this kind, unless it is taken in lieu of the regular course in physics. This book raises an interesting question; namely, is it desirable to have the principles of physics given with a special view to the study of chemistry? There might seem to be some advantages in this from the standpoint of the teaching of chemistry. On the other hand, if the student is held strictly accountable for everything he has had in physics, rather than attempting to give it to him in a somewhat different way, he would frequently need to get out his physics and do some independent thinking in applying the principles to the new things presented to him. This would be a gain in many ways: it would emphasize the importance of thorough work for future use, it would give more time for things more strictly chemical and good students would not be bored with an elementary presentation of things with which they were already familiar. Wherever this method is possible it certainly would tend to develop more thinking by the student in chemistry, a point that is of first importance.

G. A. HULETT.

The First Principles of Chemical Theory. By C. H. MATHEWSON. John Wiley & Sons. pp. 123. Price, $1.00.

This book of 123 pages is used by the author as a supplementary text to a short course of lectures which follow the first four months' work in general chemistry. The purpose is to introduce the student to the principles of chemistry very early in his course with the idea of continually repeating and illustrating these principles as the student accumulates facts in his subsequent work. Besides the subjects generally touched upon in a course in general chemistry, the student is introduced to the subject of osmotic pressure and related phenomena, electrolytic dissociation theory, heterogeneous equilibrium, thermochemistry and the many terms and conceptions accompanying these subjects. When the student once gains a working knowledge of these things his work will become mentally interesting and very much more intelligible and profitable, so it is desirable to have these things as early in the course as possible. On the other hand, any real conception of these principles should be based on an intimate (laboratory) knowledge of some facts. Without this the principles are merely so many words and when introduced again the student remembers having heard about them, while on repetition he may come to dislike the subject and so lose the mental training and pleasure that should go with a study of chemistry. This unfortunate result is altogether too frequently encountered in third- and fourth-year students, and it emphasizes the importance of determining just what basis of fact is necessary to afford a working conception of a given principle. The increasing favor of quantitative experiments in general chemistry laboratory work is an expression of this need, and it would seem that the rational development of the instruction in chemistry must give considerable

attention to questions as to just when a particular principle is to be introduced so that it may stimulate the reasoning powers and be an effective tool in the further study. The compact statements in which the principles of chemistry are expressed afford rather poor material for a memory exercise. It would seem, therefore, to be desirable to develop the principles and theories, at least during the whole course of undergraduate chemistry, rather than in a single course of lectures. G. A. HULETT.

Elements of Mineralogy, Crystallography and Blowpipe Analysis, from a practical standpoint including a description of all common or useful minerals, the tests necessary for their identification, the recognition and measurements of their crystals, and a concise statement of their uses in the arts. By ALFRED J. MOSES and CHARLES LATHROP PARSONS. Fourth edition, vii + 444 pages, 580 figures and three double pages of tables for determinative mineralogy. New York: D. Van Nostrand Company. Price, $2.50.

The fourth edition of this well-known book differs but very slightly from the third edition (1904). Some changes in the introductory chapter, a few paragraphs added, and the statistics of production and value revised are the only changes noted. The main body of the text, descriptive of the mineral species, has not been changed. For instance, molybdite is still stated to be MoO_3 (page 277), and thorianite is not mentioned at all. While it is always difficult to decide on what to include and what to exclude from "all common or useful minerals," it would seem more desirable to include a mineral like dumortierite which has been found in this country in five different states, rather than such rare ones as aikinite, aphthitalite, etc. It must be somewhat confusing, particularly to a student, for whom the book is specially adapted, to find under pyroxene, crystal drawings of "fassaite" and "leucaugite" (Figs. 518 and 519), neither of which is mentioned in the text or in the index. The brief mention of many of the not very common yet still not very rare minerals would be a slight improvement on this otherwise excellent book, which gives, as the extended sub-title briefly indicates, about all the essential facts of mineralogy. W. T. SCHALLER.

Annuaire pour l'An 1910. Published by the Bureau des Longitudes. 16 mo., 820 pages. Paris: Gauthier-Villars, 1910. Price, 1.50 francs.

As cheap as before, as full of inaccuracies as usual. In the immense amount of information given upon astronomical, geographic, physical and chemical phenomena, the larger part is of course correct, but a short search brings to light so many inaccuracies that the work as a whole must bear the stigma of being unreliable, at least as regards physical and chemical data. In one place, a column of chemical equivalents of the elements is headed "electrochemical equivalents." In a table of atomic weights and chemical equivalents, antimony, arsenic, nitrogen,