courts had construed the Comstock law in a manner which permitted the free importation of contraceptive devices. Since Kennedy feels that the weight of Catholic opinion in the United States was so powerful that no repeal of the Comstock law was possible, Mrs. Sanger's educational role in changing the climate of opinion in which these legal decisions were reached remains the crucial one for the triumph of the birth control movement. Kennedy concedes, though he does not stress adequately, Mrs. Sanger's influence in another important area of attitude. Her educational efforts were the most significant factor in changing medical opinion on the indications for prescribing contraceptives. Mrs. Sanger's insistence that social, as well as strictly medical, factors should be considered as indicators eventually triumphed over medical conservatism. Thus, though the major thrust of this work is directed toward a revision and reassessment of Mrs. Sanger's role in the birth control movement, Kennedy reaches the conclusion that her work was of central importance, though not always for the reasons which she gave and not always leading to the social changes which she expected.

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An Epidemic in Retrospect

International Conference on Hong Kong Influenza. Atlanta, Ga., Oct. 1969. World Health Organization, Geneva, 1969 (U.S. distributor, American Public Health Association, New York). Paper, $9. WHO Bulletin, Vol. 41, Nos. 3–5, pp. 355–748, + plates.

This volume consists of papers and discussions dealing with epidemiology, virus properties, immunization, chemotherapy, and chemoprophylaxis of Hong Kong influenza. In publishing this report within 15 weeks after the conference was held and well before the time the 1970–1971 influenza season in the Northern Hemisphere is expected to occur, the World Health Organization has performed a service of real worth to workers in the influenza virus field as well as to potential recipients of influenza virus vaccine.

In those papers concerned with virus properties, little that is new is presented, and although the reports dealing with chemotherapy and chemoprophylaxis hold promise as the basis for future developments, they are essentially preliminary. However, the papers and discussions concerned with immunization are fascinating if for no other reason than for the diversity of the reported results, which led one of the participants to remark, "Some . . . at this Conference may have been bewildered by reports of vaccine trials in which protective effect against Hong Kong influenza was reported to vary from nil to 98%" (p. 607). There are good reasons for bewilderment. One group of workers, from results obtained in a vaccine trial in a prison population, concludes that "optimally constituted influenza vaccines at standard dosage levels have little, if any, effectiveness" (p. 531) in preventing clinical influenza. Another group of investigators, in a retrospective study of United States troops, presents the interesting statement: "Analysis of complete influenza immunization histories of 77 [out of 285] men showed no correlation between the number of prior immunizations and the severity of illness. The apparent lack of effect of prior vaccination is illustrated by the observation that 18 of the 77 men had received 7 or more doses of vaccine during the preceding 10 years; these 18 men lost an average of 3.4 duty days because of illness, compared with an average loss of 2.6 days for the entire study group" (pp. 390–91). In striking contrast are the findings of another group of workers who carried out a vaccine trial in school children, the result of which was "a marked lowering of the illness rates in an entire community" (p. 537). The diversity in the conclusions resulting from work reported in this volume might be accounted for, at least in part, by inherent deficiencies in some of the experimental procedures. All too frequent are statements such as the following: "Because of the remarkably small numbers of men who reported to the dispensary with febrile respiratory disease during the epidemic period, these results must be interpreted with caution. The data do suggest, however, that the mineral-oil adjuvant vaccines containing 100 CCA units of A2/Ann Arbor/67 antigen conferred definite, albeit modest, protection against illness caused by the Hong Kong variant" (p. 563). "In the absence of adequate controls, it was not possible to determine the effect of influenza vaccine in school children or on disease in their families and communities. However, we do believe that this study showed that . . . B vaccine . . . was less effective . . . than the . . . Hong Kong-strain vaccine" (p. 566). "These studies are open to objections because of the well-known variability of influenza morbidity in different groups of people. However, where vaccinations were performed at favorable times with an effective series of preparations that was specific for the epidemics which followed, with properly selected groups of internal controls and sufficiently high morbidity in the control groups, decreased morbidity was observed regularly among those vaccinated . . ." (p. 587).

Nevertheless, adequately controlled vaccine trials are described in this volume. One of these was conducted in a prison population, and it is difficult not to agree with the author that the results of the study indicate that optimally constituted influenza vaccines at standard dosage levels are not effective in preventing clinical influenza and that "even very large doses of vaccine do not approach the high degrees of effectiveness that have been achieved with other virus vaccines" (p. 531). The preceding and similar statements in this volume lead one to wonder why another author stresses that "priority must be given to research into the problem of making sufficient vaccine available" (p. 495) and still another author emphasizes that there is no satisfactory method available to measure the immunogenic potency of that amount of vaccine that now can be produced. It would seem that priority should be given to the task of improving influenza vaccine rather than to making more of the kind that is at best of doubtful value. After all, it is mentioned in this volume that almost 22 million doses of Hong Kong vaccine were produced in 1968–1969 and that "it is questionable whether the use of the vaccine, necessarily in smaller quantities than the total released, had any detectable effect on the course of the 1968–1969 epidemic" (p. 495).

All of this makes for interesting reading and leads one to agree with the statement of one of the authors that "influenza has been known to mankind since antiquity, but the problem of controlling the disease has so far not been solved" (p. 381). The recognition of this fact makes the appearance of this volume for the influenza virus worker an encouraging beginning: he can initiate work to solve the problem of the control of influenza now that it is

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