recognized as one that has not been solved. For the vaccine recipient, this volume provides the answer to the question why he might have contracted influenza after having been vaccinated against the disease.

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Slime Molds

The Myxomycetes. G. W. MARTIN and C. J. ALEXOPOULOS. Illustrated by Ruth McVaugh Allen. University of Iowa Press, Iowa City, 1969. x, 566 pp., illus. $30.

This authoritative volume on the Myxomycetes will undoubtedly be the definitive taxonomic treatment of this singular group of organisms for many years to come. Long in preparation, and summarizing the accumulated knowledge and critical judgments of the two foremost students of the plasmodium-forming slime molds, this book should be within reach of everyone interested in the occurrence, distribution, and more especially the interrelationships of the Myxomycetes. Updated, much enlarged, and beautifully illustrated, the present volume supersedes MacBride and Martin's monograph (1934) and the latter's treatment of the Myxomycetes in *North American Flora* (1949), upon which it is based.

Without discounting in any manner the possible relationships of these slime molds to other ameboid microorganisms, as reflected in the alternative designation Mycetozoa, first proposed by de Bary and still used by zoologists and protozoologists, the authors have, as is traditional with mycologists who have studied them most, included the Myxomycetes with the Fungi (Mycota). The Myxomycetes are regarded as representing a single class in a subdivision, the Myxomycotina, that is parallel with the Eumycotina and includes the classes Phycomycetes, Ascomycetes, and Basidiomycetes and the form-classes Deuteromycetes and Lichenes. The class Myxomycetes is further divided into two subclasses, the Ceratiomycetidae and the Myxogastromycetidae. The first of these includes the exosporous forms and consists of a single family (Ceratiomyxaceae) and genus (*Ceratiomyxa*). The second subclass embraces all the endosporous forms, arranged in 5 orders, 9 families, 52 genera, and hundreds of species, of which 88 are recognized in the genus *Physarum* alone. Keys to families, genera, and species are almost entirely dichotomous. Some species are keyed more than once, and occasionally cross-keyed in different genera where difficulties in interpretation could be anticipated by the authors. For each accepted species a concise and informative description is given, followed by information concerning the type locality, habitat(s), distribution, and references to published illustrations. Of special interest are the notations, often extensive in nature, that follow the technical descriptions, for in these the authors record significant observations of specimens and interpretations of species drawn from their unparalleled knowledge of existing literature and the comparative study of the Myxomycetes contained in the several collections available for study at the University of Iowa and elsewhere.

Whereas the volume is noteworthy for its comprehensive coverage of accepted species, it is equally so for the care with which the probable synonymy of an even greater number of published names is indicated at appropriate places in the text; while for scores of others, inadequately described and not so mentioned, complete literature citations are provided in an appendix with the avowed purpose "to prevent the reuse of these names for new species."

A most attractive and useful feature of the book is the inclusion of 367 figures drawn in color by Ruth McVaugh Allen. Each depicting a single species, these figures are assembled in 41 plates and beautifully illustrate the more widely distributed species, along with many others not so commonplace. Included in the figures are habit sketches of fructifications (sporangia, aethalia, plasmodiocarps), detailed drawings of significant internal structures (capillitium, columella, elaters, and so on), and spores—the latter in all cases at a magnification of 1000, which facilitates comparison of surface features as well as overall dimensions.

For those biologists who are interested in processes of growth and development, including the physiology and genetics of these singular organisms, *The Myxomycetes* may prove somewhat disappointing, for these subject are covered only briefly in the introduction. However, a list of references is provided to which the user may turn for an entrée to such information; and for the investigator who wishes to delve more deeply into the life processes of these slime molds, there is the very useful volume *Biology of the Myxomycetes*, written by W. D. Gray and C. J. Alexopoulos and published in 1968 by the Ronald Press.

The Myxomycetes is not intended to be all-inclusive—it is a monograph concerned with the taxonomy and interrelationships of a large, variable, and cosmopolitan class of organisms of much interest to biologists, and it fulfills its purpose in a very admirable way.

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Inhibitors

Analogues of Nucleic Acid Components. Mechanisms of Action. P. ROY-BURMAN. Springer-Verlag, New York, 1970. xii, 114 pp., illus. $7.70. Recent Results in Cancer Research, vol. 25.

The purpose of this book is to present a survey of the metabolism and mechanisms of action of purine and pyrimidine analogues that are "useful in controlling viral or tumor growth or that have been extensively studied in a wide variety of biochemical reactions." It is not an exhaustive review.

The book is organized on the basis of individual inhibitors. Following a general introduction are chapters on purines, pyrimidines, and nucleoside antibiotics—which are with one exception analogues of adenosine—and a chapter entitled "Conclusion." At the beginnings of the chapters on purines and pyrimidines are found brief summaries of the normal cellular metabolism of the natural purines and pyrimidines, which provide a background for the discussions that follow on the metabolism and mechanisms of action of the analogues. Eight purines, including 2 ring analogues and 3 nucleosides, 12 pyrimidines, including 3 ring analogues and 10 nucleosides, and 7 antibiotics, including 6 adenosine analogues and showdomycin, are reviewed, the literature coverage being through 1968 with four 1969 references included. Although the compounds selected for review are certainly among the most interesting analogues that have been studied, the omission of equally interesting compounds such as 2′-deoxythioguanosine, *N*-hydroxyadenosine, 2-fluoroadenosine, and the antibiotic psicofuranine is notable. In general the