following upon the invention of the safety lamps more explosions occurred than in the years preceding, for a very similar reason to that which results in more swimmers than non-swimmers losing their lives by drowning—a feeling of security causing risks to be taken which would not otherwise be even thought of.

In so far as the problem created by the presence of noxious gases has been solved, it has been solved mainly by improved ventilation.

It will readily be realized that in a pit of any depth, quite apart from explosion or poisonous gases, it is necessary to have some ventilation to render the air at all pure and the temperature tolerable. Sir John Cadman calculates that on the average the temperature rises 1° F. per every 72 ft. (12 fathoms) of depth. Under modern conditions of working, therefore, it is essential to have good ventilation in deep mines in consequence of the heat, but in the early days of the industry this consideration was hardly present as fifty fathoms was about the limit of working.

The earliest form of ventilation, apart from free ventilation obtained by adits similar to those used for drainage purposes and only possible in outcrop workings, was the furnace. This was developed in the first instance in Belgium where a surface furnace, drawing a current of air through the mine by means of air shafts and a chimney, was set up at the Liège mines some time before 1665. The surface furnace was not much used in