AN OUTLINE OF THE CHEMISTRY OF THE CARBOHYDRATES. Ed. F. Degering, Professor of Chemistry, Purdue University, Lafayette, Indiana. Planographed by John S. Swift Co., Inc., Cincinnati, Ohio, 1943. viii + 474 pp. 13.5 x 23.5 cm. $6.00.

The outline is an up-to-date textbook for graduate students on the chemistry of carbohydrates with the emphasis on the structures and proofs of structure of the sugars. More of the economics of the subject is included than might be expected in a chemistry text and an historical account of the progress in the structural chemistry of the carbohydrates is given. The 1640 references in the 17 chapters bring the subjects of absolute configuration, photosynthesis, stereoisomers, etc., up to the minute. The Degering method of writing an equation gets more information into one line than many authors get in a paragraph. In some cases he gives laboratory directions for carrying out the reactions.

The book is sectioned into five divisions: general introduction, terminology, preparation, physical properties, and chemical properties. A chapter on identification of the carbohydrates is included.

As related in year-by-year fashion (this style of writing history is now reserved for diaries!) the historical setting is as dull as a timetable. In the reviewer's opinion, most graduates will not be able to read Degering's first chapter entitled, 'Some Historical Highlights,' without knowing the nomenclature and some of the chemical properties of the carbohydrates. The general introduction (a misnomer) includes the treatise on the structure and stereoisomerism of the sugars. For these reasons it is hoped that the author will revise the order of presentation when the book is printed. The reviewer suggests that the proof of structures and the historical part be put in after the student knows the chemistry involved. The story of Emil Fischer's work, for example, can be made romantic and inspirational at that time.

Professor Degering uses the shotgun method of presenting evidence for structures and allows the reader to evaluate it. Where a teacher may give the proper emphasis no particular harm will be done by this method but the independent research worker will turn to such works as the three chapters in Gilman's "Organic Chemistry" on carbohydrates where the evidence has already been sifted and more discrimination used in searching the literature.

The 38 tentative rules of the Committee on Carbohydrate Nomenclature as interpreted by Degering are given in the division on terminology. After deploring the fact that there are 11 methods in the literature of designating configurations and rotations of molecules the author adopts the most popular one and then immediately proposes a new convention for showing perspective ring structures in the carbohydrates. His new proposal has no advantages over the system used in Gilman's "Organic Chemistry," which is already generally accepted by American sugar chemists. It has the disadvantage of being clumsy in showing polysaccharide structures.

The monomoy of the planographed page is broken by a number of pictures showing various stages in the commercial processing of carbohydrates.

In general, the content of the "Outline" is good but the arrangement of material is questionable.

SAMUEL GLASSTONE

BERKELEY, CALIFORNIA

R E C E N T  B O O K S


This well-known handbook of experimental physical chemistry, probably the pioneer in the field, first appeared in 1893 under the authorship of Wilhelm Ostwald. The second edition was issued in 1902 in collaboration with R. Luther, and the work has subsequently become familiar to the scientific world as "Ostwald-Luther." The latest (fifth) edition, published in 1934, was largely revised and rewritten by C. Drucker, with individual chapters contributed by W. Bothe and F. Paneth (Radioactive Measurements), W. Gerlach (Applications of Vacuum Tubes), R. Gross (X-rays and Crystal Structure), H. von Halban (Chemical Dynamics), R. Luther (Calculations), and F. Weigert (Optical Measurements).

The book under review is a reprint of this edition "published and distributed in the public interest by authority of the U. S. Allen Property Custodian under licence No. A-104." The American publishers have added an English translation of the table of contents, and a glossary of somewhat less than 1000 technical terms for the benefit of readers not very familiar with the German language. However, those who find it necessary to look up the translations of such words as "bleie," "dicker," "luft," and "reich" will not get very far with this book.

"Ostwald-Luther" is too well known to chemists to require detailed description; it is sufficient to state that it covers all aspects of experimental physical chemistry. Although the book does not always give sufficient detail for the use of certain instruments or the performance of measurements, there is usually an adequate explanation of the fundamental principles involved. In any event, there are numerous references to the literature where further information can be obtained.

The publishers are to be congratulated on making this physicochemical classic available to American scientists at such a reasonable price. It is unfortunate, however, that the original text was written about 14 years ago, and this is a long time in the history of physical chemistry. Consequently, while the fifth edition of "Ostwald-Luther" is still a valuable reference work, it is inevitably not completely up to date in some respects.

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LEALYN B. CLAPP

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PROVIDENCE, RHODE ISLAND

PHYSICAL BIOCHEMISTRY. Henry B. Bull, Associate Professor of Physiological Chemistry, Medical School of Northwestern University. John Wiley and Sons, Inc., New York, 1943. iv + 347 pp. 94 figs. 45 tables. 15 x 22 cm. $5.75.

The author modestly describes his work as an outgrowth of a series of lectures which he has given to graduate students in biochemistry, physiology, and neurology, with medical students also in attendance. "Piquant development" is more fitting than "outgrowth" as a descriptive term, for the style of writing is powerfully clear. It compels attention, and stimulates constructive thought.

A knowledge of elementary calculus is assumed on the part of the readers of this volume, because formulas and equations are displayed with rapidity and abandon. However, references to the literature are given for the derivation of these exact relationships, as well as for the amplification of many topics. Such a technique is involved in the author's type of experimental approach to theoretical aspects of physical chemistry. This handling of the mathematics should stimulate a thorough refreshing process in readers who enjoy algebra and calculus. On the other hand, will it discourage students who dislike "math?" Your reviewer believes not, because the tables and graphs which accompany and elucidate the equations are so clearly set up. The explanations are encouragingly helpful and the biological applications are fascinatingly described. The author seems to be a master of educational tact. Whereas a few students may be disappointed that there are no mathematical problems or exercises to be worked, the majority will probably give joyous sighs of relief, and in this mood then learn much more from their reading of the text than otherwise.

The material is carefully selected to fit the requirements of an