The authors of the present volume chose the specialized approach, though somewhat halfheartedly; functional photosynthesis and respiration are still covered on the first 20 pages. This is a waste of space, because the student who has taken a course in these topics will not need the 20 pages, and for the student who has not learned about these topics they are too short a summary to be useful.

Gehölzphysiologie was written by ten contributors, all noted East German ecological physiologists. It covers a wide range of topics, from inorganic and organic natural products of trees through photosynthesis and respiration (dry-matter production) to various aspects of tree growth. It is not easy to make such a book comprehensive and readable at the same time. There are many tables in which such information as transpiration rates for various species is given, and other passages in which principles are explained. Thus some parts of the book can be read, and others will be used more to look up items of information. We can say that the volume is a remarkable achievement and will be very useful to the American reader interested in ecological physiology. For him, it has only two drawbacks: it is written in German, and its coverage concerns primarily European species.

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Biological Substances

Prostaglandins. U. S. VON EULER and RUNE ELIASSON. Academic Press, New York, 1967. x + 164 pp., illus. $9. Medicinal Chemistry, vol. 8.

When von Euler and Goldblatt independently discovered the prostaglandins in the 1930's, they opened up a new line of inquiry from which many wonderful and exciting discoveries are now emerging. These unsaturated hydroxy carboxylic acids, which contain a substituted cyclopentane ring, are present in so many parts of the body and have such a wide spectrum of pharmacological activity that they are comparable with the steroids; however, in contrast, they are highly flexible structures and have not yet been proved necessary for life. All attempts to define their role, by feeding rats on diets deficient in the $\omega 6$ C_{20} polyenoic precursors, such as arachidonic acid, have not been successful. The piquancy of the situation is heightened by the remarkable action of the prostaglandins on blood pressure, lipolysis, gastric secretion, platelet adhesiveness, and other biological phenomena. Indeed it is their wide range of both location and activity which is luring workers to the hypothesis that the richly varied responses to the prostaglandins result from interaction with a basic regulatory process common to most tissues, such as the adenyl cyclase system.

This book is a good survey (for a definitive review see S. Bergström, L. A. Carlsson, and J. R. Weeks, *Pharmacol. Reviews,* 1968), in that a large number of well-chosen figures are included. Work on reproduction is treated fully, and this section, which reflects Eliasson's interest in the subject, is a very useful and timely contribution. In contrast, the lack of enthusiasm for the renal prostaglandins and their effects is evident.

The authors have eschewed speculation on or even a discussion of the possible physiological role of the prostaglandins, perhaps wisely, since these compounds are of interest for so many reasons to so many people. To the synthetic chemist, the number of isomers of the prostaglandin E series offers a challenge which has not yet been met with convincing answers. To the drug industry, which has so farsightedly supported much of the work, the prostaglandins serve as model compounds for developing inhibitors of platelet adhesiveness and antihypertensive agents. Recently the potential for prostaglandins in the treatment of gastric ulcers and nasal decongestion has become apparent.

When a book by an originator of a field is published there is always added interest in seeing what insight is shown and how the original theme has developed. For von Euler, this book must represent a milestone, in that all the steps from his early work on extracts of seminal fluid, and the work of others on identification, biosynthesis, metabolism, and pharmacological characterization, are recorded. The fundamental role of the prostaglandins in reproduction, however, remains as elusive as it was three decades ago.

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Reactions in Plasmas

Plasma Chemistry in Electrical Discharges. F. K. MCTAGGART. Elsevier, New York, 1967. xii + 246 pp., illus. $17.50. Topics in Inorganic and General Chemistry, vol. 9.

This book is an up-to-date and detailed reference work on (i) methods of radio-frequency and microwave plasma generation and (ii) reactions of certain atoms and free radicals generated by electrical, photochemical, and thermal means.

McTaggart uses the major portions of two chapters to describe the power-generation apparatus required to establish electrodeless discharges. Low-pressure operation (0.1 to 10 mm) is emphasized; the space given to this subject certainly is one important reason for the author's omission of comments on the commercial processing potential of the technique. The arc mode of discharge operation is mentioned only briefly.

In discussing the nature of a plasma, the author focuses attention on the low-temperature or low-degree-of-ionization case. Such a plasma is then viewed as "merely the source of desired neutral but active species." In the ensuing discussion of the effect of energy transferred from the field to gaseous molecules, the inclusion of a potential-energy diagram showing a nonadiabatic transition between bonding and nonbonding states of a diatomic molecule would have been most informative.

Seven of the 12 chapters of this book are devoted to atoms and free radicals. The thorough job done on estimation and identification of these active species includes a clear description of electron spin resonance and its analytical application; mass spectrometer type and their applications are well delineated. Specific chemical reactions summarized include those of nitrogen, hydrogen, oxygen, and halogen atoms, as well as of a number of polyatomic radicals. Where ion-molecule reactions are discussed, in the final chapter, no mention is made of the ion-cyclotron resonance analytical technique.

A great deal of information has been assembled in this book. In general, the references cited should serve as valuable guides for more detailed studies.

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