

Thus the time is propitious for an authoritative and complete review of the subject.

The present compendium presents us with a review of the advances of the last twenty-five years, including not only the phenomenal development of experimental discoveries and techniques, but also an excellent set of articles on the theories relevant to the phenomena of beta- and gamma-ray emission. A complete account of the present status of all the techniques of detecting and measuring the beta- and gamma-rays, and of studying beta-active substances, is given. It is interesting to note that the precision of energy measurements is now determined in some cases by the inherent line-width, so that an ultimate limit has been reached. The theories of beta-decay, multipole radiation, internal conversion, the nuclear shell model, the collective model, and angular correlations are given in considerable detail; they constitute the most difficult chapters of the book for non-specialists.

The final result is a comprehensive picture of what is now probably the best-understood branch of nuclear physics, and the one with the widest applications in other sciences, in technology, and, alas, in politics.

There is no doubt that this book is indispensable to anyone who wishes to work with radioactive substances. It can be recommended to the advanced research worker and to the novice alike; its range is complete and the treatments given almost uniformly good. Irreverent students will soon be referring to it as the "Bible." It is, in fact, difficult to single out any of the forty-two contributors for particular notice. In addition, the appendices contain tables of X-ray and gamma-ray absorption coefficients, the special functions occurring in the theory of beta-decay, internal conversion coefficients (only in the K-shell; the recent L-shell values were too late to include), angular correlations and electron $B\rho$ vs. energy values.

Professor Siegbahn and the forty-two authors are to be congratulated on a monumental job excellently done. The only cavil one can think of is that there might have been one more chapter giving a historical survey of the development of all the knowledge set forth here. Perhaps the editor was too modest to recognize the completely definitive nature of this book; or perhaps his mind was still on the unsolved problems remaining rather than on the problem of obtaining historical perspective on the immediate past. The field of beta- and gamma-radioactivity here defined offers an almost classically perfect example of how phenomena, once completely mysterious, come finally to be understood; and an intimation at least of the blood, sweat and tears that were required to achieve this understanding would have been well worth the trouble.

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Silicon, Sulphur, Phosphates. IUPAC Colloquium, Münster (Westf.), Ger., 2-6 September, 1954. Verlag Chemie, G.m.b.H., 17a Weinheim/Bergstr., Pappelallee 3, Germany. 1955. xi + 292 pp. 17 x 24 cm. Price, Kart. DM 24.

The text of the lectures and discussions presented at the Colloquium of the Section for Inorganic Chemistry of the International Union of Pure and Applied Chemistry, held on September 2-6, 1954, at Münster (Westfalen), Germany, is presented in the form of a book of nearly 300 pages, well arranged and attractively printed on paper of good quality, but with paper binding.

In an introduction, in German and French, the events which took place at the colloquium are recorded, such as the presentation of the Alfred Stock prize to Dr. Emeléus of Cambridge University. The international character of the conference is emphasized by the fact that the different papers are presented in German, French or English, and that the authors of the comprehensive lectures and communications included in the text represented eight nations—France, Holland, England, Belgium, Austria, Switzerland and Germany, as well as the United States. Fourteen of the papers were concerned with silicon and its compounds; and 21 with phosphates and condensed (meta-) phosphates.

The papers presented represent recent research in the three fields selected for the colloquium, and they include a number

of significant contributions. The impression is gained that Dr. Klemm in his introduction correctly concludes that the Münster colloquium proved that such a conference, in the course of which a well-defined theme is discussed on an international basis by specialists, is very fruitful, and that a repetition of such a meeting in the near future is very desirable.

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Progress in the Chemistry of Organic Natural Products. (Fortschritte der Chemie Organischer Naturstoffe). Vol. XII. Edited by L. ZECHMEISTER, California Institute of Technology, Pasadena. Springer-Verlag, Mölkerbastei 5, Wien I, Austria. 1955. x + 550 pp. 17 x 23.5 cm. Price, \$19.00; Ganzleinen, \$19.80.

In the latest addition to the series, Prof. Zechmeister has again assembled an attractive group of specimen chapters drawn from many corners—well-mapped as well as relatively unexplored—of the extensive and variegated forest of natural product chemistry. Emphasizing biosynthesis and the role of organic chemistry in living systems, the volume features a wide range of subjects described by frontiersmen active in the particular fields under consideration: (1) Sesquiterpenes and Diterpenes, by A. J. Haagen-Smit; (2) Tetracyclic Triterpenes, by E. R. H. Jones and T. G. Halsall; (3) Neure Vorstellungen auf dem Gebiete der Biosynthese der Steroide und verwandter Naturstoffe, by R. Teschesche; (4) Some Biochemical Aspects of Fungal Carotenoids, by F. T. Haxo; (5) The Pyrrolizidine Alkaloids, by F. L. Warren; (6) Paper Chromatography in the Study of the Structure of Peptides and Proteins, by E. O. P. Thompson and A. R. Thompson; (7) Acides aminés iodés et iodoprotéines, by Jean Roche and Raymond Michel; (8) Chemistry and Biochemistry of Snake Venoms, by Karl Slotta; and (9) Gene Structure and Gene Action, by G. W. Beadle.

The more classical organic chemist should be attracted to the timely and up-to-date reviews in the two chapters dealing with terpenes and the one concerned with pyrrolizidine alkaloids. Sesquiterpenes, diterpenes, abounding in natural product research, are of necessity treated cursorily as individuals, although the coverage is broad. Profs. Jones, Halsall and Warren are able, on the other hand, to include all the triterpenes or alkaloids appropriate for their chapters as well as to summarize the complete structural development for each natural product. Of value to researchers interested in techniques, the chapter contributed by the Thompsons boasts inclusion of all the phases implied by the title: principles, utility, and working details. The biosynthesis of steroids is treated competently by Teschesche, who not only surveys the recent findings and current hypotheses but also helps shape the contribution by supplying his own approach and philosophy in this important field. Bordering on the chemistry of life processes are investigations of iodoaminoacids and iodoproteins; structure and occurrence of fungal carotenoids; and, especially, the structure of genes. The presence of these chapters as well as the one dealing with the somewhat bizarre topic of snake venoms came as a pleasant surprise to the reviewer, since summaries of recent activities in these areas are not common. Generally speaking, then, Volume XII features a cross-section of subjects, one or another of which should appeal to the organic chemist, biochemist, pharmaceutical chemist, geneticist. This diversity may double as a drawback, since it is unlikely that all the topics treated would appeal strongly to any one of the specialists mentioned above.

Except for those numbered (3) and (7) above, all chapters are written in English.

While perusing some sections and skimming others, the reviewer uncovered only a few typographical or editorial errors. The book is well-bound and the paper is of a high quality. A goodly number of tables and diagrams are included; and there is a generous supply of organic structural formulas, which are reproduced attractively and accurately.

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