tion of the suspended matter and sediment often found in drinking water, and it is quite conceivable that the result of such an examination may be a determining factor in deciding the question of the fitness, or the contrary, of a water for drinking purposes. And, whilst it must be admitted that, in the majority of cases, chemistry alone is competent to enable an expert to decide upon the quality of a water, the fact that there are many occasions in which an appeal to the microscope may be of great value and importance, is a good *raison d'être* for such a work as this.

Following a brief but interesting historical survey of the study of the micro-organisms in water from the time of Hooke and Lieuwenhock, is a chapter on the object of the microscopical examination of water, and this by an excellent one on "Methods of Examination," which, while more elaborate than the majority of chemists could find time to employ, must be regarded as an essential guide to the technical details necessary to complete work. Chapters on "Limnology," on "The Geographical Distribution of Organisms," on "Odors in Water Supplies," on "Storage of Water," on "The Growth of Organisms in Water Pipes," are followed by chapters on "The Classification and Description of Micro-organisms." A very useful bibliography and numerous unusually well-executed plates, wherein the experienced operator in this line of work will find many an old friend well portrayed and the beginner a very reliable guide, complete a work of much value to whom it may concern.

W. M. MEW.

THE SPIRIT OF ORGANIC CHEMISTRY. AN INTRODUCTION TO THE CURRENT LITERATURE OF THE SUBJECT. BY ARTHUR LACHMAN with an Introduction by PAUL C. FREER. The Macmillan Co. pp. xviii + 229. 12 mo. Price, $1.50.

The point of view of the book is made evident by a few sentences from the Introduction: "How can he [the student] ever hope to master the general classification, let alone the minor details, which must become a part of his very being, if he too wishes to do his share, however small, toward completing and rounding out the still unfinished structure? The answer is plain: "he can do this only by comprehending the *spirit of the science*, by learning its great theories, not as mere mnemonic efforts,

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 Gift wirkungen."

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