bacillus was still capable of producing a local tubercular abscess, not followed by general infection. Over twelve hours' digestion destroyed it completely. The germicide influence of gastric juice appears to be due to its acid contents, as it was found that hydrochloric acid alone, dissolved in water in the same proportion as it is in gastric juice, proved as active a destroyer of the bacilli. The pepsin appears to have no influence on the germs. Drs. Straus and Wurtz, who publish their researches in *Archives de Médecine Expérimentale*, wisely remind their readers that the germs, when protected by animal and vegetable tissues and introduced into the stomach in ordinary nutrition, are not exposed to so direct and prolonged action of the acid constituents of gastric juice as in these experiments.

BOOK-REVIEWS.

Electric Light Installations and the Management of Accumulators. By Sir DAVID SALOMONS. New York, Van Nostrand. 12°. $1.50.

As this is the fifth edition of a work which first appeared only two or three years ago, it is unnecessary to say that it fills a very important place in the literature of electrical science. It is not intended as a text-book on electric lighting, nor is it addressed to electricians as such; but it covers a field of its own, which had been previously neglected, or, rather, a field which had not been as alluring to writers on the subject as had other departments of the science.

Though the author disclaims any pretence to literary style, his work proves that he possesses in a high degree the three essential requisites of a successful writer; namely, to have something interesting to say, to be able to say it so that it may not be misunderstood, and to stop when he has said it. As a result, he has given us a plain statement of facts in regard to the practical side of electric lighting and the management of accumulators, attractively and clearly presented, and in as concise a manner as is consistent with the nature of the subject. The author proceeds on the assumption that the reader has a general knowledge of electric lighting, omitting minor details, which may best be found in any elementary book on the applications of electricity.

To those familiar with the work in its previous editions, it may be well to mention that this edition has been carefully revised and greatly enlarged, besides which many new engravings have been introduced, rendering the text more intelligible and at the same time showing the various types of electrical apparatus adopted by different manufacturers. To those who have never read the book, its scope may best be gathered from the author's statement that previous to its appearance no book had been written on the special subject of the management of the accumulator. Of the two classes of persons most directly interested in the secondary battery, manufacturers and purchasers, the former, as a rule, know comparatively little of its properties, their knowledge being confined mainly to laboratory tests. The true knowledge of how a battery will act is gained only by long experience. While it is in the hands of a non-professional user, rarely competent to examine the question for himself, this knowledge cannot be gained or turned to account. There are but few who have both the opportunity and the qualifications necessary to observe, scientifically as well as practically, the working of an accumulator, and fewer still with time, opportunity, and inclination to write upon the subject. To fill this gap, between the manufacturer and the general user, the author has attempted; and the demand for the present work proves that his attempt has met with a full measure of success.

The book is divided into two parts, the first treating of cells and their mode of employment; the accumulator house; charging and discharging; and failures, with their causes and remedies. The second part is devoted to installation work and practice, treating of engines, dynamos, and motors; switchboards, switches, instruments, lamps, and wiring; rules for the prevention of fire risks; action of cells with dynamo; methods of working and governing; alternating currents, testing, and estimating, etc.; ending with a description and history of the author's own private installation of secondary batteries at Broomhill. The book is fully illustrated, and provided with a very complete index.

A Text-Book on Roofs and Bridges. Part II. Graphic Statics. By MANSFIELD MERRIMAN and HENRY S. JACOBY. New York, Wiley. 8°. $2.50.

THIS volume, as its name indicates, is a treatise on graphic statics as applied to the discussion of common roofs and bridges. It is an outgrowth of the course of instruction in the subjects named, given to the students of civil engineering in Lehigh University, in which institution the authors are respectively professor of and instructor in that branch of applied science. The course in civil engineering in the university mentioned consists of four parts; namely, the computation of stresses in roof-trusses and in all the common styles of simple bridge-trusses; the analysis of stresses by graphic methods; the design of a bridge, including the proportioning of details and the preparation of working drawings; and the discussion of cantilever, suspension, continuous, and arched bridges. In this volume the second part of this course is presented, together with much additional matter.

Being offered as an elementary text-book, we need not look for many novelties in the work aside from the method of arrangement and presentation, though we may call attention to the abbreviated processes employed in some of the diagrams for wind-stresses, to the determination of stresses due to initial tension, and to portions of the analysis of maximum moments and shearing strains under locomotive wheel loads, as possessing some points of novelty as well as of practical value.

For the convenience of students, blank leaves are provided, alternating with the printed pages, upon which to record the numerical computations necessary in the preparation of graphical analyses, and upon which to make sketches of the stress diagrams required in the problems. The book is divided into three main parts, treating respectively of general principles and methods, of roof-trusses, and of bridge-trusses. An appendix contains the answers to the problems. The work is written in a clear and attractive style, and, though intended mainly as a text-book for students, it is not without value to engineers and others.

Elements of Logic as a Science of Propositions. By E. E. CONSTANCE JONES. Edinburgh, T. & T. Clark. 8°. $3.

THIS book is a very ambitious, but, as it seems to us, very unsuccessful, attempt to reconstruct the science of logic. The author takes the ground that logic is an objective science, and not a branch of psychology, and then goes on to define it as "the science of the import and relations of propositions," denying altogether that it is a science of reasoning or of the laws of thought. The chief characteristic of the treatise, however, is not the view taken of the science, nor any new or startling theory of its fundamental principles, but the employment of an immense number of new-fangled terms in place of the familiar ones that have been in use for centuries. What the object of such an innovation may be, unless to give the work an air of originality, we do not know; for we fail to see in what respect the new nomenclature is an improvement on the old. Thus, we cannot see the propriety of calling existence "quantitiveness," nor of using the phrase "subject of attributes" instead of the familiar term "substance." Essential attributes are termed by the author "intrinsic," and accidental ones "extrinsic;" an absolute attribute is called "independent," and a relative one "dependent;" hypothetical propositions are "inferential," and disjunctive ones "alternative;" and so on throughout the book, till the reader who looked at the terminology only might almost fancy that he was studying a new science. Yet, apart from this strange terminology, we fail to find in the work any thing specially new or noteworthy, while in some passages there is evidence of much confusion of thought. This is specially apparent in