Book Reviews

Fungicides and their action. James G. Horsfall. Waltham, Mass.: Chronica Botanica, 1945. Pp. 239. Illustrated. $5.00.

This book, by a leading authority on fungicides, is the first in English exclusively on this important subject. It is especially welcome to plant pathologists for whom the principal treatises on fungicides have been in books devoted mainly to insecticides, with fungicides treated as a secondary, but related, subject. Horsfall has devoted most of the past fifteen years to intensive research on fungicides, and he and his associates at Geneva, New York, and at New Haven, Connecticut, have contributed many of the noteworthy advances in the knowledge of fungicides during that period. The present volume, as the writes states, "... is no cook book. It provides no recipe for cooking railroad ties in creosote, no spray schedule for combating apple scab or potato blight. It attempts to develop the underlying theory on which the practice is based, and by which the practice may be improved." In this he has signally succeeded. This book would constitute a fine textbook on the subject and an excellent handbook for professional plant pathologists, but would be of less value to extension men or growers.

Some of the important subdivisions of the subject matter are: history, general concepts (including definitions), laboratory assay, data assessment, principles of chemical protection, deposition, coverage, tenacity, artificial immunization and chemotherapy, action of specific fungicidal chemicals, antagonism and synergism, and phytotoxicity. There is a bibliography of 502 titles, a subject index, and an author index. The treatment is up to date. Some topics, such as chemotherapy and organic nitrogen fungicides, refer mostly to work in the past ten years, and much of the information on toxicity of organic compounds consists of previously unpublished data of the writer and associates. The various basic methods by which a parasitic organism may be rendered innocuous by chemicals are described and classified with examples. The treatment of bio-assay by means of straight-line dosage response curves is one of several unique features of the book. In addition to reviewing data previously presented in this way the writer has recalculated data in the literature in order to present it in this illuminating manner. There is an excellent treatment of toxicity and its relation to the molecular structure of organic compounds. The structural formulae of the more important members of several groups of fungicidally interesting compounds is given. Statistical methods and chemical analytical methods are largely omitted.

The documentation is quite thorough, but errors and omissions have crept in. On page 16 Horsfall refers to Neuberg's bio-assay of soil fertility, when he likely meant Newbauer, and no reference is given. On page 91 he refers to Wilson's data on coarse Bordeaux deposits, but the reference is to a paper which does not contain this information, and the correct reference is not included in the bibliography.

The manner of writing is more successfully designed for reader interest than is most scientific writing. Some will wonder, however, if "dunking" of spores is superior to dipping, and what the writer means by "smoked out the dithiocarbamates."

To treat the subject of fungicides in 188 pages of text necessitates the omission of much pertinent material, and it is to be expected that the balance chosen would be subject to criticism. Some of the more vulnerable aspects may be pointed out. Most of the specific data on foliage fungicides refers to tests on glass slides, and this is the only technique given in detail. The matter of tests on leaves is treated in fourteen lines and dismissed with the remark: "No evidence has been adduced yet that this procedure is more precise or reproducible or indicative than modern methods using the much simpler equipment for spore germination." Data in some of the papers listed in the bibliography as well as in others not listed indicate that this is not the case. And how do tests on slides require simpler equipment than tests on leaves? Not all will agree with the author's apparent attitude (previously published) that organic fungicides will soon replace the inorganics, and that "... . Bordeaux mixture and elemental sulfurs will be turned out on pasture to spend their last years in leisure as a reward for a good job well done." In the history of fungicides, credit for introducing copper carbonate for wheat bunt is given to Darnell-Smith (1917), and Von Tubeuf's recorded success with this remedy in 1902 is not mentioned. Nevertheless, this book may itself be a landmark in the history of fungicides.

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L'hérédité et l'homme. Jacques Rousseau. Montreal: Les Editions de L'Arbre, 1945. Pp. 250.

The author has prepared a brief résumé of the physical basis and methods of inheritance and catalogued into appropriate divisions many human hereditary characteristics. The genetic bases of most of these traits are discussed only briefly, and some of them are reported to have a simpler type of inheritance than facts justify. The author has a manner of expression which engages the reader's attention. Original sources of data are not usually given.

Except for an occasional gem of humor, nothing unusual is found in the chapters dealing with the elements of heredity. Diagrammatic figures used to explain genetic crosses are well done and helpful to a reader. A chapter on sex determination includes folk tales about sex control. It is unfortunate, however, that with his references to the use of a douche by Unterberger, by investigators using experimental animals to get a preponder-

ance of one sex, and in the ultimate production by that means of a male heir to Hirohito, the author did not refer to the less favorable results obtained by other workers.

In several chapters, the author names and briefly discusses many human hereditary anomalies and nonabnormal traits. These include body-build and anatomical characteristics and defects, blood diseases, metabolic defects, nervous and mental disorders, diatheses, and talent and character. Baldness is explained as a sex-influenced trait due to a one-gene difference, but the author's use of different symbols for males and females may be disturbing to the general reader. The inheritance of the blood groups and types and their use in determining parentage are explained rather completely. The author refers to and explains the three theories of inheritance of the AB groups—that is, as multiple alleles, two pairs of genes with independent assortment, and two pairs of linked genes.

In a concluding chapter on eugenics the author discusses the erroneous belief that eugenics and sterilization are synonymous, the blame being placed upon the mock modesty of the Anglo-Saxons. He cites the many methods which have been followed or suggested in the practice of negative and positive eugenics. The author specifies those methods which some persons cannot accept because of religious or other beliefs and mentions others, such as premarital examinations and studies of family histories with suggested celibacy or continence, which might be followed. The use of genetic analysis to help guide a person into proper marriage is a method of eugenics which should be emphasized more.

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Vertebrate paleontology. (2nd Ed.) Alfred Sherwood Romer. Chicago: Univ. Chicago Press, 1945. Pp. ix + 687. (Illustrated.) $7.50.

The publication of the second edition of *Vertebrate paleontology* will be universally welcomed by students of vertebrate evolution and especially by those of the English-speaking countries. The first edition of this excellent textbook filled a long-felt need and established for itself a solid reputation during the twelve years that have elapsed since its first appearance. It can be confidently expected that the new edition will continue the good record of this book.

The new edition is larger than the first edition, there being 687 pages in this book as compared with 491 pages in the earlier one. This increase is the result, in part, of new discoveries and new research in paleontology and, in part, of the inclusion of three new chapters on the history of the vertebrates—an innovation that will add appreciably to the value of the volume. These additions of subject matter naturally have resulted in a considerable amount of rearrangement in the text, so that in numerous places the new edition is quite different from the earlier book. Moreover, those portions of the earlier text that have been affected by new discoveries and new research have been accordingly rewritten and modified.

Needless to say, changes in details are numerous and only a few of the most outstanding points can be mentioned here. For instance, there is a new chapter on the placoderm fishes, and one each on the synaptosaurian and lepidosaurian reptiles. The Placodermi are made an inclusive group, containing the acanthodian fishes. The presentation of the teleosts has been expanded to emphasize their position as the dominant fishes of post-Cretaceous times. The Seymouriamorpha are considered as amphibians rather than as stem reptiles, following evidence brought forward in recent years by Russian authorities, while the mesosaurs are discussed along with the synapsid reptiles. Finally, the most mammal-like of the reptiles are treated as a separate order, the Ictidosauria.

Among the mammals, the Dermoptera are reduced to a suborder of the insectivores, while the miacids are placed in the fissipede carnivores, rather than in the creodonts as formerly. An interesting difference between the new edition and the old one is the placing of the primates immediately following the insectivores, the position of their natural relationships, rather than at the end of the book as the "culmination" of vertebrate evolution. In this regard it might be remarked that the tree shrews are considered as primitive primates rather than as insectivores—a reflection of the trend of opinion among modern mammalogists. The discussions of the Cenozoic mammals of South America have been amplified and revised in accord with the work done in recent years by certain North American students of these animals. Studies on the ungulates by various authorities in recent years have resulted in a revision of the treatment of these mammals in the text, while the lagomorphs are now made a separate order of mammals, as is generally recognized by modern mammalogists.

These changes and many more have been made with a thoroughness and a balance of judgment characteristic of Dr. Romer's very comprehensive knowledge of the vertebrates. Many new figures have been added to accompany the changes and expansion in the text. Of particular importance are the phylogenies, all of which have been revised and redrawn for the new edition. Even with the added new figures and the revised phylogenies, however, the bulk of the illustrations have been taken over from the earlier edition.

The classification at the end of the book is greatly expanded and changed (some of the changes have been indicated in the foregoing discussion) to include practically all genera of vertebrates occurring as fossils. This section of the book will prove to be extraordinarily useful to students working in fields of vertebrate studies.

The book is brought out in a new format conformable with other textbooks of the University of Chicago Series. This is particularly apparent in the new typeface and the cover. It is unfortunate, with an attractive and modern format, that wartime conditions resulted in the printing of this book on an inferior grade of paper. Because of this, the effectiveness of some of the figures is reduced, and the bad results of these economics are especially apparent in the index, which is rather difficult to read. Also, the price of the book is unfortunately high, and this may discourage some people, especially students,