

could be made would be, "It would not agree with the atomic theory." The student might well say, "So much the worse for the theory!"

We note the absence of thermochemical data, the most important of which might well serve for illustrating the general relations of the elements to each other and to the acids. In the chapters describing the metals and their compounds, many of the simple blowpipe tests for identifying the elements are omitted, and for some common elements no qualitative tests at all are given. The table of the melting-points of the metals needs revision. The electrolytic method of refining copper cannot now be spoken of as expensive. The mineral Edisonite, spoken of as a form of titanite oxide, has been proved to be rutile. Among the methods of manufacturing caustic soda, bleaching powder, and potassium chlorate, the electrolytic methods are not mentioned—as they surely should be.

On the other hand, the numerous revisions to which the text has been subjected have ensured the almost certain accuracy of the facts presented and the absence of mistakes. The revision up to date has been done in a way which reflects great credit on the revisers. Granted that the teacher will remedy the faults first spoken of by cutting down much of the detail of the organic chemistry and presenting the atomic theory in a more logical manner, and we may pronounce the book the best elementary text-book of chemistry of the year.

JOSEPH W. RICHARDS.

JUSTUS VON LIEBIG, HIS LIFE AND WORK. BY W. A. SHENSTONE. 12mo. pp. 219. \$1.25. New York: Macmillan & Co.

Liebig's personality was an interesting one. His life was one of earnest purpose and hard work. He was a many-sided man, and his influence was felt in many directions. In investigation, as a man of affairs and as a popular teacher, Liebig's work has been of use to his kind. Of the brilliant chemists of his day—Graham, Dalton, Wöhler and Dumas, among others—his career is the most interesting. Liebig's work began in Gay Lussac's laboratory where in connection with his work on the fulminates he discovered isomerism. In 1824 he went to Giessen, and in 1852 to Munich. "Liebig was essentially a pioneer in science.

In the course of his life he took the lead in no less than four great departures. The first was in organic chemistry, the second and third in the application of chemistry to agriculture and physiology, the fourth * * * was the outcome of his labors as a teacher. His work, like that of other pioneers was, of course, not always correct in all points of detail. But it had all the greater merits of good pioneering work in a most marked degree. It almost always pointed the right way, and its remarkable influence in determining the direction of subsequent research has been singularly permanent." To this may be added that he was a virile man, vigorous and trenchant in debate, but honoring truth above all things, and willing to acknowledge his errors—and several times he was in the wrong.

Professor Shenstone has given us a very interesting and lucid account of his life and his work.

E. H.

NOTE.

Determination of Acetic Acid in Vinegar.—Dr. B. F. Davenport wishes to call attention to his article on this subject printed in the *Journal of Analytical Chemistry*, 1, 4, in view of the fact that Prof. Leeds' attention had apparently not been called to it before writing the article printed in the September number of this journal, p. 741.