

electrons. Any firmly based, major physical insights to be gained from this point of view are not yet well developed.

I found this volume well worth reading.

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Genetics

Elementary Genetics. W. Ralph Singleton. Van Nostrand, Princeton, N.J., 1962. xiv + 482 pp. Illus. \$8.25.

This pleasant, easily read textbook for beginners in genetics is aimed at about the sophomore college student; somewhat less than usual emphasis is placed on the mathematical aspects of the subject. Examples are drawn from most of the major experimental organisms, with maize perhaps replacing *Drosophila* as the favorite organism.

The first 16 chapters give a standard account of basic genetic theory; this is followed by a chapter on radiation genetics, two chapters each on biochemical genetics and population genetics, and a concluding chapter in which the author discusses current investigations on the chemistry of the gene. The book is profusely illustrated, and the illustrations and tables are well coordinated with the text. The bibliographies at the end of each chapter could be used to direct students to further reading, but the "problems," which are also given at the end of each chapter, do not appear to challenge students in a satisfactory manner. Each set of problems begins with the same tasks: (i) define certain terms, and (ii) identify certain scientists. The definitions requested are usually identical with those provided in the glossary at the back of the book; this spoils the teaching value of the problem. The lists of scientists to be identified have been drawn up by including everyone mentioned in the chapter, an unsatisfactory way of getting students to recognize the "major contributions" of many of these persons.

The most striking characteristic of this book is its personal nature. The author's interests and his work history have shaped its contents to a remarkable extent. Local newspaper items, various neighbors, the family pediatrician, and the pedigree of what appears

to be the family horse occupy the reader's time. A whole chapter on mammalian coat color and an extensive appendix on linkage groups in maize are related to papers published by the author. These items and a number of others form a set of unimportant digressions which an instructor with a different background will find wasteful of time. The intensive selection of examples from the work of the author and his colleagues probably results in a less than desirable representation of the important experiments in genetics.

While annoying errors and ambiguous statements occur every few pages, these are not intolerably frequent. However, the errors are such that, in courses which emphasize *Drosophila* or statistics, the use of this text would result in an extra burden on the students; the relative lack of material on the genetics of microorganisms would also limit the use of the text for some instructors.

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Solitary and Social Wasps

Wasp Farm. Howard Ensign Evans. Natural History Press, Garden City, N.Y., 1963 (available from Doubleday). x + 178 pp. Illus. \$3.95.

Almost everyone, except a few students of wasp biology or animal behavior, looks upon wasps as nasty creatures that should be combatted "tooth and nail," or at least with an aerosol bomb, a fly swatter, or some other means of destruction.

In this small book, published for the American Museum of Natural History, Howard Evans gives vignettes of a few of our predaceous solitary and social wasps. Many of the observations were made at "wasp farm," the country home which Evans formerly owned near Ithaca, New York. These were supplemented by studies made in other parts of the country by Evans and by a few other observers. The 15 brief chapters thus present engaging accounts of several dozen species, ranging from the most primitive kinds of solitary wasps through the increasingly complex behavioral patterns exhibited by solitary wasps that nest variously in the ground or in wood, or construct

mud cells, and they culminate in an account of a few social species. Evans' stories of the evolution of the wasps' prey-carrying mechanisms and of the comparative behavior of species of *Bembix*, fields in which he has made invaluable basic contributions, are especially interesting. For instance, how many entomologists know that predatory wasps have developed 13 different ways of transporting their paralyzed insect or spider prey to the nest? Among the illustrations are a number of high quality, close-up photographs taken by the author to illustrate various facets of wasp biology. Several unfortunate minor errors have occurred here: Figure 18 is upside down (the cells of the pipe-organ wasp actually open downward) and, in the caption for figure 21, *Leptochilus* is certainly a slip of the pen for *Symmorphus*, a close relative.

These accurate, popular accounts of the wonderful array of behavior patterns and differing life histories, particularly those of the inoffensive solitary wasps, should do much to dispel the general dislike of these insects; perhaps the accounts will induce some to indulge in observational work of their own. Were I not already so convinced, this book would certainly persuade me that wasp-watching should supplant bird-watching! The book should also be required reading for those scientists who think there are no additional frontiers to explore in natural history.

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Textbook of Limnology

Fundamentals of Limnology. Franz Ruttner. Translated from the German by D. G. Frey and F. E. J. Fry. University of Toronto Press, Toronto, Canada, ed. 3, 1963, xvi + 295 pp. Illus. \$6.50.

Frey and Fry have again done American and other English-speaking limnologists a fine service by translating the third edition of the late Franz Ruttner's *Grundriss der Limnologie*. In its topical organization, this edition does not differ markedly from its predecessor; about 40 percent of the volume is devoted to sections on water