

HISTORY OF MINE-RESCUE APPARATUS

The following is a short history of the growth of mine-rescue work, together with a summary of the laws which have compelled its adoption in the different coal-mining areas of Europe and America.

"The first practical attempts to construct respiratory apparatus were made in 1824 by French engineers.

"At that period the Administration of Mines in France addressed to all its prefects a memorandum in the course of which are found prescribed:

"1. An apparatus with a nose clip, a mouth-piece, and a respiratory tube for free air, developed experimentally by Pilâtre de Rozier in 1785 and completed later by M. Delaunay's introduction of an anti-mephitic respirator with two valves, and of a lamp supplied with air through a branch of the respiratory tube.

"2. An apparatus with respiratory tubes attached to air reservoirs carried on a rescue car. The memorandum indicated the possibility of replacing the air in these reservoirs by oxygen, as well as that of increasing the amount of air or oxygen carried by compression within reservoirs of sufficient strength.

"3. An apparatus with respiratory tubes to be supplied by blowers, and tubing or piping for the conveyance of the air.

"The circular which accompanied this memorandum from the Ministry requested the mining companies to procure a number of these appliances, but the appeal was not regarded, and it is necessary to pass over a period of forty years before any new progress is to be observed.

"In 1864, we may note the appearance of the Galibert respirator, composed of a reservoir of pure air which the miner carries upon his back, a respiratory tube leading from the bottom of this reservoir to his mouth, and a tube for exhalation leading from his mouth to the top of the reservoir. By this arrangement, the user had between his lips an ivory mouth-piece with two orifices, and, by closing these alternately with the tongue, he might inhale air from the bottom of the reservoir and exhale it again to the upper part. It was possible for a man to breathe thus for fifteen to twenty minutes, but the air became greatly vitiated. To overcome the increasing discomfort which the rescuer must thus suffer, Galibert conceived the idea of modifying the original form of his apparatus. He secured a partial regeneration of the air exhaled from the lungs by causing it to pass over a substance which would remove the

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Magazine, April,