

note that "there are no characteristic dry reactions" of Thorium, page 16. Of the nine wet reactions enumerated, not one is characteristic. The only characteristic reaction of the element, that with a solution of potassium trinitride¹ containing hydronitric acid, is not mentioned. Under neodymium and praseodymium we find the statement "it is very difficult to separate these two metals from one another. It is accomplished only by repeated fractional crystallization of the ammonium double nitrate." The fact that the presence of another base, such as lanthanum, makes this separation possible in comparatively few crystallizations is not mentioned.

The proof-reading leaves something to be desired; but in a book that contains as many formulas and equations as this, an occasional error is almost unavoidable. That a few typographical errors in the first German edition should have survived not only the second edition in that tongue but a translation as well, is, however, surprising. Such errors appear in equations on pages 157 and 206. Of other errors may be cited the precipitation of cobalt by potassium nitrate, page 143, and the use of nitric for hydrochloric acid on page 235, line 9. In general, the methods used in the separation and detection of the elements have been well chosen. Hillebrand's method for the detection of the vanadium is introduced in this edition. The only seriously faulty method which strikes the eye is that for the detection of hydrochloric acid in the presence of hydrobromic and hydriodic acids. This is attempted by fractional precipitation of the silver salts until finally a white precipitate is produced. The adoption of a test of this sort is inexcusable when we have at our command the excellent separations based on the oxidation of hydrobromic and hydriodic acids by appropriate oxidizing agents.²

The plate of the spectra is very poor, but the typography and press work of the book are good, and the translation has been well done.

THEODORE WHITTLESEY.

RADIUM AND OTHER RADIO-ACTIVE SUBSTANCES, ETC. BY WILLIAM J. HAMMER, Consulting Electrical Engineer. New York: D. Van Nostrand Company. Price, \$1.00.

This booklet of 72 pages represents a lecture delivered before a joint meeting of the American Institute of Electrical Engineers

¹ L. M. Dennis: *This Journal*, 18, 947.

² See Hart: *Am. Chem. J.*, 6, 346; Benedict and Snell: *This Journal*, 25, 809.

and the American Electrochemical Society. The section devoted to radium and radio-active bodies is very instructive and exceedingly entertaining. In the letter to the author, M. Curie writes, "Where is the source of this energy? Both Mme. Curie and myself are not able to go beyond hypotheses. One of these consists in supposing the atoms of radium evolving and transforming into another simple body and, despite the extreme slowness of that transformation, which cannot be located during a year, the amount of energy involved in that transformation is tremendous."

Every chemist will find in the various paragraphs in this book much material for reflection. Having studied the data here submitted and read Barker's most interesting fasciculus entitled "Radio-activity and Chemistry," he will have had brought to him a very complete and accurate account of the marvelous results which have been noticed in recent years, along lines which he probably never dreamed could include his beloved and simple atom. It is said the lamented Rowland once remarked, "that a Steinway grand piano was a comparatively simple piece of mechanism compared with an iron atom." It would indeed seem after perusing the pages of Mr. Hammer's book, as if not only the iron atom, but the atoms of many more of our elements were not only complex, but were undergoing a subtle and constant change.

The second section of Mr. Hammer's book gives in a very succinct form most interesting accounts of the properties and application of selenium, while in the third section there is presented briefly, it is true, but at the same time most interestingly, an account of the treatment of diseases by ultra-violet rays. It is here that a description of the Finsen Institute at Copenhagen is given with a description of the treatment of *Lupus vulgaris*.

This publication deserves to be widely read because of the new facts which it presents and because of its suggestiveness. Certain typographical errors appear, but these will no doubt be corrected in a subsequent edition of the book. EDGAR F. SMITH.

DIE CONSTITUTION DES KAMPHERS UND SEINER WICHTIGSTEN DERIVATE,
VON OSSIAN ASCHAN. Braunschweig: Friedrich Vieweg und Sohn.
1903. pp. xi + 117.

So many workers have busied themselves with the subject of camphor, and the material accumulated has become so com-