

who later find their way to college or university. No better groundwork could be found for college or technical school physics than the ability, on the part of the student, to apply the science to his every-day problems.

The volume is one of the series which appears under the title "The Teachers Professional Library," edited by Nicholas Murray Butler. The Macmillan Company is to be commended for the attractive and substantial form which the book has been given.

F. E. KESTER

Thick Lens Optics. An elementary treatise for the student and the amateur. By ARTHUR LATHAM BAKER, Ph.D., Manual Training High School, Brooklyn, N. Y. D. Van Nostrand Co. 1912. Pp. ix + 131. \$1.50 net.

University texts on optics, as a rule, treat first order lens theory but incompletely and the aberrations of the third and higher order scarcely at all. The average university instructor in physics regards geometrical optics as an alien subject properly disposed of in high school. Reference texts of lens theory, on the other hand, deal largely with the third order theory and fail to give an elementary comprehensive treatment of first order theory.

Baker's little lens primer well fills this gap between the university text and the special treatise and will be heartily welcomed by oculists and by manufacturers and users of spectacles and other low-power lenses. It is confined strictly to first order theory, giving a simple and able treatment of image formation and focal power of combinations of thin and thick lenses. Diagrams are plentiful and good. A great many numerical examples are given and one chapter is devoted to the experimental determination of the optical constants of lens combinations with simple apparatus. When the book is revised it would be well to adopt a less formal style and perhaps either add a chapter on the special problems of spectacle lenses or mould the whole into an introduction to advanced lens theory.

P. G. NUTTING

Prisms. Their Use and Equivalents. By JAMES THORINGTON, A.M., M.D., Ophthalmic Surgeon, Professor of Diseases of the Eye in the Philadelphia Polyclinic. P. Blakiston's Son & Co. 1913. Pp. 144.

This little book is based on its author's course of lectures on this subject delivered each winter at the Philadelphia Polyclinic. It deals with the use of prismatic spectacle glasses in correcting muscular defects of the eye. Methods of evaluating prisms combined with spherical and cylindrical lenses are described and a number of useful tables given. The diagnosis and measurement of imperfect muscular balance (*heterophoria*) and of deviation from parallelism (*heterotropia*) of the eyes are discussed at some length. The book is well written and well illustrated and bears evidence on every page of the author's grasp and first-hand knowledge of the subject.

P. G. NUTTING

SPECIAL ARTICLES

A PARASITE OF THE CHINCH BUG EGG

IN the experiments conducted this year to determine the time of the first appearance of young chinch bugs and the mortality of the eggs, a large number of eggs were collected in the field for examination. The eggs which were collected at different intervals and in different localities were examined daily. While thus examining the eggs it was noticed that some of them became dark in color instead of assuming the usual red coloring. These eggs were isolated and on May 19 there emerged from them three parasites. With these three parasites as a basis, the life history was carried through four generations, running up to July 5. Since this was the time between the two broods of the chinch bugs, it became impossible to obtain additional chinch bug eggs with which to continue the work. From July 5 to July 23 only an occasional parasitized egg was found in the field, but beginning with the latter date, parasitized eggs were found in large numbers in the corn fields and the second generation was obtained by August 10. Up to the present date