

various kinds of social intolerance, must also be separately studied. This is implied by J. P. Scott, in an introductory paper on "Theoretical Issues"; but Moyer does not drive the point home. Similarly, Eleftheriou describes differences in the metabolism of biogenic amines related to different treatments and different behaviour; but he continues to call all the behaviour "aggressive". In two other chapters, in spite of a warning by Scott, even predation and its effects are discussed as if they were social interactions. There may be an underlying physiology common to, and also specific to, all this behaviour, but it has not yet been identified.

Another omission is on the biological and physiological nature of "isolation-induced aggression". As Scott says, this behaviour could be an effect of the novelty or strangeness of encounter with another animal. But, instead of analysing this odd phenomenon, experimenters call it "aggression" and use it as a behavioural index. There are still more important questions. How specific are the hormonal and other changes described? Wild rats under repeated attack develop enlarged, hyperactive adrenals; but the same applies to the attackers. Evidently, in this species, the adrenal cortical response is non-specific. What contribution, then, does all this endocrine activity make to survival? Despite these questions, often unasked, *The Physiology of Aggression and Defeat* will help all workers in this area. The authors and editors are to be congratulated on their rigorous experimental studies in a difficult field.

The aim of *The Imperial Animal* is "to describe what is known about the evolution of human behaviour, and then to try to show how the consequences of this evolution affect our behavior today". Topics include political systems, the status of women, property relationships, education, health and, of course, "aggression". There is a large bibliography. The authors' method is to make provocative assertions, often based on remote analogy, but unsupported by exact references. Statements on, say, the behaviour of baboons, which seem to contradict published findings, cannot be checked because they are not adequately documented. Sometimes, a list of sources is given, bearing on the topic discussed but not supporting the statement made. The authors assail the "culturalist", who "assumes that the human infant is a *tabula rasa* . . . unencumbered with the imperative, instinctive demands that manipulate animals" and with "appealing delusions about human perfectibility". But they fail to identify people who hold these odd views; their comments on them neglect the need for definition of terms such as "instinctive"; and their arguments contain little evi-

dence but much dogmatic assertion.

Extensive reading enables Tiger and Fox to present a large, heterogeneous assembly of facts and notions; many, taken individually, are stimulating or entertaining. Their tone is agreeably humane. But sometimes they seem almost to be caricaturing another, better-known popular writer. In a lively passage on incest we read: "one enhancing spice of some sexual relationships seems to be a touch of that ritual neck-bite dominance the hamadryas baboon or the ambitious sultan appears to show". They also write: "aggression in the human species is the same as aggression in any other animal species". It is depressing to find such indifference to obvious problems, and to the need for rigour, in two academic anthropologists. This book falls in the domain of neither the natural nor the social sciences, but rather in the category of *belles-lettres*. S. A. BARNETT

Micropalaeontology

Micropalaeontology of Oceans. Edited by B. M. Funnell and W. R. Riedel. (Proceedings of the Symposium held in Cambridge from 10 to 17 September 1967 under the title "Micropalaeontology of Marine Bottom Sediments".) Pp. x+828. (Cambridge University: London, June 1971.) £20; \$55.

A book costing £20, even if written by many specialists and purporting to "become the definite reference compendium for students and workers in oceanography and palaeontology for many years to come", must be very exceptional to receive unqualified approval. By that criticism alone this useful volume is difficult to recommend.

This compendium, presented by more than forty separate authors and appearing four years after the conference at which the papers were read, must have produced headaches for the editors.

The general field covered is a rapidly expanding one and the time lag in publishing must make a number of the papers outdated. As is to be expected, a wide field of subjects is covered, but unfortunately this leads to the book being unbalanced in its emphasis of various subjects.

Some contributions are abstracts or little more, whereas others are long, containing much information which can now be considered of historical interest only. The printing of the maps and diagrams is often blurred and some of the photographic plates fall far below the high standard of recent years. Some papers, for example, "The systematics of coccoliths in relation to the palaeontological record" (M. Black) and "Systematic classification of polycystine Radiolaria" (W. R. Riedel), although important contributions to science have little or no bearing on the title of

the volume. Several consist of accounts of old geological "chestnuts", for example, "The direction of coiling in planktonic Foraminifera" (H. Bolli), and others of the "academic" boundary problems "Quaternary boundaries and correlations" (Hays and Berggren) and "Tertiary boundaries and correlations" (Berggren). Some of the correlation tables (for example 52.38) are in such a small scale a magnifying glass is necessary to interpret them.

Section A, "Distribution of living organisms in the oceans", sadly lacks comprehensive papers on both benthonic Foraminifera and Ostracoda. Here the "Distribution of ostracods in the oceans" (Puri) is inadequate, based not on recent work, but on the Challenger (1872-1876) collecting, apart from Puri's later work on the Bay of Naples. Considering the large group of workers on the ecology and distribution of ostracods, this gap should have been filled, the same being true of benthonic Foraminifera.

In section B there is a wide coverage of microfossil remains, but again, considering their contribution to bottom sediments (reefal and shelf sediments and so on), benthonic Foraminifera should have been included. Sections C and D again concentrate largely on planktonic organisms. The earlier papers "Distribution of shell-bearing pteropods in the oceans" (Chin Chen, in abstract only) and "The occurrence of Pre-Quaternary pteropods" (D. Curry) add little to our knowledge. Section E deals with the "boundary problems" which I mentioned earlier.

This book contains many ideas, some of which are new and worthy of further work, but could have been vastly improved by better illustrations, clearer maps and range charts and by better coverage of the general field. Some omissions could have been filled—the specialists exist who could do it.

T. BARNARD

Molecular Shapes

Conformational Analysis: Scope and Present Limitations. Edited by G. Chiurdoglu. (Papers presented at the Brussels International Symposium, September 1969.) (Organic Chemistry: a Series of Monographs, Vol. 21.) Pp. xi+280. (Academic: New York and London, January 1971.) \$15; £7.

CURRENT interest in stereochemistry and conformational analysis is wide-ranging and the importance of this area of chemistry is such that this record of the papers presented at the International Symposium on Conformational Analysis held in Brussels in September 1969, will certainly have a very wide appeal.

The conformational behaviour of five- (Altona), six- (Anteunis; Garbisch, Hawkins, and MacKay; Lyle, Thomas,