pleted, Richard Fox died suddenly on 25 April 1968. The task of completing the monograph and preparing it for publication was left to his widow, Jean W. Fox, and Herman G. Real, a graduate student who had just arrived in Pittsburgh to study under Fox. Further complications resulted when Mrs. Fox died on 10 March 1970 with the final manuscript still being drafted. About this same time, Real returned to California and the task of final proof-reading fell largely upon George E. Wallace. In view of these circumstances, the overall quality of the treatment is remarkable. The problems presented by a combination of posthumous and joint authorship are fairly well overcome, by having those parts of the text that were not written by Fox clearly indicated as such. New taxa described are variously credited to Fox, to Real, or to Fox and Real.

The four parts in this series of monographs on the Ithomiidae have been published in four different publications. A very high level of excellence was obtained in part three (the Mechanitini) and by comparison this publication does not measure up too well. It is published by offset printing from typewritten plates and does not have the slick appearance of letter press printing. Range maps and other illustrative materials were eliminated by economic pressures and the annotation is less extensive. These shortcomings do not, however, detract from the scientific usefulness of the publication.

Under the circumstances, this is a remarkable book and it will be a valuable reference to those dealing with Ithomiidae for many years. With four more tribes of Ithomiidae remaining to be revised, it is hoped that Mr. Real will take up the challenge, add his life's work to Dr. Fox's and complete this series.

JOHN H. MASTERS, *Lemon Street North, North Hudson, Wisconsin.*

LEPIDOPTERA GENETICS, by Roy Robinson. 1971. Int. Ser. Monogr. in Pure and Appl. Biol., Zool. Div., Vol. 46: 687 p., 63 tables and 18 figs.; hardbound. Pergamon Press Ltd., Headington Hill Hall, Oxford, Eng. $26.50.

This work encompasses an exhaustive review of the literature dealing with the genetics of Lepidoptera published prior to 1966. The author admirably fulfills his purpose "to provide a systematic account on a worldwide basis of genetic and karyological studies with Lepidoptera species." The book is intended as a reference for "any person who is interested in the variation or breeding of butterflies and moths" (i.e.: the amateur, as well as the professional and the specialist).

The book includes a rather rambling, wide-ranging (but informative) Introduction, in which such diverse subjects as 1) color and pigmentation, 2) seasonal and environmental influences, 3) breeding techniques, 4) genetic and sexual abberations, 5) sex determination mechanisms, 6) hybridization, and 7) procedures of taxonomic nomenclature are briefly discussed. Then follow review chapters on the basics of Lepidoptera Genetics, Elementary Biometry, Population Genetics and Polymorphism, Industrial Melanism, and Mimicry. Each chapter is well-written and lucid, and is more or less self-contained. All are thoroughly referenced.

The next two lengthy chapters present an encyclopedic listing of all species of Rhopalocera and Heterocera about which any genetic information has been published. Many species are superficially treated, merely having been included in the book to indicate the completeness of the literature survey. So little is actually known about the genetics of some of them that they could have been omitted without detracting from the book at all. The arrangement of species is alphabetical, and the genetics of each developmental stage are discussed in turn, whenever information is available.

As the author points out, many of the postulated genetic mechanisms are speculative, because of the sparseness of data upon which they are based. The most thoroughly treated genera include *Colias*, *Erebia*, *Heliconius*, *Maniola*, *Papilio*, and *Pieris* among the butterflies, and *Abraxas*, *Anagasta*, *Arctia*, *Biston*, *Bombyx*, *Celerio*,

Choristoneura, Deilephila, Ectropsis, Galleria, Luffia, Lymantria, Panaxia, Philosamia, Solenobia, Sterrha, and *Zygaena* among the moths. (The above list is representative, and not all-inclusive.)

The final chapter on *Karyology of Lepidoptera* consists mainly of a 27-page table, listing alphabetically by genera, all species for which the haploid chromosome number has been determined. This table includes the references for each observation. The chapter concludes with a number of comments and observations dealing with meiotic theory under topics such as "polyploidy and the fusion/fragmentation concept, chiasmata frequency, supernumerary chromosomes, and sex chromatin."

One of the most important parts of the book is its comprehensive 60-page Bibliography. All references I examined are accurately cited. Author, subject, and species indexes also are included, and represent a most useful feature of the book. The tables and figures are presented clearly, and usually can be interpreted without reference to the text. Very often they summarize information published in greater detail elsewhere, in order to indicate the trends shown by the data. However, the book does lack a list of tables and figures.

The author's style, although somewhat verbose, provides interesting reading. The book is clearly worded and his statements are for the most part accurate. The author has gone to considerable length to point out to the reader both flaws in the existent data and important problems in need of further investigation. For a work of this size the book contains remarkably few typographical errors.

The organization of the book is perhaps its greatest drawback. In his discussions of topics such as Polymorphism, Industrial Melanism, and Mimicry, the author has tended to follow an historical approach in reviewing the literature. The result of this is a somewhat lengthy "hodge-podge" presentation. I should think that the author's rather dreary alphabetical listings of genetic information on the Rhopalocera and Heterocera could have been better supplanted by family groupings or some other more scientific format.

Unfortunately, certain portions of the text already seem to have been somewhat outdated by research done since 1966. Nevertheless, there are several references cited bearing 1967 and 1968 dates.

Concerning the author's purpose, as stated in the Preface to the book, I believe this work will provide a very handy reference for the specialist and the professional, but I think that the biometric, statistical, and genetic theories and methods contained in the book are so complex that they will be difficult for one not previously trained in these areas to master. Nevertheless, the book does "fill an important gap in the entomological literature," by bringing together and summarizing in readily comprehensible form a considerable amount of information on the genetics of Lepidoptera.

AUSTIN P. PLATT, *Department of Biological Sciences, University of Maryland Baltimore County, 5401 Wilkens Avenue, Catonsville, Maryland 21228.*

THE BUTTERFLIES OF WISCONSIN, by James A. Ebner. Milwaukee Public Museum Popular Science Handbook No. 12. 205 p. Available from the Milwaukee Public Museum for $5.00.

This book has an impressive appearance, is well printed and has an excellent format, reminiscent of F. M. Brown's *Butterflies of Colorado.* A total of 139 species is treated, including ten hesperids considered questionable for Wisconsin, and *Limenitis arthemis* being regarded as a distinct species from *Limenitis astyanax.* Each of these is illustrated with black and white photographs and discussed in about a page of text. The book is well indexed and includes the usual introductory chapters on butterfly morphology, taxonomy and collecting techniques.

On reading the book, it becomes apparent that the author has not collected extensively statewide in Wisconsin and as a result information regarding the northern and