inserting the calendar for 1911 and an article on the determination of the orbits of planets and comets.

The part devoted to physics starts with a most excellent article by Willy Wien, of Würzburg, which is almost popular in nature and yet so fundamental in treatment as to be worth many a perusal. The various fields of physics are covered by articles and many tables of constants and coefficients, admirable for reference, are included. Fundamental principles expressed in mathematical language abound. In fact, throughout the book the authors, owing to the lack of space, cannot elaborate much.

An article on radioactivity by Greinacher, of Zurich, is of the same character as the one on relativity by Willy Wien.

Several articles on chemical subjects are included; the fields of technology touched upon are those dealing with the theory and design of electrical machinery. All are treated from the viewpoint of the mathematics in the case.

Of the special articles we mention the obituary notice of the late Minkowski by Hilbert and Weyl, of Göttingen, and the article on the present tendencies in the teaching of mathematics in Germany by Lietzmann, of Barmen.

For both the fields of mathematics and physics fairly complete lists of journals, proceedings, recent books, and firms dealing in apparatus are given at the end of the book. A mortuary record for 1909–1910 and a list of teachers in the Hochschulen of Germany are added. Of course, a complete index closes the volume.

<div align="right">ERNEST W. PONZER.</div>

Non-Euclidean Geometry. A critical and historical study of its development. By R. BONOLA. Authorized English translation with additional appendices by H. S. CARSLAW. With an introduction by F. ENRIQUES. Chicago, Open Court Publishing Co., 1912. xii + 268 pp.

THE recent untimely death of Professor Bonola lends unusual interest to this book. In a review of the original Italian edition which appeared in the BULLETIN in 1910 I spoke of the desirability of having "an English edition of so valuable and interesting a work." This want is now well supplied by Professor Carslaw's translation. In a new appendix (the fifth) the translator has also materially improved the book by adding a discussion of a subject which seemed con-