33 THE COMPARATIVE RESISTANCE TO VENTILATION OF MINE ROADWAYS, INCLUDING THE WORKING FACE. R. Clive. Trans. Instn. Min. Engrs. (London) 95, 325-33 (July 1938). (British).
The coefficient of friction for a straight and uniform arched-girder roadway, lined with brickwork to the springline of the arch, is low and approaches that for a smooth-lined airway. A slight variation from the straight appreciably increases resistance, as does variation in cross-sectional area. The resistance caused by tubs (or cars) is considerable and may increase the coefficient for a particular roadway by as much as 100 per cent. The resistance along the working face is very high compared with that for a normal roadway.

34 SOME NOTES ON NATURAL VENTILATION. B.H. Lawton. J. Chem. Metal. Min. Soc. So. Africa 34, 61-4 (August 1938).
Some interesting observations were made on the seasonal variation of natural ventilation in a mine about 2,200 ft. deep at the pit bottoms and approximately 3,300 ft. deep at the workings. Airflow by gravity varied from a maximum of 150,000 c.f.m. in February, when the surface air temperature was 31°F, to a minimum of 77,000 c.f.m. in August with a surface temperature of 57°. This inherent variability of airflow, and the difficulty in ventilating new development ends are held to be a drawback to general adoption of natural ventilation. Nevertheless, every effort should be made in planning out workings so as to take full advantage of the gravity effect.

35 THE DETERMINATION OF THE SPECIFIC SURFACE OF POWDERS. P.C. Carman. Jour. Soc. Chem. Ind. 57, 225-34 (July 1938). (British).
A new method is suggested for obtaining the specific surface of sands and of fine powders. Briefly the procedure is to measure the permeability of a small sample to a liquid of known viscosity and, from this, to calculate the specific surface, using an equation given in the paper. The equation has been tested over a wide range of conditions and results are accurate even if the particle size distribution is irregular, so the new method might well have application in an industrial laboratory.

(C) Papers on Industrial Poisons, Cancer, Dermatitis, etc.

36 HAZARDS FROM GASES IN METAL MINES AND PROTECTIONS AGAINST THEM. E.H. Denny. Mining Tech., Tech. Paper No. 984, 10 pp. (November 1938).
In the past few years a number of men have been asphyxiated in mines, tunnels and wells where these occurrences might have been prevented by a few relatively simple precautions. The author gives typical examples taken from the files of the Bureau of Mines. Probably most accidents occur in oxygen deficient atmospheres, in locations where ventilation is poor and where nitrogen and carbon dioxide gases issue from the rock formations. A common mistake is to forget that gas masks cannot make up oxygen deficiency and that special oxygen-breathing apparatus is necessary. Other causes of asphyxiation are nitrogen fumes from dynamite; the highly poisonous hydrogen sulfide gases which are present in many underground operations, chiefly tunnel and caisson work; and carbon monoxide. Good ventilation is the best precaution and should be supplemented with the proper respiratory equipment properly used.

37 FLUE GASES LAUNDERED TO PREVENT AIR POLLUTION. R.V. Kleinschmitt. Power Plant Eng. 42, 393-6 (1938).
A scrubber is described that combines atomized spray with centrifugal separation and removes dust as well as sulfur dioxide gases. It is thought that gas elimination as well as dust removal should be considered in air conditioning.