

an unfortunate way of putting things, while the spelling of du Bois-Reymond's name on p. 360 and elsewhere must be charged against the translator. Apart from a few similar minor points, the book is phenomenally satisfactory and to be recommended to every one.

WILDER D. BANCROFT.

EVOLUTION OF THE THERMOMETER. BY HENRY CARRINGTON BOLTON. Easton, Pa. : The Chemical Publishing Co. 1900. 98 pp. Price, \$1.00.

The period covered is the century and a half between 1592 and 1743. The author defends the view that the first thermometer was due to Galileo. This instrument was an air-thermometer with a liquid seal. The plan of measuring the expansion of a liquid in a sealed tube dates from about 1644; in 1664, we find Boyle introducing the idea of a fixed point; in 1669 we have the suggestion of two fixed points by Honoré Fabri; in 1694, Renaldini argued in favor of the freezing-point and boiling-point of water as the two fixed points. The mercury thermometer as a practical instrument is due to Fahrenheit, and for years his instruments were the best in the world. The centesimal scale was suggested by Celsius in 1742; but it will be news to many people that Celsius took the boiling-point of water as zero, and that the inverted scale, which we call by the name of Celsius, was due to Christin. The book is interesting, the illustrations are curious, and the color of the binding is atrocious.

WILDER D. BANCROFT.

THE CHEMICAL ANALYSIS OF IRON. BY ANDREW A. BLAIR. Fourth edition. Philadelphia : J. B. Lippincott Co. 1901. xi + 319 pp. Price, \$4.00.

The new edition of this standard work on iron analysis has been entirely rewritten and a number of recently improved methods have been incorporated. Among the new material are Vanier's modification of Deshay's method for the rapid determination of manganese in steel, Bamber's method for sulphur in pig-iron, the ether methods for the determination of nickel, chromium, and aluminum and, under carbon, there appear a number of new methods and modifications. The ferro-alloys of molybdenum, chromium, silicon, and titanium are given due attention in this edition. Under coal and coke analysis the methods are those reported by the Committee on Coal Analysis of the American Chemical Society.

P. W. SHIMER.