COMMISSION OF CONSERVATION

The products of respiration, CO_2 and H_2O , are absorbed, and the oxygen is restored to the wearer of the apparatus.

Nearly all the respiratory apparatus of this group may be converted into, and used as, helmet, half-mask or mouth-breathing types.

GROUP II—APPARATUS AND PIPING WHICH DEPEND ON PUMPS OR Bellows for Their Air Supply

This type of apparatus consists of a helmet or similar respiratory appliance supplied by means of pumps or bellows, with a stream of fresh air. The pumps or bellows are connected to the respiratory apparatus by means of a series of flexible pipes. The use of such apparatus is restricted by the limited distance to which flexible pipe can be carried to the wearer. It is useful in dealing with gob fires.

HELMETS VERSUS MOUTH-BREATHING DEVICES

Much difference of opinion has existed with regard to the relative merits of masks, helmets, and mouth-breathing devices. Mr. James Paul says—"I think the helmet is not necessary for safe and effective service in unbreathable gases, and that it is a survival of the dress used in submarine diving. To become skilful in the safe use of a

helmet the wearer should have much training in unbreathable gases.

"Training in fresh air does not give confidence in the use of the helmet in poisonous gases, and such fresh-air training is a mere waste of the supplies needed for the upkeep of the apparatus.

"In an atmosphere that contains smoke or fumes that irritate the eyes, nostrils, or throat, the helmet may be worn with safety by one who has been thoroughly instructed and trained in its use, for the season that any leakage may be readily detected, but in an unbreathable or poisonous atmosphere that contains no irritating fumes or gases a leak is not detected and the wearer may be overcome. The above disadvantage does not apply to the mouth-breathing form of apparatus, which the writer believes should be used for mine work in an atmosphere that will not support life and which does not contain irritating gases. In addition, the wearer of the mouth-breathing type can examine the roof more easily than can the wearer of a helmet. Some men who have used both helmets and mouth-breathing devices prefer the former, because they can breathe through the nose more easily than through the mouth. An objection to mouth-breathing devices is that they make it more difficult for men to talk to each other when working in a poisonous

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