NEW BOOKS

J. F. GERECHT, BOOK REVIEW EDITOR

Creation and Detection of the Excited State, Vol. 2, Edited by William R. Ware, (Marcel Dekker, New York, N.Y., 1974, 221 p., $24.50).

This volume is the third in a series (Volume 1 was issued in two parts) dealing with experimental techniques developed to study the formation and behavior of molecules in excited states. This particular volume is divided into four chapters, the first two concerned with certain optical-microwave methods, the last two being devoted to laser techniques.

Although each chapter begins with a brief discussion of the basic theory involved, the emphasis throughout is on the practical aspects of the particular technique: the function and design of the instrumentation and the details of the experimental procedure. Such a format was designed by editors to ". . . provide experimental details well beyond that which is normally included in a (scientific)paper . . ." The result is a quite useful, if expensive, text of topical interest in many areas of chemical research.

The first chapter, by M.A. El-Sayed and J. Olmsted, is concerned with the optical detection of a certain class of magnetic resonances using a phosphorscence microwave double-resonance technique. Among other applications, the method has proven invaluable in studying the mechanism of excitation transfer in triplet-excited organic aromatic systems. In addition to much valuable information concerning various instrumental configurations, the discussion of possible extensions of the technique may prove of interest to many.

The second chapter, by J. Bolton and J. Warden, deals with an experimental technique involving the use of electron spin resonance for the detection of paramagnetic intermediates in flash photolysis studies. The critique of instrumentation and sensitivity considerations should prove quite useful to photochemists contemplating the use of this method.

The third chapter, entitled "Picosecond Laser Techniques" written by M. Malley, is concerned with the use of picosecond (10^{-12} sec) pulses from mode-locked lasers in the study of physical and chemical processes that take place in the time scale range of 10^{-9}-10^{-13} sec. A thorough discussion of the assembly and operation of this type of laser system coupled with the discussion of picosecond pulse measurements provides an excellent introductory review concerning experimental technique. The discussion of applications is necessarily brief, but an extensive bibliography on the subject is included.

The final chapter on dye lasers authored by A. Dienes, C.V. Shank, and A.M. Trozzolo contains, in addition to a discussion of devices and applications, particularly well written sections on the photophysics of dyes and basic laser principles. These discussions may prove of interest to a more general audience than that envisioned by the editors of the series. The interest of most chemists in dye lasers probably centers on their tunable wavelength feature and possible consequent spectroscopic applications, a topic usefully covered in the last two sections of the chapter.

In general, all chapters are well illustrated with appropriate instrumental diagrams, schematics, chart recording of experimental data, etc., chosen to illustrate the text. The bibliographies are complete only through 1972, although in several cases the authors added additional later references as postscripts. Apparently, the publisher encountered considerable delay in bringing this volume to print. This delay certainly detracts from the timeliness of the volume in presenting the current state of the art for most of the techniques covered; yet, the material presented provides an excellent starting point for study by those interested in applying one of these methods in their own research, and the reviewer recommends it as such.

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Chemical Manipulation, Michael Faraday (originally published in 1827) (Halsted Press, New York, N.Y., 1974, 640 p., $35.00).

This volume is a true reprint, down to the handwritten inscription on the title page, of a book written by Michael Faraday and, according to the foreword by Sir George Porter, the only one he ever wrote. It was published in 1827, and its value as a description of laboratory procedures is largely historical. For example, 32 pages are devoted to the use of retorts, a piece of equipment that has not been in common use for at least 50 years.

However, much of his advice is ageless. He was noted for his very accurate and precise notebooks and the section on "General Rules for Young Experimenters" is worthy of perusal by any scientist. As another example of his sage advise in the early part of the book describing the furnishing of the laboratory, he says, "A chair may be admitted, and one will be found quite sufficient for all necessary purposes, for a laboratory is not the place for persons who are not engaged in the operations that are going on in it."

Two general impressions were left with this reviewer. First, the great difficulty of carrying out experimental work and second the almost complete disregard for safety in the laboratory 150 years ago. One can visualize the first and admire the very accurate work that was carried by those who laid the groundwork of chemistry. However, the second mades one wonder how many injuries were sustained to bring chemistry to its present position.

Prior to this reprint only a few copies of the original existed. Now it can and should be part of any library that maintains a section on the history of chemistry.

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Two AOCS members die

AOCS has received word that Arthur C. Orcutt, vice president, R. R. Street & Co., Inc., Oak Brook, Ill., and F.D. Collins, Biochemistry Department, University of Melbourne, Parkville, Australia, died recently. ■