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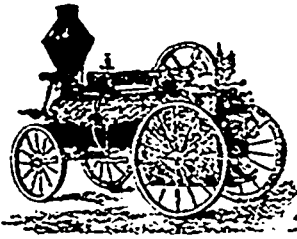
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years.

GEORGE LAWSON, Ph. D., L. L. D.
Fellow of the Institute of Chemistry of
Great Britain and Ireland.

MINING.

SAFETY IN COAL MINING.

From the Engineering and Mining Journal.

(Concluded.)

ACCIDENTS FROM MINE WAGONS.

These may be very largely prevented by putting into practice the suggestions made with reference to drift openings, together with the provision (where condition of roof will permit,) that the headings or hauling roads be made so wide, that with tracks placed to one side of centre there will be from 2 to 3 ft. of space between the loaded cars and one side of heading all along. The hauling roads should always be made wide enough to allow a driver to pass safely a moving train of cars, to put on or take off brakes, or for the use of sprags where the grade requires it; then, the roads being properly cleaned and well drained, there would be little or no inducement to ride on or between cars. No person should be permitted to ride on cars on any incline unless special provisions have been made for that purpose.

DEATHS FROM DROWNING.

Deaths from drowning by holing into old or abandoned workings containing large bodies of water have fortunately been small in number, but the danger is a fast increasing one from the fact that mines are being worked deeper each succeeding year, and that lakes of water, many acres in extent, surround some coal properties and overlie others. This is all the more alarming when it is considered that in many cases no maps of these water-filled workings are to be had, and that the accuracy of many maps that have been preserved cannot be relied upon, because there is good reason to believe that in many cases working places have been advanced more or less after the survey, or perhaps some portion filled with water at the time has not been put on the map at all. To provide against disasters a large margin should be allowed for the correctness of the maps of old workings that contain either water or gas in dangerous quantities. A law should also be enacted compelling mining engineers and mine surveyors to sign and date maps or portions of maps made by them, after their surveys, and holding them responsible for any loss of life or property occasioned by any defects or inaccuracies in their work.

ACCIDENTS FROM DUST EXPLOSIONS.

Coal dust is a comparatively newly discovered or newly demonstrated source of danger in collieries. It was the chief agent of destruction in the Kettle Creek explosion, and in that case the mining world was furnished the best proof of its deadly character when once raised and ignited. No firedump had ever been seen before the explosion at that mine, which had only been opened a few months and had a score or more of working places, nor has any been seen there since. That coal dust caused the death of a large number of persons at Mammoth was everywhere apparent to the rescuers, and to the experts who visited the scene afterward. This source of danger is present in all dry or partially dry mines, and should be guarded against by the prohibition of blasting in localities where dust has accumulated in dangerous quantities, until the dust has been removed and the place and vicinity thoroughly moistened by sprinkling water. Sprinkling should also be practiced on roads where dust accumulates.

MINE FIRES

These may be prevented by prohibiting naked lights from being taken into stable or feed rooms or where timber is very tinder-like; by keeping pump rooms and cabins in pits clear of all oily waste; and where cars are oiled at bottom of pit, by using some absorbent, clearing the floors from time to time and scattering fresh absorbents. Sand or gravel is suitable for this purpose. Where a place is in danger of being set on fire from ignition of gas blowers by shots—as near clay vein, for example—holes should be drilled ahead and the gas allowed to drain off. If the necessity of driving the heading will not permit this delay, the place should be driven through the danger point by picks. Only such brattice as is incombustible should be allowed to be used in mines.

NATURAL-GAS PIPE LINES.

The location of these lines should be accurately determined and plotted on maps of mines over which they pass. The strata under them should be left intact by leaving ample pillars of coal for support.

OIL AND GAS WELLS.

The General Assembly should authorize the appointment of a competent corps of engineers to survey and accurately locate the position of all oil, gas or salt wells that have been drilled in the coal measures of the State as far as can be ascertained from deeds, leases or information gathered from other sources. The maps should be drawn to a scale not exceeding 400 ft. to 1 in., and they should be deposited as public documents with the recorder of the respective counties represented on them, so that ready reference might be made to them at any time. Mine managers could thus guard against striking the walls unaware and prevent the mine from being deluged by water or gas.

In conclusion I would say that the greatest preventive of accidents in mines is the use of ordinary caution on the part of workmen, and the rigid enforcement of rules and the infliction of due punishment by the mine officials. This last may seem harsh, but my experience of 30 years in mines only serves to strengthen my opinion as to its necessity. It is much better to suspend or discharge a man for violation of rule, providing for his wife than to carry him home on a stretcher crippled perhaps for life or death. The operator, too, should give his subordinate the same standing order to do all possible to avoid accidents, and see that the mines are well ventilated. When not entirely taken up with other business he should visit the mines in person, enter them, and see that his workmen are cared for as he desires they should be.