

## GILLAIN ON EGYPTIAN SCIENCE

*La Science Égyptienne. L'Arithmétique au Moyen Empire.* By O. Gillain, avec une préface de H. Bosmans, S. J. Brussels, 1927. xvi+326 pp.

This work is one of the publications of the Fondation Égyptologique Reine Élisabeth, and like the other works bearing the same imprint it represents a standard of scholarship as well of typography which commends it both to students and to general readers. Not the least of its merits is the preface written by the late and widely lamented Père Bosmans, a scholar and a "gentleman of the old school," whose knowledge of the history of mathematics, as also of medieval ecclesiastical literature, was the result of the labors of a long and useful life.

The title of the book does not indicate very clearly the nature of the work, which is chiefly a treatise upon and quite largely a translation of the Rhind (Ahmes) Papyrus, but with a brief consideration of other manuscripts in the Introduction and in Chapter IV. In one way such a work may be thought to be superfluous in-as-much as we have two editions of Eisenlohr's translation, the much better edition of Peet, and the still better and more elaborate one by Dr. Chace, the second volume of which is just appearing. In another sense, however, it is to be welcomed, since it gives to French readers who may not be familiar with German or English a good idea of the oldest mathematical treatise of any extent that has come down to us.

Since the nature of this papyrus is now so well known to American and British readers, both through the editions above mentioned and through recent reviews, it is sufficient at this time to call attention to the general line of treatment followed by M. Gillain. His Introduction (pp. 1-22) sets forth the nature of Egyptian mathematics of the period, describes the measures then in use, mentions the fantastic theories of the Pyramid measurers, and concludes with a brief history and description of the work of Ahmes. He also refers to the earlier fragments of a mathematical nature, including the Moscow manuscript made known by Turaev (Touraieff) in 1917, and soon to be published in translation. As to the Pyramid theorists, M. Gillain expresses the very sane opinion, "La Grande Pyramide est sans contredit, admirable, mais ses constructeurs n'étaient point sorciers."

The work is divided into four chapters, as follows: Chapter I,—Elementary computations, in which are explained the general methods used in what we call the four fundamental operations, both with integers and with fractions, illustrative examples being selected from the Ahmes text. Chapter II,—The tables of fractions, in which a comparison is made between the cumbersome method used by the Egyptians in, say, dividing 37 by  $1+2/3+1/2+1/7$ ,—a problem which the Egyptian calculator might have had to solve,—and the simple division of 37 by the equivalent fraction  $97/42$ , which might conceivably be required in our day. This is followed by the usual tables of  $2/(2n+1)$  for values of  $n$  from 1 to 50, and by examples from the text illustrating its use. Chapter III,—Problems, in which the