cannot be ignored in such studies, and looks at population history as well as the comings and goings of various diseases in the past.

The text is liberally supplied with illustrations, usually in the form of schematic maps of the British Isles to show differences as regards such variables as temperature, rainfall, blood groups, mineral and water differences, pollution and industry and various diseases. These are certainly essential to a full appreciation of the points made in the text, and allow a brevity of comment which would otherwise not have been possible.

Mention should be made of one small error which could nevertheless give rather a wrong impression as regards the history of the treponematoses in Europe. In Plate 2, two views are shown of a skull from Spitalfields, in London, showing an advanced and extensive osteitis which could well be indicative of some form of treponematosis. But the date is not Saxon as indicated, and although there is still some debate as to whether it could even be pre-Saxon, it is far more likely to be Mediaeval in period. By a slip of the pen, it has also been attributed to the British Museum of Natural History, whereas in fact it is in the collection of the Department of Physical Anthropology in Cambridge University. Contrary, then, to what this specimen might seem to indicate, there is no certain case of treponematosis in Britain before late Mediaeval times.

All in all, this is a welcome addition to the geography of disease, and simultaneously is a contribution to human ecology and the history of medicine. Moreover, as a reference work, it will be useful to all those concerned with the reasons for biological variation in man.

DON BROTHWELL

Muscle Physiology

Electrogenesis and Contractility in Skeletal Muscle Cells. By J. Zachar. Pp. 638. (University Park: Baltimore, Md. and London; House of the Slovak Academy of Sciences: Bratislava, March 1972.) $28.50.

DR ZACHAR makes for this book the modest claim that it is "intended for workers beginning in the field of general physiology of muscle contraction", and that for workers in other areas of physiology it "serves as a review of the present-day state of knowledge of electrogenesis and contractility of skeletal muscle". The first section of the book, dealing with the "molecular basis of contraction", achieves these aims in a satisfactory way, but this material is already familiar from many books and reviews, and the treatment does not go beyond the level that the reader has been led to expect. Things change, however, when the author gets on to his own ground, namely the electrical behaviour of the membrane systems of muscle, and excitation-contraction coupling. Here each topic is dealt with thoroughly: theoretical treatment, historical background, and a summary and review of almost all of the recent papers are combined in a consecutive and readable text. All points of view are given a hearing, but Dr Zachar's judgment is always sound. Much quantitative material is collected from scattered sources into the thirty-seven tables which accompany the text. Key illustrations are reproduced from many papers. The book restricts itself to striated muscle; the emphasis is on single-fibre experiments, and as a result the great majority of the material is from the frog and from various crustaceans. Within this scope, very little is missed, as is suggested by the fact that the list of references runs to 1,200 items—complete with titles and final as well as initial page numbers. There are both author and subject indexes.

These features make the book a first-rate guide to the literature of membrane properties and excitation-contraction coupling in striated muscle. As such, it will be valuable not only to those who are starting out on research, but also to established workers in the muscle field. I doubt whether there are even any specialists who know the literature so well that they would not find this book valuable, especially because it contains numerous references to papers in Czech and other Eastern European journals that are not well known in the West, and because it contains a fair amount of unpublished work from the Zachars' laboratory. For the beginner, and for the worker on other aspects of muscle, it will be invaluable. It is perhaps more detailed than is necessary in a review of present-day knowledge for biologists outside the muscle field.

According to the preface, the typescript was submitted for publication in 1968, and it is unfortunate that the book did not appear (at least in Britain) until the summer of 1972 (although it is dated 1971). Additions were, however, made in proof, and it is greatly to Dr Zachar's credit that the book does not now give the impression of being out of date. Its value will indeed increase as the years go by and reviewers concentrate on later material; much of the great quantity of experimental work of the 1960s and late 1950s that is brought together here would be lost if it were not for the service that Dr Zachar has done in writing this book.

A. F. HUXLEY

Volcanoes

Volcanoes. By Gordon A. MacDonald. Pp. xii+510. (Prentice-Hall: Englewood Cliffs, New Jersey, 1972.)

IN my opinion this is unquestionably the best descriptive book on the market about volcanoes. The author, who has himself contributed much to the progress of volcanology, has now succeeded, as few can, in making a serious book so readable that even the non-specialist can profit from and enjoy it. The book opens with personal reminiscences about two volcanic eruptions, and this is followed by an introduction to volcanoes and to the properties of magmas, the raw materials, so to speak, of volcanoes. The next 130 pages contain a well-written descriptive survey of the different products of volcanic action, namely lava extrusions and fragmental rocks of various kinds. A broad survey then follows of the types of volcanoes and their eruptions, illustrated by many eyewitness accounts, and a discussion on the subsurface structure of volcanoes, their geographic distribution and tectonic setting, and their effects (both beneficial and otherwise) on man. The book finishes with a catalogue of the 500-odd active volcanoes in the world and an appendix giving a concise summary of the petrology of volcanic rocks. The work is well illustrated, with 150 photographs and 120 maps and line drawings, and the bibliography of some 500 references is well selected and is complete to about the end of 1969.

There are very few errors or misprints but there is one broad criticism which must be made, namely that, in the interests of making the book readable, the content of quantitative volcanology has been reduced to a low level and its place taken by descriptive matter. To give one example, the term "isopach" has been carefully avoided, and although two isopach maps are reproduced no hint is given that such maps constitute one of the most powerful tools for the quantitative study of volcanic products. In short, though the book succeeds in conveying the excitement and drama of volcanic activity, it fails to portray the basis of careful measurements on which the understanding of volcanism must ultimately depend, and it offers no advice on how such measurements can be made. A further mild criticism is that there is nothing new in this book: it is purely a skilfully written review of the literature. Of course such a review must be welcomed in view of the widely scattered nature of volcanological literature and, as a review of the subject, this book is excellent; but it is somewhat of a personal disappointment to find no new ideas expressed, no new ways of looking at volcanoes, with the author "sitting on the fence" about such controversial

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