

BOOK REVIEWS

Plant Life

Modern Plant Biology. By Howard Dittmer. Pp. xiii+685. (Van Nostrand Reinhold: New York and London, March 1972.) £6.10.

THIS is an introductory textbook in botany aimed, presumably, to accompany a first year course at university level. In spite of the title this book is traditional in conception. The principal themes are two-fold: first, to take the student through the structure and metabolic functioning of the angiospermous plant body; and secondly, to survey the plant kingdom on a classificatory basis with the morphology and life-cycles of selected algae, fungi, bryophytes and so on, culminating in the Angiospermae. The format is all rather familiar, even down to the two pages of text and photographs devoted to insectivorous plants as compared with, say, the brief paragraphs which discuss inbreeding and outbreeding (the former term is lacking from the index) which do not mention the existence of genic incompatibility systems. The treatment is generally adequate within the limits which the author seems to have set himself, but I find it difficult to be enthusiastic about this book as an introduction to the scientific study of plant life.

The traditional scheme followed here has well tried didactic advantages but it does tend to obscure the evolutionary progression of plant life. To discuss, for example, the angiospermous flower, fruit and seed (chapter 11) before studying the lower plant groups (chapter 14 and following chapters) is to put the evolutionary cart before the horse. Because living organisms have the extra dimension of an evolutionary history the student cannot fully appreciate a complex structure such as the seed without some knowledge of its development. Furthermore, by this method, the systematic treatment of the angiosperms is reduced largely to a consideration of the floral structure of a few families. As a consequence, there is the danger that the student tends to associate the evolutionary diversity of the flowering plants with seemingly mean-

ingless variation in petal shape and number. The contribution which the achievement of the bisexual flower coupled with efficient self-incompatibility mechanisms and biotic pollination has made to angiosperm success goes by default.

This format also leads to some lack of integration in the subject matter. Although some attempt has certainly been made to introduce relevant experimental data into the systematic survey (for example, the value of *Neurospora* in analytical genetical studies), the sections on genetics and evolution are, nevertheless, largely divorced from the organisms and life-cycles described in the classificatory chapters. I fear that any student who reads this book will still not have a very clear idea of why, for example, plant evolution has overall shown an increased dominance of the diploid phase of the life-cycle, or why the fern spore and the fern zygote give rise to different kinds of plant body although they possess virtually the same genes.

The book is attractively produced with a vigorous layout and crisp illustrations. Any student who dips into it either as a companion volume to a first-year course or for general interest to fill out topics which receive scant attention in his lectures will certainly find plenty of basic information. Unfortunately, to my mind, it does not present an easily assimilated introductory account of what plant life and diversity seem to be really about.

P. E. GIBBS

Flora of the Tropics

Patterns of Change in Tropical Plants. By G. P. Chapman. Pp. 112+9 plates. (University of London: London, 1970.) £1.

THIS is an unusual and interesting book. Dr Chapman provides us with an elementary account of the experimental taxonomy of tropical plants, touching upon the related fields of phytogeography, floral biology, speciation and crop plant evolution. It is

coloured by the author's own experience in the tropics and by the conviction that the temperate zone has held for too long the attention of botanists interested in these matters.

The book contains some original observations and draws attention to our relative ignorance of evolutionary processes in tropical floras. As such it deserves to be widely read. But the material is at times too compressed to make easy reading for undergraduates and not all the terms used are explained in the text. One can also question the relevance of the first chapter. These criticisms, however, are carping: one is compelled by the freshness of approach and the inherently stimulating nature of the subject to read through the text, which in many respects brings to mind Professor McGregor Skene's classic work *The Biology of Flowering Plants*, though that work dealt with predominantly temperate examples. The brevity of the book is tantalizing and I, for one, regret that the author has returned, one can only hope temporarily, to the relatively overstudied temperate zone.

Geoffrey Chapman studiously avoids references to classical temperate examples of evolutionary phenomena. Even *Crepis* gets only a one-line mention and the pooid grasses are quite eclipsed by references to tropical grass genera. I wonder why, in the light of the general poverty of information on variation and speciation in tropical plants, he gives little attention to crop plants of the tropics other than *Zea* and *Musa*. Millets, oil palms, rice, yams and rubber—to name a few—provide examples which are both familiar and well documented but receive only a passing mention.

For too long undergraduates reading biology in the tropics have been fed a diet of temperate, and therefore unfamiliar, examples. Dr Chapman tells us in the introduction that he wrote the book to remedy this unhealthy state of affairs. All biologists who have some acquaintance with the richness of tropical and subtropical plant life will applaud this sentiment and hope that workers in other biological fields will do the same.

B. M. G. JONES