scraper, the author closes his book with this message: "Nature is great, but man is greater still."

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Structure and Mechanism in Organic Chemistry. C. K. Ingold. Ithaca, N. Y.: Cornell Univ. Press, 1953. 828 pp. Illus. $9.75.

Chemists have for many years owed a debt of gratitude to Cornell University for the series of monographs that have arisen out of the Baker Lectures. One important function served by these lectures, and by the resulting books, is that distinguished leaders in the different branches of chemistry are given the opportunity to set forth in considerable detail, and in a more systematic way than is possible in the journal literature, their own contributions to the science. This latest addition to the growing collection of definitive monographs is a worthy companion of its predecessors. Professor Ingold is to be both congratulated and thanked for this stimulating discussion of his outstanding work on reaction mechanisms. No chemist can afford to be ignorant of the material that is presented here.

An idea of the field that has been explored by the author can be most easily obtained from a list of the titles of the 15 chapters:

Valency and Molecular Structure; Interaction Between and Within Molecules; Physical Properties of Molecules; The Aromatic Nucleus; Classification of Reagents and Reactions; Electrophilic Aromatic Substitution; Nucleophilic Aliphatic Substitution; Olefin-forming Eliminations; Saturated Rearrangements; Unsaturated Rearrangements; Aromatic Rearrangements; Additions and Their Retrogression; Acids and Bases; Carboxyl Reactions; and Nucleophilic Aromatic Substitution.

As is evident from this list, reactions which proceed by free-radical mechanisms are almost completely ignored. This deficiency would of course be a serious one if the book were regarded as a comprehensive treatment of "structure and mechanism in organic chemistry"; it becomes of minor importance, however, when the book is instead regarded as what it actually is—a summary of the work of the author and of his colleagues. Similarly, the frequent failure to give due recognition to parallel, or even earlier, work of other investigators who have not been associated with Ingold is regrettable, but the value of the book as a survey of the author's own contributions is not thereby greatly decreased. It is, in fact, a tribute to the remarkable breadth of the author's interests that, even with this limitation, so large a segment of organic chemistry is covered.

Some features of *Structure and Mechanism in Organic Chemistry* will certainly be found irritating by a number of readers. The prose style is complicated and, especially in the initial chapters, makes comprehension difficult. The meaning is often obscured also by the use of many specially coined words, of which only a few like "electrophilic" and "nucleophilic" have as yet become generally familiar. Moreover, since the treatment of complex problems requires that a great many independent factors be considered, one not infrequently gets the unfortunate impression that a new effect is invented for the explanation of each new observation. Even though these criticisms doubtless have some justification, nevertheless, they do not seriously detract from the unquestionable excellence of this valuable and instructive book which is, in fact, both the best and the most easily readable presentation of Ingold's work that is now available.

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Applied Electron Microscopy. Robert B. Fischer. Bloomington, Ind.: Indiana Univ. Press, 1953. 231 pp. Illus. $4.85.

Introduction to Electron Microscopy. Cecil E. Hall. New York–London: McGraw-Hill, 1953. 451 pp. Illus. $9.00.

According to the prefaces, both of these volumes are based on courses the respective authors have taught for several years, both courses are offered to seniors and graduate students of diverse interest and background in science, both authors state the same general objectives—and similarity terminates with these points. The contrasts between the two volumes impress me as a result of the authors' differing views as to the rigorousness with which they feel fundamental background needs to be developed.

The little volume by Fischer is so simply and nicely written that it can easily be perused in an evening. Comparisons of electron microscopy with the more familiar light microscopy are numerous. The few equations, not being developed, have to be taken on faith and seem to contribute little. Roughly half the volume is given over to specimen preparation and description of representative pictures (hence, I presume, the title); this is about the same amount of space as is given to these subjects in the considerably larger volume by Hall. It is difficult to see how the material given by Fischer can be stretched to fill the time of a college course or, without supplement, give a sound basis for the development of independent electron microscopists. The volume does seem to me to have real value, however, both for those seeking only a superficial appreciation of the subject, and for those who are in a position to collaborate with a competent electron microscopist and, hence, need only a simplified introduction.

The larger volume by Hall is a systematic account beginning with essential elements of physical theory and logically developing the subject step by step. He manages to work in a good many pages of mathematical exposition and documentation without calling for a background beyond the sophomore level of mathematics and physics. The present reviewer is one of those who finds the mathematical sections of most physics books overly abbreviated shorthand that can