is work of inestimable value to crystallographers, mineralogists, metallurgists, chemists, solid-state physicists, and all who are concerned with studying the structure of matter. It is an ever-increasing, monumental task, and the editors and reporters are to be congratulated on having maintained, in this volume, the high standard of accurate and critical reporting that has come to be associated with *Structure Reports*.

In contemplating the series as it now stands, three questions come to mind. First, should an effort be made to increase the rate of production beyond one volume a year in order to bring the series up to date? Second, in view of the inevitable increase in size and cost of subsequent volumes, should the price be reduced to maintain a wide distribution and to enable private subscribers to continue their support? Third, is the time ripe to revise the rationalization of crystal structure types that was given in volumes 1, 2, and 3? In my opinion, the answer to all three questions is definitely in the affirmative. It is, however, a remarkable tribute to the original compilers that the descriptions of structure types in volumes 1 and 2 of *Strukturbericht* are still very useful and in so many respects have stood the test of time.

It may very well be that these objectives could be achieved only by means of a considerable financial subsidy. If this is so, I take this opportunity to urge the International Union of Crystallography to seek such funds as are necessary to project into the future this indispensable means of coping with the increasing multiplicity of scientific papers.

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Handbuch der Physik. vol. XXXIII, *Optics of Corpuscles.* S. Flügge, Ed. Springer, Berlin, 1956. 702 pp. DM. 122.50.

Optics of Corpuscles, volume XXXIII of the new edition of the famous *Handbuch der Physik,* originally edited by Geiger and Scheel, deals with subject matter which, in the original "blue" *Handbuch,* covered a small space and was treated in different sections. It deals with methods and instruments that are based on the action of electric and magnetic fields on moving, electrically charged particles. These fields, when properly shaped, have deviating and focusing effects on charged particles in motion, as have lenses, mirrors, and prisms on light rays. All instruments that are based on this action of electric and magnetic fields are treated in this volume, and this leads to an arrangement of articles which, at first glance, appears to be peculiar. However, under the aspect of electron and ion optics, they are tied together in a natural way.

The arrangement of the different chapters appears as an analog to that expected in a treatment of instruments in light optics, in which a natural sequence would be formed by the discussion of light sources, the general theory of image formation on the basis of geometric optics, followed by a digression into wave optics in connection with a discussion of resolving power of instruments in general. This would be followed by the treatment of optical instruments, including microscopes and spectroscopes. This logical sequence is followed, in the present volume, with articles on electron and ion sources, electron and ion optics, electron microscopes, mass spectroscopes, and finally beta-ray spectroscopes.

The first article, by Detlev Kamke (Germany), is restricted mainly to electron and ion sources which are of importance for the subsequent contributions of this volume. Ion sources used in accelerators are not included; discussion of these is reserved for volume XLIX. This article is of a technical nature, and nearly two-thirds of the space is used for description of the different electron and ion guns.

The contribution on electron and ion optics by W. Glaser (Austria), is written by a first-rate expert in this field. More than one-third of the whole volume is devoted to this fundamentally important topic. The presentation excels in clarity and conciseness. One of the eight chapters is devoted to a discussion of image formation on the basis of wave mechanics.

The article on electron microscopes, written by S. Leisegang (Germany), gives, in about 150 pages, a thorough and attractive treatment of the fundamental aspects, a clear presentation of the different commercially available instruments, and a discussion of theoretical and practical limitations of electron microscopy.

A vivid account of the historical development and of the present state of mass spectroscopy is presented by H. Ewald (Germany) in his contribution entitled "Mass spectroscopic apparatus." All important types are described, and the discussion of their performance is elucidated by excellent reproductions of mass spectrograms.

The final section, on beta-ray spectroscopes, is written by T. R. Gerholm (Sweden) and is the only article of the volume written in English. It deals mainly with the instrumentation for the study of nuclear disintegration and nuclear structure. (An extensive theoretical and experimental treatment of beta-ray spectroscopy is to be included in volumes XLI, XLII, and XLV of this encyclopedia.) After a brief historical survey, the fundamental principles are discussed, and a treatment of the different instruments is given. This contains also a critical comparison of the different types. Two subsequent chapters are devoted to high-precision beta- and gamma-ray spectroscopic technique as it is applied to gamma-ray spectroscopy. An appendix contains a six-figure table for conversion of $B\rho$-values (electron momentum values) into electron energies, and vice versa, and covers the range from 0.9 kev to about 30 Mev.

Each section of the volume closes with a bibliography, which, in general, covers the years up to 1954 and, in some cases, to 1955. These same years are covered by the numerous references given in the text.

Layout, printing, and especially the numerous illustrations are of excellent quality. The only weak point is the inadequacy of the subject index, which is given in German-English and English-German. An encyclopedia of this type is intended to serve not only as a source of detailed information but also as a book of reference, and for the latter purpose the index should comprise many more entries than those that are given in the present volume. It would be better to have one complete index in one language than two deficient ones in two languages.

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Heterocyclic Compounds. vol. 5, *Five-Membered Heterocycles Containing Two Hetero Atoms and Their Benzo Derivatives.* Robert C. Elderfield, Ed. Wiley, New York; Chapman and Hall, London, 1957. 744 pp. Illus. $20.

These treatises on heterocyclic compounds constitute a real service to organic chemists, biochemists, and pharmacologists, since the authors have brought together information that is spread through hundreds of journals and books. The mass of material has been so well organized that future investigators will be saved the time and labor of doing it individually.

There are eight chapters in volume 5: "1,3-Dioxolane and its derivatives" (44 pages), by R. C. Elderfield and F. W. Short (1,2-Dioxolanes, which are essentially cyclic peroxides, are omitted, and 1,4-dioxanes are treated in volume 6); "Pyrazoles and related compounds" (117 pages), by T. L. Jacobs; "Indazoles" (32 pages), by Elderfield; "Imidazoles and condensed imidazoles" (104 pages), by E. S. Schipper and A. R. Day; "Oxazole and its derivatives" (120