

(3) The definitions based on the notion of measure. The starting point here is the linear measure of Carathéodory, that is, measure of order unity. There is then given an outline of the generalizations due mainly to Hausdorff and the relation of this to the work on potential theory done mainly about the middle of the last decade. There is also a brief discussion of the work on transfinite diameter in which the names of Pólya, Szegő, and Fekete play the prominent role.

This book furnishes an excellent sketch of the various points of view and serves as an introduction to a more detailed study for which there are available Menger's book on dimension, Fréchet's *Espaces Abstraits*, and a host of original articles.

J. R. KLINE

*Versicherungsmathematische Aufgabensammlung*. Vol. 1. *Beiträge und Deckungsrücklagen in der Lebensversicherung*. By C. Boehm and E. Rose. 75 pp. Vol. 2. *Umwandlung von Lebensversicherungen*. By C. Boehm and P. Lorenz. 52 pp. Leipzig and Berlin, Teubner, 1937.

These two pamphlets contain a collection of problems with their solutions illustrative of the more simple types of calculations of an actuarial nature which are required in actual life insurance practice. Although the authors very properly point out in the two prefaces that no book can be a substitute for actual experience, these pamphlets are written from a more practical standpoint than most textbooks and provide an interesting and valuable insight into the practice of German life insurance companies. The first volume deals with the calculation of net single premiums, net annual premiums, gross premiums, net reserves, gross reserves, and special plans of insurance, in that order. The examples seem, on the whole, well chosen, and cover the ground well. The argument against the use of ultraconservative interest and mortality bases on page 12 seems to the reviewer rather naïve and unconvincing. On page 27 in a problem to determine what per cent of the gross premium the various elements of expense constitute, the collection cost is expressed as a percentage of the entire gross premium, while in the case of the clerical and administrative expense and the prorated initial expense the denominator used is the gross premium less the collection expense. This may be the German custom but would seem to call for a word of explanation. The statement on page 51 that the prospective formula is the simplest for calculating net reserves is true, in general, but it is odd that it should occur in the discussion of a special varying insurance for which the retrospective formula would have been easier.

The second volume gives the impression that the German treatment of the difficult problem of policy changes is characterized by the same balancing of theoretical accuracy against practical expediency which is typical of our own approach to the subject. The per mille symbol referred to by Professor Dodd in the September 1938 Bulletin in reviewing a similar book is used frequently, and by its similarity to the per cent sign may confuse the reader to whom it is not familiar. The explanations are clear, and, generally speaking, these books have accomplished their purpose in an admirable fashion.

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*Stellar Dynamics*. By W. M. Smart. Cambridge, University Press; New York, Macmillan, 1938. 8+434 pp.

This book is an effort to present, in considerable detail, the development of stellar dynamics from a mathematical treatment of the results of observations. The general theory of the correction of observed facts is treated and results of this treatment are applied to the correction of parallaxes, absolute magnitudes, and transverse velocities.