SHORTER NOTICES

Versicherungsmathematik. By Alfred Loewy. 4th ed. Berlin, Julius Springer,
1924. 8vo. v+224 pp.

The first three editions of this book were published in the SAMMLUNG
GÖSCHEN in the years 1903, 1910, and 1915, respectively. The present
edition differs from the preceding chiefly in the addition of several chapters
on total and permanent disability. The practice of combining total and
permanent disability protection—both with regard to the waiving of
premiums and the payment of annual or monthly income in the event of
the insured becoming totally and permanently disabled—with the regular
life insurance policy has become such a settled matter that it would seem
that no book on the elements of life insurance could well afford to omit an
account of it. The book contains fourteen chapters and five tables. The
first two chapters deal with the elements of the theory of interest and
an account of the important insurance mortality tables. A very good
treatment of single premiums for life insurance and annuities is contained
in the next chapter and the fourth chapter completes the theory of net
premiums by developing the formulas for annual and fractional premium
payments for all ordinary forms of insurance protection. In Chapter
five the author deals with the subject of premium loading for expenses
and contingencies and also with return premiums. In the next two chap-
ters reserves and surplus are considered, the net level and Zillmer's preli-
minary term reserves receiving attention. The next two chapters are
devoted to an account of joint life and survivorship annuities and select
mortality tables. The construction of the latter is carefully outlined and
the methods of calculating select premiums and reserves are explained.
In Chapter ten the formulas connected with the subject of disabled lives
are developed, including the construction of the disability mortality
table and the calculation of annuities on disabled lives in terms of com-
mutation columns. The author also devotes some pages to the consideration
of selection and the formulas pertaining thereto among disabled lives.
Chapter eleven goes into some detail on the construction of combined
disability and mortality tables and develops the formulas for premiums
and reserves on active lives for disability protection of various kinds.
The remaining chapters deal with the insurance of widows and orphans,
general considerations concerning reserves, and problems relating to
dividends.

The first table relates to the twenty-three Deutsche Gesellschaften (the
twenty-three German Life Insurance Companies Experience), and the
second to the Life Table for men, German Empire, 1891–1900. Tables
three and four are based on disability experience, and Table five on
insurance of widows. This book has been very popular on the continent,
having gone through three editions and the present edition will make it
still more useful on account of the important chapters incorporated on

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 *Ikosaeder.* 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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