EVOLUTIONARY STRATEGIES
OF PARASITIC INSECTS
AND MITES

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PREFACE

This volume contains the invited lectures presented in a symposium entitled "Evolutionary strategies of parasitic insects and mites" at the national meeting of the Entomological Society of America in Minneapolis, Minnesota, 2-5 December, 1974. The intent was to bring together biologists who have worked on arthropods that are either plant or animal parasites in order to foster consideration of general aspects of the parasitic way of life. There seems to be a deficiency of ecological and evolutionary concepts relating to parasitism, in contrast to the burgeoning literature on predation, and it appeared that an amalgamation of studies on plant and animal parasites might help development of some generalities. Since parasites are far more numerous than predators in the world fauna, or in any particular community, emphasis on their study is justified. I freely admit that parasitoids have been usefully regarded as predators by ecologists, and many concepts on predation have been derived from their study. Also, in whichever category one places the parasitoids, that is the one which contains the most species. However, from an evolutionary point of view they show many characteristics that must be regarded as those of a parasite. Notably, they are small, highly specific to their host, highly coevolved with it, as a result many species can coexist, and their adaptive radiation has produced the majority of the species diversity seen on Earth today.

For such rapidly evolving organisms as parasites which must certainly adapt to the changing nature and resistance of the host, an evolutionary approach to their study seems particularly relevant. Therefore this symposium has brought together evolutionary biologists that have in common an interest in parasitic arthropods. We try to observe the perpetual motion of the evolutionary process by studying a mere instant in evolutionary time. With this grave disadvantage we can gain only a crude picture of the molding influences on the evolution of parasites, but one that is nevertheless fascinating and, I hope, instructive.

This symposium would not have been organized without the publication of Dr. Askew's book entitled "Parasitic Insects" which

has provided tremendous impetus to the field by integrating for the first time information on parasites of interest to the large disciplines of medical entomology and biological control. While reviewing the book it struck me that further integration might be beneficial. For example only some of the superfamily Cynipoidea were considered in the parasitic Hymenoptera. These were the parasites on other insects whereas the remainder of the members are nonetheless parasitic, but on plants rather than animals. It was possible that some evolutionary insight might be gained by using a comparative approach to both types of parasitism. Then when Dr. Bush visited the University of Illinois it became clear to us that there was much to share between workers on plant and animal parasites. We decided that a symposium would be valuable, and I was most fortunate that the original plan for it came to fruition since all the invited speakers agreed to participate. I am very grateful to them all. I am also grateful to officers of the Entomological Society of America, Drs. W. P. Murdoch, H. C. Chiang, A. C. Hodson, and F. W. Stehr for support of many sorts in the organization of the symposium. I must also thank Judy Michael for the precision with which she typed the final draft of the symposium, and Mr. Roy Baker, Managing Editor of Plenum Publishing Company, for making publication possible.

Urbana, Illinois
January 1975

P.W.P.

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