

but as the result of a development for which many of the most earnest and acute minds known to the history of science have fought and toiled."

According to the preface the book is intended primarily as a supplement to text-books of organic chemistry. The author gives some with detail the views which have been held and now prevail on some of the leading questions in organic chemistry. These are the chapters: 1. The Constitution of Rosaniline; 2. Perkin's Reaction; 3. The Constitution of Benzene; 4. The Constitution of Acetoacetic Ether; 5. The Uric Acid Group; 6. The Constitution of the Sugars; 7. The Isomerism of Maleic and Fumaric Acids; 8. The Isomerism of the Oximes; 9. The Constitution of the Diazo Compounds.

E. H.

DIE CHEMISCHE ENERGIE DER LEBEN DEN ZELLEN. BY DR. OSCAR LOEW, U. S. Department of Agriculture, Washington, D. C. München, 1899.

This little volume of about 170 pages must be looked upon as a continuation of the investigations published by the author, treating of the difference between the living and dead forms of protoplasm.

The forerunners of the present publication are entitled respectfully, "Die chemische Ursache des Lebens," and "System der Giftwirkungen."

Though the titles would indicate entirely different subjects, they are yet the same in so far as Professor Loew has shown that poisons owe their power to their effect upon the living protoplasm, which is chemically a very active compound, but passes into a more stable product upon being deprived of life.

The book under discussion treats of the qualitative differences between living and dead protoplasm, and likewise the differences between various kinds of protoplasm. That these must exist is evident from many facts, as, for instance, that we possess some living organisms, which thrive at a temperature which is death to others. By physical differences as well as pathological and toxicological ones, the protoplasm of different organisms shows difference of behavior, which is exhibited by greater or less resistance to the action of chemicals. While the book contains mainly the author's own observations, it gives a place to those of others, with references to the literature, so that it can be looked

upon as a good exposition of the various views upon a subject, the development of which is due to the labors of the author himself. The observations are of so manifold a nature, that the perusal of the book cannot fail to be of value to all interested in the subject.

H. ENDEMANN.

A HISTORY OF PHYSICS IN ITS ELEMENTARY BRANCHES, INCLUDING THE EVOLUTION OF PHYSICAL LABORATORIES. BY FLORIAN CAJORI. New York and London: The Macmillan Co. 1899. viii+322 pp. 12mo. Illustrated.

In this convenient volume the author sketches the progress of the growth of mechanics, light, electricity and magnetism, meteorology and sound under the Greeks, the Romans, the Arabs, in Europe during the Middle Ages, and the Renaissance as well as through the succeeding centuries to the present time. There are also chapters on the atomic theory, the causes of failure of Greek physical inquiry, gunpowder and the mariner's compass, and the inductive method of scientific inquiry. The author feels that "some attention to the history of a science helps to make it attractive," and has written the book in hopes of stimulating students and teachers of physics. Dr. Cajori cites a sentence written by Ostwald, who points out as a "defect in the present scientific education of youth, the absence of the historical sense and the want of knowledge of the great researches upon which the edifice of science rests," and he hopes that this volume will assist in remedying the defect.

The necessity of limiting the book to 300 pages has caused great condensation of statement, and prevented elaboration of principles; students who wish, however, to pursue further special lines, will find abundant references to literature throughout the volume; these show a wide acquaintance with the sources of information on the part of the author. Biographical sketches of those who have distinguished themselves by their notable discoveries and inventions are among the features of the volume.

In looking through this record one cannot but notice the occurrence of national jealousy in respect to priority of discovery. Germany, France, England, Holland, Italy, and at a later period the United States of America, each puts in a claim for having taken the first step in several prime discoveries and