Progress in Nucleic Acid Research. Volume 1. Edited by J. N. DAVIDSON and WALDO E. COHN. Academic Press, Inc., 111 Fifth Ave., New York 3, N. Y. 1963. 424 pp. 16 × 24 cm. Price, $13.00.

The spirit of this series is well expressed by a quotation: ". . . in essay form such topics will be discussed that seem of significance at the moment. Judging from the profusion of work in this area, much will soon be antiquated anyway. This report will also not be quite unbiased" (Lipmann, p. 138). The rapid appearance of new material, too often redundant, uncritical or opinionated, makes it impossible for any of us to evaluate more than a narrow segment of this field. Opinion not substantiated by facts (sometimes not yet!) still plays too important a role in the literature of the nucleic acid problem. This series promises to be a big help in coordinating, digesting, and recognizing facts and opinions. The first volume dispels much of the haze over the topics of "Primers," RNA synthesis from three viewpoints, and mRNA. It summarizes the reduction of the "Coding Problem" from ". . . abstract speculation into the rough and tumble of experimentation" (Crick, p. 212). Four aspects of the interpretations of the characteristics of DNA macromolecules are presented, including one on radiation, as is the lack of such information on RNA macromolecules. This series will be required reading for many, and future volumes are eagerly awaited. The editors are to be congratulated upon achieving a tone which is an improvement over that of the usual reviews.

SLOAN-KETTERING INSTITUTE FOR CANCER RESEARCH
RYE, NEW YORK GEORGE BOSWORTH BROWN

Nucleophilic Substitution at a Saturated Carbon Atom. By C. A. BUNTON, Reader in Chemistry, University College, London. American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York 17, N. Y. 1963. 172 pp. 14 × 22 cm. Price, $7.00.

This deceivingly simple reaction has attracted attention from many physical organic chemists in this generation. Despite its inscrutable aspects, research on it has led to important discoveries about the nature of ions, solvent effects, and salt effects. Professor Bunton's important experimental contributions to the field make him a mature, responsible guide. The six chapters are concerned with duality of mechanism, structural effects upon rate of substitution, stereochemistry, solvent effects, salt effects, and electrophilic catalysis. The style is clear. Emphasis is always on the general interpretation, to which the recounting of facts is subordinated. Generalized formulas and equations are plentiful; tables of data are fewer. There are more than 300 references, assembled at the ends of the chapters.

A short addendum hints at the active nature of the field, as does the content of many of the current journals. Already a wish expressed in the author's last paragraph is coming true, with the making of kinetically studied carbonium ions accessible to direct physical observation at the hands, for example, of Deno, Olah, Richey, Schleyer, and their respective co-workers.

The field of nucleophilic substitution at a saturated carbon atom is full of subtleties ("wonderful little flowers," in the words of an oft-quoted referee). The very volume of the experimentation and thought which these have received may have discouraged some chemists from becoming familiar with them. This book does not cover them all, but it should increase the appreciation of the work of the past and the interest in that which is to come.

Like many human products, the book is not free of errors, but we hope that the book will be used for background by many chemists with a newly kindled interest in the subject.

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Electrochemical Reactions. The Electrochemical Methods of Analysis. By G. CHARLOT, Professor of Analytical Chemistry, Faculté des Sciences, Paris, J. BADOZ-LAMBLING, Maitre de Recherches, Centre National de la Recherche Scientifique, Paris, and B. TRÉMILLION, Docteur des Sciences, Ecole de Physique et de Chimie Industrielles, Paris, France. American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York 17, N. Y. 1962. 376 pp. 17.5 × 24.5 cm. Price, $15.00.

The authors present a systematic treatment of what the American analytical chemist calls "electroanalytical chemistry." Chapter I deals with equilibrium potentials and current–voltage curves in the presence and absence of mass transfer. Using current–voltage curves, the authors show clearly how reactions occurring at the anode and the cathode of an electrochemical cell can be predicted. This chapter is sound introductory treatment of voltammetry. Chapters II, III, and IV cover the derivations of current–voltage curves for reversible and irreversible cases. Many theoretical situations and actual examples are given, and the level of the treatment used is of average difficulty. Chapter V discusses the effect of electrode surface area, electrode metal, and electrode pretreatment on shapes of current–voltage curves. Temperature effects, absorption phenomena, IR drop, electrical migration, and convention are also discussed. In Chapter VI, the elements of the experimental determination of current–voltage curves are presented. Simplified circuit representations are given, along with a description of several indicator and reference electrodes. Chapter VI is quite elementary and is not as complete as the preceding chapters.

Zero and constant current potentiometry are covered in Chapter VII. Current–voltage curves are used to clarify the theoretical basis behind the various types of titrations based on one- and two-electrode techniques. This chapter is a clear and an above-average exposition of the basis of potentiometry.

In the next chapter, "Amperometry," a satisfactory discussion of conventional one- and two-electrode methods is presented. The content of Chapter IX, dealing with the relationship between amperometry and potentiometry, is not found in other textbooks and is of considerable interest.

The fundamentals of controlled potential and constant-current coulometry and coulometric titrations are given in Chapter X. A short discussion of instrumentation is also presented. The bibliography of this chapter is quite comprehensive.

Chapter XI describes miscellaneous applications of current–voltage curves. Examples include applications to corrosion and passivation phenomena, reduction by metals and amalgams, and electrochemical catalysis of oxidation–reduction reactions. Interesting examples of electrolytic separations, refinings, and preparations are also presented. This chapter is quite stimulating.

Chronoamperometry, chronopotentiometry, a.c. polarography, and anodic stripping analysis are briefly discussed in Chapter XII.

The final chapter considers nonaqueous solvents and is approximately 20 pp. in length. It is not surprising that only a rudimentary introduction is presented, considering the vast field the authors attempt to cover in such a short space.

As a whole, this book is of high scientific quality and has an original flavor. One is struck by the extremely systematic treatment and the excellent and complete bibliographies at the end of each chapter which make it extremely easy to find the modern literature in each field. It is a worthwhile addition to the literature and can be recommended to the practicing electroanalytical chemist.

It is unfortunate that the sign conventions used in presenting current–voltage curves do not conform to present American electroanalytical practice. It is also regrettable that the publishers did not edit the translation more carefully with respect to language style, which is often unnecessarily awkward.

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