

## SHORTER NOTICES.

*First Course in Calculus.* By E. J. TOWNSEND, Professor of Mathematics, and G. A. GOODENOUGH, Professor of Mechanical Engineering, University of Illinois. New York, Henry Holt and Company, 1908. xii + 466 pp.

*Essentials of Calculus.* By the same authors and publishers, 1910. xii + 355 pp.

THE larger of these books is intended as a text in calculus in courses given to engineering and college students in our stronger universities and technical schools. In preparing the smaller volume "the authors have had in view the needs of those colleges and technical schools in which the time devoted to calculus is limited to a three-hour course for a year."

These books are sufficiently alike to permit of a common characterization. They are perhaps unique among our texts on the calculus in that they are a collaboration by a pure mathematician and a mechanical engineer. The result is "that more attention is given to elementary applications to mechanics than is usual and perhaps less to geometry, it being the thought of the authors that the two should stand in about the same relative importance." However "the attempt has been made to select such problems and applications as arise in actual practice of an engineer without introducing technical difficulties beyond the experience of the average sophomore student who has had the usual course in high school physics. The book has not been written, however, solely from the point of view of the engineer. The applications are such as the general student will find both helpful and stimulating in showing the broad use of the calculus in practical problems."

On reading these volumes these claims of the authors seem to be well borne out. To a teacher who is asked many times each year "what is the use of all these theorems and processes?" such applications will be most welcome. The authors have avoided one of the commonest pitfalls, viz., the introduction of real applied problems which are too difficult in their essential character, or which are so long and bungling in statement as entirely to discourage the student and thus to