

In the end, Dr. Robinson gives us an inadequate description of anaesthesia's newest ally, the muscular relaxation obtainable by the use of curare. This is followed by a rhapsodic and almost incoherent epilogue of praise and exhortation. Had the author contented himself with describing pre-anaesthetic days and the events which led up to the discovery of ether anaesthesia, he would have given us a notable work. We have, however, one which starts well, continues magnificently, but ends in an inconclusive and aimless flurry.

G. EDWARDS

PURE AND APPLIED SEISMOLOGY

When the Earth Quakes

By the Rev. James B. Macelwane. (Science and Culture Series.) Pp. xiii+288. (Milwaukee: Bruce Publishing Co., 1947.) 5 dollars.

IN 1944 the Institute of Geophysical Technology was established at St. Louis, U.S.A., in cooperation with the University, and Father Macelwane was chosen as its dean. For one so well versed in the basic subjects of geology, physics and mathematics, this was a well-merited honour; and in so short a time as 1944-47 dividends have been paid. "By their fruits ye shall know them" has been well borne out, for out of the St. Louis Institute of Geophysical Technology, based on work by J. J. Shaw in England, has come the new use of the seismograph as a meteorological instrument via the study of micro-seisms by Father Ramirez. Father Macelwane and his colleagues at St. Louis are about to take this work a step further by setting up sensitive micro-barographs at the angular points of a triangle of several hundred feet side in order to trace the paths of microbarographic storms, and for this work the weather-minded U.S. Navy has assisted with a grant of 25,000 dollars.

After writing so many technical papers and books on geophysics and its associated subsidiary subjects, Father Macelwane, while in the midst of his work, has at last been persuaded to write a book on seismology for the general reader. Seismology deals not only with earthquakes as they are felt, but also with the nature and causes of earthquakes and their relation to other geological processes in the earth. It deals with the effect of earthquakes on structures built by man and with all the problems of engineering that arise from them. It includes the physics of earthquake waves propagated through and round the earth, and the knowledge these give us of the earth's interior. It treats of man-made earthquakes, the vibrations caused by blasts of explosives, and their use in determining the hidden make-up of the earth's outer shell, thereby assisting in the location of valuable mineral deposits, especially petroleum. The book covers the whole field of pure and applied seismology, and Father Macelwane is to be congratulated on compressing so much material, while keeping it readable, into so small a space. Many natural earthquakes, their supposed causes and their effects are described, together with the manner in which they are studied macroseismically in the field and by means of instruments. Sea quakes and seismic sea waves are discussed, and there is a chapter on earthquake noises following Davison. The engineering aspect in such subjects as earthquake-proof design is not overlooked, and there are chapters on rock bursts and also on seismic prospecting.

A glossary is provided to enable the reader to come to grips with some technical terms, and this will undoubtedly help. There are a full list of references in addition to acknowledgments, and a good index. The text is interspersed with numerous good clear diagrams as well as photographs as illustrations in a book which is a joy to handle after the 'austerity' books of present-day Britain.

E. TILLOTSON

ARCHÆOLOGY AT OXFORD

Archæology and the History of Europe

An Inaugural Lecture delivered before the University of Oxford on 28 November, 1947. By Prof. C. F. C. Hawkes. Pp. 24. (Oxford: Clarendon Press; London: Oxford University Press, 1948.) 2s. net.

IT is indeed excellent that the University of Oxford has created a chair of European archæology, and that Christopher Hawkes has been selected as its first occupant. The University will gain lustre from his learning, and he will have scope to work out in practice the very definite ideas about the orientation of his subject which he sets forth in this lecture. It is indeed well that the various universities interested in archæology should not all place it in the same setting or look at it from the same point of view. Prof. Hawkes says, for example, that archæology "is not a subject in its own right, as are History, Philosophy, or, say, the Biological Sciences". As a Cambridge archæologist, I can only ask, "Why not?" Biochemistry is considered as a separate subject, and yet it only recently hived off from its parent sciences. Prehistory and archæology have similarly hived off from geology and early history, but surely can by now be classed together as a single subject worthy of an honours school.

Again, Prof. Hawkes says that for him archæology belongs to history, not simply in operational practice but in philosophical theory likewise. It is excellent that this aspect of the subject should not be forgotten, and Oxford is probably the appropriate place where it should be particularly enunciated. But there is also the possibility that archæology—more especially in its early phases—can be considered scientifically, and that it is the scientific approach to the subject which should be stressed and which indeed adds much to its charm.

As was to be expected, Prof. Hawkes has given a most interesting and thought-provoking inaugural lecture, couched in the inimitable literary style we have come to expect from him and his University, and enlivened by some charming touches, as when he self-deprecatingly refers to himself as being pegged out over so large an acreage of professorial territory that he fears his thinly outspread vitals will offer but little sustenance to the birds! But when we have considered his ideas on the scope and disciplines and duties of his subject, we can only reassure him that his fears are groundless. We look for great things from him in this new chair with his particular way of surveying his domain. For the last thirty years the Cambridge school has stressed the scientific and anthropological approach to archæology: it will be interesting and valuable to see a school grow up at Oxford on the lines suggested in this lecture. If our sister university is late in the field with her chair, she could not have dignified it with a more happy choice of a first occupant.

MILES BURKITT