

in the process of mining the space formed by the extracting of the coal is filled in with rubbish which contains a certain amount of coal, slack, and dust. Occasionally fires start through spontaneous combustion in the waste, and owing to imperfect oxidation a considerable amount of carbon monoxide is generated. With proper oxidation carbon dioxide would be formed and the heavy, suffocating, but not actively poisonous black damp¹ would be obtained.

The gob fire is also the cause of the sulphuretted hydrogen which, under the name of white damp, choke damp, or gob-stink, has troubled the miner for centuries. It is poisonous and causes irritation to eyes, throat, and lungs.

We have digressed from the theme of our narrative in order shortly to describe the various kinds of 'damps' which threaten the health and life of the miner, because many people appear to imagine that the invention of the safety lamp by Sir Humphry Davy in 1815 solved the problem of explosions in mines. This is a complete inversion of the truth. In fact explosions still occur and the danger is still present, as may be seen from the terrible disasters at Courrières (France) and at Senghenydd (South Wales) in 1906 and 1913, disasters due to explosions which resulted in the loss of 1100 and 427 lives respectively. In the years

¹ Black damp is a mixture of nitrogen and carbon dioxide; air is a mixture of nitrogen and oxygen; after-damp is a mixture of nitrogen, carbon dioxide, and carbon monoxide.