

of elementary texts have appeared, designed to meet the needs of the new class of pupils in this subject. The present book begins with a detailed concrete explanation of the elements of descriptive geometry. All definitions are put in bold-faced type. Solid bodies are depicted on the ground, vertical, and profile planes, and various objects are drawn to show that all three elevations are generally necessary. The straight line, plane, prism, pyramid, and regular bodies are treated in succession, a number of unsolved exercises being appended to each case. Then follow the circle, cylinder, cone, and sphere. After these ideas are mastered, the pupil is prepared to take up parallel perspective, wherein the same figures are treated again, but rather more concisely. Finally, a few pages are devoted to central perspective; methods are given for constructing a perspective picture of an object when its ground plan and profile are given. The author explains in the preface that the arrangement of subject matter is new, that heretofore too much emphasis has been laid on perspective drawing. One is tempted to feel that he has possibly gone to the other extreme, but at any rate the intelligent reader has not been bored by a multitude of details, and will finish the book thirsty for more. The typographical work is excellent; the figures are crude, but easily understood. The usefulness of this little book should not be confined to the German gymnasias.

VIRGIL SNYDER.

*Petrus Peregrinus de Maricourt and his Epistola de Magnete.* By SILVANUS P. THOMPSON, D.Sc., F.R.S. From the *Proceedings of the British Academy*, Volume II. London, published for the British Academy by Henry Frowde, Oxford University Press. 32 pp.

FOR thirty years Professor S. Thompson has made a study of the early history of magnetism, whenever opportunity presented itself for the examination of original sources. A result of this study is this article on Petrus Peregrinus and his famous Epistle on magnetism that was "done in camp at the siege of Lucera, Anno Domini 1269, the eighth day of August." No student of the history of science in the time of Peter Peregrinus and Roger Bacon can afford to overlook this article of Professor Thompson. He gives a list of the twenty-eight different ancient manuscript copies of the Epistle, tells where each is found and compares them. Two of these are in his own posses-

sion, the rest are in public libraries. "No two have yet been found to agree precisely in their text." The manuscripts in Erfurt, Vienna, Dublin, and Geneva have not yet been critically examined, hence it is still doubtful "what readings ought to be finally adopted for all the doubtful passages."

Of printed versions there are nine, or eleven if one includes a plagiarized work of 1562 and its English translation of 1579. The earliest printed version is the Augsburg tract of 1558, of which only eighteen copies are now known to exist, one of these being in the library of the American institute of electrical engineers in New York City.

FLORIAN CAJORI.

*Traite des Assurances de la Vie.* By U. BROGGI. Translated from Italian into French by S. LATTÈS. Paris, Hermann, 1907. xi + 306 pp.

THE appearance of Professor Broggi's book in a French translation makes it accessible in three languages, an edition in German having already appeared. This fact in itself is significant and bespeaks an examination of the volume.

If anyone has been accustomed to regard a text on the theory of life insurance as an unattractive compendium of formulas not all of which are carefully derived, to such a one the volume under review will by contrast be welcome. For the author has elected to present the subject as an integral part of mathematical theory, and has exhibited a proper concern regarding the development of the doctrine of probability which is the basis of the subject. He has also applied himself to the clear formulation of the various special problems which are treated and to the use of the mathematical processes in valid ways only. Even at this day successful undertakings of this sort are not so common as to be unworthy of praise.

An introductory statement of the problem of insurance is followed by the four chief divisions of the book; and of these the first contains a good discussion of the more interesting elementary topics of the theory of probability, including the theorems of Bernoulli and Poisson, an introduction to the method of least squares and a few formulas on interest. The second and third parts, constituting a considerable portion of the book, are devoted to the derivation of formulas for the principal forms of annuities and insurance upon groups of lives, the laws of mortality of De Moivre, Gompertz, and Makeham furnishing