

What we have then is not a replacement of sociology with a new outgrowth of operant behaviourism, but a solid approach to the underpinning of sociology with a widely based experimental psychology. A. B. CIERNIS

<sup>1</sup> Frankl, V. E., *Encounter*, November, 51 (1969).

<sup>2</sup> Devons, E., and Gluckman, M., *Closed Systems and Open Minds* (edit. by Gluckman, M.) (Oliver and Boyd, London and Edinburgh, 1964).

## ARCHAEOLOGY OF THE FUTURE?

### Science in Archaeology

A Survey of Progress and Research. Revised and enlarged edition. Edited by Don Brothwell and Eric Higgs. Pp. 720+40 plates. (Thames and Hudson: London, February 1970.) 147s boards; 42s paper.

THE publication of a second edition of *Science in Archaeology* only six years after the first edition emphasizes two things: the enormous steps that have been taken in recent years in applying a much wider range of scientific techniques and approaches to the needs of archaeology (720 pages compared with 595) and a slight, but noticeable, change of emphasis. Thus the differences between the two editions are significant because they point to the direction along which the subject is at present developing. Physical methods of dating and prospecting, after a rapid development in the 1950s and early 1960s, now seem temporarily to have reached a slower rate of progress. More has been added on the potassium-argon method and a potentially useful new approach using a fission track technique is summarized, but there the matter rests. Similarly in the fields of microscopy, radiography and the general physical characterization of artefacts, little has been added, apart from a survey of recent work on obsidian and two very useful articles on the use of the scanning electron microscope and the application of X-rays.

One of the most impressive growth points in the subject in recent years has been in the field of statistics and computerization. Innumerable articles have been written attempting, with varying degrees of success, to apply statistical techniques to sometimes rather intransigent archaeological data. The more thoughtful writers have usually preached optimistic caution; the less thoughtful critics have heaped condemnation. Now for the first time we are offered a balanced 44-page consideration of the whole field, written, significantly perhaps, by four authors from the viewpoints of archaeology, anthropology and zoology. The range of approach is wide and sometimes necessarily superficial, but the text is well supplied with pertinent archaeological examples. As an introduction to the present state of knowledge for less mathematically minded archaeologists, this is essential reading.

The second area of rapid development is in the biological application to (or, more strictly, of) archaeology. Mollusca of various kinds are now considered in some detail and there is a very welcome discussion of the problems posed by early animal husbandry. Surprisingly, however, the process involved in the early "domestication" of plants tends to be sketchily treated, and this at a time when so much new work is under way. Valuable though these twenty-three contributions on plants and animals are individually, and many of them are exceptionally good, the overall impression they give is of a fragmentation in approach and interest, when, as the editors point out in their stimulating introductory chapter, the present emphasis should be on the very close integration of archaeology and the biological sciences. The one article to get close to this ideal is a thought-provoking treatment of social organization as a population regulator.

On style and presentation the book is difficult to fault, and the editors have managed to overcome most of the difficulties inherent in producing a compilation of sixty-one contributions. One omission, however, which should be

put right in later editions, is the absence of the dating of the individual articles. At a time of such rapid advance it is essential to know when the latest revision of each was carried out.

This is, without doubt, an important work which must be read by all archaeologists and all interested in the archaeology of today and the future. Scientific approaches and techniques are now a part of the substance of the discipline, and only by accepting and building on this premise can there be progress. The diehards of the old school must now sound their final retreat.

Finally the price: seven guineas is a fair price for the hardback, and the publishers will be blessed by generations of students for producing a paperback version for as little as 42 shillings.

BARRY CUNLIFFE

## PREHISTORIC MEDICINE

### Palaeopathology

Diseases and Injuries of Prehistoric Man. By Paul A. Janssens. Pp. xiii + 170 + 75 plates. (John Baker: London, February 1970.) 55s.

THE subtitle of this book is a misnomer; almost as much attention is devoted to the diseases and injuries of fossil animals as to those of man. The work is divided into twenty-seven chapters varying greatly in length, content and importance, and bearing titles which in many cases have little connexion with the matter discussed in them.

The author first attempts to define medicine as any action carried out to safeguard man against disease, and finds in it what he terms a science-factor and a law-factor, the latter necessary not only to protect the sick individual but also to protect knowledge. A brief discussion of climate, economy and environment follows. After some consideration of the limitations imposed upon the palaeopathologist by the nature of the material at his disposal he provides a useful but too brief summary of the effects of cremation upon bone. His study of traumata affords him an opportunity to speculate upon the social relationships of early man. A long chapter on palaeolithic art seems to have been included chiefly to prove that prehistoric man had some knowledge of animal anatomy—a not improbable assumption. The discussion of the strange symbols often found on the walls of caves in association with pictures of animals is stimulating and suggestive. From a review of some modern folklore the author derives hypotheses concerning the reason for the frequency with which fractured calvaria are found at ancient burial sites. A short section on anomalies of development and their representation in Egyptian paintings is followed by a more extended consideration of Venus figurines which for the most part exhibit steatopygia. He holds that an important factor in their interpretation is the average duration of life at the time and goes on to present some evidence concerning this average, but omits to demonstrate any connexion between this and the figurines in any explicit way. A reasonably comprehensive account of the occurrence of tumours in man and animals is followed by a sketchy explanation of the way in which the body reacts to infection and a long chapter on arthritis. The author seems to assume a bacterial basis for most arthritic conditions and claims that bacteria became pathogenic only with the appearance of the vertebrates. (The most likely explanation of this improbable claim would be the misreading of a sentence in Simpson's book *Life of the Past*.) Periodontitis, tuberculosis, syphilis and some other infections are briefly considered; in the case of the last the author, after some hesitation, accepts the view that it was brought to Europe from America in the 15th century. He then deals at some length with the outlines of mutilated hands which appear on the walls of some caves and, rejecting all other suggestions, he explains them