

**GRADUATED EXERCISES AND
EXAMPLES FOR THE USE OF
STUDENTS OF THE INSTITUTE
OF ACTUARIES' TEXT-BOOK**

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Graduated Exercises and Examples for the Use of Students of the Institute of Actuaries' Text-Book by Thomas G. Ackland & George F. Hardy

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GRADUATED EXERCISES

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EXAMPLES

FOR THE USE OF STUDENTS

OF THE

INSTITUTE OF ACTUARIES' TEXT-BOOK.

PART I.—INTEREST (including Annuities-Certain).

PART II.—LIFE CONTINGENCIES (including Life Annuities and Assurances).

WITH SOLUTIONS.

BY

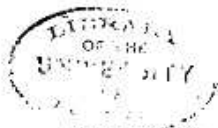
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INTRODUCTION.

THE following EXERCISES AND EXAMPLES are intended to supply a systematic course of work for the use of Actuarial Students, in practical illustration and application of the principles and formulas laid down and developed in the INSTITUTE OF ACTUARIES' TEXT-BOOK, PARTS I. and II.

The Examples upon *Interest and Annuities-Certain* have been carefully selected to supplement those printed at the end of the INSTITUTE OF ACTUARIES' TEXT-BOOK, PART I., and in further illustration of the text and demonstrations of that work.

The Examples in *Life Contingencies* were originally intended to be appended to the INSTITUTE OF ACTUARIES' TEXT-BOOK, PART II., but their insertion was ultimately found to be impracticable, owing to the already considerable bulk of that treatise. It was also felt that the usefulness of such Examples would be greatly increased if they were accompanied by short Solutions and references to the Text-Book.

The present volume has accordingly been undertaken, and is now issued upon the sole responsibility of the joint Authors, who have selected the Exercises and prepared the Solutions here given, in the light of their practical experience during the

past six sessions (1883-4 to 1888-9 inclusive) as successive Lecturers to Students of the Institute of Actuaries upon the subjects of the Part II. Examination.

The Exercises and Examples have been selected from all available sources in Actuarial literature, and largely from the Examination Papers of past years. In a few cases, where a practical illustration of some important theorem or demonstration treated in the Text-Book was not readily available, special Examples have been prepared to meet the case.

In so considerable a body of work it is hardly probable that errors will have been entirely eliminated. The greatest care has, however, been taken to secure accuracy; and the Compilers desire to express their special indebtedness to Mr. WILLIAM SMITH ANDERSON, A.I.A., and Mr. HARRY BEARMAN, A.I.A., both of the GRESHAM LIFE ASSURANCE SOCIETY, for valued assistance in the careful examination of the Exercises and Solutions, and in the revision of proof-sheets.

T. G. A.

G. F. H.

September, 1889.

NOTES FOR THE STUDENT.

THE EXERCISES AND EXAMPLES are arranged in two main divisions—*Interest and Life Contingencies*—corresponding respectively with Parts I. and II. of the INSTITUTE OF ACTUARIES' TEXT-BOOK. The chapters into which the Exercises are divided correspond throughout with those similarly numbered in the Text-Book; and the Exercises contained in each chapter are arranged, as far as practicable, in the order in which the subjects are treated and developed in the corresponding chapter in the Text-Book. At the foot of each page of the Exercises and Examples is appended a reference to the pages, later on in the present volume, upon which the Solutions of such Exercises will be found.

The references, in the Solutions, to figures in square brackets—thus, § [16]—indicate the numbered paragraphs in the Text-Book in which the subject dealt with in the particular Example is treated; and the paragraphs so referred to will be found (unless otherwise stated) in the chapter of the Text-Book then under discussion. Any additional hints by way of solution, or references to other authorities, are appended for the guidance of the Student, and the further elucidation of the points raised in the several Exercises and Examples.

References to the *Journal of the Institute of Actuaries* are indicated by the letters *J.I.A.*

