

a given site, while the geophysicist speaks only of indications good or bad. Electromagnetic and resistivity methods have enjoyed a measure of success in the exploration for oil. They are, however, at a serious disadvantage when compared with seismic and gravimetric methods, in that they entered the field relatively late and with inadequate theoretical equipment for the best interpretation of results. It is recognised that only in special cases will electric methods admit of unique interpretation, but, of several consistent interpretations, some may be eliminated as being incompatible with facts known to the geologist and others by employing different survey methods in corroboration or otherwise. In principle, therefore, it seems possible to determine from geophysical surveys, augmented by other available data, the approximate depth and features of petroliferous structures. Although electric methods may be more widely adopted by technologists in the future, there are still many errors in technique which have hitherto vitiated results and must first be eradicated. Moreover, it is not possible at this stage to determine whether the results from these methods compare economically with those obtained from gravimetric or seismic methods.

Electricity Supply and Fuel Consumption

THE Electricity Commissioners have recently issued a return of the fuel consumption and the electricity generated at the power stations of Great Britain during 1932 ("Generation of Electricity in Great Britain"; London: H.M. Stationery Office. 1s. 6d.) The number of steam stations has diminished by four per cent from last year, but the consumption of electricity has increased by about eight per cent, the coal consumption exceeding ten million tons. Although the number of oil engine stations has increased, their total output has diminished. The district showing the highest degree of electrification was south-east England and only in one area, northern Scotland, was the output less than in 1931. The trade barometer indicated by electricity consumption shows that there is little improvement in heavy industries. The advance that has taken place is due to improvement in the lighter industries and particularly to the large use that is now being made of electricity for domestic purposes. The average coal consumption in the steam driven stations per kilowatt hour developed has fallen from 1.82 lb. in 1931 to 1.74 lb. in 1932. As a rule the stations which have the maximum output are the most economical. The Portishead Station of the Bristol Corporation had an average fuel consumption of only 1.15 lb. per kilowatt generated. There were 23 stations the consumption at which was less than 1.5 lb. This compares with 1.7 in 1931. It will be seen that the generation of electricity in British power stations is now being conducted both efficiently and economically but there is still plenty of scope for increasing the efficiency of the methods of distribution.

Aluminium Production

At the Edinburgh meeting of the Institution of Mechanical Engineers on May 30, Mr. G. Boex read

an interesting paper describing the extensive electrical plant and the processes employed at the various works of the British Aluminium Co. in Scotland. As well as producing the metal electrolytically, the British Aluminium Co. manufactures alumina carbon electrodes. It has alumina works at Burntisland, where a chemical process is employed. At the carbon works at Kinlochleven, the electrodes necessary for three factories in the north of Scotland are produced. The electrolytic works at Foyers, Kinlochleven, and Lochaber are close to large hydroelectric stations where 33,000 kilowatts are already being used. The metallurgist and the physicist have been working for the last twenty years on methods of improving the quality of aluminium and its alloys. Alloys are now produced which, weight for weight, have three times the strength of steel. American manufacturers are laying down rolling mills capable of producing sections made of these alloys comparable with those made of steel. The increase in the first cost is more than offset by the advantage in strength for a given weight or by a definite reduction of the weight of a section. The metal aluminium can be made economically only by the use of electric power. Direct current in bulk is required. A total of about 26,000 kilowatt hours is required for the production of one ton of aluminium from alumina. The Company has routine laboratories at all its works and research laboratories at three of them. The aluminium works in the Highlands of Scotland have been a great help to the inhabitants both during construction and when operating. From the economical point of view it is hoped that the success of these undertakings will encourage the development of the smaller water power resources of the Highlands and that industries will spring up in their neighbourhood.

Commercial Bulb Production

FOR more than two hundred years the bulbs grown in Great Britain have been imported, chiefly from the Netherlands. Commercial flower production, however, has expanded so rapidly in recent years that the sum spent on imported bulbs is now very considerable, £1,470,000 being reached in 1931. There seems to be no reason why bulb-growing should not be successfully developed in England, and to this end the Ministry of Agriculture has issued an illustrated bulletin (No. 62), price 1s. 6d., entitled "Commercial Bulb Production". The term 'bulb' is used in its general sense and although the major part of the bulletin is devoted to the true bulbs of commercial importance (daffodils, narcissi, tulips and lilies) certain other 'bulbs' such as gladioli and irises are dealt with in detail, and much useful information is supplied on a number of miscellaneous 'bulbs' commonly grown in parks and gardens. After some account of the best type of soil, its preparation and manurial treatment, the planting, care of the crop, and methods for its propagation are described. In the case of the more important species, full information is given as to the selection of varieties most suitable for forcing, growing in pots or in the open, together with recommendations as to the best times for planting and lifting. Practical advice is also