

in the anthropological section of the British Museum (Natural History), South Kensington. *Man the Tool Maker* is a classic and first appeared as long ago as 1949. It is one of the best introductions to the subject of early prehistory yet published. Recently, a reprint has become available of the fifth edition which has been brought completely up to date (Pp. v+98+2 plates. London: British Museum (Natural History), 1963. 4s.). Many spectacular finds of earliest man have been made in East and South Africa and Dr. Oakley has visited not a few of the sites and checked the results claimed. Not only has it been necessary to be sure that the new finds are really *in situ*, but also their date, both in the geological sequence and their absolute age as determined by the carbon-14 method, has had to be settled beyond cavil. The first appearance of man has been pushed back into a far more remote past than had formerly been realized. But the book is, of course, not merely concerned with the first appearance of man on Earth. The whole subject of Old Stone Age man comes under review, and not only in Western Europe. Naturally, in the small compass of some 98 pages, the subject has to be treated in a summary fashion, but great skill in selection has been shown and anyone wanting to know something authoritative about palaeolithic man would be well advised to start with *Man the Tool Maker*.

Canadian Arctic Geology

IN 1955 the Geological Survey of Canada undertook a major project, appropriately named "Operation Franklin", to map the rocks of the Canadian Arctic Archipelago. Over an area of some 200,000 square miles, field parties were set down from the air at points selected from aerial photographs as the most suitable for detailed stratigraphical and structural studies, and were then serviced throughout the season by two heavy helicopters. A full account of this pioneer campaign has now become available (*Geology of the North-Central Part of the Arctic Archipelago, North-West Territories*. By Y. O. Fortier and others. Pp. 671+6 maps. Mem. 320, Geological Survey of Canada, Ottawa, 1963. Price 6.00 dollars). The principal geological formations discovered include the deposits of a miogeosyncline of Lower Palaeozoic age, maybe more than 35,000 ft. thick, largely marine except for predominantly non-marine Upper Devonian; and those of a younger geosyncline (the Sverdrup Basin) comprising more than 40,000 ft. of marine and non-marine Pennsylvanian to Cretaceous strata with minor volcanic Cretaceous rocks and wholly non-marine Tertiary sediments. The longitudinal axis of this basin coincides with a zone of gypsum piercement domes and diapir folds. The survey has provided substantial indirect evidence that petroleum may occur in commercial quantity, although no live seepages were found. Coal is common in four formations—Upper Devonian, Upper Triassic or Lower Jurassic, Lower Cretaceous, and Upper Cretaceous or Tertiary, the last with seams measuring up to 30 ft. These important investigations have been continued annually since 1955 and in the current 1963 field season fifteen geologists of the Geological Survey of Canada, with nineteen ancillary staff, have been operating in the arctic District of Franklin.

Soils and Vegetation of the Congo

THE considerable scientific work on tropical soils and crops carried out by the Belgians was largely responsible for the fifth International Congress of Soil Science being held in 1954 in the Congo. There have been numerous publications from this field, and this is one of a series on natural resources from L'Institut National pour l'Étude Agronomique du Congo (*Carte des Sols et de la Végétation du Congo, du Rwanda et du Burundi*. 18: *Bassin de la Karuzi (Burundi)*. A: Sols. B: Végétation. Notice Explicative de la Carte des Sols et de Végétation. Par P. Pahaut et D. van der Ben. Pp. 48+5 planches. Brus-

sels: Institut National pour l'Étude Agronomique du Congo, 1962). It consists of a memoir describing the general features of Rwanda and Burundi with a population of four million—75 per km²—entirely dependent on agriculture on the better soils of the hill slopes. This obviously presents a serious problem for the future of an undeveloped country. The Karuzi Basin was selected for detailed study. It is a region of 900 km² at an elevation of roughly 1,250–2,000 m lying some 130 km north-east of Lake Tanganyika. An outline of the geology and climate is followed by a discussion of the interactions of parent material, soil and vegetation. There is a description of the main physical and chemical properties of the soils and of their classification, and a chapter on the vegetation associated with the main soil groups. The vegetation types include aquatic, semi-aquatic or marsh associations, forest, the *Acacia abyssinica* valleys, the wooded and grass-shrub savannas and post-cultural natural growth. There are several photographs illustrating the nature of the ground and soil profiles and two maps of soils and vegetation on the 1 : 50,000 scale.

The British Institution of Radio Engineers: Awards

THE following awards have been made by the British Institute of Radio Engineers for papers (given in brackets) published in the Institution's *Journal* during 1962: *The Clerk Maxwell Premium*, to M. W. Gough ("Propagation Influences in Microwave Link Operation"—July issue of the *Journal*); *The Associated Rediffusion Premium*, to I. J. P. James and W. A. Karwowski ("A Constant Luminance Colour Television System"—April); *The Vladimir K. Zworykin Premium*, to Dr. L. Kay ("Auditory Perception and its Relation to Ultrasonic Blind Guidance Aids"—October); *The A. F. Bulgin Premium*, to I. A. Harris ("Electron Transit Time and other Effects in a Valve Voltmeter Operating at Extremely Low Current"—November); *The Leslie McMichael Premium*, to W. L. Wright and S. A. W. Jolliffe ("Optimum System Engineering for Satellite Communication Links with Special Reference to the Choice of Modulation Method"—May); *The Charles Babbage Award*, to I. Aleksander and Dr. R. W. Scarr ("Tunnel Devices as Switching Elements"—March); *The Lord Rutherford Award*, to Dr. G. Dearnaley ("Semi-conductor Nuclear Radiation Detectors"—August); *The Marconi Award*, to A. Ciuciura ("Switchable 405/625 Line Time-Bases"—October); *The Arthur Gay Premium*, to D. Hinchcliffe, J. R. W. Smith and G. H. King ("Automatic Component Assembly in the Telephone Industry"—September); *The Dr. Norman Partridge Memorial Premium*, to G. D. Browne ("A Pulse Time Multiplex System for Stereophonic Broadcasting"—February); *The Sir Jagadis Chandra Bose Premium*, to Dr. B. R. Nag ("A Two-State Device with Two Inductively Coupled Colpitts Oscillators"—July).

The Institution of Electrical Engineers

SIR ALBERT MUMFORD, engineer-in-chief of the Post Office, has been elected president of the Institution of Electrical Engineers for the session 1963–64. The Council for next session will include: *Vice-Presidents*, B. Donkin, L. Drucquer, O. W. Humphreys, J. A. Ratcliffe, Dr. R. L. Smith-Rose; *Honorary Treasurer*, C. O. Boyse; *Members of Council*, S. S. Carlisle, Sir Robert Cockburn, A. R. Cooper, A. T. Crawford, D. Edmundson, G. Lyon, Dr. J. S. McPetrie, J. H. H. Merriman, Prof. C. W. Oatley, G. F. Peirson, M. J. L. Pulling, Dr. N. H. Searby, H. West, Dr. R. C. G. Williams. New chairmen of the three Divisions of the Institution have also been elected, as follows: Dr. R. C. G. Williams, chief engineer, Philips Electrical Ltd. (Electronics Division); Mr. C. D. Wilkinson, formerly chief engineer (reconstruction), National Coal Board (Power Division); Dr. J. R. Mortlock, assistant chief engineer, Associated Electrical Industries Power Group (Science and General Division).