be incorporated, though to a lesser extent than the C_3 fragment since the total incorporation of activity from the 2-C of leucine is limited.[2] This is explicable by dilution from a C_2 metabolic pool.

By contrast, the 3-C is found primarily in the methyl of the acetic acid. This does not rule out the possibility that this carbon may also be found elsewhere in the chain, and several choices still exist as to the pathway followed, which we hope to evaluate when warranted by additional data.

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BOOK REVIEWS

Actions Chimiques et Biologiques des Radiations. Deuxième Serie. I. Les Effets Chimiques Produits par les Rayons Ionisants en Phase Gazeuse. By W. MUND. **II. Phénomènes de Luminescence Provoqués par les Rayonnements de Grande Énergie.** By M. AGENO. **III. Introduction a la Dosimétrie des Radiations.** By N. MILLER. Edited by M. Haïssinsky. Masson et Cie. Éditeurs, 120, boulevard Saint-Germain, Paris-6e, France. 1956. vi + 224 pp. 16.5 × 24.5 cm. Price, Broché, 2.800 fr.; Cartonné toile, 3.400 fr.

This second collection of works consists of related sections on the chemical and physical aspects of ionizing radiations. This series, supplementing the first,[1] deals with the radiation chemistry of gases, with luminescence phenomena and with the dosimetry of ionizing radiations. Each section is written in French by an authority in the field.

The calculation of energy loss by α-particles in gases, the chemical action of low energy electrons and the ionization potentials of simple gases are basic topics treated by Dr. Mund in Part I. Negative ion formation and the methods for differentiating between free radicals and ions in the primary process are also briefly discussed. Mechanisms and some experimental data are given for the radiolysis of inorganic gases such as ammonia, hydrazine, hydrogen sulfide, the halogen acids, ozone, the nitrogen and carbon oxides, and of several organic vapors. Special attention is devoted to the hydrogen–deuterium exchange reaction. Emphasis throughout this section is on the extensive works of Mund and his collaborators. Reaction mechanisms are discussed in terms of free radical reactions and, unfortunately, no assessment is made of the possible contributions of molecule–ion reactions in gas phase radiation chemistry.

Dr. Ageno, in part II, succinctly summarizes the physical aspects of luminescence and compares the effects obtained by ultraviolet light and ionizing radiations. This section of the book is complete and the material is presented in logical order. All phases of luminescence phenomena from the experimental methods, luminescent yields of a large number of substances to the mechanism are covered. Progress in this field is very rapid. As a result, some recent data are missing and some of the older data on mean lives of organic scintillators (Table VI, p. 120) require revision.

Introduction to the Dosimetry of Radiations is an excellent, concise treatment of the physical and chemical methods of dosimetry by Dr. N. Miller in Part III. No attempt is made to describe radiotherapy dosimetry nor the instruments used in dosimetry. The dissipation of energy in matter by charged particles, by electromagnetic radiation and by ionization in gases is outlined. The chapter on relative methods consists of a discussion of several aqueous, organic and luminescent glass dosimeters and of their relative merits. The absolute methods of dosimetry such as calorimetry, charge collection, nuclear reactions in solution and ionization are more completely explained. Useful conversion factors and the oxidation yields of ferrous sulfate for different kinds of radiations are given in the Appendix.

Chemists, physicists, biologists and radiologists interested in the chemical and physical actions of ionizing radiations will welcome this volume, since material particularly applicable to dosimetry by ionization, scintillation and chemical methods is presented. An English edition will find wide appeal.

(1) E. J. Hart, THIS JOURNAL, **78**, 2916 (1956).

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Nouveau Traité de Chimie Minérale. Edited by PAUL PASCAL, Membre de l'Institut, Professeur honoraire a la Sorbonne. Volume X. **Azote—Phosphore.** By R. DUBRISAY and P. PASCAL. Masson et Cie. Éditeurs, Libraires de l'Académie de Médecine, 120 Boulevard Saint-Germain, Paris 6, France. 1956. xxxix + 963 pp. 18 × 25.5 cm. Price, Broché 6.600 fr., Cartonné toile 7.500 fr.

This volume (No. X) is the second to appear of the nineteen volumes projected for the complete treatise. A look around a library's reference shelves discloses that the nitrogen-phosphorus sections of the other large handbooks are now from twenty to thirty years old, which should assure the present treatise a warm welcome. In harmony with the general plan of the treatise, it has been necessary to compress the industrial aspects of the writing in order to make room for the host of new physico-chemical results and interpretations which have developed during the last half-century. A special aid to French readers is afforded by the List of Libraries both Parisian and Provincial (100 in all) in which the relevant Journals may be found, with an indication in each case of the extent to which the available files are complete. Bibliographic references are grouped by tens under general subjects at the end of each section of the book, and most of them purport to cover the literature up to the summer of 1955. At the bottom of each page of text is a reminder of the page where the relevant bibliography can be found. A variety of checks in matters of detail, including comparison with the necessarily much briefer treatments in Yost and Russell's Systematic Inorganic Chemistry (Prentice-Hall, Inc., New York, 1944) indicate that the present volume is in all ways a worthy example of this type of writing —so enormously time-consuming and difficult, and yet so necessary to the progress of science. The material on nitrogen, prepared by the Editor, occupies about 700 pages, while M. Dubrisay has contributed about 215 pages on Phosphorus. In the final chapter (18 pages), M. Pascal returns with a treatment of the organophosphorus compounds. Indexes and other matters bring the total to 963 pages. Printing and make-up are excellent and clear, and the few errors mostly involve minor misreadings of foreign terms in the bibliographies. American users familiar with French will find this a much handier and more selective source of information than Gmelin, though perhaps not quite so complete, when sections of equal date are compared.

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