·   **REVIEWS**

Life and Other Contingencies. Volume 2. By P. F. HOOKER, F.I.A., A.S.A., and
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>   the Faculty of Actuaries at the University Press, 1957. 20*s*.]

THIS is the second volume of the textbook on life and other contingencies com-
missioned by the Institute and the Faculty for the use of students studying for
the examinations. Volume I, published in 1953, dealt with the syllabus of
Part II A of the examinations. The present volume constitutes the sole reading
for Part III A, and deals with multiple-decrement tables, probabilities involving
more than one life and the annuity and assurance functions derived from them,
and the technical processes connected with the valuation of pension funds,
widows' and orphans' funds and disability benefits.

One must sympathize with the authors for having had to follow the somewhat
arbitrary division of the syllabus between the two sections of the examinations.
This division may have some practical advantages, but it is not necessarily the
most logical arrangement. It has faced the authors with the problem of deciding
in which order to arrange their chapters and it is, perhaps, questionable whether
the order they have chosen is the best from the point of view of the student
approaching the subject for the first time. The first two chapters deal with
multiple-decrement tables and contain a mathematical exposition of the subject
which the student should find most helpful. But he may be somewhat discon-
certed to find in later chapters, dealing with probabilities and functions involving
two or more lives, that the technique of the multiple-decrement table is not
used because, as the authors so rightly state, it would not be practicable to
do so.

Would it not then have been better to place the multiple-decrement chapters
later in the book? The present arrangement seems akin to constructing a solid
foundation for a house on a not very habitable site, and then proceeding to build
the house elsewhere; or rather to renovate and modernize an existing house.
For much of the treatment of multiple-life problems is based on the conven-
tional development used in the previous textbook by Spurgeon. In the process
of restoration the authors have followed the fashion of contemporary architecture
and discarded a great deal of bric-à-brac and unnecessary fittings, retaining only
what they consider essential. The resulting edifice is thus more hygienic,
mathematically speaking, than its predecessors, but one wonders whether some
students will not find it at times a rather less comfortable habitation in which to
study for the examinations. On the other hand, comfort is not necessarily con-
ducive to hard work, and it is always difficult, in compiling a textbook of this
kind, to decide when and where to stop spoon-feeding the student and to make
him think for himself. In the present volume the authors have concentrated on
a clear and admirably streamlined exposition of fundamentals and, as they state
in the preface, 'have purposely given less emphasis to complicated functions
than was at one time the fashion'. But the student must take note that the
fashion still persists in the examination papers, which continue to contain
questions involving these more complicated functions, not, one imagines, be-
cause they are of practical value, but because they constitute excellent exercises

in lucid and logical thought, which is one of the attributes the Institute and Faculty try to foster in their members.

Throughout the book the authors have adopted, wherever possible, a mathematical approach. That is to say they start with an expression in integral form which they reduce, by development of the integrals, to the conventional form involving annuities, assurances and commutation functions. This undoubtedly gives precision and rigidity to their treatment and leads to consistency in the approach to problems of different kinds. It has, however, the disadvantage that it tends to under-emphasize the importance of commutation functions. If the integrals are the steel framework of the building, the commutation functions are the bricks and mortar with which it must eventually be clothed and the acquisition of facility in their use is essential for the actuarial student. Much can be done and normally is done with them by themselves without any supporting framework, and it would perhaps have been helpful to give the student a little more guidance on this type of construction. This point is of particular importance in the two chapters dealing with pension funds. These two chapters represent the student's first introduction to this subject, and they are intended to provide the technical foundation for his study in later sections of the examinations. In them the authors develop from integrals all the standard formulae first set out by George King, and to have done this so lucidly within the space of two short chapters is a noteworthy achievement. Unfortunately, in practice, standard formulae often need modification, and some instruction in how to do this without always reverting to first principles would probably help the student in his later work on this subject.

The authors have continued the practice they adopted in the first volume of marking with an asterisk certain sections which the student is not required to study for examination purposes. Many of these sections are obviously inserted for the sake of completeness, and one can understand the authors' desire to include them for this reason. But there are a few which seem to be entirely outside the general scope of the book and the reason for their inclusion is obscure. For example, in chapter 21 the authors develop the standard deviations of a number of functions. All but one of these are starred, and they would all seem to be more appropriate to another textbook. There is clearly room for differences of opinion on the value of this practice, but if it is to be used would it not be preferable to place all the starred sections at the end of each chapter? As it is, although they are hurdles which the student may run around and is not required to jump, their presence may nevertheless cause him to falter in his stride.

Finally, the authors must be congratulated on the praiseworthy achievement of condensing the whole of the Part III A syllabus within the covers of a fairly slim volume. The students will certainly find this a great convenience, and its value to them is enhanced by the inclusion, at the end, of the International Actuarial Notation and of tables extracted from *Actuarial Tables for Examination Purposes*.

N.E.C.