

potassium cyanide to proceed with the determination of the mercury. Time would be saved and disturbing constituents be eliminated by simply digesting the mineral with sodium sulphide, in which it is soluble, and after the removal of the insoluble parts by filtration, proceeding as directed under the determination of mercury. It is a great pity that literature references are omitted from the entire text.

Tables, showing the E. M. F. of various batteries, factors for the calculation of certain electrolytic data, electrochemical equivalents, the intensity of current expressed in volumes of electrolytic gas with their equivalents in amperes, resistances of metals and alloys, etc., etc., conclude the book, which is well printed and illustrated. It deserves a prominent place in electrolytic literature.

EDGAR F. SMITH.

PHYSICAL CHEMISTRY FOR BEGINNERS. BY DR. CH. VAN DEVENTER.

With an Introduction by PROF. J. H. VAN'T HOFF. Authorized American edition from the German edition, translated by BERTRAM B. BOLTWOOD. New York: John Wiley and Sons. 1899. x + 156 pp. Price, \$1.50

THE ELEMENTS OF PHYSICAL CHEMISTRY. BY J. LIVINGSTON R. MORGAN, PH.D. New York: John Wiley and Sons. 1899. viii + 299 pp. Price, \$2.00.

The reviewer has already<sup>1</sup> called attention to the need of a text-book on physical chemistry presenting the main facts and theories of this important branch of the science in a form not demanding too much preparation in physics or mathematics on the part of the student, and he is much pleased to note the appearance of these two books which go far towards filling this need. With such books at hand there is no reason why instruction in physical chemistry should not be given in even our smaller universities and colleges. A knowledge of the rôle that ions play in the reactions of analytical chemistry throws such a flood of light on that subject that it ought to be acquired by the student at the same time he is practising analysis in the laboratory. Instead of deferring the study of physical or theoretical chemistry until after courses in qualitative and quantitative analysis have been completed, it should be taken up along with them. The danger of work in analytical chemistry degenera-

<sup>1</sup> See the review of Clarence L. Speyers' "Text-Book of Physical Chemistry," in this Journal, 20, 389 (1898).