

chemistry, Radioactive Cobalt, Analysis of Cobalt (31, 25 and 27 pp.). About half of the material is provided by specialists writing individual chapters; these are D. H. Busch, A. G. Metcalfe, E. A. Nesbitt, C. R. Whittemore, M. F. L. Johnson, D. M. Richman and E. J. Henley.

On a more critical level, the monograph may be compared with that which it replaces (A.C.S. Monograph 108, R. S. Young, 1948). Even more striking than the over-all expansion from 181 to 424 pages is that of individual sections. The first monograph devoted ten pages to cobalt chemistry, including one page to coordination compounds! Radioactivity of cobalt was covered in one line. Thus we see well illustrated the explosive expansion of chemistry in general and of inorganic chemistry in particular during the past fifteen years. By contrast, though, the section on analysis of cobalt is largely unchanged.

While the present monograph is excellent by comparison with the previous one, there are important defects. The chapters are uneven and are not well articulated. Thus the one on "Simple Compounds of Cobalt" is old fashioned and even archaic in its discussion of color changes; solubilities are reported only sporadically and there are no thermodynamic data. For example, good values are available for the solubility of $\text{Co}(\text{C}_2\text{O}_4)_2$ (*sic*), but this is not mentioned although the compound itself is described. On the other hand, the chapter on coordination chemistry provides a good up to date review for any chemist, although with somewhat of an over-emphasis on polydentate chelates and their involved stereochemistry. Correspondingly less well covered are reaction kinetics and mechanisms and ligand field theory. Some mention should have been made of the omnipresent photochemical sensitivity of cobalt complexes.

The chapter on radioisotopes contains what seems to be rather trivial information, such as the annual sales of Co^{60} since 1948. Some of the discussion is confusing, to this reader at least, who is not accustomed to regarding the curie as a unit of power rather than one of disintegration rate.

Some errors in the crystallographic data are (courtesy Prof. J. Donohue); on page 65, the lattice constants for hexagonal cobalt include the statement that a varies from 2.5013 to 2.514 Å., but should read kX. units instead. The wide range of c/a values given is not consistent with those for a and c ; also, there is no point in giving such exact lattice parameters unless the associated temperatures also are provided. Readers should check the original literature to eliminate these and other difficulties. On p. 158, the lattice parameter should read 3.5441 Å., not 3.5331.

Contrary to the implication in the Preface, it simply is not possible to provide in one volume complete information on all aspects of the chemistry of so versatile an element as cobalt. Its coverage is therefore understandably incomplete, but is so in a spotty way, and the reader may not always be aware of areas missed. He may also find the variable level of sophistication confusing as well as annoying.

In summary, while the new monograph is a great improvement of the previous one, it is by no means a definitive work, and its usefulness is perhaps greatest to those chemists in the mining and producing industries where it does make sense to organize chemistry by elements.

DEPARTMENT OF CHEMISTRY
UNIVERSITY OF SOUTHERN CALIFORNIA
LOS ANGELES 7, CALIFORNIA ARTHUR W. ADAMSON

The Biochemistry of Mucopolysaccharides of Connective Tissue. Biochemistry Society Symposium No. 20 held at the Royal College of Surgeons, London, on 13 February, 1960. Organized by J. K. GRANT. Edited by F. CLARK AND J. K. GRANT. Cambridge University Press, 32 East 57th Street, New York 22, N. Y. 1961. 125 pp. 16 × 25 cm. Price, \$4.75.

This is a record of a symposium held in England a year or so ago under the auspices of the Biochemical Society. It is the twentieth such volume to appear throughout the years and the second devoted to the biochemistry of mucopolysaccharides. As its title tells, this small but excellent book deals with the chemical nature of those mucopolysaccharides which are found in the "ground substance" or extracellular material of connective tissue. There are seven communications in all, each by an authority in his particular field. These deal with the chemical makeup of the chondroitin sul-

fates and sulfated polysaccharides, the structure and function of hyaluronates and the histological techniques employed to demonstrate the presence of mucopolysaccharides in connective tissue. In addition, there is a survey of the more modern methods employed for the separation and analysis of these substances. The brief chapter of Storey on the role of nucleotides in the interconversion of sugars and in glucoside synthesis is particularly fine reading, for it brings together work of the past few years in this rapidly developing field. Although this reviewer is not aware of the manner in which the symposium was organized, it is apparent that the Biochemical Society drew almost exclusively upon specialists in the field from the British Isles. Save for one, there are no papers by outstanding authorities from other countries. Had there been, the volume might have been the richer. In sum, let it be said that this small volume, restricted as it is in subject matter, is nevertheless a good account of the work which has been achieved in a field which has grown increasingly important. The book is recommended as first rate reading for all who are interested in the field of mucopolysaccharides.

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WALTHER F. GOEBEL

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August 10, 1961—September 10, 1961

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