An unexpected entire chapter on long-range forces indicates the courage and vigor with which the author attacks his problems. Although well-qualified men have speculated intensively on long-range forces, the validity of the basic concept is open to question. As pointed out, a chain-like coupling of short-range forces may explain many so-called long-range effects. By presenting both sides of the argument in an interesting and informative manner, the author demonstrates his skill in handling a difficult topic.

Several features will make this work a useful textbook. A wide variety of fundamental and applied surface chemistry has been carefully organized and is outlined in the detailed Table of Contents. For the most part, discussions are presented in a thorough and rigorous manner. Many graphs, tables, and schematic drawings will aid the student. A clear, informal, yet thought-provoking style of writing makes the reading understandable and pleasant. As a special service to both student and teacher, the first five chapters, dealing with the more basic concepts, contain problems that are ingenious and require careful thought. General references at the end of each chapter are well chosen, and the indexing is commendably thorough.

Research workers will find the "Physical Chemistry of Surfaces" informative and stimulating. The format of the book is most attractive. Errors—principally in proofreading—are few, and most of them are minor. In places, a lack of balance many prove disturbing: certain areas are treated in detail and well-documented (*e.g.*, low-temperature gas adsorption), whereas others receive little or no attention (*e.g.*, infrared studies of adsorption). Furthermore, one of the best modern techniques for measuring adsorption from solution onto solids—the use of radiotracers—is not discussed. The textbook nature of the work, however, may justify some imbalance in space and documentation. Statements that represent the opinions of the author are labeled and add, rather than detract.

In over-all form and organization, the book is somewhat similar to the classical work in the field, N. K. Adam's "The Physics and Chemistry of Surfaces" (1941). However, there has been great activity in surface chemistry during the last twenty years, and most of Adamson's references are to the literature of this period. Because of the many topics covered, some sections may appear too brief or even superficial when compared with certain of Adam's detailed discussions. Nevertheless, most topics of importance are given adequate treatment.

Comparison of Adamson's book with two other well-known works in the field will further define its position in the literature. W. D. Harkins' "The Physical Chemistry of Surface Films" (1952) is a detailed treatment of a specific area of surface chemistry—as the title implies. J. J. Bikerman's "Surface Chemistry" (1958) gives more attention to applications.

In perspective, Adamson's book thus seems to combine much of the scope, organization, and readability of Adam; the detail of Harkins; and the many applications of Bikerman. The book as a whole is an admirable combination of an informative and provocative textbook and a valuable up-to-date reference work in the broad field of surface phenomena.

RESEARCH & DEVELOPMENT DEPARTMENT
AMERICAN OIL COMPANY HERMAN E. RIES, JR.
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Surface Microtopography. By S. TOLANSKY, D.Sc., F.R.S., Professor of Physics, London University. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1960. viii + 296 pp. 15 × 22.5 cm. Price, $9.00.

This book deals with precision multiple-beam interferometry as developed largely by the author; it makes no attempt to cover other methods of revealing surface contour. The treatment is detailed and authoritative, methods are clearly analyzed, and 359 photographs are shown and interpreted in terms of structure.

Although "resolution" of vertical distance may approach lattice dimensions, lateral resolution is limited by that of the viewing microscope, usually at 100 to 500 ×. Such a discrepancy (involving 3 orders of magnitude) between the "elevation" and "plan" features of the topography, although inherent in the method, emphasizes the need for complementing it with other interpretive techniques of light and electron microscopy. Some space might well have been devoted to these ancillary methods.

Additional applications are suggested by those discussed at some length from the author's studies of thin films, crystal faces on diamonds and quartz, growth spirals on silicon carbide, cleavage surfaces of minerals, indentation hardness of metals, and effects of impact, sparks, etching, erosion and abrasion on various materials.

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Les Mecanismes Reactionnels en Chimie Organique. BY BIANCA TCHOUBAR, Maitre de recherches au C.N.R.S. Dunod, Editeur, 92, rue Bonaparte, Paris 6, France. 1960. x + 221 pp. 11 × 16.5 cm. Price, 16 NF.

This little book endeavors to present the most important facts and theories concerning reaction mechanisms in organic chemistry and does it amazingly well. Mademoiselle Tchoubar has succeeded in encompassing in a remarkably short space the quintessence of this sprawling subject in a masterfully clear and logical manner.

The book starts with a sketch of the bases of the electronic theory of organic structures and includes a discussion of types, polarity and polarizability of bonds, inductive and resonance effects as well as the nature of acids and bases. The main body of the book is concerned with reaction mechanisms, summarizing first the determination and significance of the order of a reaction, and the energetic and conformational factors which play a part in determining the course of a given transformation. This is followed by a discussion of nucleophilic displacements, transposition reactions, elimination mechanisms, addition to double bonds, acid-catalyzed isomerizations and carbonyl addition reactions. The book finally ends with an outline of aromatic substitution reactions.

The discussions are not intended for the expert in the field but rather as a survey for the beginner or for one who although quite familiar, through long practice, with the language of organic chemistry, would profit from a study of its grammar.

The attractive presentation of the book and its low price make it an excellent purchase for students who will get the ancillary benefit of practicing chemical French with the particularly lucid example which Mademoiselle Tchoubar has produced.

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