

## BOOK REVIEW

QUICKE D.L.J.: PARASITIC WASPS. Chapman & Hall, London, Weinheim, New York, Tokyo, Melbourne, Madras, 1997, xviii + 470 pp. ISBN 0-412-58350-X.

Quite recently (1994), a comprehensive review of the evolutionary and behavioural ecology of parasitic insects was provided by H.C.J. Godfray in his *Parasitoids. Parasitic Wasps* by Donald L.J. Quicke is devoted to just one, but the most abundant in species, group of these insects. The intention of the author was to give us the information about parasitic wasps which would be somewhat complementary to that we can find in Godfray's book. Thus, he omitted discussing in detail many topics on the ecology of hymenopterous parasitoids, concentrating rather on developmental, physiological, anatomical and molecular aspects of their biology. All parasitic Hymenoptera, i.e. not only those traditionally placed within the "Parasitica", but also parasitic Symphyta (family Orussidae) and Aculeata (superfamily Chrysidoidea, some families of Vespoidea) have been taken into account.

The book is divided into eleven chapters. In the introductory Chapter 1, general information on the occurrence of parasitoidism among insects, as well as on its origin and evolution in Hymenoptera and on the various evolutionary transitions within parasitic wasps (phytophagy, cecidogenesis, predation, sociality, etc.), is outlined. Chapter 2 deals with what is known and what is supposed about genetics, especially about the molecular mechanisms of sex determination and the biological, ecological and evolutionary implications of haplodiploidy in parasitic Hymenoptera. Further (Chapter 3), idiobiont and koinobiont life history strategies are compared. Chapters 4 and 5 concern preimaginal development and the most voluminous Chapter 6 discusses the morphology and adaptations of adults. The next three chapters concern mainly the relations between parasitic wasps and host insects. Thus, Chapter 7 explores physiological interactions of parasitoids and their hosts, Chapter 8, various

wasps' behaviours, in particular those connected with host location, host acceptance and oviposition, and Chapter 9, physical, behavioural and chemical defensive responses of potential hosts to the foraging parasitoid females. Selected problems of the ecology of parasitic Hymenoptera are presented in Chapter 10. The last chapter is devoted to the phylogeny and taxonomy of these insects.

There are also two appendices and the glossary of terms. Appendix A enumerates and briefly characterizes about 50 species of parasitic wasps frequently studied in culture and Appendix B summarizes the utilization of host groups by individual families of hymenopterous parasites (in the latter, the abbreviations of host orders, although usually easy to decode, should be explained). Considering the huge amount of species of parasitic wasps, their enormous diversity and a wide range of topics covered in the book, both appendices and the glossary appear to be very useful. Alas, that is not the case of the enclosed index, which seems to be rather poor and slightly inconsistent as regards its taxonomic content; with a few inexplicable exceptions (e.g. *Drosophila*, Siricidae, Tachinidae), only the families of parasitic Hymenoptera are involved, but some of the extant and the majority of extinct families are omitted.

The lack of the complete index of taxa is, however, the only important objection I can raise to this volume. It proves an excellent compendium to both our knowledge and our ignorance of parasitic Hymenoptera. Throughout the book, Quicke clearly distinguishes what is really known, what is only a speculation and what remains obscure. Pointing out the numerous gaps, the author shows us how the information is incomplete and how many possibilities of exciting future research still exist. *Parasitic Wasps* may also serve as an invaluable source of information about the relevant literature; the bibliography comprises more than 1,600 references!

P. Ceryngier