

Book Reviews

Malawian Cichlid Fishes: the Classification of some Haplochromine Genera

David H. Eccles and Ethelwynn Trewavas

Lake Fish Movies, Herten, West Germany, 1989
335 pp., 196 figures

This work represents a milestone in cichlid fish systematics and provides a text that will be used by fisheries scientists, aquarists and ichthyologists of numerous persuasions for many years. The authors have taken some very courageous steps and erected several stimulating hypotheses in the minefield of cichlid systematics that will be welcomed by many and debated by all.

The book arose from the need to upgrade Dr Trewavas's taxonomic publication of 1935. She initiated the revision and called upon the experience of Mr Eccles who had spent 17 years studying the fishes of Lake Malawi. Together they carried the enormous undertaking to completion.

There are more than 500 species of cichlid fish in Lake Malawi of which all but four are endemic. Seven of these fishes belong to the tilapiine group and the remainder are haplochromines. This enormous haplochromine species-flock evolved in the short period of two million years and comprises numerous closely related species, including sibling species-complexes. Collectively, these haplochromines pose a variety of challenges to systematists with the most demanding being the unravelling of the relationships of those hundreds of species originally lumped in the genus *Haplochromis*, and latterly in the genus *Cyrtocara*. This group formed the principal focus of the book. The authors divided the group into 38 genera of which 23 are new genera. In addition, they took the bold, but necessary, steps of providing a key to the 38 haplochromine genera (the 11 Mbuna genera were excluded because the taxonomy of this species-flock is still too fluid) and also keys to the described species within these genera. The life expectancy of many of these keys is likely to be limited as there are already numerous undescribed species which have not been considered and newly discovered species continue to appear. Inevitably, the incorporation of these species into the keys is bound to engender modifications, but all credit must be given to the authors for providing such an excellent, useful foundation. A disappointment is that a cladogram of the genera was not attempted. However, the table of taxonomic innovations in the appendix provides a valuable overview of how the authors subdivided the species flock.

The book is structured in a practical way. A brief introduction describes Lake Malawi, paints a picture of the complexity of cichlid systematics, describes the desperate need for the revision and also the manner in which the problems were tackled. This is followed by a useful key to the genera. The bulk of the book is devoted to a review of the genera and of the species within each genus. The book does not have a concluding chapter, but a sound reference list is followed by an extremely valuable appendix and index. These last two are essential additions as they enable users to readily identify fishes from their previous names and therefore to find their way around a book of unfamiliar nomenclature.

The book is softbound, in A4 format. The 84 excellent black-and-white drawings of fish by the late Ms M. Fasken provide most of the illustrative material. The other fish illustrations and the line drawings were prepared by a variety of artists. The 51 black-and-white photographs of fish and of oral and pharyngeal dentition make up the full compliment of 196 figures (there are also two additional figures on an erratum page). Unfortunately the poor reproduction of some of the photographs has resulted in a loss of essential detail. The need for species distribution maps has been successfully circumvented by clear descriptions of the distribution and ecology of each species.

A feature of Dr Trewavas's numerous publications is the enviably high standards she attained in the presentation of her work. Unfortunately, this book is not up to her usual standard. Too many typographical errors slipped through, some illustrations have incorrect captions, the electron micrographs of dentition lack the clarity and definition necessary to be really useful. Much of the text too lacks the incisive clarity and logic that is so characteristic of Dr Trewavas. A few scientific inconsistencies have crept into the text which may make the book awkward to use in some places. For example, it is difficult to tell from the lists of material examined exactly how many specimens were actually used as a basis for redescriptions. This is illustrated by the treatment of the genus *Tramitichromis* for which no material is listed for three species. Then five adult *T. intermedius* are reported to have been examined, yet only four are listed and two of these have standard lengths which are considerably greater than any of the five which were 'examined'. Sometimes, the text and figures do not correspond precisely with regard to tooth rows and other details (see p. 256). One cannot help but feel that had Dr Trewavas's eyesight not begun to fail her in her 88th year and had she been able to read the scripts herself, then her exceptionally high standards might not have been compromised. These blemishes in presentation, which should have been corrected by the publisher, do not detract seriously from a splendid contribution. Indeed, the authors must be congratulated on a Herculean task, bravely undertaken. This book is an essential prerequisite for all who are interested in cichlid fishes.

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Africanized Honey Bees and Bee Mites

Edited by G.R. Needham, R.E. Page, M. Delfinado-Baker and C.E. Bowman.

Ellis Horwood, Chichester
Price:US\$69.50

The publication of another bee book simply reflects the rate at which additional information has been gathered by the throngs of scientists who work with and on bees and who are perhaps obsessive in their need to write about these superb animals. The collection of the two topics 'africanized' bees and bee mites in the same volume makes no biological sense whatsoever, it merely reflects intensity of worry about apicultural problems facing North America. 'Africanized' is an epithet used for some two decades and is biologically completely malapropos. The bees are not hybrids, they are simply Pretoria

bees (taken by man to South America) which have taken some thirty years to reach the top half of the new world. The mites principally discussed are of Asian origin, introduced to Europe probably by bee scientists themselves. They are now quickly spreading around the world through the simple means of sequestration of contaminated bees on persons' luggage and/or clothing and not picked up on the metal screening devices at airports.

About half of the papers collected here deal with bees and as such represent studies of the African bee *A. m. scutellata* as it now exists in the new world. Despite the alarm and newspaper capital that has been made of their advent (there), the occurrence of *scutellata* in the new world provides a most robust and exciting experimental assessment of the African genome in other circumstances. This is reflected in fifteen reports given as ecology and reproduction and including particularly interesting brief reports on amalgamation of tropical bees into multi-queen mega-swarms (Kigatiira) the relationships between the bouquets of the acids of the mandibular glands and the laying worker syndrome (Allsopp), age, environment and genes (Velthuis and van der Klerk). Two questions are then asked: (i) what do we know about the nest preferences of African honeybees (Seeley) and (ii) are queen or worker characters more important to honey production? and answered: we do not know. Two additional papers deal with colony defense, the role of the guard bee (Breed and Moore) and genetics of colony defense (Collins); the latter developing indices of heritability as a basis in arguments for the ultimate management of *scutellata* as it enters the U.S. Genetics is a bit further explored (Moritz) in the assertion that additive effects must be borne in mind in making heritability indices.

The strongest section of the book is probably the collection of chapters included under population biology and behaviour. Two master contenders in the chemical signals arena, Blum and Fales and then Crewe, respectively report on releasers of alarm behaviour and the natural history of mandibular gland secretions. The trendy notion of 'kin recognition' is further defended (Getz) and this is followed by several papers on mating. The unique mating systems and biology of honeybees are treated (Koeniger) and followed by more detailed discussions of drone abundance and flying distance of queens and how these variables affect mating. (Taylor add Rowell) but

unfortunately the authors failed to use the most impressive data to date (that provided by Tribe six years ago). The paucity of real information here leaves us in doubt as to the usefulness at this time of computer-simulated 'mating models' (Rowell and Taylor). Ruttner's earlier suggestion that radar could profitably be used to study drones in their congregation areas have now been confirmed in a technical application of this technique (Loper *et al.*). This section is concluded with some suggestions on how to contain the inevitable threat of *scutellata* by using selected drones (Hellmich), its danger to queen production (Locke) and some general thoughts (Laidlaw).

One of the most exciting areas of the book is that of identification. We have now the latest results of 30 years' attempts to distinguish the African bee race from its American mongrel counterpart. The principal participants in this research give brief summaries of the state of the arts of identification itself (Daly), geographic variation (Ruttner) and image analysis (Batra). Fair accounts are given of the latest and most informative techniques: hydrocarbon analysis (Carlson, Smith), genetic markers (Sheppard and Huettel), DNA restriction fragments (Hall), isozymes (Spivak *et al.*) mitochondrial DNA (Smith), DNA cloning (Severson *et al.*). Thus runs the first 60% of the book, discussions of bees.

Part two of the book is entitled 'Bee Mites' (and is introduced briefly by Eickwort and O'Connor. There follows a series of short articles on the distribution of various parasitic mites of Europe, Asia and Asia Minor, problems of diagnosis and control, effects of insecticides and studies of resistance. What is probably most striking about this section is the reasonable number of contributions by scientists from Asia (Korea, China and Thailand). It is heartening indeed to note the inclusion of work from a half-world closed to the rest for decades. This section of the book may well interest acarologists because it deals with mites. Otherwise it is really a hotch potch, much of extremely local and parochial interest, e.g. what mites are doing in Illinois or Israel. There is really nothing reported here of any particular importance that is not available in the appropriate journal literature.

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