one page to the sulphate process, and nearly 200 pages to the sulphite process. Next comes Bleaching, twenty-six pages; Sizing and Loading, nineteen pages; Coloring, nine pages; Water, nineteen pages; Chemical Analysis, seventy-two pages; Paper-Testing, thirty-two pages; Electrolytic processes, eleven pages, and an appendix and index. Among other things, the appendix contains an account of the interesting thiocarbonates of cellulose discovered by Cross and Bevan, and a list of United States patents relating to the sulphite process. In brief, the book is an excellent one: well written, well printed, and well illustrated, and worthy of a place on the book-shelf of the chemist.

E. H.

A SHORT HISTORY OF CHEMISTRY. By F. P. VENABLE, PH.D. 12 mo. pp. viii; 163. Boston: D. C. Heath & Co. 1894. Price, $1.00.

The author, who is Professor of Chemistry in the University of North Carolina, has, for several years, given lectures to his students on the history of chemistry, and this little volume is an outgrowth of those lectures. The subject is divided into six Parts: I the Genesis of Chemistry; II. The Alchemists; III. Qualitative Chemistry; IV. Quantitative Chemistry; V. Structural Chemistry; VI. Special Branches of Chemistry. Each Part is subdivided into unnumbered sections and paragraphs, with headings in bold-faced type, making the book convenient for study.

Considering the limited space in the book. the author has certainly arranged an accurate compendium for chemical students, covering the entire field. He shows knowledge of the standard works on historical chemistry in three languages, but he appears not to have access to the earlier original works, except in a few instances. Viewed in the light of the original writings of the zealous alchemists, the iatro-chemists, and the learned philosophers of the last century, the history of chemistry becomes as fascinating as a romance, and a work based on them acquires an individuality which is only partly reflected in a compilation at second-hand.

We notice that high honor is paid to the erudition of the Arabian chemist, Geber, notwithstanding Berthelot has shown that the writings usually ascribed to Geber can not be traced

back farther than the beginning of the XIII century, and that they never did exist in Arabic; the MSS. said to be found in the Paris Bibliotheque Nationale and which have been translated into Latin and modern languages are fictitious.

In a larger part of the volume the subject is treated in a series of biographies; this, however, is natural where the discoveries of certain individuals exerted radical changes in the philosophy of the science.

In Parts IV and V the development of modern chemistry is well set forth, and every student of the science would do well to read and absorb these chapters early in his curriculum.

Professor Venable names a chemical periodical established as early as 1697 by Stahl.

An excellent feature of the work is its fair-mindedness, giving credit where credit is due. This remark is, perhaps, superfluous, as the book is American; but after Jagnaux' great volumes, written to prove that chemistry is a French science and the polemical writings of certain German authors, one can not but recognize the impartiality characteristic of American writers.

A few illustrations, portraits, and representations of original apparatus would have enlivened the volume; perhaps these can be introduced in a second edition. The proof-reading is excellent. There is an index. H. C. BOLTON.

QUANTITATIVE CHEMICAL ANALYSIS BY ELECTROLYSIS. BY DR. ALEXANDER CLASSEN. AUTHORIZED TRANSLATION, SECOND ENGLISH, FROM THE THIRD GERMAN EDITION, REVISED AND GREATLY ENLARGED. BY W. H. HERRICK, A. M. New York: John Wiley & Sons. 1894. Price $3.00.

It is now twelve years since Professor Classen published the first edition of this book. The little volume of about fifty pages contained a systematic description of the methods then practiced in the laboratory at Aachen, little or no attempt being made to include the results that had been obtained elsewhere. An entirely rewritten and much enlarged second edition was issued in 18 6. In this, electrolytic analysis is treated as an independent branch of quantitative analysis, but while the methods proposed and worked out by the author and his associates are fully presented, only occasional reference is made to the researches of