PRÉCIS D'ARITHMÉTIQUE. Par J. Poirée. 8vo., paper, 62 pages. Paris, Gauthier-Villars et Cie. Price 7f, 50.

Elementary arithmetic is a good introduction to the study of mathematics, because it gives the beginner, under form of concrete examples, the methods of reasoning ranging from the simplest to the most complex. Notwithstanding such advantage, the field is much neglected by the generality of pupils, for which they are, perhaps, not wholly to blame, since authors see the more important and difficult phases and do not wish to leave these in the shadow, thereby overlooking the more elementary but simpler phases of the reasoning. M. Poirée has been able to avoid this difficulty and has condensed in a limited number of pages all that belongs to the classic course in this field, and has added a chapter which is an introduction to the theory of numbers.

Eliminating all that is not entirely indispensable, the author passes rapidly, but with care, to principles of enumeration, the fundamental operations, division, primary numbers and puts the theorems in a logical order. The treatment of fractions affords an opportunity to introduce a dissertation on the theory of limits, that beginners find difficult to understand. In connection with the section on square root he discusses the subject of irrational numbers. These different sections are fully illustrated with examples. The work is, therefore, a useful contribution to this field.

HENRY LEFFMANN.

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS.

Report No. 113, Tests on Air Propellers in Yaw, by W. F. Durand and E. P. Lesley. 37 pages, diagrams, quarto. Washington, Government Printing Office, 1921.

This report contains the results of tests to determine the thrust (pull) and torque characteristics of air propellers in movement relative to the air in a line oblique to the line of the shaft, and specifically when such angle of obliquity is large, as in the case of helicopter flight with the propeller serving for both sustentation and traction.

Report No. 116, Applications of Modern Hydrodynamics to Aeronautics, by L. Prandtl. 61 pages, illustrations, diagrams, quarto. Washington, Government Printing Office, 1921. This report gives rather briefly in part one an introduction to hydrodynamics which is designed to give those who have not yet been actively concerned with this science such a grasp of the theoretical and underlying principles that they can follow the subsequent developments. In part two there follows a separate discussion of the different questions to be considered, in which the theory of aerofoils claims the greatest portion of the space. The concluding portion is devoted to the application of the aerofoil theory to screw propellers.