dicated how such studies complement the information obtained from infrared vibration–rotation bands. However, in order to provide a balanced outlook to students on the importance of the studies of vibration–rotation bands of polyatomic molecules, it would not at all have been irrelevant to focus the attention of the readers to the enormous amount of vital information obtained, during recent years, on the basis of studies of high resolution Raman spectroscopy of polyatomic molecules.

In spite of these reflections, it is the contention of this reviewer that, incomplete as it may be, the material chosen by the authors has been presented in this worthy undertaking in a very logical, lucid, and useful manner. This book, will undoubtedly stimulate research work in high resolution infrared spectroscopy of polyatomic molecules.

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Treatise on Analytical Chemistry. A Comprehensive Account in Three Parts. Part II. Analytical Chemistry of the Elements. Volume 8. I. M. KOLTHOFF and PHILIP J. ELVING, Editors, with the assistance of ERNEST B. SANDELL. John Wiley and Sons, Inc., 605 Third Avenue, New York 16, N. Y. 1963. 556 pp. 16.5 × 24.5 cm. Price, $20.00.

This latest addition to the Treatise discusses, *in seriatum*, the analytical chemistry of "The Rare Earths" (Woyski and Harris), "Bismuth" (Fritz), "Vanadium" (Grady), "Chromium" (Hartford), and "The Platinum Metals" (Walsh and Hausman) and follows the format of preceeding volumes of Part II in outlining the analytical chemistry of a block of elements in the Periodic Table. The scope is rather imposing for a book of this size, and, in the face of other more specialized volumes dealing with the extensive chemistry of each of these elements, one might reasonably question the value of condensed discussions such as those comprising Volume 8. It was evident to the reviewer in assessing this volume that, for the most part, the present treatment can afford the reader a very meaningful advantage in its critical coverage of topics presented by writers with an everyday working concern for their subject. With but a few exceptions, the editors have again succeeded in producing smooth-reading, economically written text, the more difficult because of the necessary listing in this type of book of a great number of diverse analytical procedures.

Several of the authors have chosen to commence their discussions with a very heavy historical and mineralogical introduction, but after this experience the material which follows in each chapter comprises a worthwhile offering of reliable analytical chemistry. In the space available, Woyski and Harris have done a notable job in summarizing the chemistry of the lanthanides, and their discussions of ion-exchange separations and the spectrochemistry of these elements are worth reading. Of special mention also is the well-written chapter by Walsh and Hausman dealing with the platinum group. This critical discussion is particularly valuable as it provides a nearly up-to-date summary (11 references extend the coverage into 1962) of the complex analytical chemistry of these six elements. The text is presented essentially free of misspellings and common typographical errors; on p. 115, however, there occurs a glaring misstatement of the Beer–Lambert relationship, *viz.*, "$A = kcl \log I_0/I$," which might possibly fit into the latter category. In the discussion of chromium by Winslow Hartford the wave lengths of maximum absorption for aqueous dichromate ion are cited incorrectly on p. 289 as 525 and 545 mμ (these figures are incompatible with the observed orange-yellow color of aqueous dichromate; the more nearly correct values are 258 and 350 mμ with a small absorption at 440 mμ), whereas in the previous sentence the figure for chromate ion at pH 9 is given as 366 mμ, and on p. 317 as 370 mμ without further qualification. On p. 291 of the same chapter the "standard potential" of the Cr^{+3}/Cr^{+2} couple is written incorrectly with a positive sign. The too frequent occurrence of small technical mishaps of this sort can be mildly disturbing and work to increase the reader's suspicion of other tabulated data.

The number of literature references found at the end of each chapter varies from 107 for bismuth to 399 for the platinum group metals, but apart from this, a sampling of several chapters showed a fairly wide variation in the coverage of recently reported work. Of the references cited in the chapters on vanadium, chromium, and the platinum metals, for example, 0.06, 5, and 31%, respectively, referred to work published in 1960 or later. This probably reflects to some degree the sequence in which the chapter manuscripts were received for publication as well as the multiplicity of elements included in the platinum group, but partly it serves also to point out the care to be exercised by those who may be inclined to regard these discussions as final summaries.

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