suspicion where its authors have rejected doubtful observations. Professor Merriman recommends that negative characteristics for logarithms should be used in computations. This is largely a matter of custom; most computers prefer the use of positive characteristics, inserting -10 when there is likely to be any doubt.

One of the most interesting chapters is that on spherical geodesy, containing a short historical account of the measurement of meridian arcs and the gradual approach to our present knowledge of the form and dimensions of the earth's surface. The whole work is fully illustrated by solved problems, and the references to government reports and other works on allied subjects will enable the reader to obtain everything necessary for understanding every part of the subject.

ERNEST W. BROWN.

Premiers Principes de Géométrie Moderne. Par ERNEST DUPORCQ. Paris, Gauthier-Villars, 1899. vii + 160 pp.

THIS useful book is intended to give to students who have some acquaintance with analytic geometry, a liking for the purely geometric point of view. It is not a work on pure geometry as a self-contained science freed from arithmetic; for instance, the notion of imaginary points is sketched in the preliminary chapter from the historic algebraic standpoint. A purist (say von Staudt) would energetically oppose such statements as: "Le point * * * ne représente rien de géométrique lorsqu'il est imaginaire" (p. 9); and would proceed, at any cost, to give a geometric meaning to a point however imaginary.

The book takes, then, a middle path. The ground won by the application of algebra to geometry shall be handled geometrically whenever convenient. That it is very frequently convenient is to be shown, in a way that shall strengthen the geometric sense. For the cultivation of the geometric sense is a very important* aim of a mathematical course, toward which algebraic methods contribute little.

The ground to be covered is that of the simpler transformations, viz., homography, correlation, inversion, quadratic transformation of a plane, Lie's transformation of lines into spheres.

The body of the book (Chapters II.–V.) is devoted to homography and correlation, and covers the principal proper-

* According to the author's introduction, it is the principal aim; which seems too strong a statement.