

# reviews

*The Interrelationships of Fishes* is a very welcome volume, for it contains an up to date statement of position by leading authorities on nearly every major group of fishes and, therefore, it provides an almost comprehensive survey of the state of palaeoichthyology in 1972. Tipping the scales at three and a half pounds it is in every sense a heavyweight volume, but its publishers and editors are to be congratulated on an attractive format and a text that is almost free of blemishes.

The interrelationships of most of the groups of fish have long been uncertain. That is partly because most major groups appear suddenly, already fully distinct, in the Devonian, and partly because of the rapid and complex evolution that characterised the emergence and early evolution of the teleosts. Though some new discoveries, and even more new opinions, have appeared in the last few years, it has been difficult for the non-ichthyologist to gauge the extent to which these have been accepted, especially in their implications for the major dichotomies in the evolution of fishes.

'Dichotomies' is the obligatory term, for the procedures of phyletic analysis advocated by Hennig have penetrated more thoroughly into the world of palaeoichthyologists than into other fields of vertebrate palaeontology, and the book is notable for its uniformity of approach in such matters. Irrespective of the merits or demerits of these methods, the uniformity does make it easier to analyse the precise points at issue where opinions differ.

## Fish families

Barry Cox

*Interrelationships of Fishes*. Edited by P. H. Greenwood, R. S. Miles, and Colin Patterson. (Supplement No. 1 to the Zoological Journal of the Linnean Society.) Pp. xiv+536. (Academic: London and New York, January 1974; Published for the Linnean Society.) £11.00; \$31.00.

Some of the papers in this volume contain radically new views resulting from new information. For example, the increased knowledge of the onychodont crossopterygians leads Andrews to question whether the coelacanth is isolated from all other crossopterygians. She suggests instead that the primary division of the group is into an osteolepid-rhizodont-onychodont assemblage and a coelacanth-porolepid assemblage. By way of contrast, Bjerring considers that the coelacanth does not share any significant specialisations with any other group of fishes and that their origin is remote from that of the other groups.

Other new discoveries from the Carboniferous of North America, described by Zangerl, have transformed theories of the phylogeny of the chondrichthyes. There was clearly already a considerable diversity of elasmobranchs in the Carboniferous

Period: the bizarre iniopterygians show both chimaeroid and elasmobranch characteristics, and the simple view that the two groups are members of a monophyletic chondrichthyan group is again in the ascendant.

New information on the early, Upper Devonian, actinopterygians is used to substantiate current views on the interrelationships of the Actinopterygii, Crossopterygii, Dipnoi and Acanthodii. The relationships of the Acanthodii, as evidenced by the exoskeleton of the head, is also discussed in a succinct and cogent paper which concludes that they are more closely related to osteichthyans than to chondrichthyans.

Many papers involve the use of morphological information from already known groups, using Hennig's methods, to ascertain the most likely scheme of relationships. In varying degrees of details, these methods are used for the chondrosteans, the holosteans (which are found to be a paraphyletic group, and discarded), the osteoglossomorph teleosts, the clupeomorphs, the elopomorphs, the ostariophans and the higher euteleosts. Finally, there is a new classification of living elasmobranchs, including all the different genera, and the interrelationships of the four defined superorders are discussed.

The addition of a citation index and a subject index add greatly to the utility of the volume, which is a worthy tribute to Professors Stensio and Jarvik, in whose honour the 1972 symposium was held. □

THIS well produced and carefully edited book accurately reflects current American practice in the development of hormone radioimmunoassays. Each hormone, or group of hormones, is dealt with separately, with particular emphasis being given to the particular methodological problems likely to be encountered. Thus the book makes an ideal companion to previous publications concerned with the practicalities of radioimmunoassay, which consider the subject under such general sections as, for example, radioiodination, separation and antibody production. It is unfortunate, therefore, that the excessive price of the book will limit its purchase, other than by large specialised centres.

Each chapter is written by one, or more, authorities in the appropriate

## Detecting hormones

J. Landon

*Methods of Hormone Radioimmunoassay*. Edited by B. M. Jaffe and H. R. Behrman. Pp. xxi+520. (Academic: New York and London, May 1974.) \$29.00; £13.90.

field and individual chapters deal with hapten radioimmunoassays for the intracellular messengers (cyclic AMP and cyclic GMP), for three of the prostaglandins, for the adrenal and gonadal steroids and for the thyroid hormones. Other chapters relate to the assay of human placental lactogen, human chorionic gonadotrophin, the known pituitary hormones, two of the hypothalamic releasing hormones (TRH

and LH-RH), the gastrointestinal peptides, parathyroid hormone and the vasoactive peptides, including bradykinin, renin and the two angiotensins.

The quality of the individual chapters varies considerably, as is inevitable with a multiauthor book. The general standard is, however, high; the book is an excellent source of relevant references and the editors have ensured continuity. Some chapters, such as that relating to the radioimmunoassay of ACTH, contain a wealth of practical information which would be easy to reproduce.

A novel and useful feature of the book is that the authors have summarised the assay kits and reagents available for each hormone, and listed the address from where they can be obtained.