

**Light: Physical and Biological Action.** By HOWARD H. SELIGER and WILLIAM D. McELROY, McCollum-Pratt Institute and Department of Biology, The Johns Hopkins University, Baltimore, Md. Academic Press Inc., 111 Fifth Ave., New York, N. Y. 1965. xi + 417 pp. 16 × 23.5 cm. \$12.00.

The varied backgrounds, (physics, biochemistry) of these two authors have been used effectively to blend together what traditionally has been considered the separate domains of physics, chemistry, and biology into an exciting monograph on photobiology. This book can be divided into four somewhat unequal portions.

First, Chapters 1 and 2 (148 pp) give a description of the principles of measuring and characterizing light and then a discussion of the excitation of molecules and the fate of these excited species. Chapter 1 is replete with numerous notes of caution for those starting research in this area. One of the strong points in Chapter 2 is the good, however qualitative, discussion of topics such as fluorescence depolarization, Forster's mechanism of energy transfer, exciton energy transfer, and semiconductor theory.

Second, Chapters 3 and 4 (58 pp) discuss one of the primary research areas of the authors, chemiluminescence and bioluminescence. As should be expected, this section is a well-written review and covers almost every chemical example of the production of light from gas phase reactions to the firefly and South American railroad worm.

The third section, Chapter 5 (140 pp), deals with the biological action of light. This chapter is devoted primarily to photosynthesis and vision, along with shorter portions on radiation damage and growth regulation. The section on photosynthesis (42 pp) could have profitably been expanded; however, extensive references to the original literature and secondary reviews are given.

The fourth section, Appendices 1 through 7 (23 pp) contain many useful experimental descriptions and recipes, along with a good introduction to lasers.

No book is free of errors and this one is not an exception. One error that should be noted is that the authors describe the electronic structure of ethylene, benzene, and formaldehyde in terms of unhybridized one-electron wave functions and this produces incorrect bond angles.

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**The Chemistry of Selenium, Tellurium, and Polonium.** By K. W. BAGNALL, D.Sc., F.R.I.C., Chemistry Division, Atomic Energy Research Establishment, Harwell, Berks, Great Britain. American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York, N. Y. 1966. viii + 200 pp. 14 × 21.5 cm. \$13.00.

This little volume does a remarkable job of collecting, correlating, and comparing the data on the chemistry of selenium, tellurium, and polonium. These elements, especially the more available selenium and tellurium, have languished in a chemical limbo for a considerable period, and it was the author's intent to stimulate interest in their chemistry by providing a review of the existing results and by pointing out the need for more experimental data. Phrases such as "structural information on the compounds has not been reported," "the species present are uncertain," "although there is some evidence for the compound, it is inconclusive," "no properties of the compound are known" appear with astounding frequency in discussions of ternary, and even binary, compounds.

Much of the available crystallographic information is collected in fourteen tables, most of which include data on homologous selenium, tellurium, and polonium compounds. This approach, and the discussion of the compounds of the three elements together, emphasizes the similarities and differences in the group. The author handles the references well, including recent papers, preparative methods, and other articles deemed to be important, and indicating earlier review works for more comprehensive coverage.

The style is concise, fast-paced, and readable. I found very few typographic errors.

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## BOOKS RECEIVED, August 1966

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HERMAN V. BOENIG. "Polyolefins: Structure and Properties." American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York, N. Y. 1966. 319 pp. \$17.00.

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HAROLD L. SCHICK. "Thermodynamics of Certain Refractory Compounds." Volume II. "Thermodynamic Tables, Bibliography, and Property File, Sections VII, VIII, and IX." Academic Press Inc., 111 Fifth Ave., New York, N. Y. 1966. 775 pp. \$23.00.

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OWEN H. WHEELER. "Physical Organic Chemistry." Monograph 2. American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York, N. Y. 1966. 172 pp. \$10.00.