

for the mathematically mature engineer. In its field, it is a superb job and is certain to achieve a high place in the technical-scientific literature.

POLYTECHNIC INSTITUTE OF BROOKLYN
BROOKLYN, NEW YORK WARREN L. MCCABE

Lehrbuch der Elektrochemie. By DR. GUSTAV KORTÜM, Professor und Direktor des Instituts für Physikalische Chemie an der Universität Tübingen. Verlag Chemie, G.m.b.H., 17a Weinheim/Bergstr., Pappalallee 3, Germany. 1957. xix + 564 pp. 18 × 24.5 cm. Price, DM 35.80.

The overwhelmingly favorable reviews which greeted the first German edition of Dr. Kortüm's *Lehrbuch* and the subsequent English edition (Kortüm-Bockris) will no doubt be repeated for this new and completely reworked second German edition. The contents and manner of presentation of the two previous editions have, for the most part, been carried over into the new work, although the chapter on electrochemistry of gases has been understandably eliminated. The remainder of the subject matter has been rewritten to include new developments in electrochemistry up to the latter part of 1956. The author is unusually thorough in his treatment of theory, to the extent that the book may be more properly referred to as an "advanced treatise," rather than a textbook. The combination of *thorough* coverage of the field and *thorough* treatment of theory makes the book particularly useful for advanced students and researchers, but for this very reason the author's intent that the book will also be useful to beginners has not been realized—this despite the fact that the discussions are in general very clearly presented. It is simply that practically no undergraduate, and very few graduate, students in chemistry will properly understand many of the terms (as, for example, "div grad ψ ") which are used in the derivations.

Some smaller points worthy of mention: The footnotes, as well as the numerous sidelights included in small type, should be read with at least as much attention as is given to the rest of the text, as these contain some of the most interesting and informative material presented. One entire chapter is devoted to a fairly complete treatment of the modern theory of acids and bases; it could be argued that this does not properly belong in a textbook of electrochemistry. A final point, but an important one to most American readers, is that the author's composition reads and translates very easily, much more so than the average article in the German literature.

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Progress in Nuclear Physics. Volume 6. Editor, O. R. FRISCH, O.B.E., F.R.S., Cavendish Laboratory, Cambridge. Pergamon Press Inc., 122 East 55th Street, New York 22, N. Y. 1957. vii + 297 pp. 16 × 25.5 cm. Price, \$14.00.

In reviewing a book of this nature it would be quite useful to know *a priori* the nature of the reading public the Editor had in mind, for then one would be in a better position to judge whether in his opinion the authors had aimed their level of presentation correctly. It seems a reasonable surmise to presume that it is not aimed at the expert but that its purpose is to acquaint knowledgeable scientists with general progress in the field of its title and the discussion shall be based on this supposition. The answer to the question then is yes and no, and this is almost to be expected in such a volume in which there appear nine separate articles, each by a different author or authors. The subjects covered and their authors are in order of appearance: "Isotope Separation by Multistage Methods," T. F. Johns; "Nuclear Models," R. J. Eden; "Nuclear Moments and Spins," K. F. Smith; "The Spectroscopy of Mesonic Atoms," M. B. Stearns; "The Masses of Atoms of $A > 40$," H. E. Duckworth; "Electromagnetic Enrichment of Stable Isotopes," M. L. Smith; "Fission Recoil and its Effects," G. N. Walton; "Masses of Atoms of $A < 40$," J. Mattauch and F. Everling; "Parity Non-Conservation in Weak Interactions," O. B. Frisch and T. H. R. Skyrme.

Each of the articles is followed by what appears to be a fairly complete set of references in the field and several of them, namely those on the masses of the atoms and nuclear moments, contain complete and useful tables relevant to the subject matter.

Generally speaking there appears to be to this reviewer a rather conspicuous failure in the presentation of theoretical material. This is a lack of a simple physical picture or model which would make new ideas or concepts much more digestible. A particularly outstanding example of this appears in the last article on Parity Non-Conservation. In this article the pioneer experiment of Madame Wu and her collaborators in demonstrating the non-conservation of parity is presented in a manner in which it appears the non-conservation of parity in this experiment rests upon a specific model of the neutrino; this is just not so. In further attempting an elucidation of the two neutrino theory of Lee and Yang, the author sticks to a quite formal presentation; this theory can be made much more transparent by a discussion of several limiting cases which are quite simple and physical. However, considering the rapid developments in this field of quite recent origin, the authors appear to have done a commendable job generally speaking.

Of the remaining articles, those by Duckworth and by Smith are outstanding for their clarity and comprehensiveness. Unfortunately it appears to me that the rest suffer by comparison. This appears to be principally a failure in emphasis. Eden attempts to cover the vast field of Nuclear Models in 26 pages, while 30 pages are devoted (and rather poorly) to the certainly much more specialized and narrow field of the Spectroscopy of Mesonic Atoms. Of the two Eden appears to have done the better job though he demands much on the part of the reader.

The volume is excellently printed in large and easy-to-read type. One can, however, seriously question whether the content is at all commensurate with the (quite high) price, particularly if comparison is made with other volumes of a similar nature.

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Trace Analysis. Papers presented at a Symposium on Trace Analysis held at the New York Academy of Medicine, New York, N. Y. November 2, 3, 4, 1955. Edited by JOHN H. YOE, M.S., M.A., Ph.D., Professor of Chemistry and Director, JOHN LEE PRATT, Trace Analysis Laboratory, University of Virginia, and HENRY J. KOCH, JR., A.B., M.D., Sloan-Kettering Institute for Cancer Research, New York, N. Y. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1957. xiii + 672 pp. 15.5 × 23.5 cm. Price, \$12.00.

"The importance of the trace constituents of animate and inanimate matter has been increasingly demonstrated as methods for their detection and quantitation have been developed." "It is the purpose of this book to acquaint the biologist, the physiologist, and the chemist, interested in the trace constituents of matter, with the new as well as the established techniques which are available for their analysis." So stated Dr. Koch in sounding the keynote of the Symposium on Trace Analysis of which this book is the record. Drs. Yoe and Koch are to be doubly commended: in the organization of an interesting symposium in which such outstanding leaders in the field of analytical chemistry participated, and in editing the symposium proceedings to produce this interesting and useful volume.

The table of contents which reads like an analytical chemistry honor roll includes Chromatography and Electrochromatography by H. H. Strain, Ion Exchange by K. A. Kraus, Extraction by L. C. Craig, Chemical Microscopy by W. C. McCrone, Spot Tests by F. Feigl and P. W. West, Colorimetry by M. G. Mellon, Fluorometry by C. E. White, Flame Spectrometry by B. L. Vallee, Potentiometry by N. N. Furman, Coulometry by L. B. Rogers, Polarography and Voltammetry by P. Delahay, Amperometry by C. N. Reilly, Emission Spectrochemical Analysis by L. W. Strock, Spectrochemical Determination of Trace Elements in Biological Materials by R. L. Mitchell, Gamma-Ray Spectroscopy by H. W. Koch, Mass Spectroscopy by M. Ingraham, X-Ray Spectroscopy by T. Hall, X-Ray Micrography by A. Engström, Neutron-Activation Analysis by