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.

MARY L. WILLARD
Chemistry Department, Pennsylvania State University

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.

GEORGE O. GEY
Department of Surgery, The Johns Hopkins Hospital

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

series shows a striking similarity in much of the material covered. This Australian book does not treat moving-target indication in any form, but it has an excellent section on microwave propagation, which is more or less neglected in its American counterpart. This is an excellent book, and one which I thoroughly enjoyed reading.

LUIS W. ALVAREZ
Radiation Laboratory, University of California

Handbuch der Pflanzenkrankheiten. vol. II, *Die Virus- und Bakterienkrankheiten,* p. 1, *Viruskrankheiten.* E. Köhler and M. Klinkowski. O. Appel and H. Richter, Eds. Paul Parey, Berlin, ed. 6, 1954. 784 pp. Illus. DM. 150.

In 1888 Paul Sorauer prepared a small plant disease book of 250 pages and without illustrations. Later editions were much enlarged, and for the most part they were edited by Otto Appel. The sixth edition, covering diseases and insect pests, is expected to require 15 volumes. The present publication, dealing with virus diseases, has only 132 pages of general information. The remainder of the volume discusses specific diseases on hosts, arranged in orders according to the Engler and Prantl classification. The listing of the viruses is fairly complete, and the discussions are as detailed as the present literature on the individual virus permits. The numerous bibliographies represent world-wide publications in a surprisingly thorough manner. The illustrations, the type, and the paper are excellent. The volume should be a great help, especially to the plant pathologist who is not already deeply versed in the subject.

CHARLES CHUPP
Department of Plant Pathology, Cornell University

Physiology and Biochemistry of the Skin. Stephen Rothman. Univ. of Chicago Press, Chicago, 1954. xiii + 741 pp. Illus. $19.50.

By those concerned with the scientific basis of dermatology, this volume will be hailed as a welcome indication of the maturity of the field. To those concerned with skin function as an important, but not the dominating, factor in some other field of physiology, it may well come as a revelation. For it not only makes clear the extensiveness, as well as the intensiveness, of studies during the last 20 years but also convincingly demonstrates the degree to which the resultant knowledge has been integrated and systematized in at least one major school of medical science.

"The main purpose of the book is to serve dermatological research." That the author has succeeded in this task none could dispute. In the doing, however, he has set certain boundaries, which are clearly stated in the foreword, and which should be just as clearly understood by the prospective reader. In the first place, the author has concentrated on those functions which could be considered as unique to the skin, or in which the skin plays an important role. Second, he has definitely subjugated the interests of such applied fields as clinical dermatology to those of basic research. This latter restriction will undoubtedly cause some disappointment to those with clinical interests. It is most tantalizing, for instance, to be keyed up by an excellent account of sebaceous secretion and its determinants, only to be deserted just when the elucidation of seborrhea seems close at hand. But this is a small price to pay if these self-imposed restrictions were necessary to the production of a basic textbook. If the unresolved tensions should provoke another to produce as scholarly and as informative a book on clinical applications, then humanity will have been doubly served by the present one.

The only serious criticism that I would make concerns the title, which blithely assumes that "skin" is primarily a human possession. More justice would have been done to the rest of the animal kingdom, and potential readers would have been better informed, if the qualification "human" had been included in the title. Nowhere in the book is the function of nonhuman skin discussed unless it directly contributes to the current discussion on human skin. This oversight both illustrates and perpetuates the unfortunate tendency, so frequently encountered, to regard human physiology as "normal" and that of other forms as "special." In cutaneous function, as in so many other respects, it is man who is peculiar, and human peculiarities may be better understood when viewed against the broad background of evolutionary development. For example, due consideration is given to the apocrine sweat glands, and the impression is given that we should not be satisfied with the two pigeon-hole classification that has served us hitherto; but there is no hint of the current controversy over the role of these glands in the heat regulation of mammals, nor is there a suggestion that their role in human physiology may be but a stylized relic of a wider and more flexible evolutionary past.

In organization the book follows a logical sequence, from fundamental biophysical aspects, through sweat secretion and insensible water loss, to histological chemistry, and finally to certain selected special problems such as pigmentation, hair growth, nutritional influences, and the pathophysiology of blister formation. Seven of the 28 chapters are written by contributing authors: Z. Felsher, G. C. Wells, A. L. Lorincz, A. B. Lerner, H. Pinkus, and P. Flesch. The chapters in the second half are of markedly uneven length, varying from 49 to 4 pages, but this is largely a reflection of the relative state of knowledge on the various topics. The illustrations are numerous, clear, and informative. The photographs are of uniformly good quality. The maintenance of quality in photographs that have appeared in previous publications suggests that care has been taken to secure original prints and to avoid the cumulative fogginess of reproduction which so often mars good textbooks. The references are extensive but cogent. In the area of my acquaintance there are few, if any, important omissions.