Review

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When Euclid framed his definitions
 He did not miss "the point";
 Space was prescribed by h's conditions
 For angles twain conjoint.
 Our fathers, aye! and theirs before 'em,
 At Euclid seldom scoffed,
 They feared the dread Pons Asinorum,
 Which now is in the loft—
 It now adorns the loft.

But still, in spite of Time's abuses,
 This central truth abides,
 That squares of all hypotenuses
 Are sums of squares on sides.
 We verify such facts by measure!
 Though Euclid's proofs be doffed,
 The gems he set we safely treasure,
 The setting's in the loft—
 It now adorns the loft.

H. H. T.

REVIEWS.

Le Calcul des Probabilités et ses Applications. By E. CARVALHO. Pp. ix+169. 6 fcs. 50. 1912. (Gauthier-Villars.)

As an examiner for the French Statistical Service, M. Carvalho has found that the student who has received no more than an elementary knowledge of mathematics rarely, if ever, is able to get from the usual sources a real grip of the theory of probabilities. The volume before us is intended for people of general culture who have never specialised in mathematics. The fundamental principles are clearly and simply expounded, and applications are illustrated without the usual parade of analytical developments required in the establishment of formulae. The author reminds us that Hermite used to say that just as there are natural phenomena, there are such things as mathematical facts. It is quite unnecessary for the average politician or statistician to know more than the fact. Now the theory of Probabilities, as ordinarily expounded, consists "of little else than artificial transformations and complicated formulae encumbering the mind without revealing the reason of things." There is, for example, no earthly reason why ordinary folk should be able to prove Stirling's Theorem. It is certainly necessary to the theory, but the practical application of it is all that is really required. We can well imagine that this volume would be an excellent introduction to the subject for the young mathematician who is afterwards to pursue the study of probabilities along the normal lines. Particular mention should be made of the carefully selected statistical examples discussed in the text. The book is brought to a close by a useful discussion on the limits of the theory, and the precautions that must be taken in its application to questions which are incomplete or ambiguous.

Paul Tannery. Mémoires Scientifiques. Edited by J. L. HEIBERG and H. G. ZEUTHEN. I. *Sciences Exactes dans l'Antiquité.* 1876-1884. With Portrait. Pp. xiii+465. 15 fcs. 1912. (Gauthier-Villars.)

In his early days Paul Tannery was deeply interested in the pedagogic side of Mathematics, but he published nothing on the subject. We are reminded of the fact by his brother Jules in the Preface to *Notions de Mathématiques*, a volume to which, it will be remembered, the elder brother added a few pages of *Notions Historiques*. M. Painlevé has felicitously remarked that if Litré was a lay saint, Jules Tannery was an intellectual saint. His deep and subtle intellect found itself at home in criticism both scientific and philosophical. We may be sure that he weighed well his words when he wrote of his brother Paul in the Preface we have mentioned: "Sans parler de tout ce qui m'attache à lui, je ne pouvais trouver chez personne une science plus sûre, un esprit plus large et plus philosophique."