Book Reviews

The Optical Properties of Organic Compounds. Alexander N. Winchell. Academic Press, New York, ed. 2, 1954. xviii + 487 pp. Illus. $12.

From the time of Groth's monumental and pioneering five volumes to the excellent monthly publications of McCrone, any assemblage or systematic classification of optical-crystallographic data has been sparse and poorly indexed, because the data themselves have been widely spread (from English, to Dutch, to Japanese) through scientific literature, sometimes buried in an article with a misleading or obscure title, or even left in the laboratory. It is a real pleasure to read and review Winchell's second edition of *The Optical Properties of Organic Compounds*. With the cooperation of various colleagues and the American Cyanamid Company, Winchell has assembled data on, and described, the optical properties of more than 2500 organic compounds. His aim, as stated in the introduction, has been to include all organic compounds whose optical properties are sufficiently well known to permit identification by optical methods, particularly those where refractive indices have been measured.

As far as organic chemistry is concerned, the data is well organized and follows the classic Beilstein arrangement. The book contains two large diagrams, one for the determination of compounds based on birefringence and optic sign and the other for the determination of compounds based on refringence and optic angle. Both have keys. It has a good general index and 631 references. Some crystal diagrams have helpful but fragmental x-ray data with them.

The broad range of organic compounds covered treats only briefly those important to such industries as petroleum (paraffins, p. 4), textiles (aralac and nylon, p. 272), drugs (quinine, p. 290, and barbital, p. 226). I wonder whether this is not just the beginning of a vast assemblage of optical data which will obtain the cooperation of many industries and scientists. More data are needed. In any book of this kind, where collection of data is made from many sources, incompleteness and inaccuracies in data and inability to recheck the optical properties in the laboratory may lead to some misinterpretations. Further, instead of the classical Groth method of reporting refractive indices, ε and ω or α, β, and γ, Winchell used N_e and N_o, or N_x, N_y and N_z. At first this seemed amazing, but on second reading it seemed to be much clearer than the Groth method and as American as the "coke" and the "hot dog." One other unavoidable sin of omission is the lack of temperature and dispersion data in relationship to reported refractive indices of many of the organic compounds.

Well bound, on good paper and with clear legible type, this book is easy to read and the crystal diagrams are sharp and well arranged. There are some typographical errors. On the whole, the aim of the author is achieved, for the book opens a new field and reviews an old field of optical properties of organic compounds for the chemist, the petrographer, the botanist, and that large group of general scientists who are interested in the purity, identity, and structure of organic compounds. We like the book, even with its shortcomings, and use it continuously as a reference book in our classes in chemical microscopy.

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Tissue Culture. The growth and differentiation of normal tissues in artificial media. E. N. Willmer. Methuen, London, and Wiley, New York, ed. 2, 1954. xx + 175 pp. Illus. + plates. $2.25.

This valuable little monograph gives, in the most concise form possible, the carefully weighed and extracted essence of most of the important developments in tissue culture that took place during the last half century. Willmer is an old hand at the game, and has woven into this little book a very careful evaluation of the work of this period. He quotes more than 400 contributions for which references are given. Never for a moment does the author wander from his subject—the living cell either as a free, living, functioning, and independent unit or as an integral part of a specific functioning and metabolizing tissue. He makes an effort to impress the reader with the need for further exploration in this field, emphasizing the many new techniques and disciplines that can be brought to bear. This fascinating little book should orient anyone on the importance of tissue culture as a major tool of the present and of the future in cellular physiology and pathology.

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A Textbook of Radar. Staff of the Radiophysics Laboratory, C.S.I.R.O., Australia; E. G. Bowen, Ed. Cambridge Univ. Press, New York, ed. 2, 1954. xiii + 617 pp. Illus. + plates. $8.50.

This well-known Australian introduction to radar has now been reprinted, with rather minor changes, 7 years after its original publication date. The first 500 pages are identical in the two editions; the last 100 pages have been rewritten to modernize the chapters on the applications of radar systems and microwave techniques.

The book is what its title suggests rather than a description of a series of radar systems. It is well written and well illustrated, and each chapter is by a specialist. The introductory chapter by Bowen is an excellent historical summary of the field by one who played a key part in its development.

A comparison with volume I of the M.I.T. radar