

physics or engineering. The volume is well and fully illustrated with plates and diagrams. An attractive and luminous style has aided the author very considerably in his desire to make the subject clear; in this connection his dedication is not unworthy of notice.

E. W. BROWN.

*Dynamics of a Particle and of Rigid Bodies.* By S. L. LONEY.  
Cambridge, University Press, 1909. 8vo. 374 pp. \$4.00.

PROFESSOR LONEY'S mathematical texts are so well known that it is sufficient to say that the high standards of the earlier books have been maintained in the present volume. The text is divided into two equal parts (184 pages each), the first of which is devoted to dynamics of a particle. In the dynamics of a rigid body the author has confined himself chiefly to motion in two dimensions. There is a short chapter on motion in three dimensions, and Lagrange's equations in generalized coordinates are developed for both finite forces and blows. The reader is supposed to have a working knowledge of the calculus, but the differential equations which occur are solved in the text, and an appendix contains a summary of the methods of solution.

It is assumed that the student has previously read a course in elementary dynamics and the present book is mainly a treatment of more difficult problems than occur in a first course. There is a large collection of very interesting examples which furnish excellent material for the cultivation of ability in the solution of problems.

The text has been made as brief as possible and in some places the prerequisite knowledge is greater than any American student is likely to have. For example on page 76 we find that the reader is supposed to be familiar with the  $(p, r)$  equations of the conics, where  $r$  denotes the distance from the origin  $O$  to a point  $P$  on the curve, and  $p$  is the distance from  $O$  to the tangent at  $P$ . A recent notice of an American book in an English publication\* contains the remark: "In looking through the American text-book a British teacher is almost always puzzled as to what previous equipment the reader is supposed to possess." This statement implies a criticism of recent tendencies in our teaching of mathematics which may or may not be important, depending on the course of study pur-

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\* *Mathematical Gazette*, March, 1910, p. 215.

sued. If the prospective student of higher mathematics has taken only the ordinary college courses in trigonometry and analytic geometry, he is not provided with machinery to facilitate the work in hand. It is not likely that he can make free use of the hyperbolic functions, and he may have difficulty with oblique axes. The equation of an ellipse referred to a pair of conjugate diameters will mean very little to him if he has never heard of conjugate diameters. To such a student this volume would be very valuable as a source of suggestion for further study in the subjects which ordinarily precede the work in mechanics.

W. R. LONGLEY.

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#### NOTES.

THE annual meeting of the London mathematical society was held on November 10. Reports for the preceding year were presented, and the following officers elected: president, H. F. BAKER; secretaries, A. E. H. LOVE and J. H. GRACE; treasurer, Sir J. LARMOR; four vice-presidents, and nine other members of the council. The following papers were read at this meeting: By W. D. NIVEN (presidential address), "The relation of mathematics to experimental science"; by G. H. HARDY, "Properties of logarithmico-exponential series"; by G. T. BENNETT, "The double six of lines"; by W. H. YOUNG, "On semi-integrals and oscillating successions of functions," and (with Mrs. YOUNG), "On the existence of a differential coefficient"; by F. TAVANI, "The analytical extension of Riemann's zeta-function"; by T. W. CHAUNDY, "The geometrical representation of non real points in space of two and of three dimensions"; by J. E. LITTLEWOOD, "The extension of Tauber's theorem"; by W. H. YOUNG, "A note on the property of being a differential coefficient" by F. B. PIDDUCK, "The stability of rotating shafts"; by J. W. CHAPMAN, "On non-integral orders of summability of series and integrals"; by A. A. ROBB, "Optical geometry of motion"; by A. R. FORSYTH, "Lineo-linear transformations, especially in two variables"; by W. H. YOUNG, "On the condition that a trigonometric series should have the Fourier form."