

fore, like drainage, is a matter which it is necessary shortly to touch upon in order that the reader may have some idea of the conditions appertaining in a mine.

The miner is faced with two kinds of perils connected with noxious gases—explosion and poisoning. Explosions may be caused by fire-damp, i.e. methane, or by air and coal dust. In the early days of the industry practically all the explosions were due to fire-damp; to-day, though they may be, and generally are, initiated by fire-damp, which disturbs the air and causes the coal dust lying on the haulage roads to rise, the damage resulting is usually caused by coal dust.

Indeed it would be safe to say that more loss of life is due to poisonous than explosive gases to-day. The first medical man to enquire into noxious vapours in mines was Dr. Caius, the great Tudor physician, who, writing in the middle of the sixteenth century, said: "The unwholesome vapours are so pernicious to the hired labourers that they would immediately destroy them if they did not get out of the way as soon as the flame of their lamps becomes blue and is consumed." Here the learned doctor is probably speaking of fire-damp, a colourless odourless gas which exists in coal seams usually at a high pressure sometimes as great as 400 lb. to the square inch. This gas is only about half the weight of air, burns with a bluish flame and, in conjunction with air, forms a mixture which will explode when brought into