

## REVIEWS

*The Law of Life Assurance.* By DAVID HOUSEMAN, A.I.A.

[Third Edition. Pp. xxiv + 224. Butterworth and Co. (Publishers) Ltd., London, 1949. 15s. 6d.]

THIS book is described by the author as an introduction to the Law of Life Assurance and within its limitations it is a very useful book for all those engaged in the work of a life office.

The new edition follows generally the lines of the second edition but includes up-to-date information on such subjects as Income Tax, Death Duties and Stamp Duties, and a useful explanation of the conditions governing the approval of a pension scheme for purposes of the Finance Act, 1947, and the Income Tax Act, 1918, though no reference is made to the possibility of arranging a life-office scheme under section 32 of the Finance Act, 1921.

The special problems arising out of the war have not been dealt with so satisfactorily. In the chapter on the Law of Contract the effect of war on a contract with an enemy is referred to briefly, but the Trading with the Enemy Acts are not mentioned specifically. The explanation of the effect of the Peace Treaties after the war of 1914-18 is inadequate and misleading and the fact is not made clear that Peace Treaties have still to be signed with the major enemies of the war of 1939-45. The treaties which have so far been signed provide for separate agreements to be negotiated dealing with life policies but no such agreements have yet been completed.

The book contains a brief reference to the Courts (Emergency Powers) Acts as affecting the rights of mortgagees but nowhere is any reference made to the Defence (Finance) Regulations and to the Exchange Control Act, 1947, under which certain transfers of life policies are invalid. Some of the difficulties which were caused to life offices by these regulations were explained in *J.I.A.* Vol. LXXII, p. 119. These have not been entirely removed by the 1947 legislation and it is to be hoped that a further explanatory memorandum will find its place amongst the pages of the *Journal* in due course.

In a chapter dealing with the Law of Contract, where it seems somewhat out of place, there is a short reference to the Assurance Companies Acts, 1909 to 1946, but while the author mentions the difficulties which have arisen in interpreting section 3 of the 1909 Act and the fact that deposits are usually no longer required, he does not deal with the general obligations imposed on insurance companies by these Acts. The whole subject is hardly within the scope of a book of this sort and it would perhaps have been better if the author's brief paragraph had been omitted.

The useful chapter on Notice loses something by the omission of any reference to the Judicature Act, 1873, the relative section of which was re-enacted by the Law of Property Act, 1925, which the author quotes.

The chapter on Mortgages is good but contains one curious inaccuracy. The author, in discussing the remedies of the lender under a mortgage deed, states that at any time after the date for repayment mentioned in the mortgage has passed, the lender can give the borrower *three months'* notice requiring him to

repay the mortgage money. This statement is misleading and probably arises from confusion with the fact that default in repayment of capital must continue for three months before certain remedies can be pursued. In the absence of specific agreement on the point there is no need to give three months' notice. The debt is payable on demand at any time after the date fixed for payment has passed and the demand should call for immediate payment. If three months' notice is given the payment will not be due and default will not arise until after that time.

Other minor points call for comment. It would be interesting to know the author's authority for his statement that, where payment of a premium is made by cheque, acceptance of the cheque in payment is usually conditional on the cheque being duly honoured. If (as is usually the case) an unqualified receipt is issued in exchange for the cheque and the cheque is not met, is it not arguable that the only remedy open to the office is to sue on the cheque for which credit has been given and that the policy having been renewed remains unaffected? Something would, no doubt, depend on the precise wording of the policies.

In discussing proof of death the author does not make it clear that presumption of death by the Court for purposes of administering an estate (and there were many such cases during the war) does not bind a life office. The office is entitled to make its own enquiries as to the circumstances and in fact usually does so before admitting a claim.

Occasional references are made to differences between English and Scots Law but these are by no means complete and the book must be regarded as dealing primarily with English legal points. There is, for example, no mention of the Married Women's Policies of Assurance (Scotland) Act, 1880.

The new edition of this book is none the less welcome and will provide the answer to most of the questions which arise in day-to-day life office practice.

H. E. M.

*Length of Life.* By L. I. DUBLIN, A. J. LOTKA and M. SPIEGELMAN.

[Revised edition. Pp. xxv+379. The Ronald Press Company, New York, 1949. Price \$7.00.]

MORTALITY varies according to heredity, environment, physical condition, age, sex, race, occupation, location, developments in medical science and so forth. In a subject covering such a wide field as the study of these variations and about which there have been so many different kinds of investigation there is plenty of scope for a compendium to bring together in one book an account of the principal known facts and the conclusions to be drawn from them. In Great Britain the Annual Reviews and Reports of the Registrars-General fulfil this function so far as the national vital statistics are concerned. Planning an unofficial work offers, however, a freer choice of style. Such a book can cover a bigger field of enquiry and cross state boundaries to supplement national data by useful material from abroad. It can be presented in various ways—as an elementary and readable account designed for the layman, as a treatise on method for the benefit of students or, more comprehensively, as an encyclopaedic work of reference.

It is interesting to see how the three American authors have chosen to treat this subject of many possibilities. *Length of Life* was first published in 1936 as 'a work setting forth with some degree of system and completeness the essential

data available on the subject of human longevity'. It deals not only with census and registration statistics but with the records of insurance companies and the results of various special sample enquiries that have been made. It thus aspires towards the encyclopaedic, and it is a corollary that the passage of thirteen years has brought with it the need for a revised edition incorporating references to modern developments and more recent information.

The comprehensive collection of life tables and mortality rates appended, the many tables and diagrams and the frequent footnotes testify to the energy with which the idea of a thorough presentation has been pursued, although the illustrations are largely confined to the American experience. Nevertheless, attention has also been paid to clarity and simplicity, and the ordinary reader should find much to interest him. The human element has been kept in view in sections such as that relating to the question 'Does the Presidency of the United States shorten life?', which is of popular rather than scientific interest. The general background of public health is not overlooked and there are valuable chapters on the influence of and developments in medical and sanitary science and on the special factors affecting survival in infancy and at maternity.

The choice of a euphemistic title was also, perhaps, made for the benefit of the popular reader. For some purposes, emphasis on longevity rather than on mortality is desirable. In other circumstances, for instance in analyses according to marital status, occupation or social class, it is inappropriate because of possible changes in status during a lifetime; this is duly mentioned in the text, although some expectations of life for the five British social classes calculated by Tietze are quoted. The use of expectations of life for comparative purposes, which is freely made, is open to the criticism that they are a particular kind of index and as such suffer from disadvantages, but it is to the authors' credit that in general they avoid summary presentation and instead give both mortality rates and expectations at important age-points whenever possible.

The task of writing a comprehensive account of a large number of different investigations has not prevented the authors from making many generally useful remarks on the special features of mortality enquiries and the limitations to be placed on the results obtained. In the circumstances it is not easy to insist that a different mode of presentation would have been better. Nevertheless it seems probable that a somewhat more critical approach to the subject of mortality investigations would have been of more value to students and would-be demographers. Such an approach would lay greater emphasis on the difficulties met with in the analysis of data which are influenced by a number of different characteristics at one and the same time, also on mis-statements and errors of enumeration and on misleading features in the results described.

An example arises from the newly-added chapter on forecasts of mortality and longevity, in which only two sets of projections are briefly described. It is admitted that 'the probable future trend of mortality is from the very nature of things likely to be a matter of rather varied opinion, particularly in detail as to age, sex and race', but the special difficulties at certain ages are not fully discussed, nor are the various possible modes of approach to the problem of projection critically compared and contrasted.

Some reference to the generation approach to the analysis of mortality changes in the past is made, but the special points arising from its application to future developments are not mentioned. There is, however, one very interesting example of analysis by generations in respect of a specific cause of death, namely tuberculosis. The following figures have been deduced from the graphs in Figure 25.

Generation mortality from tuberculosis compared with current mortality  
(Massachusetts, males)

Central age	Mortality in year			Mortality of generation born in year		
	1880	1910	1940	1870	1890	1910
15	1.3	0.6	0.1	1.3	0.9	0.5
25	4.4	2.2	0.3	3.7	2.1	0.8
35	3.8	2.6	0.6	3.0	1.6	0.5
45	3.7	2.6	0.9	2.6	1.2	*
55	3.7	2.6	0.9	1.8	0.9	*
65	4.9	2.5	1.0	0.9	*	*

\* Not available.

According to the mortality rates experienced in various calendar years the age-distribution of fatal cases of tuberculosis has apparently undergone a marked change. In 1880 there was a peak in the curve at age 25 followed by a plateau at a somewhat lower level, whereas by 1940 the rates rose steadily with advancing age. The second part of the table shows, however, that the generations born in 1870, 1890 and 1910 all experienced the same shape of tuberculosis mortality curve, having a peak at age 25 only, followed by a decline. Thus analysis shows that each generation experienced lower mortality from this cause than its predecessor, a development probably associated with improved nutrition and care in childhood and adolescence, and that the experience of calendar years is somewhat misleading. (A broadly similar experience is observable in England and Wales.)

In the sections dealing with cause of death some reference is made to the effect of medical discoveries and of developments in methods of diagnosis on apparent time-changes in mortality, but these important qualifications are not always given prominence, and little or no reference is made to the difficulties and changes associated with the selection of a single cause of death for tabulation from the medical certificate. It has been shown by Pedoe (*J.I.A.* Vol. LXXIII, p. 218) that the proportion of cases in which the death certificate recorded two or more causes of death has recently been about one-half both in the U.S. and in this country. This point is important in some connexions, particularly in regard to the section (pp. 94 *et seq.*) dealing with the average numbers of years of life which would be gained by the elimination of each of a number of different disease groups.

Mis-statements of age, occupation and marital status can also have an effect on the apparent death rates. On pp. 136-8 the mortality in 1940 of divorced persons in the U.S. is shown as being higher than that for any other marital status for many ages and causes. One wonders whether this feature might be accounted for by errors in the census enumeration or on the death registers, but no guidance is given on this matter.

It appears that American data on occupational mortality are comparatively scanty, for the British social-class contrasts of 1931 are given prominence, as is also Stocks's comment that 'it is evident that the contribution made by the actual work done to the men's social mortality gradient from all causes must be very small compared with the contribution made by the accompanying environmental, economic or selective factors'. Accordingly, relatively little attention is paid in the book to the mortality of actual occupations, except for certain pro-

professional classes, but there are paragraphs devoted to special occupational hazards such as those arising from accidents, poisons and dust.

The chapter on the inheritance of longevity is generally interesting, as, also, is that dealing with the effect of physical condition on the chances of survival. Both of them are largely concerned with investigations made among insurance companies' data, including the medico-actuarial investigations.

More on the fringe of the field of mortality are the chapters on the use of the life table in general population problems and in certain questions of economics. That on population introduces fertility rates and the study of replacement, on the rather thin justification that the life table enters into the computation of net reproduction rates. The investigation of these matters has recently developed so far as almost to justify a separate book being written. Consequently the treatment afforded in *Length of Life* is necessarily sketchy and it does not adequately deal with the most recent discoveries and analyses in this complex subject. P. R. C.

*De la Capitalisation Viagère.* By CHARLIE JÉQUIER.

[Pp. 189. Imprimerie La Concorde, Lausanne, 1949. No price.]

THIS study was written to meet the desire of students for a systematic treatment of the principles underlying the solution of some of the problems in *Assurances sur la Vie—Exercices Techniques* published by the author in 1934 and reviewed in *J.I.A.* Vol. LXVI, p. 145. The author remarks that, as good text-books in French on actuarial mathematics had previously been written, he did not feel that any useful purpose would be served by writing another book with the orthodox approach but that there was room for a treatise dealing with the subject from the more or less neglected retrospective point of view. To fill this gap the author gave a course of lectures at the University of Lausanne and has now published his material in book form.

The work is stated to be for advanced students and qualified actuaries and in consequence does not touch upon definitions and fundamental theory. Despite this, the treatment is elementary and considerable space is devoted to giving all the steps in the development of the formulae, a course which hardly seems consistent with the stated purpose of the book. On the other hand, there is no treatment of payments more frequent than annual, increasing benefits, reversionary annuities, contingent assurances or laws of mortality. Nevertheless, the work serves a useful purpose in examining the retrospective method in greater detail than has previously been done in a published work.

The book deals in successive chapters with the accumulation of single payments, annual payments, and payments at death, assurances payable at death, endowment and fixed term assurances, family income policies, joint lives, longest lives, and various other matters. There are also tables of accumulation functions so that numerical examples can conveniently be solved by the retrospective method. In the absence of suitable symbols in the international notation, the author has had to devise his own and while these are as a rule clear and concise they suffer from the defect noted in Professor Jéquier's earlier book that the accumulation of certain benefits is represented by small letters so that the analogy between the retrospective and corresponding prospective formulae is not as close as it otherwise might be.

The author's principal function of accumulation with benefit of survivorship

$${}_nI_x = \frac{D_x}{D_{x+n}}$$

can be expressed as

$$\exp \left[ \int_0^n (\delta + \mu_{x+t}) dt \right],$$

which illustrates clearly the action of the forces of interest and mortality, and further developments on these lines might well have been included.

While the author confines himself to pure theory his views are completely acceptable, but when he ventures into the practical field of life office valuations it is not always so easy to agree with him. For example, in dealing with the differing reserves brought out by the prospective and retrospective methods when a premium other than the true net premium is valued, he states that a sound company would use the larger reserve, whereas in fact the purpose for which the reserve is required would be the main consideration in the choice. Again, when dealing with the retrospective valuation of endowment and fixed term assurances, the author appears to introduce unnecessary complications of grouping, which could be avoided by a simple grouping according to year of birth and the tabulation of Karup constants.

In his conclusions the author states that it is not intended that the study should cause the retrospective method to supersede the prospective which is to be preferred for most practical purposes and where, as in many countries, the present value of benefits and contributions are required to be shown separately in official returns, the prospective is, of course, the only practicable method. He means rather to draw attention to the theoretical equivalence of the two methods and in this spirit one can recommend the book to those wishing to examine familiar problems in a new light.

B. R.