

It seems peculiar that, notwithstanding the circumstances under which this gas has been seen at Shag Point, it should, if explosive, never have exploded; and it is unfortunate that, so far, the management have been unable to isolate any with a view to having it analysed. Of course I am fully aware that there is no certainty of this gas being CO; but, considering the circumstances of the case, I venture to express an opinion that it probably is.

As regards Mr. Cox's suggestions for dealing with the threatened danger, as explained in his letter to me of the 26th ultimo: This course appears to be the one adopted by Mr. Williams on previous occasions when dealing with noxious gases from the fire. It is unfortunately impossible to do as Mr. Cox suggests—viz., "See that this is attended to when next I visit the mine." The occurrence of the gas being rare, it is most improbable that I should be there at the time of these precautions becoming necessary; but I have written to Mr. Williams urging upon him the advisability of following this course. I may mention that Mr. Williams appears to be taking every precaution for safety, remaining frequently underground for many hours when the underviewer is away for the night. He is also willing to adopt any additional means required, and to use safety-lamps if desired to do so; but it is probable that this would be of very little use in immediate proximity to an open fire, and the danger to the men from working with an insufficient light in a very high place with a rotten roof, would probably more than counterbalance any advantage. Taking into consideration this probability, and giving due weight to Mr. Cox's opinion (as stated in his letter and your telegram of the 11th instant) that the precautions suggested by him are, if properly attended to, sufficient, I have not required the exclusive use of safety-lamps, but have arranged with Mr. Williams that each set of men is to be provided with a safety-lamp with which to examine the working-place after a fall of stone, or after ceasing work for any time.

The fire is being shut off by the erection of a substantial brick wall, backed with sand, but the unusual character of the roof, and the close proximity of other coal seams, will, I fear, render this expedient only temporary.

Appended is a copy of Mr. Bishop's letter to Mr. Williams.

I have, &c.,

GEORGE J BINNS,

Inspector of Mines.

The Under-Secretary for Mines, Wellington.

Enclosure.

Mr. BISHOP to Mr. WILLIAMS.

SIR,—

Shag Point Coal Mine, 14th May, 1881.

In reference to the gas met with in your mine, I would state for your information that I have had frequent opportunities of seeing gas under exactly similar conditions, as the result of underground fires. My experience was obtained in the working of lignite coal in Bohemia, where I held an engagement; and I may state that none of the mines throughout the district where I was were entirely free from this peculiar gas.

Comparing my experience there with what I have seen at Shag Point, I feel fully justified in saying the gases are the same. From my own observation, the conditions favourable to the production of this gas are an accumulation of small coal mixed with pyrites and other impurities, and partially shut off from the air. The mass in course of time heats, and gives off large quantities of gas. A process of distillation, and perhaps decomposition, continues until fire breaks out; at this particular juncture the gas is almost sure to be seen burning near the roof, and it can be watched for some minutes; the flame is bright blue, and seems to float on the surrounding atmosphere.

The general opinion held by mining engineers in Austria is that the gas in question will not explode; and after having experienced the gas under varying conditions, I am convinced that it is non-explosive, and perfectly safe to approach with naked lights.

I may just add that I am of opinion this gas is peculiar to lignite and other inferior coal seams, where pyrites are met with in quantity. So far as I am aware, it has never been seen in mines working coal of the older formation.

I am, &c.,

JAMES BISHOP.

W H. Williams, Esq.,