1901, relying for his American data on this completely. Full credit is given to others. The reluctance must be commended with which the author abstains from giving undue or special credit to any special process or machinery, thereby advertising same.

The treatise can be recommended as a useful and up-to-date description of the processes of refrigeration and their application to the arts. EDWARD GUDEMAN.

MODERN CHEMISTRY, WITH ITS PRACTICAL APPLICATIONS. By FREDUS N. PETERS, A.M., Instructor in Chemistry in Central High School, Kansas City, Mo. New York: Maynard, Merrill & Co. 1901.

This text-book is intended to be used in secondary schools. As stated in the preface the author has endeavored to avoid giving too great a number of facts, to omit what can never be of interest or value to beginners and has tried to show, wherever possible, the practical applications of the science to every-day life and has emphasized industrial and commercial processes. At the same time the fundamental principles of the science have not been forgotten and due attention has been given to these.

On the whole the author has succeeded very well and this book is much superior to many that are now in use. After two introductory chapters, one on chemical and physical changes and the other on valence, which it would have been better to put later or omit altogether, he begins with water and then takes up hydrogen and oxygen. This is followed by nitrogen, the atmosphere, the halogen elements and carbon and a few of its simpler compounds. Then follows a chapter on the laws of definite and multiple proportions and combining weights. Sulphur, silicon and phosphorus are then considered after which a chapter is given up to Avogadro's law and atomic weights. Before considering the metals a very brief mention is made of the periodic law. The subjects are everywhere treated very briefly and concisely and the references to commercial processes are very elementary. The appendix contains directions for the qualitative analysis of simple substances.

There are a few errors which no doubt will be corrected in the next edition. Thus for example on page 147 the name ethane is given to olefiant gas. On page 224 plaster of Paris is referred to as anhydrous calcium sulphate. On page 226 the statement is made that the hardness of water is either "temporary or perma-

nent according as it can be removed by boiling or adding ammonia or not at all." It would have been well in this connection to have explained to the student how permanent hardness can be removed. On page 236 the explosive copper acetylide is given the formula CuC_2 instead of Cu_2C_2. The cut on page 290 should be omitted.

Taken as a whole the book is to be commended, and it will undoubtedly find an extended use in high schools and academies.

EDWARD H. KEISER.