in the preface, it has been written "from the standpoint of organic chemistry."

The subject matter is discussed under the following headings: Mechanical Properties, under which are treated Capillarity, Viscosity and Volume Relations; Thermal Properties, including Specific Heat, Fusibility and Boiling Point; Optical Properties, including Refractive and Dispersive Power, Absorption of Light, Fluorescence and Magnetic Rotatory Power; and Electric Property, including a short chapter on Anomalous Electric Absorption.

In an introductory chapter, the development of the study of the physical properties is traced and the gradual increase in importance of these properties as aids in determining chemical constitution is clearly brought out. The concluding statement of this chapter that in determining chemical constitution "evidence drawn from physical properties should be regarded as subordinate to chemical evidence" will be concurred in by most chemists. In the sections dealing with the Mechanical and Thermal Properties, an unsatisfactory impression is obtained at times with regard to the scope of the theoretical treatment as well as the application to the experimental data. On the other hand, in fairness to the author, it must be said that with the space at his disposal a more satisfactory treatment of these subjects is scarcely possible. The same criticism does not apply to the chapters in which the optical properties are discussed, as here the treatment is clear and complete, especially in describing the relations which have been deduced between absorption and chemical constitution. The additive and constitutive effects exerted by the atoms and groups of a molecule upon each property are carefully distinguished throughout and illustrated by concrete examples.

The concluding chapter considers the present status of the subject and the most fruitful lines for further investigations. In the opinion of the author, the study of the optical properties, including absorption and refraction, offer the greatest promise, but further advance along these lines depends upon a satisfactory theory of valence. This, it is pointed out, is the most important problem awaiting solution from the chemist, and "the electronic theory seems to be the only means by which there is any prospect of attaining further knowledge of the nature of valence."

K. G. FALK

Chemische Krystallographie. By P. VON GROTH. Leipzig, Wilhelm Engelmann. 1910. Vol. 3. Pp. iv + 804, 648 figures; 8vo, cloth, 30 Marks. (Volume IV. is in preparation.)

In 1904 Professor P. von Groth, of the University of Munich, published his "Einleitung zur Chemischen Krystallographie," and followed it two years later with the first volume. In 1908 the second volume of the "Chemische Krystallographie" was issued. These volumes have all been reviewed in SCIENCE.[1]

Groth's "Chemische Krystallographie" is a work of monumental proportions, and is to include the crystallographic data of all substances which have been described at the time of the publication of the individual volumes. Inorganic compounds were discussed in volumes I. and II. The third and fourth volumes are to be devoted to organic compounds. In volume III., which has just been published, crystallographic data are given for the aliphatic carbon compounds, hydrobenzol derivatives and terpenes. The method of treatment in this volume is the same as in the others, according to which all substances having a similar chemical composition are placed together and their descriptions prefaced by a discussion of the work done on the group. These discussions are suggestive as well as critical in character and make the work of much more value than a mere compilation of chemical crystallographic data could be. This volume, as well as volume IV., which it is hoped will be published before long, ought to prove of especial value to organic chemists.

EDWARD H. KRAUS
MINERALOGICAL LABORATORY,
UNIVERSITY OF MICHIGAN

[1] Vol. XXV., 143–144; Vol. XXVIII., 843.