

for use in secondary schools where the subject is taught in the class room alone.

O. L. SHINN.

The Periodic Law and the Hydrogen Spectrum. By W. F. KEMBLE AND C. R. UNDERHILL. pp. 1-16; 5 figs. New York: D. Van Nostrand Co., 1909. Price, 50 cents.

It is somewhat hard to comprehend exactly what the authors of this pamphlet are driving at. They state, however, in the preface, that they "have endeavored to show a connection between the possible action of a spiral nebula and the Periodic Law;" that they "find a surprising relationship between the series [of strong lines in the hydrogen spectrum] and the order of recurrence of the elements of greatest atomic volume;" and believe that they "have herein shown some of the fundamental principles of the long-sought laws which have stood as a mere dividing line between the sciences of physics and chemistry!" *Verbum sat sapienti.*

J. JOHNSTON.

Outlines of Chemistry. A Text-book for College students. By LOUIS KAHLENBERG, 548 pages. New York: The Macmillan Co. 1909. Price, \$2.60.

That elementary chemistry is recognized as a part of the most important work in the chemical laboratory, requiring the best judgment and experience, is evident from the fact that in most institutions the Freshman course is in charge of the head of the department. The large number of excellent text-books that have appeared within recent years still further emphasize its importance. Doubtless the preparation of numerous works on this subject has received a stimulus from the recent great expansion of physical chemistry. Without question the experimental method has been greatly improved by the free use of theoretical conceptions, yet in some instances, it is to be feared that the desire to prepare an up-to-date work has led the author to include much theoretical matter that is really beyond the beginner to assimilate—matter that properly belongs in the Sophomore or Junior courses in physical chemistry.

The point of view from which Professor Kahlenberg's book is prepared is well set forth in the preface—the book is to be used in connection with a course of experimental lectures and laboratory exercises representing a year's work in chemistry in college—it is intended to meet the needs of students who are preparing for careers in chemistry, pharmacy, medicine, engineering, agriculture, or for work in natural sciences, or as a means of general culture.

The first five chapters are mainly devoted to experimental work on hydrogen, oxygen and chlorine as a foundation of fundamental facts and laws for the sixth chapter in which the atomic and molecular theories are presented. After two chapters devoted to ozone, hydrogen peroxide, allotropy and the halogens, in Chapter IX acids, bases and salts, hydrolysis, mass action, and chemical equilibrium are concisely defined on