

classification of hosts and parasites. As was to have been expected, special emphasis was given to taxonomic groups of hosts whose classification is unclear, in an attempt to determine to what extent information regarding their parasites clarified the classification.

Mammalian phylogeny presents an area in which there is comparatively good agreement. Major problems still exist in the isolated groups such as whales and in the groups now placed in the Edentata. The known data on ectoparasites of these groups are disappointing in their contributions to the solutions of these problems. The more unsatisfactory conditions relative to avian phylogeny offer a more promising opportunity for use of data on parasites (see *Mallophaga of Birds*, by Theresa Clay). Such suggested relationships as that of the Musophagidae to gallinaceous birds and of flamingos to the Anatidae give the students of phylogeny some much needed clues. In the phylogeny of fishes the cestodes are the most reliable indicators of host affinities, but some digenetic trematodes also appear to point the way toward clarification of host phylogeny.

Further generalizations on the subjects treated are difficult. There is much grist here for the phylogenist's mills of the future. It would appear that this first symposium held to seek the degree to which the taxonomists of parasites may lend assistance to the taxonomists of vertebrates and vice versa was successful in pointing the way to future collaboration of the two groups.

C. G. HUFF

Naval Medical Research Institute

Advances in Pest Control Research. vol. I. R. L. Metcalf, Ed. Interscience, New York, 1957. vii + 514 pp. Illus. \$11.

For the purpose of this book the term *pest* is defined in the preface by the editor as including all organisms that compete with man for his food supply, damage his possessions, and attack his person. This is, no doubt, an intentionally wide definition given with an eye to the future, but the ten articles in this volume are concerned primarily with various aspects of control, by means of chemicals, of arthropods (chiefly insects), fungi, and weeds. Methods of control other than chemical control have not been considered.

The proposed aim of the series is to provide a number of articles by specialists in the various fields of pest control, where the author will not only give a comprehensive review of the particular field but will, in addition, make a criti-

cal evaluation of new concepts and developments.

The contribution by J. M. Barnes on the control of health hazards associated with the use of pesticides fulfills this aim admirably. This is also true of the article by A. S. Crafts on the chemistry and mode of action of herbicides, and of the contribution, written in his own inimitable style, by J. G. Horsfall on the mechanisms of fungitoxicity. T. R. Fukuto, in his article on the chemistry and mode of action of organic phosphorus insecticides, has not attempted to give a detailed account of the literature on the chemistry and biological action of this group of chemicals, but is concerned with the more fundamental aspects of the subject. He first describes the enzymes which have been shown to be inhibited by the organophosphorus insecticides and possibly concerned with their toxic action. Then, following an evaluation of the present knowledge of the mechanism of inhibition of esterases by these poisons, the relation between their structure and biological activity and their metabolism by the organism, he derives the molecular characteristics necessary for toxicity, which may also serve as guides in the search for new compounds.

Three contributions deal with the more practical applications of chemicals for pest control. D. B. Kendrick, Jr., and G. A. Zentmyer give an account of the recent advances in the control of soil fungi; G. F. Shambaugh, R. F. Brown, and D. J. Pratt, Jr., give a review of work on repellents for biting arthropods; and W. E. Ripper discusses the status of systemic insecticides in pest control practice. In addition to giving a practical account of the methods of use and the possible uses of systemic insecticides, Ripper considers the theoretical implications of the type of selectivity shown by systemic insecticides and considers its application in the integration of biological and chemical control.

The contribution on the uses of radioisotopes in pesticide research, by P. A. Dahm, summarizes the use of radioactive atoms in insecticides, fungicides, and herbicides. Their use for tagging insects, mites and ticks is also dealt with. The use of radioisotopes in epidemiology and public health and the use of radiation in food preservation and pest control is touched on. Perhaps because the subject is not suitable for theorizing, this article tends to be a catalog of facts. The same comment might be made of the comprehensive review on the chemical analysis of pesticide residues, by M. S. Schechter and I. Hornstein, but here such treatment is necessary if the subject is to be dealt with adequately. These authors have confined their remarks to chemicals used for the control

of arthropods, weeds, and fungi but have taken a commendably broad view of techniques, including, for instance, a valuable section on enzymatic methods of analysis.

The other article concerned with the assessment of pesticides, that by Yun Pei Sun on the bioassay of pesticide residues, deals entirely with insecticides. The author deals with the subject as a whole and not particularly with any one aspect of it. A section on the factors influencing results is included. In this section there seems to be the tacit assumption that all the factors influencing the results have been recognized; this would seem to be a rather optimistic view.

The volume of work currently in progress on chemicals for pest control is so great that it is difficult, if not impossible, for any one individual to keep up with progress in all areas of the field by reading original papers. For this reason these authoritative and critical summaries are of the greatest value, and it is to be hoped they will be followed by others equally good.

C. POTTER

*Rothamsted Experimental Station,
Harpenden, Herts, England*

The Chemistry of Organic Medicinal Products. G. L. Jenkins, W. H. Hartung, K. E. Hamlin, and J. B. Data. Wiley, New York; Chapman & Hall, London, ed. 4, 1957. x + 569 pp. \$10.75.

This new edition of a familiar textbook of organic medicinal chemistry should evoke great interest and enthusiasm among students and teachers alike. While the desirable features of the previous editions have been retained, the reader is impressed by the meticulous care and effort with which each chapter has been revised. It takes cognizance of the newer developments in the ever-changing field of pharmaceuticals by replacing discussion of many obsolete drugs with items of current interest. The text has been rearranged to achieve conciseness by the omission of material which is readily available in other books on general organic chemistry. A new chapter on antibiotics and several flow diagrams showing step-by-step syntheses of many important drugs have been added. Journal references, brought up to date, are quite adequate to arouse interest in readers who would like to pursue the subject matter more deeply. I feel that the chapter on stereoisomerism could be abridged substantially. Inclusion of a general chapter on the chemical changes which drugs undergo during their metabolism and detoxication in the body might not be out of place.

The new format and the change in type have helped to keep the book to a reasonable and handy size. With the added improvements and desirable features, this book should meet more adequately the needs of the student and the instructor.

M. V. NADKARNI

Department of Pharmacology,
George Washington University
School of Medicine

New Books

Vitamins and Hormones. vol. XV, *Advances in Research and Applications*. Robert S. Harris, G. F. Marrian, Kenneth V. Thimann, Eds. Academic Press, New York, 1957. 366 pp. \$9.50.

Naturally Occurring Quinones. R. H. Thomson. Academic Press, New York; Butterworths, London, 1957. 309 pp. \$9.

The Naval Architecture of Small Craft. D. Phillips-Birt. Philosophical Library, New York, 1958. 358 pp. \$15.

Chemistry of the Steroids. Charles W. Shoppee. Academic Press, New York; Butterworths, London, 1958. 321 pp. \$9.

Chronic Radiation Hazards. An experimental study with fast neutrons. G. J. Neary, R. J. Munson, R. H. Mole. Pergamon Press, New York and London, 1957. 201 pp. \$7.50.

Advances in Protein Chemistry. vol. XII. C. B. Anfinsen, Jr., Kenneth Bailey, M. L. Anson, John T. Edsall, Eds. Academic Press, New York, 1957. 697 pp. \$14.

Process Engineering in the Food Industries. R. J. Clarke. Philosophical Library, New York, 1957. 362 pp. \$10.

Symposium on Antibodies: Their Production and Mechanism of Action. Given at Research Conference for Biology and Medicine of the Atomic Energy Commission. Sponsored by the Biology Division, Oak Ridge National Laboratory, Oak Ridge, Tenn., held at Gatlinburg, Tenn., 8-10 Apr. 1957. Oak Ridge National Laboratory, Oak Ridge, Tenn., 1957. 361 pp.

Polyamide Resins. Don E. Floyd. 239 pp. \$4.50. *Polyurethanes*. Bernard A. Dombrow. 185 pp. \$4.50. *Plastic Sheet Forming*. Robert L. Butzko. 190 pp. \$4.50. Reinhold, New York; Chapman & Hall, London, 1958.

Advances in Biological and Medical Physics. vol. V. John H. Lawrence and Cornelius A. Tobias, Eds. Academic Press, New York, 1957. 498 pp. \$12.

Transistor Physics and Circuits. Robert L. Riddle and Marlin P. Ristenbatt. Prentice-Hall, Englewood Cliffs, N.J., 1958. 435 pp. \$10.

The Harvey Lectures. Delivered under the auspices of the Harvey Society of New York 1956-1957. Under the patronage of the New York Academy of Medicine. Series LII. Academic Press, New York, 1958. 326 pp. \$7.50.

The Anatomy of the World. Relations between natural and moral law from Donne to Pope. Michael Macklem. University of Minnesota Press, Minneapolis, 1958. 147 pp. \$3.50.

Crystal Structures. Supplement III, Chapters I-VIII. Ralph W. G. Wyckoff. Interscience, New York, 1958. Loose leaf for binder. \$20.

Rye-Climate Relationships and the Use of Phenology in Ascertaining the Thermal and Photo-Thermal Requirements of Rye. Based on data of North America and of some thermally analogous areas of North America in the Soviet Union, Finland, Poland, and Czechoslovakia. M. Y. Nuttenson. American Institute of Crop Ecology, Washington, 1958. 224 pp.

The Chemistry of Blood Coagulation. Paul Morawitz. Translated by Robert C. Hartmann and Paul F. Guenther. Thomas, Springfield, Ill., 1958. (originally published as *Die Chemie der Blutgerinnung* by Bergmann, Wiesbaden, Germany, 1905). 194 pp. \$4.50.

Advances in Agronomy. vol. IX. A. G. Norman, Ed. Academic Press, New York, 1957. 319 pp. \$8.

The Principles of Quantum Mechanics. P. A. M. Dirac. Clarendon Press, Oxford, England, ed. 4, 1958. 324 pp. \$5.60.

New Sources of Energy and Economic Development. Solar energy, wind energy, tidal energy, geothermic energy and thermal energy of the seas. Department of Economic and Social Affairs, United Nations, New York, 1957 (order from Columbia University Press, New York 27). 157 pp. Paper, \$1.25.

Qualitative Testing and Inorganic Chemistry. Joseph Nordmann. Wiley, New York; Chapman & Hall, London, 1957. 500 pp. \$6.25.

The Theory of Groups. Hans J. Zassenhaus. Chelsea, New York, ed. 2, 1958. 275 pp. \$6.

Advanced Dynamics. John E. Younger. Ronald Press, New York, 1958. 290 pp. \$8.50.

The Changing Population of the United States. Conrad Taeuber and Irene B. Taeuber. Wiley, New York; Chapman & Hall, London, 1958. 368 pp. \$7.75.

Economic Applications of Atomic Energy. Power generation and industrial and agricultural uses. Report of the Secretary-General. United Nations, New York, 1957 (order from Columbia University Press, New York 27). 118 pp. \$0.50.

Soil Chemical Analysis. M. L. Jackson. Prentice-Hall, Englewood Cliffs, N.J., 1958. 512 pp. \$9.

Applied Differential Equations. Murray R. Spiegel. Prentice-Hall, Englewood Cliffs, N.J., 1958. 396 pp. \$6.75.

Combination of Observations. W. M. Smart. Cambridge University Press, London, 1958. 267 pp. \$6.50.

Therapeutic Heat. Sidney Licht, Ed. Elizabeth Licht, New Haven, 1958. 479 pp. \$12.

The Chemistry of the Actinide Elements. Joseph J. Katz and Glenn T. Seaborg. Methuen, London; Wiley, New York, 1957. 523 pp. \$14.

Elementary Quantitative Analysis. Harold F. Walton. Prentice-Hall, Englewood Cliffs, N.J., 1958. 351 pp. \$5.75.

Laboratory Directions in General Zoology. Mary J. Guthrie and John M. Anderson. Wiley, New York; Chapman & Hall, London, 1958. 241 pp. \$3.50.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, but to the publisher or agency sponsoring the publication.)

Science News. No. 45. Archie and Nan Clow, Eds. Penguin Books, Baltimore 11, 1957. 125 pp. \$0.65.

Noise from Missile Static Firing and Launch Sites and the Resultant Community Response. WADC Tech. Rept. 57-547. ASTIA Document No. AD 131025. J. N. Cole and H. E. Von Gierke. Wright Air Development Center, Wright-Patterson Air Force Base, Ohio (order from ASTIA Document Service Center, Knott Building, Dayton 2). 45 pp.

Lizard Hunts on the North Coast of Peru. Fieldiana: Anthropology, vol. 36, No. 9. Allan R. Holmberg. 18 pp. \$0.75. *The Venomous Coral Snakes of Trinidad*. Fieldiana: Zoology, vol. 39, No. 8. Karl P. Schmidt. 9 pp. \$0.25. *Notes on Lizards of the Genus Dicrodon*. Fieldiana: Zoology, vol. 39, No. 9. 8 pp. \$0.20. *Geographic Variation in the Central American Colubrine Snake, Ninia Sebae*. Fieldiana: Zoology, vol. 39, No. 10. Karl P. Schmidt and A. Stanley Rand. 12 pp. \$0.25. *Birds from Nepal*. Fieldiana: Zoology, vol. 41, No. 1. Austin L. Rand and Robert L. Fleming. 218 pp. \$3.50. Chicago Natural History Museum, Chicago, 1957.

The Role of Agriculture in Future Society. Symposium papers, Cornell University, 1957. New York State Agricultural Experiment Station, Geneva, 1957. 69 pp.

The Bromeliaceae of Colombia. Contributions from the U.S. National Herbarium, vol. 33. Lyman B. Smith. Smithsonian Institution, Washington 25, 1957. 311 pp.

Geology of Barro Colorado Island, Canal Zone. Misc. Collections, vol. 135, No. 3. W. P. Woodring. 39 pp. *A New Theory on Columbus's Voyage Through the Bahamas*. Misc. Collection, vol. 135, No. 4. Edwin A. Link and Marion C. Link. 45 pp. Smithsonian Institution, Washington, 1958.

Medical Specialization. A survey of existing legislation. World Health Organization, Geneva, Switzerland, 1958. 39 pp. \$0.30.

Malaria Conference for the Eastern Mediterranean and European Regions. Athens, Greece, 11-19 June 1956. WHO Tech. Rept. Ser. No. 132. 47 pp. \$0.60. *Expert Committee on Health Statistics, Fifth Report*. WHO Tech. Rept. Ser. No. 133. 22 pp. \$0.30. *Joint ILO/WHO Committee on Occupational Health, Third Report*. WHO Tech. Rept. Ser. No. 135. 22 pp. \$0.30. *Expert Committee on Yellow Fever Vaccine, First Report*. WHO Tech. Rept. Ser. No. 136. 21 pp. \$0.30. World Health Organization, Geneva, Switzerland, 1957. \$0.30.

Social Science Research Council, Annual Report. The Council, New York 17, 1958. 90 pp.

Ten Years of Building Research. 120 pp. \$1. *National Research Council [Canada], Review, 1957*. National Research Council, Ottawa, Canada, 1957. 289 pp. \$0.75.