biotransformation, blood-brain barrier, importance of glomerular filtration, hormonal regulation of water conservation, nervous control of the stomach, and immune responses. In the hydrodynamics of cerebral fluid and in electroretinograms, however, similarities overshadow differences. The mammals more closely resemble the teleosts than the elasmobranchs in their spectral sensitivity curves, calcium metabolism, and the amount of serum albumin. The development and functioning of the elasmobranch reproductive system is more like that of the mammal than the teleosts. In cardiac output, it is the elasmobranchs and teleosts that are alike. Obviously, we are far from being able to generalize—at any level. Nevertheless, as two of the book's contributors point out, "much can be learned about man in considering sharks and much can be learned about sharks in considering man."

In addition to the ichthyologists, physiologists, and behaviorists that will need this volume for ready reference, it ought to find a place in every laboratory where the comparative anatomy of the dogfish or skate is taught. Even a casual look through it by the students should invest their smelly fish with a vital glow.

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Organic Compounds

Advances in Alicyclic Chemistry. Vol. 1. HAROLD HART and G. J. KARABATSOS, Eds. Academic Press, New York, 1966. 405 pp., illus. $16.50.

In the beginning of this century, chemists were largely concerned with the properties of aromatic compounds. In the last 20 years, however, the attention of organic chemists has been directed increasingly toward the study of the aliphatic compounds. The advent of conformational analysis, gas chromatography, and nuclear magnetic resonance provided the tools necessary for a detailed investigation of many of these compounds. Coupled with the realization that many previously unknown types of structures could be prepared and that they would be valuable in the study of more theoretical aspects of organic chemistry, this has led to the present great interest in aliphatic and particularly alicyclic compounds.

The new series is designed to summarize important developments in this field. Three of the chapters in the first volume are concerned largely with the effects of bond-angle deformation on reactivity and on physical properties. The first of these, by Meinwald and Meinwald, is concerned with bicyclo [1.1.1]pentane and bicyclo[2.1.1]hexane and with tricyclic compounds containing these ring systems. The compounds have received extensive study and have proved to have properties quite different from those that might be expected from studies of larger ring systems. Meinwald and Meinwald present a very good discussion of both the preparation and reactions of the compounds. The next chapter, by Closs, is concerned with the most strained of the *cis*-alkenes, cyclopropene. The chapter begins with a consideration of methods of synthesis, and then presents a detailed discussion of the physical properties and chemical reactions, with primary emphasis on the theoretical implications of the experimental observations. The last chapter, by Fort and Schleyer, is concerned directly with the effect of bond-angle changes on the energies of carbanions, carbonium ions, and free radicals. These three chapters give a very good review of the general subject and present the material from several different viewpoints.

The remaining two chapters are concerned with larger ring systems. One, by Koch, deals with the photochemistry of the tropolones. Here, a major interest is in the nature of the products, which are usually cyclobutane derivatives. It is perhaps unfortunate that the more general subject, the photochemistry of cycloheptatrienes and -dienes, was not considered. Nevertheless, the chapter presents much interesting material. The last chapter, by Waring, considers the cyclohexadienones. These compounds have been studied more extensively than the others in the volume, and are related to syntheses of natural products. Consequently, this is the longest chapter in the volume.

The presentation is quite good throughout. Each chapter contains sufficient introductory material that any graduate student or practicing organic chemist could follow the discussion without difficulty. The coverage appears to be quite complete through 1964, with many additional references to the 1965 literature. The material in volume 1 would appear to be of sufficiently general interest that it should be read by most graduate students in organic chemistry, and the book should be a very useful reference work for all organic chemists.

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Photochemistry

Organic Photochemistry. Vol. 1. ORVILLE L. CHAPMAN, Ed. Dekker, New York, 1967. 351 pp., illus. $15.75.

The photochemistry of organic compounds is a field in which there has been intense activity in the last few years. At least four new books, a new journal, and two new review series have appeared. In addition, the field has attracted new investigators, with a variety of backgrounds, who have published their contributions in a large variety of information sources. Many workers, including myself, have found it difficult to keep up with this information explosion.

In this timely series, the editor intends to provide critical summaries which will draw together some of the new information and clarify problems. The first volume contains seven papers written by contributors who have been active in their respective subjects. The contributors and their papers are: Paul J. Kropp, "Photochemical transformations of cylohexadienones and related compounds"; Albert Padwa, "Photochemical transformations of small-ring carbonyl compounds"; Virgil I. Stenberg, "Photo-Fries reaction and related [re]arrangements"; Daniel J. Pasto, "Photochemistry of troponoid compounds"; G. J. Fonken, "Photochemistry of olefins"; and O. L. Chapman and G. Lenz, "Photocycloaddition reactions." Most contributors approach their subjects in a straightforward manner which I found helpful. The book contains a wealth of information, as indicated by the large number of references given with each chapter. The book has achieved what the editor intended and is a valuable reference.

The typographic quality is uneven and seems to depend on the individual contributors. Many errors were found in chapters 3 and 5.

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