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## NEW BOOKS

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**Hackh's 'Chemical Dictionary** (American and British Usage). Third Edition. Completely revised and edited by JULIUS GRANT, M.Sc., Ph.D., F.R.I.C. The Blakiston Company, Philadelphia, Pa., 1946. 925 pp. Illustrated. 17 × 25 cm. \$8.50.

The real criterion of a dictionary is its reception by the purchasing public; Hackh's Chemical Dictionary, now appearing as a revised printing of its third edition, certainly has met the test of time and reader demand. The compilation of any dictionary or encyclopedia is a complex task of judgment as to inclusion and omission, to give a book complete enough and small enough to be useful to both scientific and lay fact-seekers.

This revised third edition is a usable-sized, not-too-thin-paper volume of 925 pages, containing some 57,000 entries and definitions, and Dr. Grant states that it has been brought up to date since the 1944 printing. As a test, the reviewer has looked for ten items of quite recent appearance in general scientific terminology: buna-S, exchange resin, guayule, neptunium, penicillin, plutonium, rutin, streptomycin, thiokol, veticillin. Of the list, adequate entries were found for all but exchange resin, thiokol and veticillin.

The book is well-planned and attractive typographically, except for a few badly drawn and lettered line cuts, and wrong screen size or poor press-make-ready or inking on many of the half-tone illustrations.

ALLEN D. BLISS

**Helium.** By W. H. Keesom, Professor of Physics in the University of Leiden. Elsevier, Amsterdam, publishers, London and New York, 1942. xx + 494 pp. 258 illustrations. 17 × 25 cm.

This interesting and well-organized account of all that is known about helium is a very outstanding work. The author was a colleague and is the principal successor of H. Kamerlingh Onnes in the study of the low temperature properties of helium. Their collaboration in experimentation in this field began some forty years ago, shortly before Kamerlingh Onnes succeeded in liquefying helium; thus the author has either been a participant in or a close observer of all the investigations on helium at the Kamerlingh Onnes Laboratory at Leiden, and he is thoroughly familiar with nearly all the related work done in the few other laboratories which have the necessary low temperature facilities.

The book starts with an account of the discovery of helium on the sun and closes with a discussion of the recently discovered isotopes He<sup>3</sup>, He<sup>4</sup>, and He<sup>6</sup>, which are produced by nuclear disintegration, but in between at least three-quarters of the text is concerned with the low temperature properties of this phenomenal substance.

The occurrence, production, commercial uses, thermodynamic properties, and methods of liquefaction are covered. The data relating to the use of helium in gas thermometry are presented and the author has rendered an important service by applying temperature scale corrections to measurements of numerous properties which were originally introduced to the scientific literature at times when the available temperature scale was less accurately known.

Among the very numerous properties discussed are velocity of sound, heat conductivity, viscosity, diffusion,

thermomolecular pressure, solubility, adsorption, refractivity, dielectric constant, magnetic susceptibility, vapor pressure, latent heats, surface tension, X-ray investigation of structure in liquid and solid, spectrum, Zeeman effect, Stark effect, and the several known chemical compounds of helium.

The account of the flow phenomena, heat transport and other remarkable properties of liquid helium II is fascinating.

The author has included all important data and enough discussions to enable the reader to thoroughly understand what is known. For more detailed discussion of particular experiments, very complete reference is given to the original sources.

The table of contents, index, and excellent cross-references, which are facilitated by some 500 numbered sub-headings, make it very easy to find any known fact which may be wanted.

Finally, the book is much more than a text on helium. Nearly all of the experimental discussion is accompanied by excellent explanatory drawings of the apparatus used and the ideas and equipment are applicable to all sorts of low temperature investigations on other substances.

This book should be very useful to all those who are engaged in, or who prepare to engage in, investigations in the field of low temperatures.

W. F. GIAUQUE

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## BOOKS RECEIVED

April 10, 1946-May 10, 1946

- A. J. BERRY. "Modern Chemistry." Cambridge, at the University Press; The Macmillan Company, New York, N. Y. 240 pp. \$2.50.
- E. BRANDENBERGER. "Röntgenographisch-Analytische Chemie." Verlag Birkhäuser, A. G., Basel, Switzerland. 287 pp. Swiss fr. 24.50 (paper); 28.50 (bound).
- W. C. COKER, Editor. "Studies in Science." University of North Carolina Press, Chapel Hill, N. C. 375 pp. \$3.00.
- E. DEGOLYER and HAROLD VANCE. "Bibliography on the Petroleum Industry." Bulletin of the Agricultural and Mechanical College of Texas, College Station, Texas. 730 pp. \$3.00 (cloth); \$2.00 (paper).
- P. M. DOTY, R. HOUWINK, H. MARK, C. C. PRICE, Editorial Board. "Journal of Polymer Science." Vol. I, No. 1, January, 1946. Vol. I, No. 2, March, 1946. 147 pp. (2 issues combined). Published bi-monthly by Interscience Publishers, Inc., and Elsevier Publishing Company, Inc., New York, N. Y. \$8.50 per year. Subscriptions should be sent to Interscience Publishers, Inc., 215 Fourth Avenue, New York 3, N. Y.
- HARRY N. HOLMES. "Introductory College Chemistry." Fourth Edition. The Macmillan Company, 60 Fifth Avenue, New York, N. Y. 590 pp. \$3.75.
- SAMUEL C. PRESCOTT, CHARLES-EDWARD A. WINSLOW and MAC HARVEY McCRAIDY. "Water Bacteriology." Sixth Edition. John Wiley and Sons, Inc., 440 Fourth Avenue, New York, N. Y. 368 pp. \$4.50.