Gov-

ernment Service, to find the facts, and as you all probably know, representatives of the Survey have visited the scenes of these recent explosions and have made as careful investigation as time and money at their command would provide for this purpose. I have just come from a conference with the Secretary of the Interior, who would have been very glad to have been here, but it was impossible for him to leave his office and he asked me to express his hearty sympathy with the movement you are undertaking. He believes that now is the time when we must all get together not only to pass laws but to find the right basis for such laws. In that connection it is proposed to recommend, at the request of the Committee on Mines and Mining of Congress, what are his views looking toward the advancement of these investigations by the Federal Government. In this way we will co-operate with the State governments and give them such facts, not merely from investigations from one mine, or one district, or one State, but mines of several States. In that line of investigation it is purely an interstate problem—in the line of inspection I think it is in the province of the police powers of the individual States. The only connection which our Bureau has with the inspection of mines is in connection with supervising the work of the inspectors in the Territories which comes under the Department of the Interior. In connection with that work the Secretary last June put emphasis on the need of a better understanding of mine conditions and making better provisions in the Territories for the safety of not only the miners but the mines as well. These disasters in the mines affect the property interest as well as the interest of life. I would suggest, and was just going to ask that I be allowed to call upon Mr. Hall, who has been on most of the ground, to add his opinion. He has just returned from his investigations and in his work he was acting under instructions of the Secretary of the Interior, issued in fact last June, showing that this is not merely the outcome of recent disasters, but preparation on the part of the Interior Department for a real investi-

gation of the problem, as the efforts in that direction, if published now, would be a simple report on the statistics of mine accidents.

Mr. Page: We would like for Mr. Hall to inform us whether or not you have found any specific cause for these explosions as far as your investigations have gone. Can you give us any information?

Mr. Hall: I am sorry that I can not give any cause for these disasters. Dr. Holmes prepared last night some unsettled problems in connection with coal mine explosions in the United States:

1. Explosives.—The influence of the quantity and quality of each explosive, and the methods of using the same, upon the risk of igniting either firedamp or dust, or a mixture of firedamp and dust, and thus causing an explosion, in coal mines.

Standardizing explosives used in coal mines in the United States in such manner as to prevent unnecessary variations in the composition of the explosive for which the miner or shot firers would not be prepared.

2. Firedamp.—Variations in the composition of this gas in different coal mines; and the influence of these variations together with the variation of atmospheric conditions (pressure, etc.) of mines in lessening or increasing the risk of firedamp explosion.

Influence of the depth of the mine and distance from the outcrop and of the composition of the coal on the quantity and quality of gas in the coal.

Origin of reported unusual outbursts of gas and how these may be anticipated and counteracted.

3. Dust.—General conditions under which a dust explosion in coal mines may or may not be possible or probable,—from “windy” or “blown-out” shot, from electric sparks, or other causes.

The influence of varying admixtures of firedamp in increasing the risk or intensifying dust explosions.

The influence of the character and composition of dust

from different coals in increasing or decreasing the risk of dust explosions under different conditions.

The influence of the humidity of the air in mines with respect to increasing or diminishing the risk of or force of gas explosions or dust explosions, and upon the health of the miners.

The most practicable methods of maintaining the proper degree of humidity of the atmosphere in coal mines.

4. Electricity.—The conditions under which electricity may be safely used in coal mines for haulage and other purposes,—whether an electric spark may cause a coal dust explosion, or if gas is also necessary, what percentage, etc.

5. Atmospheric Conditions.—(barometric pressure, temperature, etc.), influence of same, if any, in inducing mine explosions or conditions favorable or unfavorable to the same.

Mr. Page: Dr. Holmes is Chief of the Technological branch of the Geological Survey?

Mr. Hall: Yes, sir.

Mr. Page: I am correct in stating that you are an expert on explosives?

Mr. Hall: Yes, sir.

Mr. Page: We would be very glad to hear from you fully with any recommendations or suggestions that you may desire to make.

Senator Davis: Have you examined the French and German mines?

Mr. Hall: Yes, sir, I was there in the spring; in Belgium, England, and France. Mr. Dixon, I am told that you are using safety powder. Now we are not satisfied that there are safety explosives. We do not know and can not determine that without investigation. The various commissions appointed by Great Britain, France, Germany and Belgium for the study of mining conditions have brought out the fact, thoroughly proved by experiment and by actual tests in mines, that certain types of explosives are much more liable than others to ignite firedamp and thus to cause

gas explosions. In Belgium they say that there is no such thing as safety powder, if used in too large quantities.

Mr. Page: Mr. Hall, will you tell us what a dust explosion is?

Mr. Hall: I am sorry that I cannot. We do not understand it ourselves. In the French disaster there was no gas present in the mine and they had a dust explosion.

Mr. Dixon: I have had three troubles, and I would like to state what I know. When I was a bank boss we never had explosions for the reason that we had no air. The smoke died where the shot was fired and the dust settled there. There was no ventilation. We had small fans or old fire baskets. Sometimes we had neither. There was no dust carried on the haul-ways. Now we have gone to the other extreme and put in large fans. In all three places where we have had these explosions we have a very large ventilation. That strong current of air picks up the dust and carries it along. That did not happen years ago. I have times without number shot coal and then gone down to the face and the powder smoke would sting your eyes. We have nothing of that kind now. Under our present system of inspection we are compelled to have air within five or six feet of the head of the entry. Fifteen years ago we had no machines in the State of West Virginia. Mining was all done by undercutting. The old class of miners took great pride in under cutting, and I have seen coal diggers run their picks under to show you how deep they had it cut. Now in these day we have just the opposite. We have imported new men from the hard coal district and these men shoot the coal out of the solid. They use a small quantity of powder and shoot down two or three cars of coal without any danger, but they come into our district where the men are accustomed to digging the coal and these men want to do the same thing. They do not know how much powder it will take to shoot off the solid, and they use two or three times more than is actually necessary. I want to say that the three explosions we had have been

traced to old miners that we have raised in our own vicinity. At Stewart, which was the worst explosion, we lost 86 men. That explosion was traced to an old coal digger from the Kanawha District, who had dug coal for me when I was mine boss. He had his under cut made and his three holes bored. Now that old coal digger knew the proper thing to do was to shoot the center hole, but instead of doing that he wanted to save that much powder, so he goes to the right hand hole two feet away, which instead of breaking down that corner simply blows out two feet of the front. That hole undoubtedly was not tamped, and the flame from that hole, or the shock, stirred up the dust and carried it on. Our large fan having lodged the dust on the ribs, caps and timbers so that it must have been affected by that blast, as it came down the entry with terrific force. There was no gas to start it. It was started by a blown out shot, and the dust affected it as it went along. Now take the Whipple explosion. Mr. Hall was there the other day, That occurred on what we term our main return. Two men raised in Fayette County and who had been coal diggers for years, and who had been in Whipple mine for four years, were sent up to drive an entry through a fault. They took a machine along. Instead of these men undercutting that coal the first thing they did was to take an augur and climb up to the face, bore three holes and charge them heavily with dynamite; the result being that the last hole went off by ignition, driving that flame down that dry territory and igniting the dust. The only men that should have been killed in that explosion were these two men. The after damp caused the loss of twelve or thirteen others. Ten days ago I was over that territory and you can now take up that dust and scatter it in the current of air and it is carried right away, and it would be dangerous to go in there with a naked light. There is no standing gas there—there is no territory worked out. All arose from that terrific explosion of dynamite these two men had charged those holes with, because six men

1,000 feet away heard that explosion and ran down the main entry and when they came opposite to where these two men had been working, they dropped. Now nobody knows what one of these explosions cost. The damage done at Stewart was trivial; practically we could have run coal the next day, but it is additional delay and detention. I do not know what the remedy is, but I think we have too much ventilation. We are not scared by gas; we are not afraid of gas; we can take care of gas, but our mine inspectors will put you on safety lamps, and in order to protect ourselves against the charge that we have gassy mines we are putting into our mines too much ventilation. That is not needed—we are stirring up dust and creating far more dangerous conditions than we would have from gas alone. Under present conditions we have got to have 20,000 feet of air and this strong current of air picks up the dust and scatters it and when everything is necessary to have an explosion it occurs at some particular time. It is all for lack of interest or education. I am sure we are all anxious to do all we can to arrive at the causes for these explosions and to remedy them.

Mr. Hall: We have just commenced a test at the Darr mine to determine the humidity of the air. On Saturday morning the air was saturated about 95 per cent at 30° to 35° Fahrenheit, and as we advanced in the mine of course the temperature raised and the air commenced to gradually take up the moisture in the mine. As a rule we have our dust explosions in cold weather when the air is cold and as it goes into the mine the temperature raises and takes up the moisture in the mine.

Mr. Page: Mr. Dixon's statement is very interesting and very plausible and I will add this: I have been mining coal for thirty-five years and I have never had an explosion, though I have been mining above the water level, less than a mile from crop line, I have had many men killed in my mining operations, but these deaths were caused mostly by fall of coal, not from bad roof, not from gas, but from

coal—where a miner would make an under-cut and while he was under there the coal would fall on him. I think we can hardly legislate against that, it is against orders, but it is done. I would now like to hear from Governor Fleming and would like a description of the Monongah mine and what he thinks is the probable cause of the trouble they had.

Governor Fleming: I have just suggested to Mr. Wheelwright that he can do that better than I can because he went all over the mines. I will say, to begin with, that an accident, such as occurred there, can occur anywhere, and I have come to the conclusion that you can not make a mine safe. I do not care how many precautions you take there is liability to explosions that care would not avoid. These two mines were the best we have. More money was spent in equipment and no expense was spared in putting the mines in proper condition and a great deal more work was done than is usual. The mine was thoroughly ventilated. It was, perhaps, too well ventilated. The air was carried through the mine and every part of it. It was not a gassy mine. We had a fire boss, and that would indicate, perhaps that there was gas. There was a little gas in all our mines, but at the time Mr. Hall was there after the explosion when we had defective ventilation, I will venture to say that he found little or no gas.

Mr. Hall: We have collected twenty samples, and I do not think these samples will indicate that this is a gaseous mine.

Governor Fleming: Of course, what little gas was there would have entered into the explosion and would have accelerated it but little. At this time, four weeks after the explosion, while they are still making investigations and while the coroner's inquest is being held, they find no gas. I mean in dangerous quantities. They found traces of gas, but as I understand it a trace of gas is less than a cubic foot.

Mr. Page: Under 5 per cent of fire damp in ordinary atmospheric air, is not regarded as explosive.

Governor Fleming: It was not a gas explosion. There are two or three theories about this explosion. I understand some think it was largely dust started by a blown out shot or windy shot. Some of the experts think it was a powder explosion. They found the remains of two or three powder kegs at one place where some of the miners had left their powder, and that place is pointed out as the initial place of the explosion. A boy was found one hundred feet away. He had carried bits into a miner and these powder kegs were found between where the boy was found and the man to whom he carried the bits. Others think it was a blown out shot or windy shot. There is some difference of opinion as to the cause. An old Irishman, Tom Richards, who has been in our mines a great many years was attending the coroner's inquest. He was asked by Mr. Paul: "Tom, what is your opinion?" He answered: "Mr. Paul, twenty-five wiser heads than mine tried to find out, why do you ask me?" Some persons think that the manufactured gas, or coal gas—that is a thing I never heard of before—started this explosion. The heat was very great. There are places where the coal is coked for one-half inch deep in the solid coal and there are stalactites hanging down from the roof one to two inches long, which shows you how intense the heat was. One theory is that there seemed to be a second explosion. There must have been an immense amount of this manufactured gas or coal gas generated by this heat. Dr. Holmes said there was an immense amount of manufactured gas thrown off that no doubt entered very largely into the force of the explosion. We are diligently seeking to ascertain where the initial explosion occurred, but all the inspectors have concluded that it was either from that powder or from a blown out shot. One man, I believe, and only one, now holds to the theory that it was started by a run-a-way trip. About the time of the explosion they were bringing fifteen coal cars out of the mine, and these cars

broke away and ran back into the mine 1,300 feet to the foot of the slope, and the explosion occurred about that time; the theory being that the cars piled up at the bottom of the slope short circuited the electric current, causing the wires to produce a flame which started the explosion. But it has been definitely shown that the trip could not have gotten to the foot of the slope at the time the explosion occurred. The theory is that the initial explosion occurred in No. 8 mine, while this trip broke loose in No. 6 mine. The explosion was in No. 8 and reached through to No. 6. The force came out of No. 8 first and after that No. 6, so that we must all now come to the theory that it must have been caused either by the explosion of these powder kegs or by a blown out shot.

Mr. L. E. Tierney: What kind of powder were you using, Governor?

Governor Fleming: We were using black powder.

Mr. L. E. Tierney: Under the laws of West Virginia we can shoot off the solid under certain conditions, and these conditions were laid down by the mine inspectors' department for us to follow. Two mine inspectors and two coal operators were appointed by Mr. Paul who was chairman of the joint meeting, to make tests of flameless powder. The experts who got up one of these powders came to one of our operations, the Powhatan Coal and Coke Company. I did not call the balance of the committee with me, but took the expert who made this powder, and the other practical man who was an ex-mine inspector of the State of Ohio and who represented this flameless powder. I went with them into the mines and gave them every assistance to have this test made. In that portion of the mine to which we went we have air-cutting machines. We went to that portion for the reason that we could make the test more quickly. I had the cut made and said that I would have the holes drilled along the lines that we shot coal. The holes were put in and I said: "Its up to you, gentlemen, the amount of powder that you use. We take from 18 to 25 inches, 1¾

inches in diameter, of black powder." I said: "You are an expert and you have made the powder and you have a mine inspector of the State of Ohio who recommends it. We are here to make the test and you are the practical men. Where we now stand we are 43 feet from 3,000 cubic feet of air per minute traveling along this main entry." He said: "What charge shall I put in these holes?" I said: "You go ahead, I know nothing about it." Well, they went ahead and put in the cartridge in the heaving shot, and as they fired it the coal did not fall out. They then fired the two rib shots with the same results. I said: "I am going to make a practical test." I have spent all my life in the mines and I know what a miner does, and Mr. Dixon will tell you the same thing. As a rule when a miner fires his hole with black powder, he sticks his lamp to it. I said: "I will now make the miners' test on your powder." I told one of the men to stick his light to the powder and he did so, and it was the wildest thing you ever saw. Now, I said: "We will leave this thing and go on to another cross entry running parallel to this." We fired three holes and increased the charge from 10 to 14 inches. I sent a fellow back to light that coal and it was wilder than the other shots. The next day we went back and I took the fire boss along. It is not a gassy mine, but I did that for protection. I made them under-cut the coal and shoot it with black powder, and sent one of the men back to light it. He did so and the powder all burnt out, whereas with the flameless powder the smoke was standing there four hours after the shot was made. That is the experience I have had with flameless powder. It was the Peelee powder, manufactured in Cincinnati, Ohio. From my experience with flameless powder, I believe if I fired forty shots at night with it I would have forty fires, and as Governor Fleming has said, if there is a little gas in the mine, and these fires generate coal gas, an explosion occurs and nobody would know how it happened.

Governor Fleming: We were using black powder up to

this time, but I am getting a little afraid of the flameless powder after what Mr. Tierney has said. We are willing as far as we are concerned to comply with any mining law that will make mining safe. Of course we do not want to be put out of business, but I think our mine foremen and fire bosses should be examined and licensed. I have always taken a stand against that, but I am not going to do so any more. Now we are doing certain things and have already started our mines. Of course these two mines are considered our safest and best, and it behooves us to do all we can to keep them so. One thing we are doing which I believe will result in good, and that is to prohibit our men from tamping their holes with coal dust. We have stopped that and have put on short firers. We also require our people to be careful in shoveling up the dust from the machines.

We always did that but we are more careful than before. Now it may be that at first blush it may not seem to be the wise thing to put on shot firers, but we contend that in the end it will be a great deal safer. We are advised by our people that the better quality of coal will make up for the additional cost, and if it did not affect the cost it will be a great deal better than to take the risk of blown out shots, almost all of which takes place from improper drilling or shooting. We have always been just as careful as we knew how to be. Every two or three nights we have a meeting in the General Manager's office of the superintendents and fire bosses and they are required to come (some of them come twenty-five miles) or give a good excuse. It is just as much a part of their business to attend as any other work they do. Everything is gone over with reference to the mines, and with reference to cost, and right here I want to say that whenever a request has been made looking to expenditures for the safety of the men and the mines that no question is raised as to the propriety of spending such money. We do not have to go before any committee to get it, and the question is never raised. We also keep a record, such as the State requires, made by the fire bosses. We

have in addition to that large sheets made up on which the fire bosses and people in the mine both make report every day of what was done and whether there was any gas. Notwithstanding all that we had this terrible explosion. Now we are here and want to confer with you gentlemen and with the experts of the United States Government, and want to do any and everything to make our mines safe. Now a law that would prevent a man from working in the mines with less than three years apprenticeship would not do at all in West Virginia, unless it was a rule throughout the United States. The men would all go away from us. They do not have that law outside of the anthracite regions. Now the argument made in favor of that law, or the reason for that law, is that it would prevent putting in mine foremen who were careless or who were incompetent, and if they were required to work three years in the mine they would have more experience. Now we are trying the experiment of shot firers,—

Mr. Dixon: My experience is that most of these explosions occur from experienced men rather than new men. I think it is just like railroading. When you put a new brakeman on the road he will be careful and will not take the chances or do the same things that an old man would do. They get careless. I am speaking now of the argument made with reference to experienced shot firers.

Mr. Thomas: I tried the employment of shot firers six or seven years ago for a week, and it did not work. The miner wants to shoot his own coal. My experience is that if a miner goes in to load his coal and he finds that it has not been shot, he comes out dissatisfied. I think you will have to have the rule effective in all the States before you can put it into practice. I am perfectly willing to have it, but I do not think we can ever put it into effect.

Governor Fleming: We are putting it into effect in our mines.

Mr. Thomas: Just as sure as you do you will drive your labor away.

Governor Fleming: I suppose if you fire these shots without charging the miners for it—

Mr. Thomas: As I said before the miner much prefers to shoot his own coal.

Mr. Dixon: We felt like you do, and in fact I wanted to relieve all our men of that responsibility, so we put on shot firers. Something had to be done, while of course I knew I could not afford to do the shooting unless my neighbors did the same thing. But a miner would rather shoot the coal himself than have you shoot it for him. Now I have put on shot inspectors in order to prevent as far as possible miners shooting off the solid. I think shooting off the solid is the most criminal thing in the world. I have a man in jail now for thirty days for shooting off the solid. Now you are not presumed to hire a fire boss unless he is a citizen of the State of West Virginia. Where do we get our practical men? The Pennsylvania miner is not always a success, but we have got to bring into the State most of the men that we have to dig coal.

Mr. Tierney: In connection with what Mr. Dixon said, I would like to say that I am opposed to shooting off the solid. I think it is the most dangerous thing in the mines. The mining law of West Virginia allows us to shoot off the solid under certain conditions, and one of these conditions is that the mine inspector has discretionary power to say. He can come and find a little bit of gas and say that it is a gassy mine and he will not allow you to shoot off the solid. Another of the conditions is that when a miner fires a hole in the solid he must not return to the face for twenty minutes. I have made a practical test. You can take a keg of powder in the Pocahontas field, and you can get twelve shots out of a keg of powder. Now suppose the mine inspector says you have a gassy mine and you let the men go ahead and shoot off the solid, how much coal will he dig for you? He lives in that powder smoke and it is just ruining his whole constitution and he will not dig any coal for you in the end. Now if you compel that man to

dig the coal he can take out 150 tons, by undercutting his coal, and when he fires his holes he goes home. That shooting in the solid is a perfect farce, and you have to shoot according to rules the mine inspectors lay down.

Mr. Page: I would like to hear from Doctor Holmes and Mr. Hall, but I suggest that we adjourn for lunch.

Mr. Thomas: I think we can get along best if we carry out Mr. Page's suggestion, and I now move that we adjourn for lunch, to reconvene at 3 o'clock.

Adjournment was then taken until 3 o'clock.

The meeting reassembled at 3 o'clock, and was called to order by the Chairman (Mr. Page), who said:

The committee on organization appointed by representatives of the different districts is the most important work to be done here, and while that committee is at work we would like to hear from Mr. Heron.

Mr. Heron: Mr. President, and gentlemen: I certainly feel honored that you should call on me for an expression of opinion on this matter. The problem with which you are wrestling now is the same problem that the miners and operators in the old country for many years have had to contend with. The coal miners act of 1872 made it necessary for a man occupying the position of manager of a mine to pass an examination. Later on, in January, 1886, a further amendment was made, and the coal miners' regulation act made it necessary for a man holding a mine foreman's position to have a second-class certificate obtained under examination. Then later and further legislation was enacted and the best that was enacted was the passing of an act making it necessary for the scientific department of the government to establish schools in all mining regions. I think this is one of the great needs of the United States today, not only in West Virginia but in almost every State in the Union. There are schools in Pennsylvania, and I

understand also in New York. There are a number of correspondence schools, but I believe it would be infinitely better if schools were established at home with teachers capable of teaching such schools. In the old country a teacher passing a pupil into the intermediate stage receives a premium for the teaching of that pupil, and so on. Now this is an education within the reach of every miner. As soon as the boys go into a mine they begin receiving a mining education. Now in the position I now occupy it has been necessary for me to examine a great many mines in the State, and in doing that I naturally observed the methods employed. One method of mining cannot apply under all conditions, but one method of mining is pretty near universal throughout the State of West Virginia, and that is in leaving pillars in some instances much too small and not sufficiently strong to protect the roof and take off the weight and getting what we call a squeeze. But the principal trouble today is what Mr. Dixon referred to in the method of ventilation. Now it seems that to get a great quantity of air in the mines is desired. That is wrong. The rush of air through a mine at a greater velocity than is necessary increases the danger from gas and dust. I am glad to say, however, that there is not found in the West Virginia mines with which I am familiar a sufficient amount of gas to call them gassy mines. These troubles we have had do not arise from gas but from dust, and you will observe that the majority of these explosions have taken place in soft coal regions. Now in these soft coal regions the coal powders up into finer particles than it does in the hard coal regions and there is a greater amount of it and consequently a greater amount in the air than there is in the hard coal regions. This fine dust having a blown out shot presented to it is all that is necessary to cause an explosion. There is another thing that I would say in connection with the subject of ventilation, and that is, that in many mines they use the haul way for the intake or return air way. Now I regard this as a dangerous thing. We

are now hauling with electricity and other mechanical means and the trips are travelling through the mines at a very much increased velocity compared to that of the ventilation. Now that is something that will probably lessen the tendency at least to these explosions, and that is to make the haulways a safe distance from the return airways. I have no hesitancy at all in saying that a great majority of the accidents have been from dust explosions. The great ventilation going through a mine more rapidly than it ought, carried the dust with it, and this dust being driven through the mines meets a blown out shot; an explosion occurs, and if these gentlemen can tell us some means to lessen the amount of dust that is carried on the ventilating current we would know what steps to take. It has got to be minimized if you ever expect to be immune from dust explosions. Now as to the powder question. The powder used in this country takes from 100 per cent to 150 per cent more than they use to do the same work in the old country. They use a much finer powder and less of it in doing the same amount of work that we do in this country. Now this is something for the experts on explosives to tell us. The shooting off the solid is undoubtedly wrong and ought to be prohibited by law. I do not believe a mining machine makes more dust than a solid shot. It makes more but it don't make it in the same way. It makes it finer, and makes a very fine dust, but it is not exposed to flame.

Mr. Page: Have you ever known in the State of West Virginia a gas or dust explosion in any mine any considerable distance above water level within one-half mile of the outcrop?

Mr. Heron: If one did occur it was at Red Ash.

Mr. Page: At Red Ash the outcrop was 500 feet above the river, and that seam never comes to water anywhere until it gets beyond the Ohio River syncline.

Mr. Scarborough: It comes to water on Loup Creek.

Mr. Page: It does not come out until after it passes the Ohio River syncline. It does come out on Dun Loup Creek

but not in the direction of the Ohio River from Red Ash. The point I wanted to get at was that a seam of coal considerably above water level, passing for miles before coming out again under those heavy sandstone ledges of the Pottsville conglomerate, two or three hundred feet thick, the result is practically equivalent to a shaft after you have gone a certain distance from the crop. Did you ever know a mine where there was less than two miles between the outcrops in either direction, to have an explosion from dust or gas?

Mr. Heron: No, sir.

Mr. Cooper: We had an explosion at Norfolk that was traced to within 100 feet of the outcrop.

Mr. Page: How much covering did you have.

Mr. Cooper: About 200 feet I should say. We were going southwest.

Mr. Page: That is just the kind of information we want.

Mr. J. J. Tierney: Mr. Heron made the statement that these explosions are caused by dust. Am I right.

Mr. Heron: The principal part of them are.

Mr. J. J. Tierney: I would like to know at what temperature the dust will explode.

Mr. Page: I will say that fire damp CH_4 will not explode in a red heat, and that it requires a temperature of about 1500°F .

Mr. Heron: I am not able to answer you directly as to the amount of degrees of heat it takes to ignite dust or what the degree of heat is in an explosion of blasting powder in coal, but I can say this, that if the powder that is put into a hole is burnt, very little or no flame will be made at all.

Mr. Tierney: I agree with you.

Mr. Page: We are all after information because we are in doubt, and we want to find out the real trouble. We would be very glad to hear from Dr. Holmes.

Dr. Holmes: Mr. Hall is here and he can tell you.

Mr. Wheelwright: I know Mr. Hall is rather diffident, but won't you be kind enough to tell us just what you found

out and what information you obtained when you visited the Monongah mine. I know it is contrary to the rule of the Department, but I am sure your chief will excuse you. Dr. Holmes, can Mr. Hall anticipate your publication and give us his opinion as well as what he found out?

Dr. Holmes: Certainly, sir.

Mr. Hall: The question was asked this morning in reference to the ventilation at Monongah. We found that the ventilation was ample to dilute the gases so as to render them harmless, but by having this large amount of ventilation it assisted in distributing the dust throughout the mine. If the ventilation had not been so great we do not believe the explosion would have been as intense. We have collected probably twenty samples of air in the mine in different places and I do not believe after we have analyzed them that we would consider the Monongah Mine a gassy mine. As to the source of the initial explosion in the mine we are not prepared to say at present.

Mr. Tierney: But the consensus of opinion seems to be throughout the mining districts of Pennsylvania and West Virginia, that these explosions are caused from dust. Now at what temperature will dust explode?

Mr. Hall: That cannot be answered. We know that gas will ignite at 656° C.

Mr. Page: What would that be Fahrenheit?

Mr. Hall: 1213° F.

Mr. Tierney: Now take our coke ovens. We put slack in those ovens and I am positive we have a temperature of 1800°, but it does not explode.

Mr. Hall: In a coke oven you do not have a large volume of air and fine dust in suspension.

Mr. Tierney: How do you explain the explosions in flour mills? There is no volatile matter there.

Mr. Page: Yes there is volatile matter.

Mr. Wheelwright: It might be from what Mr. Hall has said that we have too much ventilation.

Mr. Hall: No, I won't say that.

Mr. Wheelwright: We are at the present time endeavor-

oring to change our ways. Now I infer from the statements you have made that an extra amount of air taken into these mines was responsible for this explosion. In other words, I gather from what you said that too much ventilation has been the means of carrying the dust through these mines.

Mr. Tierney: Mr. Hall, if your theory is right that this strong draught of air carries the dust in large volumes through the mines, and if I go away from here today feeling that through this increased draught that I am going to be held responsible for the loss of life, then I want to change my attitude in regard to ventilation. You say there was a strong current through these mines and yet an explosion occurred.

Mr. Hall: If we could produce a large amount of air under the same conditions we have in the summer time I think the danger would be lessened. If the air was warmed in some way so that it was saturated with moisture. We started some experiments on that line, getting the humidity at the mouth of the pit and from different points in the mine, and I believe we will be able to show you how much moisture is taken out of the mine.

Mr. Tierney: Now we came here today unprepared to say what is responsible for these troubles. Now your people, Dr. Holmes and Mr. Smith, have made investigations in this case, and we look to you three men for enlightenment on the subject, and we would like for you to tell us just exactly what the trouble is.

Mr. Hall: If we could arrive at the source—

Mr. Tierney: Then you people who are employed by the Government are as much at sea as we.

Mr. Hall: That is the fact.

Mr. Page: We are all investigating.

Mr. Tierney: Will Doctor Holmes kindly tell us just what his investigations were in a few words.

Governor Fleming: He gave me the first intimation I had of the fact of manufactured gas being generated by heat

in the mine. I think it would be interesting if he would give us a talk on that subject.

Dr. Holmes: Mr. Chairman, it is a very easy matter to ask questions and it is an easy matter to theorize. It is a fact that in a country like ours working and mining coal as long as we have, that we don't know what coal is. Our chemists tell us that coal contains such and such percentage of carbon and such and such percentage of volatile matter, and such and such percentage of nitrogen. But how these materials are combined in coal I don't know, and our correspondence with European chemists has not thrown any more light on the subject, and if we do not know what it contains we do not know what gases are given off, and that we are trying to find out.

Mr. Tierney: Doctor Holmes, we would really like to have you tell us where the trouble exists, and we will endeavor to cure the trouble. We do not want to have labor driven away from us.

Doctor Holmes: The point I want to make is this: Some three years ago I spent some time in Belgium, Germany, and England where they have been conducting such investigations for a number of years. I recommended then, and have since, that we ought to have just such investigations, because they have in the past ten or fifteen years reduced the loss of life from explosions of this kind far below that of the United States. I remember this question of dust explosion being agitated in this country and we conducted a series of tests on the explosion of coal dust. We had a steel cylinder constructed in which there was absolutely no gas whatever, and the original explosion ignited the coal dust. We put the dust in a space about the height of this room, but the same condition would practically obtain in a mine. One of the largest coal operators in the Mississippi Valley told me he recently bought a car load of a new safety explosive and they got very good results. He bought a second car load and his miners would not use it. Through Mr. Hall and his assistants we have been testing all the

explosives used by the Irrigation Survey and the Isthmian Canal—we found the variations so large—in order to find out how much to dock these people when the percentages are lower than they guaranteed they would be. So I cannot help but feel that one of the needs of this country is to get all the explosives on a definite basis so that we will know exactly what charge is safe to use under the conditions where it is tested.

Mr. Tierney: I am very glad to hear that statement because it shows that you are not of the opinion that the operators are responsible. In other words, there is somebody in between us and the trouble—the people who make the powder. Of course the experiments you made in an enclosed cylinder, would not represent exactly a room in a mine with the holes drilled in the coal, and the ribs and ceiling. Now the experiments you made on certain lines do not give us any definite information. I am not criticising, but they do not give us any definite information to take home with us. Now we have noticed in the newspapers for some time back the desire on the part of certain people to impose a tax on the mining of coal to create a fund to be distributed to the widows and orphans. Now what I want to know is this, is there anything we can do to prevent having widows and orphans. We do not want to pay a cent to keep widows and orphans if we can pay that same cent to prevent the disaster. We want coal miners and not widows and orphans. Now, Doctor Holmes, in your opinion is there anything you can suggest that would be beneficial to us to reduce the loss of life by explosions or otherwise?

Doctor Holmes: Absolute prevention is not possible. It is a question of course which may affect legislation, but I am going to make a statement, because I have certain obligations as a citizen, and I do not hesitate to say that we ought to begin immediately a careful series of investigations which I outlined in the paper I showed these gentlemen this morning. An ounce of prevention is worth a great many

pounds of cure. All the work we are doing now is from an item in the appropriation for the investigation of faults which has been stretched to cover the question as to how to prevent waste of fuels. Now if anything definite is to be done there must be a sufficient appropriation provided for these investigations. It would require say \$125,000 to establish stations which would be necessary for us to use in conducting these investigations. It ought to be \$40,000 or \$50,000 a year.

Governor Fleming: Now I wonder if your Department is making any investigation of these explosions?

Doctor Holmes: At present we are not.

Governor Fleming: I am impressed with the idea that manufactured gas ought to be thoroughly understood. I understand that you say an explosion of these fine particles of dust creates that gas?

Doctor Holmes: Yes, sir, it volatilizes the coal dust.

Mr. Page: As Governor Fleming has several times requested some scientific explanation for the theory that explosive gases are generated by mine explosions, resulting in what is frequently known as secondary explosions, I will say for his information that the ordinary chemical reactions governing combustion of carbon, oxygen and hydrogen may explain the matter to his satisfaction.

The ordinary fire damp of the miner is composed principally of CH_4 , or one atom of carbon in chemical combination with four atoms of hydrogen. This gas, in the presence of sufficient oxygen, when exposed to the temperature of a flame, will explode violently, giving off large quantities of flame and heat: two atoms of oxygen uniting with four atoms of hydrogen, making two molecules of H_2O , or water; and two atoms of oxygen uniting with the one atom of carbon result in C O_2 or carbonic acid gas, which is the miners' black damp.

Where coal dust is present, either in suspension, or deposited along the roof, floor and ribs, it becomes heated, as red hot carbon, and the C O_2 in contact with red hot carbon

takes up an additional atom of carbon, making $C_2 O_2$, or two molecules of CO equal carbon monoxide, or the miner's after damp, which is one of the deadliest mine gases known for inhalation, and which will explode in the presence of flame by the addition of another atom of oxygen, the result again being carbon dioxide, or CO_2 .

Under certain mine conditions these reactions may all occur instantaneously, or practically so.

Mr. Tierney: We have had a great deal of information from Mr. Hall and Doctor Holmes. We are all pupils and we want to learn.

Mr. Page: We would like to hear from Director Smith.

Dr. Smith: Gentlemen, I include myself in that class who want to learn. Of course I can add nothing to what has been said by the men who have been actually in the field. I want to pledge myself and my best endeavors to help in every way from the Washington end. It is the expressed desire of the Secretary of the Interior, under whose Department our Bureau comes, that recommendations be made to Congress asking for definite recognition of this class of work. It is better to make the recommendation, as to how to meet these ends, for a specific appropriation. There is another line in which we felt we could approach this problem which I think Doctor Holmes outlined, and that is the establishment of experimental stations. The people having in charge the inspection of the mines in the Territories feel the need of information on this subject. It is a subject not for one State, but for the whole country. The Secretary of the Interior in behalf of the Territories requested the Geological Survey to investigate this subject, and it was in accordance with that authority that this subject was first taken up by Mr. Hall, the expert in charge of these investigations and he then began to prepare a preliminary report. He has not as yet prepared his final report. The Secretary has in preparation a report to the Senate Committee on Mines and Mining in which he will

make specific recommendations for recognition that will put this whole investigation on a much better basis than anything we now have. The sole object is to promote in every possible way these investigations, and that is all that I can say on the general subject, except that personally I am intensely interested.

Mr. Tierney: I would like to ask you a question. Have you arrived at a solution of the causes of our troubles?

Dr. Smith: We have never arrived at a solution because we do not know the facts.

Mr. Tierney: We do not discredit your researches at all, but we are in the same position that you are. We do not know the causes of these troubles and it puts it up to us to do all we can to find out what the trouble is.

Dr. Smith: I think if we work together we will all come to the same conclusion, but it won't be today or tomorrow.

Mr. Tierney: It is a very difficult thing to get at the bottom of all this trouble. Now then, if that is the case it certainly makes it very difficult for us, with the many things we have to look after, to arrive at any conclusion. Now I take it, that you are in doubt as to the real cause. Don't you think it would be a very inopportune time to pass laws looking to the remedying of these troubles?

Dr. Smith: Except as to the appropriation which we should have:

Mr. Page: I think it is pretty well decided that the Government experts do not know and we do not know what the causes of these troubles are. We would be very glad to hear from Mr. Bush.

Mr. Bush: Mr. Chairman, I thought I was pretty well hidden and that the chair would not call on me. I have listened with a great deal of interest to what every one has had to say on this subject. At the present time I am in charge of a number of coal properties in several of the States, and we have a variety of conditions. You in the east know nothing of drastic legislation governing the operation of your mine as some of the western States have.

If we would go back to where we were fifteen or twenty years ago when we paid more attention to the mining of coal and not so much to the volume of the output of the mines I think we would possibly eliminate some of the troubles we have had. We were not then required to have a greater volume of air in the mines than was absolutely necessary, so that in cold weather we did not have this great volume of air going through the mine and taking up the moisture in the mine. We had a different class of miners from what we have today. Mr. Hall referred to conditions in the Indian Territory. Now the mines in that territory are operated under the supervision of the Government and of course the conditions are very different. I have some mines there and I guess we have mined two million tons of coal without a fatality, which brings the percentage down in connection with other portions of the territory. But there is another condition, and that is that these mines come under the dominion of the Mine Workers' Union. But in West Virginia we have got to do something. There has been a great claim all over the country that we have been furnishing the country with coal covered with blood. The papers all over the country give various explanations of our methods without any justification because there are none of us here who would stop at the expenditure of any money when human life was at stake. I think this body should have a legislative committee to take this in hand to get sufficient information before our State Legislature, because they are not going to cure these conditions. I have had the pleasure of going through the Monongah Mines and I will say that this Company has shown as much regard for the ventilation and safety of their mines as is possible to do in any mine. No amount of legislation could have caused these people to take any steps which they did not take. I believe that our Government is the proper one to take up these investigations, and I would like to see, as far as I am concerned, a department created for that purpose. I do not think Congress should look into the in-

spection of mines because that would come in clash with State officials, but in the question of explosives, and that is a question where the operators could get a great deal of light, it would be an interstate matter. When the gentlemen here were speaking of safety powder, and I had much the same experience in the State of Washington where we are operating very gassy and dusty mines, I said to myself, "You have made a mistake, you should have called it non-safety powder." Now in West Virginia a number think that the more air we have in the mines the better. Now that is true for two or three months in the year, but not in cold weather. I do not fear a dust explosion except where there is an initial explosion to raise that dust. What I fear in West Virginia is that we will get such legislation that will do more harm than good. I have operated in States where they have legislated the mines to death, but I have never seen any lives saved by such legislation. If I felt it was going to do us any good I would not object to it. I have not had the experience that you have had in West Virginia but I have had it in other States.

Mr. Page: I would suggest that the committee now get together, and in the meantime I would further suggest that we adjourn until tomorrow morning at ten o'clock.

Mr. Tierney: I would like to make an explanation: The gentlemen of the Geological Survey have not departed yet and we have not arrived at the cause of these troubles.

Mr. Page: The object is to investigate them in connection with the Geological Survey in order to find out the real causes.

Mr. Caperton: I move we now adjourn.

Mr. Page: The motion has been made and seconded that we do now adjourn until tomorrow morning at ten o'clock.

The motion was unanimously adopted.

The meeting reassembled at ten o'clock, with Mr. Page in the Chair.

Mr. Page: I will ask the Secretary to read the Report of the Committee on Organization.

The Secretary: (Mr. Robinson).

REPORT OF THE COMMITTEE ON ORGANIZATION.

The name of this organization: *West Virginia Mining Association.*

The primary object of this Association is the formulation of plans for the general betterment and advancement of the mining industry in the State of West Virginia, the dissemination of literature relating to underground conditions; conducting tests of explosives, ventilating systems and mining machinery; and to take such action as may be right and proper on any and all other things that may promote the welfare of the operators and their employees.

Membership shall be limited to the owners of mines, or the representatives thereof. Meetings shall be held at such times and places as shall be appointed by the President and approved by a majority of the Executive Committee hereinafter provided for.

The officers of the Association shall be a President, Secretary, Treasurer and an Executive Committee of fourteen (14).

The President and Treasurer shall be members of the Association.

The Secretary may be selected without regard to membership, but unless a member he shall not be entitled to a vote in the proceedings of the Association.

The Executive Committee shall consist of fourteen (14) members representing the following districts—two members from each district:

DISTRICTS.

POCAHONTAS.—Including all mines on the N. & W. R. R. and its branches east of Iager.

THACKER.—Including all mines on the N. & W. R. R., and branches of same west of Iager.

KANAWHA.—Including mines on Guyan operating Kanawha coals, Coal River, Gauley, Cabin Creek, and other branches south of the main line of the C. & O. R. R., west of Hawks Nest bridge.

NEW RIVER.—All mines on the C. & O. R. R. east of Hawks Nest bridge, and all mines on the Virginian Railway.

KANAWHA RIVER & K. & M.—All mines on the north bank of the Kanawha River, including mines in the Elk Valley north of Clay C. H.

FAIRMONT.—Including all mines on the B. & O. and its branches west of Tunnelton and north of Richwood, including mines in the vicinity and north of Wheeling; also Ohio River mines north of Point Pleasant.

WESTERN MARYLAND AND COAL & COKE.—All mines in West Virginia on the Western Maryland Railroad, and all mines on the Coal and Coke Railroad east of Clay C. H.

Each district shall select two members to serve as members of the Executive Committee, but should there be a failure on the part of any district to select and report its Executive Committee members within five days of the time appointed for such selection the President may name substitutes who shall serve until the regular members are elected.

It shall be the duty of the Executive Committee to meet from time to time upon the call of the President or any five of its members, and the Executive Committee when in regular or special session, a quorum being present, shall have power to act upon any pressing or seemingly urgent business with the same authority or right that could be exercised by the Association as a whole if it were in session. The Executive Committee may suggest to or direct the Chairman to appoint special committees to perform special duties; to retain counsel and experts and to fix the compensation for all services rendered that are not specially pro-

vided for by the Association at its regular meetings, and all transactions of the Executive Committee shall be reported to the Association at the next subsequent meeting. Five members of the Executive Committee shall constitute a quorum provided they represent at least five districts.

The President shall perform all of the duties usually delegated to an executive officer occupying this position and shall be ex-officio a member of all committees.

The Secretary shall keep true and accurate records of the transactions of the Association and shall perform the same duties for the Executive Committee when called upon to do so. He shall render the bills for membership fees when the same are due and draw orders upon the Treasurer for such accounts or payments as may be authorized by the Executive Committee, the President or the Association. The compensation that shall be paid to the Secretary shall be fixed by the Executive Committee from time to time as it may deem proper. In the event of a vacancy in the office it shall be filled by the Executive Committee and their selection shall stand until the next annual election.

The Treasurer shall receive all funds of the Association and disburse the same upon orders drawn by the Secretary and duly approved by the President or Executive Committee as hereinbefore provided.

The annual charges for membership shall be fixed by the Association at each annual meeting to apply to the ensuing year. It is recommended that the charge for the year 1908 shall be equal to 25 cents per 1,000 gross tons based upon the output reported to the State Mine Inspector for the year ended June 30, 1907, by the company holding membership.

In all votes cast in the Association the votes shall be based upon the tonnage upon which the annual dues are charged. Each member being allowed to cast one vote for each one thousand tons of annual production.

Mr. Page: Gentlemen, you have heard the report of the Committee on Organization, if there is any criticism or sug-

gestion we would be glad to hear from you. If not I will proceed to put it to a vote.

Mr. Cooper: I move the report be adopted.

Mr. Ford: I second the motion.

The resolutions were unanimously adopted.

Mr. Page: The report recommends that the temporary organization be made permanent, and we ought to have these officers qualified now to take up the business.

Mr. Thomas: I nominate Mr. W. N. Page as President for the ensuing year.

The motion was seconded, and upon being put to the meeting by Mr. Ford, Mr. Page was unanimously elected President of the West Virginia Mining Association for the year 1908.

Mr. Conner: I nominate Mr. Neil Robinson as Secretary.

The motion was seconded, and upon being put to the meeting by the President, Mr. Robinson was unanimously elected Secretary.

Mr. Carver: I nominate Mr. G. H. Caperton as Treasurer of the Association.

The motion was seconded, and upon being put to the meeting by the President, Mr. Caperton was unanimously elected Treasurer.

The President (Mr. Page): Gentlemen, the principal object I had in mind in calling this meeting was to set us right with the public, and with this in view I have prepared a set of resolutions which I think will show to the public that we are doing all we can to arrive at the cause of these explosions and to remedy them. You will note that the press for the last three or four months have charged us with killing three times as many men as were killed in England, Germany and Hungary. We are partly indebted to our Geological friends for that misinterpretation. England killed about 1,300 men last year on an output of 250,000,000 tons of coal; we killed a little over 2,000 on an output of 450,000,000 tons of coal, and Austria-Hungary, which had the lowest death rate per 1,000 men employed had within

a fraction of our death rate, per ton of coal produced. Now the public does not understand these things, and it is for this purpose I offer these resolutions.

The resolutions were read by the Secretary, and unanimously adopted:

RESOLUTIONS.

Resolved, first, That the Senators and Representatives of the State of West Virginia be earnestly requested to use their best efforts towards providing the Geological Survey with a sufficient appropriation to enable that Bureau of the Government to ascertain as far as possible the causes underlying these disasters, and when they have been determined to recommend proper remedies for the saving of life, which we pledge ourselves to carry out in good faith regardless of cost.

Resolved, second, That at present we are at a total loss to account for many of these disasters which have occurred in the best regulated mines of the country, such as have been regarded heretofore as absolutely safe by the owners and management, who have spared no expense, and by the mine inspectors of the several States, and after a full conference with the United States Government experts who have carefully investigated these disasters they are unable to throw any light upon the subject at the present time.

Resolved, third, That the United States Government should take the necessary steps to determine the causes before any attempt is made to apply legislative remedies, and when the causes have been ascertained and the remedies suggested we pledge ourselves to co-operate with the National Congress and State Legislatures in the framing and passing of any proper and effective legislation for the protection of life or property which may result advantageously to the National Government, States, labor and capital.

The following Districts reported the members elected to serve upon the Executive Committee:

POCAHONTAS: J. Ellwood Jones and John J. Tierney.

THACKER: Frank L. Houston and T. B. Houston.

NEW RIVER: S. Dixon and Wm. McKell.

WESTERN MARYLAND DISTRICT: John T. Davis and B. F. Bush.

Time was granted to the Kanawha, Kanawha and Michigan, and Fairmont Districts to make their selections and report the same to the Secretary.

Upon motion the Secretary was authorized to prepare a complete record of the proceedings and to send a copy to every operator in the State.

In view of the interest that has been taken by the operators of the country in the proceedings of this body the Secretary was authorized to furnish such material for publication as he may deem right and proper.

Upon motion of Mr. Jairus Collins, seconded by Mr. J. R. Thomas, the thanks of the Association were extended to Major Page for the active interest that he has shown in this matter and for the many courtesies that he has extended to the representatives at the session of the Association.

On motion the meeting adjourned to convene again upon the call of the President or the Executive Committee.

WM N. PAGE,
President.

Teste:

NEIL ROBINSON,
Secretary.





