In due time and connection the Michelson experiment is described, and a good account is given of the contraction hypothesis which had to explain its nil-effect. This carries us at once to Einstein's Special Relativity Principle (VI), a beautiful chapter on the concept of simultaneity, on Einstein's elementary kinematics and the Lorentz transformation, illustrated by Minkowski's graphical representation of the behavior of moving clocks and measuring rods and deepened by a special section on appearance and reality. The addition theorem of velocities and special relativistic mechanics and optics of moving bodies follow, in a readable form, and the chapter closes with a good description of Minkowski's "absolute world" or space-time. Chapter VII, and last, perhaps a little too short, gives, however, an introduction into the General Relativity and gravitation theory which will be very helpful to a large circle of readers. It deals with the principle of equivalence and the insufficiency of euclidean geometry for general purposes, explains the use of Gaussian coördinates (labels) on the intuitive sub-case of a two-dimensional manifold, and, after a critical section on Mathematics and Reality, guides us into the metrics of the four-dimensional, space-time continuum, and the fundamental laws of the new mechanics. A description of the three well-known verifiable predictions of Einstein's new theory, two of which were crowned with success, and a general survey of Einstein's recent cosmological speculations on the one, and atomism on the other, hand (Macrocosmos and Microcosmos), close the chapter.

As an appendix Einstein's biography and a condensed chronological table are given, the latter starting from 300 B. C. (Euclid) and ending with 1879, the year of Einstein's birth.

LUDWIK SILBERSTEIN.

KOLLOIDCHEMIE. Ein Lehrbuch von Richard Zsigmondy. Dritte, vermehrte, und zum Teil umgearbeitete Auflage. Mit einem Beitrag: Bestimmung der inneren Struktur und der Grösse von Kolloidteilchen mittels Röntgenstrahlen; von P. Sherrer. 409 pages, contents, index, seven plates and fifty-eight illustrations in the text, 8vo. Leipzig, Otto Spamer, 1920. In paper, $4.20; bound, $5.00.

Ordinarily the third edition of a standard work would require but formal notice. Some allusion to the fact of the new edition is evidence that the work has met some "long-felt want," that banal expression of authors and reviewers, with notes of such improvements and additions as the authors had kindly set forth for the accommodation of reviewers, who often confine themselves to reading the preface, generally suffices for the report on the book. The present volume deserves more extended treatment. Everything that comes out of Germany is interesting to the thinking people of the other countries. The tragic history of the last six years is in every one's mind, and exclusive of those who were joined with the Teuton, scarcely any great nation is openly friendly. The author of the book feels keenly the situation, and in a postscript to the preface to this edition expresses himself as follows:

"May this edition serve as a slight evidence to co-workers in other lands that the search for truth is still being pursued in Germany with zeal, and that, in spite of sufferings and humiliations that have been accompanied with frightful incidents, we have not ceased to view phenomena objectively, and have endeavored

to acknowledge the merits of others. When the search for truth is the object, all accessory conditions must be left to one side. May those who think that this spirit is unworthy of confidence, consider that their own doings and conclusions will be subject to the calmer judgment of posterity. We will stand firmly in the confidence that the spirit of right, of justice and of love of truth will finally win out, and that the spirit of conciliation will eliminate the errors that have been left as a result of a period of great storm."

The general text of the book remains much the same as in former editions. All those who are interested in colloid phenomena are familiar with the author's exhaustive and vivid treatment of the subject. Additions have been made throughout, but in a footnote to the above-quoted postscript to the preface, Doctor Zsigmondy states that though he has zealously sought to secure the data presented in sources outside of Germany, yet since 1914 this has been difficult, and he expresses the desire that he shall be furnished with copies of contributions by co-workers in all parts of the world. It is to be hoped that this request will be heeded.

The most interesting of the new matter in the book is the appendix by Professor Scherrer on the structure and dimensions of colloid particles as determined by the X-ray. The remarkable results obtained by Laue's method applied to crystallized forms, carried out in considerable detail by the Braggs, naturally suggested extension to the formless masses, and it is along this line that Scherrer has worked with great energy and ingenuity. The essay is too long to abstract here, and is necessarily abstruse, but among the results attained is that the number of really amorphous substances is much smaller than heretofore supposed, inasmuch as many presumably amorphous powders have been found to be made up of finely dispersed crystalline masses. Amorphous boron is an instance. The molecular aggregations of liquids are not crystalline masses, and the result of studies show that certain phenomena are common to all liquids; and that, further, certain solids, such as glass and gelatin, exhibit strong analogies to liquids and may be regarded as sub-cooled masses.

The mechanical execution of the book is excellent, the paper being good and the type clear and neat. These are matters of moment nowadays, when so much inferior printing and paper is offered at high price.

HENRY LEFFMANN.

THE MICROSCOPE. ITS DESIGN, CONSTRUCTION AND APPLICATIONS. A SYMPOSIUM AND GENERAL DISCUSSION BY MANY AUTHORITIES. Edited by F. S. Spiers, B.Sc., F. Inst. P. 260 pages and contents, with many plates and illustrations in text, 8vo. London, Charles Griffin & Co.; Philadelphia, J. B. Lippincott Company. $5.00 net.

The numerous papers in this book covering many phases of the science of microscopy, both in theory and applications, are the results of discussions held at three different times. The initial symposium was on January 14, 1920, at the rooms of the Royal Society in London. An adjourned meeting was held on February 24th at Sheffield, and a further meeting in London on April 21st.

Experts in the various phases of the construction and application of the microscope contribute to the symposium, and it is unnecessary to say that the book contains a vast amount of interesting matter. The main participants were