Introduction of Hydrology

Modern Hydrology (Harper and Row, New York, 1965. 317 pp., $10.50), by Raphael G. Kazmann, is a highly readable reference source on the general subject of hydrology. The author's deliberate subordination of mathematical treatment contributes considerably to the readability of the volume. Engineers, planners, lawyers, legislators, and citizens concerned with or interested in water resource development should find the volume of interest. The hydrologist should also find it useful, particularly the specialist who is working in another area of hydrology but is interested in relating his work to the general field of hydrology.

In the introduction the author traces the historical development of the field. In subsequent chapters he considers precipitation, evaporation, surface water, ground water, and water resource development. The last chapter is entitled "Summation and outlook." The chapters on surface water and ground water comprise slightly more than one-half of the book. Of particular interest in the chapter on ground water is the section in which the author describes several case histories of ground water development and assigns to the aquifer the role of a filter plant, a reservoir, or a water mine. Kazmann undoubtedly drew from his wide background in ground water hydrology in writing this chapter.

The terms *side effects* and *feedback effects* are introduced in the chapter on surface water. Feedback effects, as defined by the author, are effects that modify the source of a process. Side effects do not interfere with the process but give rise to unforeseen problems. In the chapter on surface water and subsequent chapters these effects are considered in the development of water resources. According to the author, the book is entitled *Modern Hydrology* because these effects in the development of water resources are considered.

My criticisms are minor. A volume as wide in scope as *Modern Hydrology* tends to gloss over certain phases of hydrology. The volume is, however, sufficiently well referenced so that the reader is provided with additional sources of information. *Modern Hydrology* should be considered as an introductory textbook or as a supplementary reference source.

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Genetics

The now classical experiments of Beadle and Tatum on *Neurospora* catalyzed research in fungal genetics and at the same time represented a major step in the union of genetics, microbiology, and biochemistry. This union has contributed substantially to its parent disciplines and to fundamental biology. Some species of fungi have outstanding merit for use as tools in genetics. This fact stems, collectively, from their ability to grow on chemically defined media, their various genetic systems, their abundance of vegetative and sexual spores, their production of asci, and from systems such as heterokaryosis and dikaryosis. These features have permitted, among other advances, the first nonstatistical proof of Mendelian laws; they have provided studies, often pioneer, in recombination, gene action, interallelic complementation, genetic fine structure, mutagenesis, and extrachromosomal heredity. On the other hand, the application of a genetic approach to fungi has revealed the parasexual cycle which is the most thoroughly elucidated of the novel microbial recombination processes. Discovery of this cycle, which is based entirely on vegetative events, has opened the way to genetic analysis of many species of imperfect fungi.

The first edition of **Fungal Genetics** (Davis, Philadelphia, ed. 2, 1965. 336 pp., $9.95), by J. R. S. Fincham and P. R. Day, was publishd in 1963 and filled a great need; it was the only recent attempt to gather together the diverse developments in this field. The subject is important for geneticists, mycologists, and others interested in the landmarks of biology. The authors achieved a style and content that satisfied most interests. The same is true of the second edition, which includes major advances since 1963; several chapters have now been rewritten, and errors of the first edition have been corrected.

The book consists of nearly self-contained chapters, but the volume as a whole still has a considerable degree of unity. The first chapter presents the elements of genetics through *Neurospora*, and the second provides a particularly valuable outline of the life cycles of those fungi most used by geneticists. The development then proceeds through discussion of fungal mutants, chromosome mapping, changes in ploidy, gene structure and function, genetic systems of fungi, and extrachromosomal heredity to the genetics of pathogenicity. DNA is discussed briefly in an appendix, and there is a glossary of terms commonly used in fungal genetics, which should help the nonspecialist. The text is free from jargon, and the account is stimulating without being dogmatic. An excellent sense of historical perspective has been maintained, and this is reflected in the bibliography which includes more than 600 references with titles.

This book can be recommended without reservation to lecturer, research worker, and student.

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New Books

Biological and Medical Sciences

Acting Out: Theoretical and Clinical Aspects. Lawrence Edwin Abt and Stuart L. Weissman, Eds. Grune and Stratton, New York, 1965. 350 pp. $11.50. Twenty-eight papers: Theoretical and dynamic considerations of acting out (4 papers); Clinical manifestations of acting out (5 papers); Special forms of acting out (6 papers); Treatment and management of acting out (7 papers); Predicting acting out by means of psychological tests (6 papers).

Advances in Blood Grouping. vol. 2. Alexander S. Wiener, with a section by Maurice Shapiro. Grune and Stratton, New York, 1965. 480 pp. Illus. $12.50.

Annual Review of Phytopathology. vol. 3. James G. Horsfall and Kenneth F. Baker, Eds. Annual Reviews, Palo Alto, Calif., 1965. 439 pp. Illus. $8.50. Seventeen papers: "Toxins and cell-wall dissolving enzymes in relation to plant disease" by William Brown; "Serology in virus-disease diagnosis" by C. Wetter; "Factors in survival of nematodes" by S. D. Van Gundy; "Deterioration of stored grains by fungi" by C. M. Christensen and H. H. Kaufmann; "Problems in speciation of phytopathogenic pseudomonads and xanthomonads" by Heinz Stolp, Mortimer P. Starr, and Nancy L. Baigent; "Histochemistry of foliage diseases" by Naoji Suzuki; "Plant virus inclusions" by Frank P. McWhorter; "Inhibition of cellulases" by Mary Mandels and Elwyn T. Reese; "Metabolic aspects of spore germination in fungi" by Paul J. Allen; "Microclimate and plant disease" by Paul E. Waggoner; "Environmental relationships in the powdery mildews" by W. C. Schnathorst; "Fate of fungicides in plants" by A. Kaars Sijpesteijn and G. J. M. van der Kerk; "Adaptation of fungi to metal toxicants" by Joji Ashida; "Low-volume spraying" by Robert H. Fulton; "Disease control through virus-free stock" by M. Hollings; "Use of environmental factors in screening for disease resistance" by J. C. Walker;

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