compounds that can be volatilized up to 500° can be chromatographed.

While the chapter on radioisotopic technique gives some useful technical information, it hardly seems profitable to describe the preparation of so few isotopically labeled compounds.

Although this may be remedied in the later volume, there seems to be no reference in this work to the method of high voltage paper electrophoresis which has been used so elegantly in conjunction with chromatography in the analysis of the peptides that result from enzymic digests of proteins, *i.e.*, the so-called "finger printing" technique.

The second part of the book contains information upon which the chromatography of different classes of compounds may be attempted. The authors describe the appropriate solvents, reagents, the useful precautions, and state precisely the preferred technique. Very useful features are the very complete tables of R_f values for the different compounds. For example, the techniques for the separation of sorbitol, mannitol, sucrose, glucose, fructose are clearly given. Similarly, the chapter which deals with phenolic compounds contains helpful information about the separation of such compounds as gallic acid, protocatechuic acid, cinnamic, coumaric, caffeic and homogentisic acids (all of which incidentally are of natural importance and, therefore, also relate to the subject of Volume II). It is surprising that in the chapter on acids the authors describe so very briefly the separation of naturally occurring organic acids. This is the more regrettable since this subject will apparently not be dealt with in Volume II, notwithstanding that it will be devoted to chromatography in relation to biology. But the chapter on separation of stereoisomers is rewarding, as it describes for example the separation of such compounds as allohydroxyproline and hydroxy-L-proline.

A few obvious lapses and misspellings mar the otherwise satisfactory standard of the work. The utility of this work, however, lies in the amount of collected information which is designed to permit investigators to carry out chromatographic separations upon a wide range of compounds. Although the present volume contains much that is useful to this end, Volume II will be awaited with special interest by those who are primarily concerned with the widespread uses of chromatography in biochemistry. Although a number of other handbooks on chromatography are now available, this additional one contains much that will be useful to those who need to know about this rapidly moving field.

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ITHACA, NEW YORK

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AND
H. M. DURANTON

Advances in Organic Chemistry: Methods and Results. Volume I. Edited by RALPH A. RAPHAEL, The University, Glasgow, Scotland, EDWARD C. TAYLOR, Princeton University, Princeton, New Jersey, and HANS WYNBERG, Tulane University, New Orleans, Louisiana, and Rijksuniversiteit, Leiden, The Netherlands. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1960. ix + 387 pp. 16 × 23.5 cm. Price, $12.00.

This is the first volume of a projected series of publications in organic chemistry that will provide a critical appraisal and evaluation of new aspects in the process of development, and of novel extensions to well-established methods. It is the intention of the editors to select contributors who have either developed the method described or been actively engaged in the particular field. This objective has been fully realized in the present volume. The editors are supported by an advisory board of twenty distinguished European and American chemists.

The scope of coverage is indicated by the six topics included in the present volume: The Kolbe Electrolytic Synthesis (34 pp.), by B. C. L. Weedon (London); Polyphosphoric Acid as a Reagent in Organic Chemistry (46 pp.), by F. Uhlig (Wiesbaden-Biebrich, Germany) and H. R. Snyder (Urbana, Illinois); The Wittig Reaction (20 pp.), by S. Trippett (Leeds, England); Hydroxylation Methods (45 pp.), by F. D. Gunstone (Fife, Scotland); The Selective Degradation of Proteins (90 pp.), by E. O. P. Thompson (Melbourne, Australia); Optical Rotatory Dispersion and the Study of Organic Structures (110 pp.), by W. Klyne (London).

The individual contributors have been given wide latitude with respect to the style and character of their articles, a practice that is quite appropriate to this sort of publication and has produced highly gratifying results. Some of the subjects are covered in detailed fashion and include typical experimental procedures. In other chapters the subject is surveyed broadly and particular aspects are selected for discussion and appraisal. Each chapter is provided with an extensive, alphabetical list of references and there are also comprehensive author and subject indexes. In general the literature has been covered through 1958, with occasional 1959 citations. The type is clear and the text is free of typographical errors. Structural formulas are used generously and are well reproduced.

Articles of the kind here presented will facilitate and encourage the acceptance and general application of new methods and techniques. This volume sets a high standard of excellence and will prove useful and stimulating to graduate students and research workers in organic chemistry and related fields.

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ITHACA, NEW YORK

JOHN R. JOHNSON

Progress in Dielectrics. Volume I. General Editor, J. B. BIRKS, B.A., Ph.D., Sc.D., D. Inst. P., A.M.I.E.E. American Editor, J. H. SCHULMAN, Ph.D. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1960 ix + 312 pp. 15.5 × 24.5 cm. Price, $11.00.

The intent of this proposed annual series, to judge from the Editor's introductory remarks and the scope of the present volume, is to review developments of both scientific and technological interest in quite a wide variety of dielectric properties. This volume contains seven review articles by British and American authors. About half the book is concerned with dielectric breakdown effects. (1) J. H. Mason discusses breakdown in solids from the viewpoint of the insulation designer who must necessarily consider the problem in its broadest sense: the nature of breakdown in a number of practical insulating materials, the influence on dielectric strength of temperature and mechanical stress, the role of gradual deteriorative effects, the subleties of practical testing procedures, and similar topics. (2) In crystals, the incipient stage of high-field breakdown is frequently characterized by the formation of visible paths oriented along particular crystallographic directions. J. H. Davisson reviews the extensive experimental and theoretical studies of such directional effects, which range from a general tendency toward breakdown in some one direction to the formation of intricate "star patterns." These studies have been most fruitful in furnishing insights into the basic mechanism of breakdown in solids. An interesting by-product of the experimental technique is the use of the star patterns, which can be obtained simply and easily, as a direct visual tool for identifying the symmetry of complex crystals. (3) Breakdown in liquids is discussed by T. J. Lewis, with emphasis on the mechanisms of field-induced conductivity. The primary processes are field-enhanced electron emission from the cathode, by the Schottky mechanism or some closely related process, followed by avalanche multiplication in the liquid. Lewis reviews the current development of the analytical theory of these basic processes, in an experimental context of recent investigations of conduction and breakdown in hydrocarbons, in which sufficient control of the experimental conditions (extremely pure samples, reproducible electrodes, etc.) has been achieved to permit systematic comparisons of experiment and theory. (4) T. W. Liao and R. E. Plump discuss several practical aspects of the use of gaseous dielectrics, chiefly electronegative gases such as SF_6 in which a high cross-section for electron capture inhibits the growth of avalanches and results in a high dielectric strength. A number of gases are compared in such properties as dielectric strength, thermal and chemical stability, and efficiency of heat transfer. The multiatomic gases are particularly useful in this latter respect both because of high molecular heat capacity and a high absorption coefficient for thermal radiation.

The much abbreviated descriptions above give a rather inadequate idea of the impressive quantity, and the high density, of information that the articles contain. The