by D. V. Anderson. The third chapter, distribution and ecology, is in many ways the most useful in the first part of the book. R. O. Brinkhurst provides an excellent summary of the habitat, pollution biology and respiratory physiology of the microdriles and discusses the interactions and dynamics of species in microdrile communities. B. G. M. Jamieson completes Chapter 3 with an account of the distribution of the Alluroididae and Glossoscolecidae and speculates on the latter's dispersal routes. These two authors share in the final chapter of the first part of the book, on phylogeny and classification, in which they admit that the phylogeny of this group without a fossil history can be advanced only with hesitation and assert that the classification which they propose is phenetic. The classification contains many novel features although fundamentally it has some resemblance with the system proposed by Stolte (1968, Oligochaeta [3], *Bronns Kl. Ord. Tierreichs*) which is, incidentally, not cited among the references.

In the second and larger part of the book, keys and diagnoses are provided to the families and most genera and species of the world's aquatic Oligochaeta, the family Enchytraeidae and tribe Glossoscolecini being dealt with only at generic level. Many species are figured and the illustrations are gathered together at the end of each chapter so that comparisons can be made easily. The responsibilities for the eleven chapters are as follows: D. G. Cook—Lumbriculidae and Dorydrilidae; R. O. Brinkhurst — Haplotaxidae, Naididae, Tubificidae, Phreodrilidae, Opistocystidae and Enchytraeidae; J. van der Land—Aeolosomatidae; B. G. M. Jamieson—Alluroididae and Glossoscolecidae. (The family Branchiobdellidae is omitted as the authors now exclude it from the Oligochaeta.) R. O. Brinkhurst was responsible for the arrangement and format of the synonymies and scientific index. In the former, the layout and typography are such that the reader cannot easily discover the valid name of a species or where one section ends and another begins, and in the latter, the generic names following specific epithets are needlessly set in parenthesis as if they have only subgeneric status. (Abstracters should note that the names of the new species described in the text are not specially listed either in the index or together elsewhere.) It is regrettable that the publishers permitted a uniformity of type-face and setting for the scientific names, whether used as headings or in synonymies, to mar an otherwise excellent work. Generally, however, all concerned with the work are to be congratulated for filling the need admirably for information on these small oligochaetes to be drawn together in a single volume. R. W. Sims

Immunology

Journal of Immunological Methods. Edited by F. Borek, J. R. Battisto and E. J. Holborrow, Vol. 1, No. 1. Pp. 106. (North-Holland: Amsterdam and London. September 1971.) One volume of four issues/year, Dfl. 81.00.

Now is boom time for immunologists. There is a flood of new workers and a host of new journals. Old timers groan at the brashness of the late arrivals and creak with the effort of keeping up with the wave of fresh information. Nothing, however, can stem the tide. The latest addition to the literature array is the *Journal of Immunological Methods.* It claims to be unique in its devotion to methods and techniques in immunology, and indeed five of the eight papers in the first issue give accounts of new or relatively new methods. The journal will accept short communications, review-type articles on methods and full-length articles describing original work. If *JIM*, as it will doubtless come to be known, maintains the initial high standard of presentation and content it will fulfil a useful purpose in an area where methods *per se* are broadcast in a haphazard manner through many and diverse journals. It might be helpful if the editors deliberately recruited details of older but much used techniques from their originators or principal users in order that we should always know where to look for technical details of immunological methods. A. J. S. Davies

Specific Immunities

Cell Interactions and Receptor Antibodies in Immune Responses. (Proceedings of the Third Sigrid Juselius Symposium.) By O. Makela, Anne Cross and T. U. Kosunen. Pp. xx+472. (Academic: New York and London, July 1971.) £7; $21.

This is a book mainly about lymphocytes with many excellent papers summarizing knowledge about the classification, characteristics and interactions of "T" and "B" cells. There are separate sections on the handling of antigens by factors other than lymphoid cells, the classes of lymphocytes, the reactions of lymphocytes to antigenic stimulation, effector mechanisms following lymphocyte activation as well as the specific topics of cell interactions and the nature of the antigen receptors on "T" and "B" cells. Lymphocyte receptor sites are quite strong antigens and it is now relatively easy to raise antisera against cell bound immunoglobulin receptors of "B" cells of mice and similar antibodies have now been raised against human "B" cells. Such antisera are capable of blocking the receptor to its specific antigen and perhaps the key to antibody specificity will be found by studying the biochemical similarities between an antigen and the antibody which is capable of blocking the specific lymphocyte receptor. The application of such antibodies to the study of receptor sites has indeed led to some surprising new discoveries. For example it has recently been suggested that these sites "float" in the cell surface membrane and in the presence of antigen congregate at one pole before disappearing into the cell, there presumably to initiate the differentiation process leading to free antibody production. A teleological evolutionary question has recently been raised. Why is it "necessary" to have interacting "T" and "B" cell systems which were probably evolved separately (as their thymic and bursal equivalent ontological origins suggest). It is likely that the main result of interaction is to produce a quantitatively greater immunological response and perhaps by antigenic concentration to circumvent tolerogenesis.

An important question which is touched on in several papers but which remains to be answered is whether immunological specificity resides primarily in the "T" or "B" cell or in both. Jerne has suggested elsewhere that transplantation antigens may act by a process analogous to accelerated Darwinian evolution in selecting lymphocytes with somatic mutations favourable to the host's immunological defences and eliminating dangerous auto-reactivity The large repertoire of different antibodies which the individual apparently makes in response to a single antigen (assuming the antigen itself is not equally complex) certainly suggests a series of separate somatic mutations. If Jerne's attractive hypothesis proves to be substantially correct then it is necessary to postulate that the high rate of lymphocyte death and the selectional role of transplantation antigens characteristic of the thymus and essential for the hypothesis are also characteristic of the bone marrow. If not, immunological specificity is the prerogative of "T" cells alone.

It is regrettable but understandable that much of the discussion in the proceedings had to be omitted. Bitter experience has shown that it is very difficult to obtain the consent of all contributors to a single version and at the same time not to exceed the publisher's deadline. Following meetings, authors unfortunately continue to gather wisdom so that when their fossilized *ad lib.* performance is presented to them many changes are demanded. There is, however, a copious author index and a useful subject index. This book represents a valuable review by many of the leaders in the field of immunological cell differentiation.

R. Harris