

A FRENCH ANALYTICAL GEOMETRY.

Leçons de Géométrie Analytique. Par MM. BRIOT et BOUQUET.
 Revue et annotée par M. APPELL, professeur à la Faculté des
 Sciences. Paris, Ch. Delagrave, 1890. 8vo, pp. iii. + 722.

THIS popular French text-book reached its fourteenth edition in 1890. At that time, as we learn from the preface, changes in the programmes of the schools and improved methods of teaching had made a revision of the book advisable. This piece of work was done by M. Appell, a mathematician, whose name is as familiar to American students as to Frenchmen. The bare list of the articles in the book which he has touched covers a page and a half, and it is safe enough to say that "*nihil quod tetigit non ornavit.*" A treatise of this kind is of course more interesting to teachers of elementary mathematics than to any one else; to them even a slight account of a school book which has achieved great and lasting popularity in a nation where pure mathematics has flourished so splendidly and so long, can not fail to prove interesting by virtue of its subject.

The book opens with a concise notice of the different systems of plane coordinates, beginning with rectilinear coordinates in general and the particular case of rectangular axes; then passing rapidly over polar and bi-polar systems, and finally giving a notion of coordinates in general. These notions are all simple enough when presented in the transparent style of the authors; in fact plane coordinates are so much simpler than curves drawn on a sphere that it is a wonder that school books on geography should not give an account of them before taking up the subject of latitude and longitude which almost always proves difficult to young pupils. The writer was once explaining rectangular coordinates at a teachers' institute when one of the members rose and thanked him for *inventing* them; he had been trying to teach latitude and longitude without any of the preliminary ideas necessary to an understanding of the matter. At the close of the first chapter we read, "The representation of figures by equations is the basis of analytic geometry; it allows us to apply the processes of algebra to the study of figures. In analytic geometry we are concerned with three fundamental questions: when a figure is defined geometrically, to find its equation; reciprocally, when the equation is given, to construct the figure; finally, to study the relations which exist between the geometrical properties of the figures and the analytical properties of the equations."

Chapter II. takes up the first problem; various loci, in-