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New Books

Des Isotopes — Rapports et Discussions. Comptes-Rendus du 7-e conseil de chimie de l'Institut International de Chimie Solvay à Bruxelles en septembre 1947. R. Stoops, Brussells, 1948. 411 pp. 400 Belgian francs; bound, Belgian francs 450.

This book contains the proceedings of the symposium sponsored by the institute mentioned above and held at the University of Brussells from September 22—27, 1947 inclusive. It includes 9 papers, which were sent in advance to the attendants of the conference, and the contributions to the debate during the meeting. The following papers were subjects for discussion: (1) F. Joliot (Paris): Modes de formation, constitution et filiation des isotopes nottament des isotopes artificiels (40 pages; discussion: 3 pages). (2) K. T. Bainbridge (Boston): Some results of mass-spectrum analysis (42 pages; discussion: 4 pages). (3) C. K. Ingold (London): Isotopes in the spectroscopy of polyatomic molecules with special reference to the benzene molecule (51 pages; discussion: 7 pages). (4) M. de Hemptinne (Louvain): Les isotopes comme moyen d'investigation de spectres de bandes (52 pages; discussion: 7 pages). (5) F. A. Paneth (Durham): The preparation of radioactive tracers (17 pages; discussion: 5 pages). (6) A. Langseth (Copenhagen): The preparation of organic deuterium compounds (14 pages; discussion: 10 pages). (7) G. de Hevesy (Stockholm): Application of labelled phosphorus (86 pages; discussion: 8 pages). (8) M. Calvin (Berkeley): Radiocarbon and its application in chemistry and biology (22 pages; discussion: 5 pages). (9) D. Rittenberg (New York): The use of N-15 and D for the study of chemical processes in the living cell (12 pages; discussion: 6 pages).

The papers can be divided into three groups each of which would be of special interest to a certain type of readers.

The introductory contribution of Joliot is easily comprehensible for students. The title is not quite significant and therefore the chapter-headings may be of interest: Introduction [historical]. Constitution, répartition et stabilité des noyaux atomiques. Chimie nucléaire; radioactivité artificielle; unité de radioactivité; isomérie nucléaire. Types de réactions nucléaires provoquées; fissions; transuraniens; production des radioéléments dans les piles. — The contribution of Paneth contains a general description of the following stages for the preparation of a radioactive tracer: a) the selection of a suitable tracer substance, b) the production of the chosen nuclide, c) the analytical separation and concentration of this nuclide, d) the synthesis of the tracer substance incorporating the radioactive atoms, and e) the availability of tracers. The reading of this article will be valuable for anyone interested in the application of tracers and searching for a first approach to the subject.

Another type among the contributions to the symposium is represented by the papers of Bainbridge, Calvin and Rittenberg. These papers are comprehensive reviews with many references and for that reason are a valuable source of information for any scientist. At the same time they are stimulating reading for the specialist,

who can find interesting proposals and ideas in the papers as well as in the contributions to the debate. The article by Bainbridge is in my opinion the best concentrated survey of mass-spectrum analysis, which has been written up to now.

Finally there is a third kind of article represented by the contributions of Ingold, de Hemptinne, Langseth and de Hevesy. These articles are highly specialized and for the specialist only. Ingold's paper for instance summarizes the work of the author and his co-workers concerning the band spectrum of the benzene molecule using partly or completely deuterated molecules. The paper of de Hevesy probably is the most complete account of all tracer work in biochemistry and animal physiology using P-32 hitherto published.

A publication of this kind can serve as an important source of information for the great number of scientists interested in the subject but not able to attend the conference. If, however, the proceedings are not issued until one year later, much of the actual interest will be lost and also it will be unavoidable that some of the papers will not be up to date (in this case for instance the information concerning the transuranium elements or the availibility of tracers). Therefore it would be quite worthwhile to study any means for speeding up the publication of such proceedings, even if this can be reached only with some inconvenience for the reader and at the cost of the appearance of the book. *K. E. Zimen*

Kathleen Lonsdale. *Crystals and X-Rays.* G. Bell & Sons Ltd., London, 1949. 199 pp. 21 s.

As Dr. Lonsdale says in the foreword to this book, it has been designed to interest those who do not now use X-ray crystallography but who might well do so and to instruct those who do use X-ray crystallographic methods without altogether understanding this tool. She also hopes that the book will persuade these two classes of people to pass on to more thorough textbooks.

I think that every reader of the book will find that Dr. Lonsdale has attained these objects in an admirable way. The treatment is elementary and clear although the presentation is very concentrated. Because of this last fact a reader who has had no previous knowledge of X-ray crystallography will not find the text easy. But the stimulating style will certainly awaken the interest of the reader and cause a wish to pursue the subject further. Also people who already are acquainted with X-ray crystallography will find the text useful. In many places one finds various characteristics of the present problems most ably dealt with and the numerous striking metaphors add to the pleasure of the reading. The historical introduction is excellent and reveals incidents and features which have hardly ever been mentioned in earlier textbooks. Another example of an outstanding treatment is the chapter on extra-structural studies.

If any critical remarks should be made they would be connected with the concentrated form of the text. One such remark concerns the treatment of point symmetry and symbols on pp. 56—63. I don't think that a reader without any previous knowledge in crystallography will obtain a sufficient understanding of these pages. The brevity of the text is also the cause of some statements of a too categorical nature. For example it would have been desirable for the author to state on pp. 167—168 that NaCl and KCl form a complete series of solid solutions only at elevated temperatures.

In this journal a book ought to be reviewed with regard to its interest or usefulness to the chemist. I am convinced that Dr. Lonsdale's book will prove quite

valuable to any chemist who wants an introduction to the possibilities of X-ray crystallography in solving chemical problems. It will also facilitate his understanding of papers in structural chemistry. This is a good thing because there is no doubt that many such papers, containing data of great chemical importance, are not understood by most chemists because of the difficult specialized language of X-ray crystallography.

G. Hägg