
BOOK REVIEWS

Annual Review of Entomology (Published by Annual Reviews Inc., 4139, El Caminoway, Palo Alto, California 94306, USA), Vol. 31, 1986, pp. 544, Price: USA\$31; Elsewhere \$34.

The current volume like all the previous ones presents critical reviews of 22 articles on the biology, physiology and economic importance of insects from diverse groups including a range of disciplines such as aquatic biology, sociobiology, community ecology, experimental embryology, sensory physiology, endocrinology, reproductive biology, immunology, toxicology, taxonomy and palaeontology.

Of the five different articles comprising diverse aspects of community ecology, that on 'Herbivory in forested ecosystems' deals with practical problems on canopy access and random sampling therein and indicates that short and long term responses can be very different and suggests long term carefully designed manipulative experiments. In 'Perspectives of arthropod community structure, organization and development in agricultural crops', the reviewer takes into consideration biological, sociocultural and environmental factors revealing individualistic and organismic properties. Emphasis is laid on the community development which is influenced by the organization of the species pool of potential colonies and by the development of the environment of the community. The current status of cowpea pests including distribution, damage and pest biology, pest control, host plant resistance and integrated pest management deals with a more restricted insect community. A similar assessment has been made on the 'Bionomics of the variegated grasshopper in West and Central Africa, wherein aspects of the biology of the grasshoppers relating to its increased significance as a pest and relevant control methods have been highlighted.

The review on 'Sensory physiology relating to host odour perception' discusses the nature of specific and general odour components, nature and the number of olfactory receptors, central processing mechanism, orientation mechanisms as well as identification of odour preferences involving genetic variation and olfactory conditioning. The need for indepth studies on parasite physiology and orientation is highlighted in the article on 'Nutrition and *In vitro* cultivation of parasitoids' in terms of the development of continuous

artificial mass cultures to be useful. The backbone of progressive pest control is Economic Injury Levels (EIL), that has been used most often to support management decisions with short range objectives and EIL has been developed for occasional and perennial pests. The review discusses development of the concept and the mathematical framework within which it is operated.

An interesting article on 'Derivatization techniques in the development and utilization of pesticides' emphasises the fact that the new derivatised pesticides can be selective in controlling the desired pests, avoid harmful effects of non-target pests, converts soil pesticides into effective foliar chemicals and enhance plant translocation. Similarly 'Microbial control of black flies and mosquitoes appears very relevant and provides a brief review of all microbial agents, bacteria, fungi, protozoa etc.

'Dormancy in tropical insects' suggests that the phenomenon is common among tropical insects and identification of environmental regulators are involved and this article emphasizes that some species of populations living closely can differ greatly in their diapause response. In the article on 'Imaginal disc determination' very significant information on the imaginal disc differentiation dealing with defining molecules and cellular correlates of the process and offers solution to the problems of organ determination which depends on a variety of genetic, molecular and cellular probes. Egg production being a very variable process, the article on 'Expression of the genes coding for Vitellogenin' indicates the need for a regulation of egg production as well as the genes coding for major egg proteins. Suggestion is made that it would be ideal to undertake different experimental approaches with surgery, hormone receptors, hormone titers and gene cloning in each insect and where possible molecular parameters measured. 'Antijvenile hormone agents' provide fascinating information as they are important tools of physiological research. The possible sites of action of AJH agents, research methods, inhibition of early steps of and terminal steps of JH biosynthesis, allatocidal compounds and their mode of action, receptor blocks are reviewed.

The review on Evolution and ontogeny of nest mate recognition in social wasps summarizes the evidence for nest mate recognition, – the female – female recog-

nition using the primitive eusocial wasps as model. In a similar article honey bee is used as a model to understand the consequences of natural selection for mating and sperm utilization efficiency. Honey bee studies also show that queens have the potential to control the number of mates and to regulate the insemination success and sperm utilization of each.

In the article on 'Heteropteran cladistics' indication is made that the formation of higher groups in Heteroptera is now based largely on empirical arguments and that evolution is parsimonious. 'Fossil oribatic mites' known in the Jurassic sediments revealed them as an ancient mite group with low rate of morphogenesis. The study of fossil oribatids provide the basis for the development of techniques for acarological analysis.

Though not strictly entomological, the review on 'Biology of terrestrial amphipods' throws light on the taxonomy, evolution and phylogeny, reproductive biology, and life cycle studies.

T. N. ANANTHAKRISHNAN

Director,
Entomology Research Institute,
Loyola College,
Madras 600 034.

Fungi of India (1977-81) by A. K. Sarbhoy, D. K. Agarwal and J. L. Varshney, Indian Agricultural Research Institute. (Published by S. K. Dutta Associated Publishing Company, 8798/7 Shidipura, Karolbagh, New Delhi 110 005), vii-274, 1986. Price: Rs. 200 or US \$35.

This is the sixth supplement of Fungi of India (1977-81) in which 650 fungal genera comprising of 1805 species have been mentioned. The authors should be congratulated for the pains they have taken in collecting information from over 110 national and international journals. To date, from India, nearly 14,000 species of fungi belonging to different groups have been recorded. The authors have also included a table on the chronological data on fungi published from 1931-81. Dr Sarbhoy and his colleagues have published in the past lists in 1975 and 1980.

The authors at least in the future lists should give the basionyms and synonyms along with the names of the taxa in the text instead of at the end. There are a few

errors which could have been avoided by more careful editing. *Leptotrema* is a lichen genus but it is put under basidiomycetes. Graphidiales come under the order ascomycotina and not under the basidiomycetes as mentioned by the authors (p. 65). *Triscelophorus* on p. 119 is given as *Trisceophorus* sp, Mariappan is given as Moriappa on p. 5 (Ref. 373). *Millingtonia* is given as *Milingtonia*.

This is a valuable book for mycologists and plant pathologists.

V. AGNIHOTHRUDU

18/1, First Main,
Jayamahal Extension,
Bangalore 560 046.

Proceedings of the DAE Symposium on Newer Approaches to Biological Applications (Published by Head, Library and Information Services, BARC, Bombay 400 085) 1985, pp. iv + 330, Price: Not given.

This collection of papers dealing with recent progress in Biotechnology was presented at a Symposium on "Newer Approaches to Biological Applications", held at M.S. University of Baroda during October 1984. The Symposium was organized by the Basic Sciences Committee II, Board of Research in Nuclear Sciences, Department of Atomic Energy, Government of India.

The papers cover a wide area - hybridomas, enzyme engineering, gene manipulations, plant tissue culture, fermentation processes and nitrogen fixation. They are produced to a high standard and will appeal both to the individual and the library because of the range of topics in an area of great current interest.

In the introductory chapter, which is the keynote address of the symposium, K. Sundaram has given a review of the recent progress in biotechnology. In each of the subsequent sections - hybridomas, enzyme engineering etc the first paper is a review paper followed by research papers pertaining to work in that section.

Rapid progress has recently been made in hybridoma technology. Advances in depth in the application of this technology to leprosy and cancer have been dealt with in this section.

Some idea of the level of the papers can be obtained by a look at the section on enzyme engineering. Here, after a rather brief mention of the methods that may be

used to harness enzymes through immobilized microbial cells, short sections deal with denitrification of water, dehalogenation of chloroaromatics, production of alcohol and fatty acids, biological treatment of urea and ammonia-bearing effluents and preparation of columns to which particular enzymes are cross-linked.

A substantial part of this book deals with recently developed techniques. This includes two articles under "Gene Manipulations" on techniques now being used to unravel genetic transformation, and a number of articles on recombinant DNA technology which gives details of cloning techniques and computer applications in gene manipulations. Also covered are plant tissue culture and its various applications to agriculture and medicine. There are three articles dealing with plant vector development which will be very useful to workers in the area of plant tissue culture.

There is an important section in the book on Fermentation Processes, which are now an integral part of modern Biotechnology. Although a few hard and fast rules regarding the methods used in fermentation processes are presented, the authors give sound guidelines for developing techniques to meet individual requirements.

The last section in the book deals at length on biological nitrogen fixation. Nitrogen fixation by *Rhizobia*, *Azolla-Anabena*, and *Azospirillum* has been discussed in detail. The isolation and characterization of multiple drug resistant plasmids from *Azospirillum* reported in the Proceedings will go a long way in using this organism as a cloning vehicle in recombinant DNA studies on nitrogen fixation.

The style is quite uneven from chapter to chapter. It ranges from straightforward literature review (Hybridoma technology: Current developments and applications) through insightful essay (Repetitive DNA from *Vigna radiata*) to wordy, superficial rambling. I feel the book merits inclusion in institutional collections, where it would be available to individuals interested in one or another chapter.

T. RAMAKRISHNAN

Microbiology and Cell Biology Laboratory,
Indian Institute of Science,
Bangalore 560 012.

Helminths of mustelids and trends in their evolution by V. L. Kontrimavichus, English translation by Indira Kohli, General Editor, Dr V. S. Kothekar 1985 (Amenind Publishing Co. Pvt. Ltd., New Delhi) pp. 607 + xvi, Price not given.

This book is the translation of the Russian volume *Gel'mintofauna Kun'ikh i Puti ee Formirovaniya*. Nauka Publishers, Moscow.

No doubt this is a book of immense value to all helminthologists. The author Kontrimavichus has had experience of several years with mustelid parasites. Part I is devoted to taxonomic aspects covering 21 families of trematodes, 6 families of cestodes, 5 families of Acanthocephala and 21 families of nematodes. Keys to orders, families, subfamilies, genera and species of mustelid parasites are furnished. All information on species has been carefully presented viz synonyms, host species, diagnostic features, data on distribution and life cycle.

Discussions on taxonomic status have been included in some cases. On page 199 the subfamily Skrjabingylineae and on page 201 the subfamily Sobolevingylineae have been dealt with and useful information has been furnished.

Part II deals with a review of mustelids and their parasitic worms. In this part Kontrimavichus has taken great pains to deal with most of the relevant and needed information on the host.

This of course is an interesting part of the book. The following information on hosts has been compiled carefully: Synonyms, weight and length, distribution, feeding habits and characteristic habitat. The use of parasitological tags either for ecology or for phylogeny is well known although not well explored. It is suggested that there are adequate grounds for an independent origin of the otter in relation to other mustelids. Part III is devoted to ecological and geographical characteristics of helminths of mustelids and an analysis of their trends in evolution.

The use of the term "Symbiotology" to cover the study of interrelations of symbionts in all forms of symbiosis is put forward. A useful discussion on the interrelationships involving physiological and ecological aspects is provided. Potential specificity is considered as a property based on symbiotological aspects (metabolic and host parasite interaction) whereas real specificity is the one translated by ecological parameters. There are discussions on theory of specificity and problems of helminth phylogeny and speciation. Areas like reservoir hosts and zoogeography are dealt with in considerable detail.

Part IV is a six page treatment of the subject 'Trends and factors in the evolution of helminths of mustelids'. A summary of the results of the analysis made in Part III is given. Mustelid helminths have evolved as several independent loci.

Characteristics of ecology are no less important in any discussion on "Phylogenetic mutual relations". In the last few pages the author supplements information on generic and specific synonyms of mustelids. Bibliography and index to genera and species of helminths are well dealt with.

The book covers wide ranging information on helminths of mustelids and serves equally well the parasitologists and those interested in mustelids. One should congratulate Indira Kohli for her remarkable translation and the general editor and publisher for the good get up.

Some terms seem awkward in the context they are

used. For instance the use of the word 'forms' for 'species' (page 499 and 500). In helminth descriptions the usual mistake committed is like that on page 47 line 12: genital pore situated . . . sometimes immediately behind it (acetabulum). The correct word should be posterior to it. There are many instances of the usage of such words like 'in front' (page 34 line 5) (meaning anterior) and so on. There are a very few typographical errors like Soganderes-Bernal for Sogandares-Bernal (page 48), Earthworks for Earthworms (page 488 line 21), Palaeogene for paleocene (page 405), 'key on' instead of 'key to', Marsupalia for Marsupialia (page 465).

K. HANUMANTHA RAO

Department of Zoology, Andhra University,
Visakhapatnam 530 003.

NEWS

INTERNATIONAL ADVISORY COUNCIL FOR BIOSYSTEMATIC SERVICES IN ENTOMOLOGY

The International Advisory Council for Biosystematic Services in Entomology (IACBSE) [initially called "Committee"] was formally established at the XVIIth International Congress of Entomology, held on 23 August 1984, in Hamburg, Federal Republic of Germany, by Resolution No. 1 upon the recommendation of the Permanent Council of the International Congress of Entomology. The Resolution emphasized that (a) the number of available insect taxonomists is not sufficient to meet the demands for their expertise, (b) the training and employment of biosystematists necessary for the supply of biosystematic services need to be promoted, (c) all potential users communicate in the planning stages of their projects with potential providers of biosystematic services, and (d) national and international organizations make specific budgetary allocations for the support of the biosystematic component in their projects.

The Organizing Committee [K. M. Harris, K. C. Kim (Chairman), L. Knutson, I. M. Smith] was formed by the final Discussion Session at the Congress

Symposium (SI.2) "Biosystematic Services in Entomology," to organize the first International Advisory Committee for Biosystematic Services in Entomology. The mandate of the Organizing Committee was to develop initial guidelines for the structure and operation of the committee, to establish a well balanced membership for the inaugural committee, and to propose a number of projects to be pursued by IACBSE during its initial term leading up to the XVIII International Congress of Entomology, to be held in Vancouver, British Columbia, Canada, in 1988. The Organizing Committee developed the guidelines and identified prospective members for IACBSE on 29 March 1985, at the National Museum of Natural History, Smithsonian Institution, Washington, DC, U.S.A. Hence, the Organizing Committee became the Executive Committee of the Inaugural Council and elected K. C. Kim as the first chair.

Goals: The goals of the International Advisory Council for Biosystematic Services in Entomology