R Factors

Infectious Multiple Drug Resistance. S. FALKOW. Pion, London, 1975 (distributor, Academic Press, New York). xiv, 300 pp. + plates. $19.95. Pion Advanced Biochemistry Series, 4.

This book chronicles developments in plasmid research over the past 20 years, with primary but not exclusive attention to infectious antibiotic-resistance (R) plasmids. It is not a review of the literature of the subject but an attempt "to present the basic information that is available and to underscore the more abundant questions that remain." The early chapters focus on the molecular and genetic properties of plasmids and the later chapters are concerned with the biochemical basis of plasmid-mediated drug resistance, the serious consequences of R plasmids with respect to antibiotic therapy, and the pathogenic properties of bacteria that are specified by certain plasmid elements.

In general, the information is presented with clarity and fidelity. While the author often seizes the opportunity to speculate on the biological basis of plasmid-related phenomena, on the whole he presents the consensus of workers in the field.

One of the strengths of the book is the treatment of R plasmids within the framework of plasmid elements in general; that is, R plasmids are viewed as part of a larger family of plasmid elements including the classic sex factors of *Escherichia coli* and the colicinogenic, enterotoxin, and hemolysin plasmids. In addition, the author draws on information from other systems, such as the temperate bacteriophages, in order to obtain further insight into the maintenance of the plasmid state and the events of integration of a plasmid element with the host chromosome.

Each chapter includes a listing of relevant books, reviews, and original papers. No attempt was made to provide an exhaustive list of references, but in general the author has provided a well-balanced selection. I appreciated finding in the book a considerable quantity of data, including many of the author's heretofore unpublished observations, that are not easily obtainable elsewhere. This was particularly true in sections dealing with the ecology, incompatibility properties, and structural relationships of plasmids. The treatment of the ecology of R plasmids in the latter part of the book and of the implications of ecological properties of R plasmids with regard to medical and agricultural practices is also noteworthy. This book probably is the best compendium available on the subject.

Another strength of the book is its currentness. A striking example, in view of the publication date, is the section on the use of plasmids for the cloning of foreign DNA in bacteria. This topic certainly has stirred considerable interest among scientists in a number of disciplines in addition to some anxieties in segments of the scientific community and the general public.

The book is not unflawed. The chapters are somewhat uneven with regard to the amount of detail in which the topics are treated and to the finishing touches that have been applied. On the whole, however, this is an excellent book, timely and reflecting the author's involvement in developments in the field and his mastery of the subject. It will be a valuable source of information to students, teachers, and scientists in biology, medicine, and agriculture.

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Mammals in Ecosystems

Small Mammals. Their Productivity and Population Dynamics. F. B. GOLLEY, K. PETRUSEWICZ, and L. RYSZKOWSKI, Eds. Cambridge University Press, New York, 1975. xxvi, 452 pp., illus. $32.50.

This collection of papers is a refreshing variation in organization for IBP (the International Biological Program). Instead of being centered around a biome (such as a desert or tropical forest), it concentrates on a taxon, mammals. In fact, it is even more restrictive than its title would indicate, since almost all the contributions deal exclusively with rodents. It represents the proceedings of the fourth international meeting of the IBP Working Group on Small Mammals held in Poland in November 1973. The Working Group on Small Mammals is one of the "theme projects" of IBP.

The goals of this book project are those of the theme project, since it is a report on the results of the project. These goals include standardizing methods for collecting population data about small mammals and the collection of data, including "density, sex ratio, body weight distributions and sexual activity" in various biomes. Conversion of such data into energy flows allows the small mammal data to be plugged into larger models of whole ecosystems. Not different from other scientists, this group has devoted some time to detecting ways in which data collection procedures and data reduction can be improved. Also, they tried to understand the role small mammals actually play in influencing the control of ecosystem dynamics. Finally, they hoped to apply their knowledge to public health and pest control problems.

That set of goals is broad and ambitious. To help achieve it, the organizers and editors have included contributions from some investigators not actually involved in IBP. As a result of these goals and the selection of authors, many of the contributions are review articles of great scope, and nearly every topic in modern mammalian ecology is referred to, even if only peripherally. The book's unified 68-page reference section is an encyclopedic guide to current investigations. The book definitely succeeds in avoiding the parochialism that can characterize symposia.

Michael Smith and his colleagues begin the substantive reports with a first-rate treatment of the problems of censusing small mammals. From that point on, modern ecological topics such as energy flow, population interactions, species diversity, and physiological ecology permeate the investigations reported in the book.

Although the primary function of this volume is synthesis, novel conceptions also occur. The best example is Lidicker's piece on dispersal. Lidicker argues that many individuals are adapted to leave an environment and take up a transient existence before that environment becomes so full of their own kind that it deteriorates completely. He terms this phenomenon presaturation dispersal. A similar idea deriving from studies of birds was proposed by Fretwell and Lucas. Lidicker explores his idea and related modes of dispersal from the point of view of the evolutionary ecologist.

This same vantage point characterizes the chapter by French and his colleagues. They also discuss some novel concepts—these having to do with patterns of birth and death—but they arrive at their suggestions by an empirical route. Their article contains and is founded upon a 16-page summary table of all known small mammal survival and reproduction data in the literature! To the serious student of mammals, this table alone is worth the price of the volume.

The only topic that needed and does not receive extensive treatment in this book is competition. I think small mammals have proven most useful as model