

breathing of lambs, £13,200 to the Department of Physics, Birkbeck College, University of London, for two research fellowships for three years for work on protein and virus structure, and £15,000 over five years to the Nuffield Research Group in the Department of Metallurgy at the Imperial College of Science and Technology, University of London, to tide the group over the time until full support is forthcoming from industry and the College for its work on the theory and practice of the extraction of metals from ore.

THE MINING INDUSTRY IN BRITAIN

INTERESTING human documents, though written primarily as the technical record of the work of the Mines Inspectorate in England, are a series of separate reports of the divisional inspectors of five divisions*. Though ostensibly all written with the same objective, they have a refreshing variety, and are indications of the widely differing characters of the separate coalfields, which have required from a centrally controlled authority differences of approach appropriate to local conditions and practices.

Naturally one's first search among these pages must be for the signs of improvement in the statistics of the killed and injured each year that must inevitably, one would think, take place as the result of the considerable attention that is given to the problem of safety. In some divisions one finds an encouraging record of betterment; in others there are to be found an almost discouraging fluctuation of figures from one year to another that must have some deep-seated causes. On reading the separate reports, it very soon becomes apparent that the character of the pits varies widely—thin seams and thick seams, high standards of mechanization, less-developed ones, and wide differences in the character of the mining problems. Perhaps the common problem is the stubbornness of human nature, shown in the repeated instances of accidents due to individual carelessness that has resulted in neglect of regulations framed for their prevention. The major sources of fatal accidents are falls of roof and haulage breakdowns, particularly runaways.

Interesting to the layman in these reports are the many references to the development of new methods and appliances culled from a wide field of experiment carried out both in and outside the industry of coal mining—thus the colorimetric testing of coal dust, the new developments of electric haulage, the ever-advancing character of the new devices for dealing with roof support, the vital problem of the miner, and the many new types of machine for coal cutting. The introduction of machine mining has brought in its train new problems in dust suppression. Following the experience which many mining engineers have had of the effect of water on the mining of coal, there is growing up a body of opinion which believes in this development, which must reduce the use of coal-cutters and shot firing and thus reduce the production of dust. In this application

* Ministry of Fuel and Power. Reports of H.M. Inspectors of Mines under the Coal Mines Act, 1911, for the year 1953. North Eastern Division. By C. W. Scott. Pp. ii+30. 2s. net. West Midland and Southern Division. By J. E. Henshaw. Pp. ii+24. 1s. 6d. net. Northern Division. By W. Brown. Pp. ii+30. 1s. 6d. net. North Western Division. By G. Hoyle. Pp. ii+26+5 plates. 2s. net. East Midland Division. By W. B. Brown. Pp. ii+20. 1s. net. (London: H.M. Stationery Office, 1954.)

a long hole parallel to the coal-face is drilled, filled with explosive, and then high-pressure water admitted, the objective being to soften the coal.

In spite of all the research and care taken in mine air analysis and other precautions, explosions of fire damp still occur—a pertinent reminder that in no branch of mining technology can it be said that all the problems have yet been solved.

On the surface and underground, good progress has been made in the improvement of the standards of illumination. The removal of glare and shadows is an important feature of such advancement.

Health and welfare, training and education occupy an essential place in the manifold activities of the mining industry. Finally, it is interesting to note that the first electrically driven, horse-cleaning vacuum equipment operated by a certified flame-proof motor and switchgear was installed at the beginning of the year in the underground stables, 3,000 yards from the pit bottom at Hamstead Colliery. Should it be called an equus-cleaner? R. J. SARJANT

OVERSEAS FOOD CORPORATION ANNUAL REPORT

THE Overseas Food Corporation is now concerned solely with investigations, first to ascertain experimentally crop and stock potentialities, with their cultural and husbandry requirements; second, to determine their practical limitations and economics, by applying the findings of the specialists to large-scale trials by farmers; and third, by incorporating in the large-scale trials variations in farming methods, to ascertain which form is likely to prove most productive and yield the greatest return as and when the area is developed. The annual report and statement of accounts for the year ended March 31, 1954*, record steady progress under the first heading. The continued soil surveys, soil fertility studies and the fertilizer experiments are revealing the percentages of the various soil types to be found in the areas, their suitability to the range of crops under trial, their mechanical condition and their response to fertilizer treatment. Considerable progress has been made in the study of rosette disease of groundnuts, and that on the mechanism of resistance of Mwitunde to rosette disease indicates reasonable hopes of selecting a strain combining high yield, low aphid reproduction, low percentage of infective aphids and perhaps some tolerance to the usually severe effect of the virus on yield. Indications are that groundnuts may become an important crop in the rotation at Nachingwea and merit further trial at Urambo in the 1955-56 season.

The second type of investigations was severely checked by the drought throughout Tanganyika during the 1952-53 crop season; but much information was obtained on methods of cultivation desirable under dry-farming conditions. Variations in the third class included experiments with farms of 2,000 acres, 1,500 acres and 1,000 acres, fully mechanized and under European supervision, to determine the pattern of farming best suited to local conditions and the most economical size, while the possibilities of improving peasant farming on a group basis are being examined under the African Tenant Scheme.

* Overseas Food Corporation. Annual Report and Statement of Accounts for the year ended 31st March, 1954. Pp. iv+70. (London: H.M. Stationery Office, 1954.) 2s. 6d. net.