Biographical sketches of more than 100 entomologists, including leaders from many countries, also are recorded. These are some of the examples of the various facets of history covered by this valuable publication.

Dr. Essig's book concludes with an excellent index, which makes the enormous amount of data covered readily available to the reader. Entomologists are greatly indebted to the author for this volume, which includes hundreds of items likely to escape notice unless assembled and published. It is highly recommended for students in entomology and related fields and for the use of teachers of entomology in the preparation of lectures.

The publisher deserves commendation for reprinting this comprehensive history. The book is printed on an excellent grade of paper, the printing is clear, and the binding attractive. This volume is a valuable addition to all libraries containing publications relating to the biological sciences.

W. D. Reed
Washington, D. C.


The author is Assistant Chief of the Illinois Natural History Survey and Professor of Entomology at the University of Illinois. His considerable knowledge based on field and classroom experience enabled him to achieve his objective: a well-written introductory-entomology textbook.

The third edition, like the second, is organized into 10 chapters: (1) Growth of North American Entomology; (2) Arthropoda: Insects and Their Allies; (3) External Anatomy; (4) Internal Anatomy; (5) Physiology; (6) The Life Cycle; (7) The Orders of Insects; (8) Geological History of Insects; (9) Ecological Considerations; (10) Control Considerations.

In chapters three, four, and five, the author uses the comparative technique and cites examples from different orders of insects. Chapter seven (p. 203-417) contains a description and discussion of each of the major orders, some families, and even genera and species. Keys to families for many of the orders are accompanied by clear, labeled line-drawings which will help the student to understand and more fully utilize the keys.

References at the end of each order as well as at the end of each chapter provide the interested reader with sources of additional information.

The chapter titles adequately describe the contents of the last three chapters.

Many of the excellent line-drawings, charts, tables, graphs, and photographs which appeared in the second edition have been included in the third, and some new ones have been added. The references have been updated and the contents expanded, particularly in the chapter on Control.

Despite a few errors such as the wrong picture for Oconeopsis fasciatus (p. 289) and the generic name Bacillus rather than Pasturella for the bubonic plague bacillus, this book can be heartily recommended to those charged with the responsibility of selecting an entomology textbook for an introductory course, or those who want to learn more about insects.

Walter Lener
Professor of Biology
Nassau Community College
Garden City, New York


This imposing array of insects found in Ghana between 1909 and 1959 has been compiled from numerous sources—records of the Ghana Ministry of Agriculture, the Coca Research Institute, many persons who have collected and reared insects, and the Review of Applied Entomology, Series A, to 1959. Insofar as possible, the names have been checked by specialists in the Common-wealth Institute of Entomology, London.

The records comprising the volume were entered on punch cards as a basis for preparation of the manuscript. These cards were coded for host plant, insect name and category, and for the type of injury caused. This method allowed the compilers to present the data easily in several different ways.

Part 1 lists the insects alphabetically by order, genus, and species, with an indication of the sources of the record. The same information in the same order is given in succeeding sections for stored products, parasites and predators of plant-feeding insects, and insects associated with or attacked by fungi. A bibliography presents references by groups of plants and by insect orders, and the volume is concluded with separate indexes of insect genera, insect species, and common names of plants.

It is encouraging to find this comprehensive list now available for general use. All too often one discovers that reviews of insects in areas obviously possessing rich floras and faunas simply do not exist, very often because facilities for compiling them are not available in those areas commonly classified as "underdeveloped." Content and future expansion of interest in these areas puts a very high premium on information about the insects occurring and doing economic damage there.

The author, who formerly occupied the position of Agricultural Entomologist, Ministry of Agriculture, and Lecturer in Agricultural Entomology, University of Ghana, is to be congratulated for his determination to produce the book. It is obviously the work of a craftsman and will fill a very large gap in our knowledge of entomology.

Richard H. Foote
U.S. Department of Agriculture
Washington, D. C.


Yearly the Acari (mites and ticks) are found to be more and more important in human affairs. This importance is not limited to economic and health-related problems, but it also involves understanding of general biological principles. This second volume of Advances in Acarology, while not so extensive as the first, is every bit as significant as the first volume.

The first paper by Bregetova on acarology in the U.S.S.R. provides an excellent overview of the significant acarological research that has been conducted in that country during the past quarter of a century. Some 376 significant papers are listed in the bibliography. While the majority of the work has been systematic in nature, studies on all phases of acarology are included.

Economically, phytophagous mites are causing increasing problems to agricultural advances in most countries that are supported by modern agriculture. The ravages of these pests have been intensified by the use of insecticides. The pesticide industry has developed many products for the control of mites. Despite the availability of these materials, chemical control of phytophagous mites remains a difficult problem. Jeppson's discussion of these problems should be read by all students of chemical control because the principles that apply to mites are of general interest.
C. F. W. MUESEBECK  
U. S. National Museums  
stitutes an immediate reference aid to the recently pub-
lished ... that this little book presents,  
it seems that the modest investment should be worth-
while for most entomologists.

G. W. WHARTON  
Ohio State University  
Columbus, Ohio

RADIOISOTOPES AND IONIZING RADIATIONS IN ENTOMOL-
International Atomic Energy Agency, Kaerntnerring 11, Vienna I, Austria. $11.00.

This little paper-covered book is of a great deal more 
utility than most bibliographies. To begin with, it covers 
publications in a variety of languages, and provides very 
substantial summaries in English for each. Secondly, its 
coverage is virtually total, as far as spot checking by this 
reviewer revealed. Thirdly, it has an extraordinarily ef-
ective and compact index of 26 pages. In addition, it in-
cludes an author index listing the mailing addresses of all authors 
mentioned in the bibliography. There is a series of 
valuable tables, which enable one to see at a glance (for instance) all the studies on the dispersal of tagged in-
sects, all the studies on sterilization of insects, and finally 
a splendid 20-page table listing all metabolic studies on 
secticides on a compound-by-compound basis. This last 
table should not only be of interest to those working 
with radioisotopes, but to those preparing reviews on 
particular insecticides. It provides a valuable checklist 
of references in the field which supplements the reviewer's 
own index system.

The coverage of the book is remarkably wide. There 
are sections dealing with ecology, with insect physiology 
and biochemistry, with chemical control, disease 
ecology, chemical control measures, basic research cover-
ing everything from genetics to longevity, applications 
covering both sterilization techniques, biological control, 
and other topics), techniques (including autoradiography 
as well as the better-known techniques), a section on 
nematodes, and finally a bibliography of bibliographies.

From the wide coverage that this little book presents, 
seems that the most useful investment be worthwhile for most entomologists.

R. D. O'BRIEN  
Cornell University

Ray F. Smith, University of California, Editor. Pub-
lished by Annual Reviews, Inc., Palo Alto, California, 
in cooperation with the Entomological Society of 
America. 596 p. Cloth, $8.50 in U. S. A., $9.00 else-
where, postpaid.

The Annual Review of Entomology has become an 
institution in this field. Its appearance is awaited and 
welcomed by an increasing number of entomologists 
worldwide throughout the world, for each volume contains some-
thing for all students of entomology whatever the geo-
graphic situation or the particular area of specialization. 
Volume 11 comprises 21 competent reviews of recent 
important work in various aspects of insect behavior, 
genetics, embryology, morphology, disease transmis-

tion, physiology, insect pest control (both chemical and 
biological), and systematics. The thoroughness of the 
coverage and the reviews is suggested by the long lists of 
titles given under "Literature Cited." The number of these titles ranges from 28 to 355 for the individual re-
views, the total for the volume being 3052. Each list con-
stitutes an immediate reference aid to the recently pub-
lished significant contributions on the topic of the review. 

The members of the Editorial Committee of 1963, who 
were responsible for organizing the work, are to be com-
mented for producing an exceptionally interesting and 
useful volume, and, incidentally, the largest in the series. 

The titles and authors of the twenty chapters are: "Regu-
lation of Gene Action in Insect Development," Charles H. 
Kroeger and M. Lezzi, Swiss Federal Institute of Technology, 
Zurich, Switzerland, 22 p.; "The Comparative Embryology 
of the Diptera," D. T. Anderson, University of Sydney, 
Sydney, Australia, 24 p.; "Polychaeta," D. Hille Ris Lambers, Bladsluinoorsonderzoek T. N. O., Bennekom, Netherlands, 32 p.; "Physiology of Caste De-
termination," Nevin Weaver, Texas A. & M. University, 
College Station, Texas, 30 p.; "Insect Walking" Donald M. Wilson, University of California, 20 p.; "The Behavior Patterns of Solitary 
Wasps," Howard E. Evans, Museum of Comparative Zoology, Harvard University, 21 p.; "The Utilization 
and Management of Bumble Bees for Red Clover and 
Alfalfa Seed Production," S. Nature in the Home, The 
Veterinary and Agricultural College, Copenhagen, Den-
mark, 28 p.; "The Competitive Displacement and Co-
existence Principles," Paul DeBach, University of Cali-
ifornia, Riverside, 30 p.; "Insects in the Epidemiology of 
Plant Viruses," Frej Ossiannilsson, Agricultural College 
of Sweden, Uppsala, Sweden, 20 p.; "A Functional Sys-
tem of Adaptive Dispersal by Flight," C. G. Johnson, 
Statistical Station, England, England, 28 p.; "Ticks in Relation to Human Diseases 
Caused by Viruses," Harry Hoogstraal, U. S. Naval 
Medical Research Unit Three, Cairo, Egypt, 48 p.; "The 
Bioecosystems of "Triatoma," Robert L. Usinger, Uni-
versity of California, Pedro Wygodzinsky, American Mus-
um of Natural History, New York, and Raymond E. 
Ryckman, Loma Linda University, Loma Linda, Cali-
ifornia, 22 p.; "The Use and Action of Ovicides," J. H. 
Smith, North Carolina State University, and E. H. Sal-
keld, Canada Department of Agriculture, Ottawa, 38 p.; 
"Mode of Action of Insecticides," R. D. O'Brien, Cornell 
University, 34 p.; "Chemical Insect Attractants and Rep-
cellents," M. Jacobson, U. S. Department of Agriculture, 
Beltsville, Maryland, 20 p.; "Fungal Parasites of Insects," 
M. F. Madelin, The University, Bristol, England, 25 p.; 
"The Role of Vertebrate Predators in the Biological Con-
trol of Forest Insects," Charles H. Decker, Canada De-
partment of Forestry, Winnipeg, Manitoba, 22 p.; "Man-
agement of Insect Pests," P. W. Geier, Commonwealth 
Scientific and Industrial Research Organization, Can-
berra, Australia, 20 p.; "Crop Insects and their Contr- 
terent," J. E. Cranham, Tea Research Institute of Ceylon, Tal- 
awa-kelle, Ceylon, 24 p.; "Pest Control," John V. Oxman 
and William L. Butts, Purdue University, 34 p. Following 
the text are the usual author and subject indexes to this 
volume, and cumulative indexes of contributing authors 
and of chapter titles for volumes 2-11.

The Editorial Committee has decided, after thorough 
consideration, and after consultation with numerous 
entomologists, that in future volumes authors of scienti-

cal names mentioned in the reviews will, in general, be 
omitted. It is felt that for most of the reviews, the author 

names are quite unessential and that expenditure of the 
time demanded by checking these for accuracy, for spell-
ing, and for possible requirement of parentheses (where 
the trivial names are no longer in the original genera) 

is not warranted. In the majority of the reviews, further-

more, the text will be smoother and less cluttered if the 
authors of the scientific names are omitted. It is recog-
nized, however, that in certain reviews it may be neces-
sary to cite author names and also to provide a publication 
to identify clearly the organisms concerned. This may be 
particularly so for reviews dealing with taxonomic studies. 

Accordingly omission of authors of scientific names will 
not be rigid policy; but its general application will save 

much time, and undoubtedly it will be applauded by the 
majority of Review readers.