

lucid. Nothing that can set each conception in the clearest light and in the most instructive relation to other conceptions seems to be forgotten. No one interested in the teaching or study of general or physical chemistry can afford to leave this book unread.

ALEXANDER SMITH.

GALVANIC BATTERIES: THEIR THEORY, CONSTRUCTION, AND USE. BY S. R. BOTTONE. London and New York: Whittaker and Co. 1902. xvi + 376 pp. Price, \$1.50.

The author states in his preface that this work contains a description of every known battery of any practical use along with data as to electromotive force, internal resistance, and adaptability to particular requirements. For those who may have occasion to use batteries instead of a dynamo as a source of current, the book will undoubtedly prove helpful. Although the author states that "In order to render the book useful from a scientific point of view, as well as under the practical aspect, the theory of the battery has been carefully gone into," no mention is made of theories advanced by Helmholtz and by Nernst, which have thrown such a flood of light upon the whole subject. The book is profusely illustrated and the descriptions of the construction and operation of the batteries clear and concise.

C. E. LINEBARGER.

LABORATORY EXERCISES IN PHYSICS FOR SECONDARY SCHOOLS. BY GEORGE R. TWISS, B.Sc., Head of the Department of Science in the Central High School, Cleveland, Ohio. New York: The Macmillan Co. 1902. xiii + 193 pp. Price, 80 cents.

This manual is characterized by thoroughness of treatment and carefulness of statement. The author believes that "A small number of exercises worked for all there is in them" is better than a large number carelessly and superficially performed. The author has succeeded well in this his attempt "*first*, to secure the thorough enforcement of some of the fundamental principles of the science, together with a view of the kind of thinking and experimentation by means of which the facts and principles of physics have been established; *second*, to develop habits of precision in observation, thought and expression; and *third*, to train the student in the acquisition of practical power and skill in the use of apparatus."

C. E. LINEBARGER.