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Selected Questions and Answers.

VENTILATION.

Q.—How would you remove gas in a cavity in the roof? How would you reverse the air current in a fiery mine?

A.—The gas spoken about is CH_4 , or fire-damp. It is of a very light specific gravity, being slightly over half the weight of air. Therefore, we can at once see that it is more likely to be prevalent in high places in the mine and in cavities in the roof.

The best means for its removal is to erect a sealing cloth to cause the wind to rise up into the hole, and thus clear away the gas.

The mode of procedure depends somewhat upon the amount of wind passing along the road in which the cavity has been located. In erecting the sealing cloth it must not be in such a way as to impede the wind too much. For instance, if a good current of wind was passing a cloth would not be required to reach the floor, one half way would send enough wind into the hole to keep it clear.

However, it is not often in these kind of roads that the gas is found. It is generally in roadways where the passage of the wind is rather slow, therefore we will assume that this is the kind of road we have to deal with.

I should commence operations by fixing up a bar to hold the cloth under the cavity; not directly under it, but slightly towards the direction the wind was coming. By this means it would blow up into the hole better. When the bar was put up I would commence to nail brattice cloth on to it to hang to the floor, and thus block the lower part of the roadway and cause the wind to rise over the cloth so as to resume its passage. Sometimes some difficulty is experienced in securely blocking the road, the rugged sides allowing the wind to escape.

This can be remedied by setting props near to the side under the cloth bar, and the space between the prop and the side filled with old cloth or bricks well built and mortared. Sometimes if the hole is high and difficult to get at two cloths are required. When this is so a bar is fastened up into the hole by being wedged at the sides, and cloth hung from it so as to overlap the cloth which was first erected. This will cause the wind to scale higher into the hole, and the hole will now be cleared, the wind sweeping the gas out in its passage over the cloth.

When it is desired to change the direction of the ventilation of a mine there are many things which need to be made ready, especially so when

a mine is fiery.

A careful plan of the desired course of the wind should be made, and also all doors and cloths should be put in the desired places. The cloths would, of course, be made ready for dropping, and the doors propped open ready to close at the desired moment. When all these things are made ready a suitable time is chosen to complete the operation.

First of all the men in the mine must be all got out, only persons employed in the operation allowed in. These men, officials preferably with a reliable man or two each, would be given instructions what to do, and they must understand thoroughly what is required so as to make no mistakes. Each man should be supplied with a good safety-lamp, and in certain places a few spare ones might be taken because of the inability of re-lighting lamps. A certain time must be arranged, and each one must set to work exactly at the moment arranged, and do the work as quickly as possible.

Each man would know what doors to open and which to close, also what cloths to break and which to drop across the roadways to come into use.

This, if the previous arrangements have been carefully made, can be done very expeditiously, and the ventilation is quickly restored.

When this has been done the mine must be thoroughly examined to see that all the doors, cloths, and other brattices are in the proper place and fulfilling the duty they are required to do. They may probably be leaking a little; this must be made right, and if extra doors or cloths are required they must be put up. Also the pressure of any gas must be determined, and this cleared away by putting up scaling cloths.

By this time a proper examination of the workings may take place, because the wind will by this time be going at the proper speed. It will have attained its proper velocity, and the success of the operation can be ascertained.

When the examination has been made a report of the conditions prevailing in the mine must be made by the person making the examination. The success greatly depends upon the care of the previous arrangements.

If this has been done well the ventilation is quickly restored; if not, it entails a great amount of trouble and time, because when the mine is fiery the atmosphere quickly becomes dangerous, and in this case all the men would have to withdraw and carry the wind in by stages from the shaft. This is sometimes a difficult operation, whilst if carefully planned and carried out in the