

total and permanent disability. The student who is carried through this text will have a very good understanding of the actuarial theory underlying modern life insurance. It should be mentioned, of course, that the practice of life insurance in this country differs considerably from that in England and the continent and an American student would gain chiefly on the theoretical side from a book of this character. As an illustration of this fact I might state that all companies in this country are on the Illinois Standard reserve basis,—a subject which is not directly treated in this work.

J. W. GLOVER

*Le Problème de Pappus et ses Cent Premières Solutions.* By A. Maroger, with a preface by Paul Montel. Paris, 1925. viii+386 pp.

In his preface to this work Professor Montel calls attention to the fact that M. Maroger has done for a single proposition from the works of Pappus what Jean Macé (who, by the way, made a humble contribution to mathematics) did for a bite of bread in his delightful *Histoire d'une Bouchée de Pain*, and what Professor Klein did in his *Ikosæder*. In each case the writer, starting with a simple and familiar entity, develops therefrom an elaborate treatise. He might with equal propriety have compared it with Pascal's treatment of the "arithmetic triangle" or the "mystic hexagram," or with any one of numerous other cases in which a whole theory grows from a very small seed.

This seed, in the case of the work under review, is the problem of drawing through a given point on the bisector of a right angle a line segment of given length and having its extremities on the sides of the angle. Just why this is designated as *le problème* instead of *un problème* does not appear, since it is natural to refer to "the" problem as the one which was made so well known by Descartes in the first book of *La Géométrie*. This, however, is a point of no moment; the interesting thing is to see what M. Maroger has done with the problem, namely, to give a hundred solutions out of a large number that he has found. This work has carried him into various lines of modern geometry, the results being arranged in no very systematic sequence but rather in the order in which the solutions were discovered. It is also interesting and, for the student of geometry, appetising to know that it is the author's plan to continue the study even farther. The problem, analytically considered, is one of the fourth degree, reducible to the second. As Professor Montel remarks, such cases suggest an *étoile* in a forest, so familiar to all who have tramped through such regions and have seen the numberless paths that radiate from such centers, permitting the wanderer to explore a vast region. From this problem M. Maroger has explored not only the territory of special solutions, but also various contiguous and special fields. These "digressions," as he calls them, constitute the most interesting part of his text. Students of geometry and the theory of equations will find a storehouse of interesting material in the three hundred eighty four closely printed pages of the text.

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