Notions de Mathématiques. Par A. SAINTE-LAGUË. Avec Préface de G. KOENIGS. Paris, A. Hermann et Fils, 1913. vii + 512 pp. Price 7 francs.

In France, during the past decade, the baccalauréat de l'enseignement secondaire has been granted to students who have successfully completed the seven year course of the lycée, in one of four main lines of study. In the seventh year these classes of students are characterized as of Philosophie *A*, Philosophie *B*, Mathématiques *A*, or of Mathématiques *B*. All students of the first two classes have studied both Latin and Greek, in the third class Latin and modern languages but no Greek; in the fourth class, no students have had Greek, few have taken up Latin but all have had broad training in modern languages. Prior to the seventh year those in the Philosophie group have devoted 10.5 to 11 per cent. of all their recitation periods to mathematics; those in the Mathématiques group 19.4 to 22.8 per cent. From the latter group come the future mathematicians.

It was with the needs of the students of the classes Philosophie *A*, *B* in mind that M. Jules Tannery wrote his most interesting Notions de Mathématiques* to which are appended 25 pages of Notions Historiques by his brother Paul. Although Tannery's work is largely in conformity with the *programme*, the whole reads as a freshly told story. About a third of the book is devoted to an "Introduction." With particular insistence on the accurate definition of all terms used, the following subjects are treated in nine chapters: identities; algebraic geometry; equations of the second degree; coordinates; empirical curves; notions of analytical geometry (40 pages); tangents, velocity derivatives; notions of the integral calculus; limits; infinitesimals, definite integrals, series. The student cannot fail to be interested by the way in which the various subjects are welded into a homogeneous whole.

M. A. Sainte-Laguë, "professeur de mathématiques spéciales" in the lycée at Besançon and an Ecole Normalian of 1903, has followed in the steps of his former master by now publishing a book with the same title as the one to which we have just referred. But though it is much larger, the topics

* A German edition has been published (1909) with the title Elemente der Mathematik. Cf. the BULLETIN, April, 1911, vol. 17, pp. 367–368. About 20 pages of "Notions d'Astronomie" are appended to the French editions since 1905.