NEW BOOKS

EINFÜHRUNG IN DIE LEBENSMITTELCHEMIE, by A. Beythien and W. Heimann (Theodor Steinkopff Pub., Dresden and Leipzig, Germany, 491 pp., 1961). This introduction to food chemistry is the fifth edition of the original introduction by A. Beythien of this subject. The present edition is divided into three main sections: one, the ground work for food chemistry; two, the individual food components; and three, the governmental regulations involved in food production.

The first section is divided into eight chapters which include the chemistry of the proteins, lipids, carbohydrates, minerals, and vitamins, the necessity for the food components, the enzymes involved in fermentation, the proximate composition of animal and plant tissue, the digestion of foodstuffs, and the preparation and preservation of foodstuffs.

The second section is divided into four main chapters. The first involves the individual food components such as meats, meat extracts, sea foods, eggs, dairy products such as milk, cheese, and butter, fats and edible oils, sugar, and products produced with a high proportion of sugar such as marzipan. The second chapter involves artificial sweeteners, alcoholic beverages, spices, essential oils, salt, vinegar, and the acids such as citric and lactic acids which are used in food preparation. The chapter is concluded with a discussion of coffee, tea, chocolate, and cola drinks. The third chapter involves a discussion of potable and mineral water and the fourth chapter a discussion of the materials which are used in cooking utensils.

The third and smallest section is devoted to two chapters on regulations involving food production. The first involves laws regulating food production and the second the analysis of food products for adulterants.

This book covers many fields of interest to food chemists and therefore cannot hope to be comprehensive in all of them. To the reviewer, the book represents a wealth of terminology which cannot be readily found in a standard German dictionary and thus would serve as a valuable reference book for someone who is interested in reading in context the current German literature in the field of food chemistry.

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RADIATION CHEMISTRY OF POLYMERIC SYSTEMS. High Polymers, Vol. XV, by Adolphe Chapiro (Interscience Publishers, John Wiley and Sons, 712 pages, 1962, $21.00). From the point of view of the utilization of radiation as a synthetic tool, one area in particular, of radiation research, has commanded the broadest interest. This is the area concerned with the formation and modification of polymeric materials by irradiation. The need clearly existed for a moderately ambitious treatment of this subject, at which this book has been fairly successful.

The greatest virtue of Chapiro's book, to my mind, is that it makes a serious attempt to teach the polymer scientists some radiation chemistry before plunging into the main subject. Thus the first 120 pages, comprising three chapters, deal with the mechanism of energy dissipation, primary processes in radiation chemistry, and chemical effects in simple hydrocarbons, both gaseous and liquid.

This will be very useful to the general reader. But the reader should be forewarned that much of this part is unnecessarily lacking in rigour and detail. To cite a few examples. On page 39 the author, having pointed out that the energy per ion pair in most gases is approximately twice the ionization potential, concludes that "only about one-half of the absorbed energy can be accounted for by the formation of ions." This simple conclusion is based on the unwarranted assumption that one is dealing here only with molecule ions in the ground state of the ion. This brief treatment also neglects the obvious difference between the rare gases and the various polyatomic molecules listed. On page 40, a brief reference to "sub-excitation electrons" fails to explain the very essence of their role in multicomponent systems as enunciated by Platzman, where they are in fact defined in terms of E_2 (or I_2) $< E_e < E_1$, where E_2 is the excitation potential (and I_2 the ionization potential) of the lesser component. In the section on *Chemical Dosimetry*, the discussion of the Fricke dosimeter, now used so extensively, could have been included under *Absolute Dosimetry* and expanded. It would have been useful to point out to the reader that $[Fe^{3+}]$ may be conveniently measured photometrically at 304 $m\mu$ where ϵ is generally agreed to be 2200 M^{-1} cm^{-1}.

The three chapters on polymerization kinetics and mechanism are authoritative and carefully written. Certain sections, e.g., "Evidence of ionic mechanisms," are somewhat obsolete because of recent developments, but not seriously so.

In the three chapters on radiation effects in solid polymers, the various mechanistic concepts which have been developed are quite adequately presented. The important recent work on trapped radicals by ESR measurement deserves a more extensive treatment than is presented.

The two chapters on polymer solutions, particularly the last long chapter on graft copolymerization, are quite up to date and very well done, reflecting the author's own interests. This is a subject to which he has contributed a great deal of fine work.

On the whole, Chapiro has done a good job on this book. It comes fairly close to being worth the price—which is saying a great deal for a technical book these days.

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HYDROGEN COMPOUNDS OF THE GROUP IV ELEMENTS, by F. G. A. Stone, (Prentice-Hall, Inc., Edglewood Cliffs, N. J., 112 pp., 1962, $5.25). This small volume is divided into four chapters dealing with the hydrides of silicon, germanium, tin, and lead. Each chapter describes the preparation, properties, and derivatives of the particular metal hydride. The author has emphasized the literature of the past twenty years through 1961, but he has included sufficient references on the pioneering work in these areas to provide an adequate historical background. References (346 by number) are found in a separate section at the end of the book, conveniently arranged in alphabetical order according to authors.

The author has not been content to merely bring all the literature on these compounds together in a single volume, although this accomplishment alone would make the book valuable to anyone working in these areas. In addition, he has critically analyzed and correlated the available literature, and this becomes the most useful and valuable aspect of this book. In most instances, facts are accompanied by attempts to show how they are consistent with modern orbital theory, anticipated periodical variations, and, when available, thermochemical and spectral data.

This book will be valuable to the very limited number of people working in these areas and it will provide interesting reading for inorganic chemists in general.

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• *Obituaries*

H. E. Wilson (1942) Wharton, Texas passed away January 25, 1963. He served as Executive Secretary-Treasurer of International Oil Mill Superintendents' Assn, and as Editor of this organizations' publications, *The Oil Mill Gazetteer*, for approximately 50 years.

A. H. Preston (1947) died as a result of an automobile accident February 8, 1963. Mr. Preston was the President of Houston Laboratories, Houston, Texas.