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Building Research

Two important publications have recently been issued as *Building Research Station Digests*, one entitled "Protection against Corrosion of Reinforcing Steel in Concrete" (No. 59), the other "Chimney Design for Domestic Boilers" (No. 60) (London: H.M.S.O. Pp. 8 and 4d. each. 1965). The former is concerned with those factors responsible for unsatisfactory performance of reinforcing steel where corrosion occurs and indicates the requirements for depth and quality of concrete cover which must be met if this is to be avoided. The subject is briefly dealt with under headings: functions of cover, factors favouring corrosion, effects of corrosion, how corrosion occurs, prevention of corrosion, avoidance of defects in practice, materials (aggregates and special reference to chlorides aggressive to steel derived from marine deposits), construction and workmanship, preventing corrosion of steel in concrete floors, and includes examples of failed cover and spoiled appearance of concrete structures due to corrosion and spalling. In the pamphlet dealing with chimney design, emphasis is on specific requirements of modern high-efficiency domestic boilers burning solid fuel, gas or oil, if the chimney is to function satisfactorily without internal damage from effects of condensation or risk to health and safety. It is stressed that the need is "... to provide flue liners or flue blocks for appliances of the controlled combustion type ... recognized in building legislation, but satisfactory performance depends also on the sizing and thermal insulation of the flue". The important headings here are: boiler operation (all fuels), combustion, condensation and chemical attack, relative merits of air dilution and thermal insulation, and design aims.

Flexible Urethane Foam

In an informative, illustrated article by Charles E. Petty, entitled "Changing the Form of Foam", an account is given of an established industry based on a 'happy accident' some eleven years ago (*Dupont Magazine*, 59, No. 3; May-June 1965. E. I. Du Pont de Nemours and Co., Wilmington, Delaware, U.S.A.). According to William Powers, foam division manager of the Scott Paper Company, this is what happened: "In 1954, our research laboratory was looking for a material to make household sponges. One candidate we tested was urethane foam, which has all these qualities and looks and feels like a sponge. When we tested foam's resistance to a strong caustic solution, however, the thin membrane-like 'windows' that connect its network of tiny, interconnecting strands dissolved away, leaving only a three-dimensional foam skeleton". Although this test did not actually produce the desired sponge, it did reveal the possibilities of a foam product with a highly versatile open-pore structure; such material readily permitted passage of gases and liquids, and also served as a formidable barrier against transported dirt, dust, etc. Foam is essentially 97 per cent air, the remainder being tiny interconnecting strands with enormous dust-holding capacity; it is calculated that a cubic foot of foam with 100 pores per lineal inch may have as many as 2,000 ft.² of strands to

catch dirt. The basis of this flexible urethane foam is Du Pont's 'Hylene' organic isocyanates. The article shows (in colour) some of the foam blocks of varied texture, manufactured by the Scott Paper Company. The rise in total consumption in the United States of urethane foam products is certainly impressive; since 1958, usage has risen from 10 million to 200 million pounds per annum. It is on record that while uses for Scott's urethane foam have steadily soared, an acceptable sponge has so far not been developed; "on the contrary, we looked so hard for a sponge, we came up with an open-pore product that won't even hold water".

Guides to Mineral Exploration

A COLLECTION of articles by officers of the Geological Surveys throughout the British Commonwealth, entitled *Some Guides to Mineral Exploration*, has recently been published by the Geological Survey of Canada (Department of Mines and Technical Surveys. Paper 65-6. Edited by E. R. W. Neale. Pp. 123. Ottawa: Queen's Printer, 1965. 75 cents). The symposium was originally issued in 1964 by the Commonwealth Geological Liaison Office in London, the mimeographed papers of which have only a limited circulation; but in view of the potential value of the work to a wide circle of readers interested in the newer techniques of geological and geophysical search for ore deposits, it has been published in this more readily available form. Five of the eleven articles are by scientists of the Canadian Survey, two by those of the Overseas Geological Surveys organization in London, and one each from the Surveys of Australia, New Zealand, India and Great Britain. The collection was brought together by the Canadian geologist, Dr. E. R. W. Neale, as one of the innumerable activities undertaken during his outstandingly successful two-year term as Commonwealth Geological Liaison Officer in London, which has just come to an end. He is succeeded by Shri G. H. S. V. Prasado Rao, of the Geological Survey of India, to whom a warm welcome is assured.

Potatoes

THE annual production of potatoes in Great Britain is about 6 million tons, of which 4 million meet the demand for human consumption and 700,000 tons are required for seed; the balance is used for stock, but there is always a considerable wastage. The potato crop is an expensive one to grow and the capital costs increase with the introduction of new machines, so that a comprehensive review from the Ministry of Agriculture, Fisheries and Food of modern techniques is welcome (Bulletin No. 94. *Potatoes*. Pp. iv + 112 + 4 plates. London: H.M.S.O., 1965. 8s. net). Every aspect of the growing and handling of the crop is dealt with by a group of specialists and the material is co-ordinated and edited by C. V. T. Dadd. The sequence is the logical one of starting with notes on the breeding, health, and certification schemes, and finishing with the regulations of marketing and the results of investigations, carried out in various parts of Britain, into the profitability of potato growing. The bulk of the Bulletin, however, is devoted to seed rates for different varieties with particulars of seed treatment, storage and sprouting, cultivations and planting and the fertilizer recommendations for different classes of soil, early potato and seed potato production, the importance of irrigation and potato spraying, methods of haulm destruction and implements for harvesting. There are also discussions on tuber quality, on storage requirements and on the preparation of potatoes for the market. There are nine appendixes concerned with useful details, and an index.

Soil Ecology and Biology

THERE has been a Biology Commission since the founding of the International Society of Soil Science, but its work has been concerned mainly with microbiology.