causes of death after an explosion. When gas was burned thoroughly they had, roughly speaking, one volume of fire-damp mixed with two volumes of oxygen, which yields one volume of carbonic acid gas and two volumes of steam; the seven volumes of nitrogen present remaining unchanged. Therefore after such an explosion the mine ought to be full of steam, carbonic acid, and nitrogen, all the oxygen having disappeared. But in practice this never happens. For in gas explosions there was always an excess of oxygen present. But there were no such things as gas explosions on a large scale—even if there was any gas present to begin the explosion. The main result was always due to dust, and in that case, instead of black damp or carbonic acid, they had the products of imperfectly combusted coal, that was to say, after damp, or carbonic oxide. Whenever coal was imperfectly burnt there not only was carbonic acid formed, but likewise carbonic oxide.

It was reserved for Dr. Haldane, of Oxford, to demonstrate to the mining world what a part this poison played in coal mine disasters He thought that he might, to some extent, claim the credit of having first recognised the ability and devotion of Dr. Haldane in this work, and of having secured his services to help in the investigations of mine explosions. The period at which the importance of corbonic oxide was most impressed on them was at the Tylorstown explosion, in 1896, at which 57 men were killed, 33 being brought out alive. Dr. Haldane, in company with Dr. Morris, undertook and carried out the task of examining 45 of the bodies after they were recovered. The object was to discover the cause of death. When death had been caused by carbonic oxide the blood of the dead man exhibited characteristic symptoms. The bodies were covered with an adhering layer of charred coal dust, but in only five cases was the death due to the violence of the explosion. In all the other cases death had been due to carbonic oxide, showing that the mem must have lived and breathed perhaps for hours after the explosion. Of the rescued men, a number had been rendered unconscious also by the after-dampi The death was quite a painless one, the only symptoms were a slight smarting of the eyes and throat, and then, though the lamps were burning well and there was plenty of air to breath, the person affected felt weak and dropped down unconscious, never to recover consciousness again. He asked Dr. Haldane whether it would be possible to invent a machine capable of detecting carbon monoxide, so that rescue parties going down into a mine would be warned when there was danger. Shortly afterwards he pointed out that nature had provided us with a machine of the greatest delicacy, namely, mouse. So rapid is the circulation of these little creatures that an atmosphere which would take 30 minutes to affect a man would cause a mouse to become helpless in about three minutes. Inasmuch as most dry coal dust was to be found in the roadways of the mine, there would be found the carbonic oxide. The best way, therefore, was not to be in a hurry to get out after an explosion, but to retire into the recesses of the mine away from the large roads, and remain quiet. It was believed that after the Park Slip explosion, in which 56 men were lost, all might have been saved if they had remained in their working places. The case of Roderick Williams deserves notice. He was a fireman at the Tylorstown explosion. Finding his road blocked by after-damp, he retired to some old workings, where he remained an hour till he was rescued, On a previous occasion he saved the lives of a whole company of men by forcibly preventing them getting past him to the shaft. They were saved; but one man, who was too strong for him, got past, and was afterwards found dead. The importance of getting a supply of fresh air rapidly into a mine after an explosion could not be over-rated. But intelligence must be exercised so as not to drive poisonous air into places where men may be in refuge.

The idea of a contrivance which would enable a man to breathe in a poisonous atmosphere was of old date. But the first practical form of apparatus was the design of Mr. Fleuss. who was still living, and had more than once risked his life in trying experiments with it. Stations were being established all over the country at which men could be trained in its use. It could hardly be said to be perfect even yet, and a good many men had perished through accidents with its use, but there was no doubt that these difficulties would be overcome. Reference was made to the aerolith, which consists of a sack containing liquid air absorbed in loosely packed asbestos, and was one of the latest applications in a practical way of the work done by Sir Jamee Dewar. There was one apparatus he had great hopes of. It consisted of a bag containing sodium, potassium-peroxide, and designed for breathing apparatus, for when damped it exhaled oxygen, leaving caustic soda and potash behind, which in their turn absorbed carbonic acid. It would be perfect were it not that the chemical was very inflammable, and two men, one in Germany, and one in London, had been injured by its use."

THE SITUATION AT SYDNEY MINES.

"Personally I do not think that there will be any strike in Sydney Mines," said S. B. McNeil, Grand Master of the P. W. A. to the Morning Chronicle. "The U. M. W. may call their men out there; In fact they likely will for not to do so would be an admission that they have been so badly worsted in their fight with the P. W. A. at the mines of the Dominion Coal Co. and Inverness that they do not relish carrying the strike any further. But at Sydney Mines the P. W. A. is in great strength. Only at Florence has the U M. W. got any foothold at all, and if they bring their men out there they will be even more badly beaten than they have been at Glace Bay and Inverness."

Glace Bay, July 26—The fourth week of the struggle between the U. M. W. of A. and the Dom. Coal Co., which opens to-morrow may be the decisive one Claiming that they will have an output very close to that obtained under normal conditions by next Tuesday, the Company are apparently embarking on an aggressive policy

Working on the assumption that the majority of the strikers are not prepared to live on two dollars a week for any considerable time in order to win recognition for the U. M. W. they are seemingly embarking on a decisive course of action with the object of creating a break in the U. M. W. ranks. This is what some of the strike leaders admit they have feared more than any other contingency.—Hx. Chronicle.