

## REVIEWS

*Friendly Societies.* By W. T. C. BLAKE, F.I.A., and J. M. MOORE, F.I.A.

[Pp. viii + 126. Cambridge: Published for the Institute of Actuaries and the Faculty of Actuaries at the University Press, 1951. 12s. 6d.]

THIS book, one of the series of text-books published by the Institute and the Faculty, is the sole work included in the Course of Reading recommended for the guidance of candidates taking the elementary stage of the examination in Friendly Societies. It must be appraised in the light of this fact.

The subject is, as the authors point out in their preface, essentially a practical one. The number of Friendly Societies in existence is substantial, their funds are large and their membership, though appreciably diminished as a result of the extension of National Insurance, still includes a large proportion of the total population. The types of society, varieties of constitution, differences in classes of membership and in conditions of benefit are numerous; and to give the student an adequate knowledge of the elements of the subject would seem to call for much more extensive and descriptive treatment.

The volume opens with an introduction which comprises an essay written three generations ago. The picture it paints, though interesting as a historical record, has little to teach the student about Friendly Societies as they are to-day. The introduction closes with a paragraph in which it is stated that an important feature of the claims experience of Friendly Societies subsequent to the Manchester Unity Experience, covering the years 1893-97, has been a general worsening of the experience. This is certainly not the case so far as the Manchester Unity itself is concerned. Even during the years of depression in the early 1930's the sickness claims of this Order, as shown in the Thirteenth Valuation Report, yielded a profit of £450,000 as compared with the expected cost based upon the 1893-97 experience, and this margin has increased substantially during the three succeeding valuation periods. Much the same is true of many other Societies. Moreover, if the rates quoted in Table J of the Government Actuary's report on the National Insurance Bill are examined it will be observed that, bearing in mind that they include a loading of some 20%, the basic rates differ little from the Manchester Unity, Whole Society, Rates; these basic rates were approximately equivalent to the actual experience of the pre-war period.

Chapters 2-5 are almost entirely taken from *Friendly Societies* by Brown and Taylor, and the authors acknowledge the valuable help afforded to them by this book, which was, however, written as a preliminary to more advanced reading and therefore only gave a bare outline of the subject. The present book is presumably intended to give a complete picture, and it is to be regretted that even those few touches of colour which appeared in the corresponding chapters of Brown and Taylor have largely disappeared. Moreover, the lapse of time between the two books gives the repetition of many of the comments a certain air of unreality. Reference should be made to the statement in Chapter 3 to the effect that the payment of sickness benefits in old age

has been found to lead to so considerable an increase in the expenditure on sickness benefits that such societies may eventually be compelled by considerations of solvency to cease granting sickness benefits beyond the age of 65.

Whilst there are undoubtedly societies which have encountered difficulties of this character, the statement would appear to need very considerable qualification. In one large society the claims of the members under one table closed to new entrants for the last 40 years have become more and more favourable. In the same chapter the comment is made that light mortality tends, as a rule, to increase the cost of sickness benefits, but this statement is liable to be misinterpreted. What the authors presumably mean is that a light mortality experience increases the reserves needed to provide for future sickness benefits, even though the factors which improve mortality may also reduce the rates of sickness, especially those in respect of chronic sickness.

Whilst it has been found necessary to criticize the form of the earlier chapters of the book, it is a pleasure to be able to welcome the form of Chapter 6 and those which follow. Nevertheless, it must be pointed out that the authors, in their comments in Chapter 6 on the choice of an appropriate valuation basis, may unintentionally lead the student into supposing that it presents 'almost insuperable problems'; yet these problems are solved daily by practising actuaries without, it is imagined, undue difficulty.

The authors deserve a special word of appreciation for attempting, in Chapter 8, a consideration of special types of benefit, including cases where a limit is imposed by the rules upon the amount of sickness benefit receivable. One is inclined to feel that most of these special cases—however welcome to the examiner—will cause little difficulty to the actuary. In fact, the societies are usually so small that any reasonable solution is adequate. The authors appear, however, to have adopted a somewhat theoretical treatment. It is felt that these problems will be capable of being solved more readily by a broader approach based on general reasoning. Such an approach would be to consider first what are the likely expected weeks of sickness in future and then to allocate these to the various rates of pay. What is needed is to clarify the student's understanding of the fundamental nature of the problems and only then to illustrate the method by recourse to particular examples.

In Chapter 12 the authors deal with the subject of dissolution, which raises many difficult problems, particularly in regard to the interpretation to be placed upon s. 78 of the 1896 Act. They take the view that incumbent beneficiaries at the date of dissolution are entitled to claim that full provision should be made for the continuance of their existing benefits. Attention should, however, be drawn to the important statement made by the Assistant Registrar during the course of the discussion on Lane's paper dealing with *The dissolution of a Superannuation Society* (*J.I.A.* LXXV, 39), from which it will be seen that the official view on this vexed problem seems to be in many respects at variance with that now put forward. Even if the view of the authors were to be accepted the cursory treatment of the methods of division of the funds must leave many doubts in the mind of an inquiring student.

It is a matter for regret that the book is not substantially larger. With more extensive treatment the authors could have done more justice to their subject.

V. A. B.

*Valuation of Reversions and Life Interests.* By NORMAN BENZ, M.A., F.I.A., and H. J. TAPPENDEN, F.I.A.

[Pp. 102. Cambridge: Published for the Institute of Actuaries and the Faculty of Actuaries at the University Press, 1951. 12s.]

THIS book is a further volume in the series of text-books specially written for students preparing for the examinations of the Institute and Faculty, and its scope is, therefore, limited to the requirements of the examinations. Within these limits there is no doubt that the book will be of great assistance to students, but it seems a pity that the two authors, with an obviously great experience in the practical handling of reversionary and kindred transactions, should not have taken the opportunity of elaborating their remarks for the benefit of others. This could have been done without loss to the students and with appreciable gain to those proceeding after student days to active dealings in reversions and life interests.

The numerical examples at the end of the book should greatly help students to remedy their lack of practical experience, although the examples are by no means exhaustive. The methods of valuation adopted are straightforward and clear and should show the student how to arrange his work in an orderly form, so that the calculations may be easily followed. There is perhaps only one solution, that to Example 6, which calls for comment. It is doubtful whether the essential difference between *Case (a)* and *Case (b)* has been made clear, namely, that where the life tenant is only a guarantor, as under *(a)*, the remedy in the event of default can only be to receive the income, while, with the life tenant giving a charge for capital in *Case (b)*, the life interest and reversion can be realized together. Sale or foreclosure in *Case (a)* would extend only to the reversion and the charge on the income would be lost. With regard to figures, it may be pointed out that in *Case (a)* there is some unvalued security, namely, the difference between the sum assured under the policy, £2150, and the assumed net value of the reversioner's share, £4176. If the life tenant is prepared to charge the whole of her income, it would not be out of place to suggest a single-premium policy, so that the whole of the income would be available to provide net interest. Again, in *Case (b)*, the net income might be applied to cover net interest, leaving the premium as a separate liability for valuation and deduction from the capital share.

There is one other place in the book where some doubt may be expressed on the authors' views, and this is in connexion with a specimen form of proposal on p. 99. Question 9 asks whether the prospective vendor or borrower has ever been bankrupt or compounded with creditors, but it is not always considered advisable to make such an inquiry. An encumbrancer of the interest concerned would be adequately protected provided no notice had been served on the Trustees. The particular question might, therefore, only elicit information which it would be dangerous to possess. While a proposal form is a useful method of obtaining information, it is not always insisted upon, as it is not usual to have a contract for reversionary transactions and a plain statement of the security with details of the Trust Fund can be just as satisfactory.

Tutors in this subject have often been surprised at the difficulty which it seemed to present to the students. This has always been assumed to be due to the lack of that practical experience which is acquired by comparatively few. The authors might, therefore, have passed on more of their own experience and amplified several statements which no doubt are obvious to them but which might not be so to the average student. Statements of fact are more easily

remembered when reasons and explanations are given. At the outset a family tree would probably have explained more lucidly the various derivative interests in a Trust Fund, and a list of technical terms with their definitions could have been supplied with advantage. It is also true that, as mentioned on p. 14, an expectancy under the will of a living person should never be entertained, but no reason is given for this statement. Similarly, on p. 25, a formula for a particular contingent reversion is stated to give an insignificant under-statement of value, but the reader is left to his own devices to justify the approximation and to appreciate that the error would increase with the value of  $n$ . In practice,  $n$  is usually small, but exceptionally the contingency of survival might endure for a longer period, and a more precise formula might then be required. The sum assured under the policy is not discussed, but in the usual case of the contingency being limited to a year or two a policy for much less than the amount of the share valued would suffice so long as the amount receivable in the event of the reversioner's death would give an adequate return on the amount invested.

In a similar way, much more could have been made of several other points which are only lightly touched upon. In paragraph 4.6, dealing with life policies included in Trust Funds, no reference is made to the case which probably occurs most commonly, i.e. where the Trustees have a discretionary power to pay the premiums out of the income if the life tenant omits payment under a covenant. In paragraph 7.4, the inquiring student will wish to know the nature of the protection under the provisions of the Law of Property Act, 1925, which is stated in section (a) to be available against a possible 'fraud on the power'. The same student reading section (f) of this paragraph will also like to know more of the period for which accumulation of income is allowed by Statute. It could also have been explained that the release of the power to appoint is preferable to an appointment, so as to avoid the question of 'fraud on the power'. Care has to be taken, however, to consider if the release extends the class of reversioner to unborn children and, if so, to cover such diminution risk by insurance.

At the end of Chapter 4, the authors discuss options to repurchase within a limited period, but omit any reference to reversionary life interests. Admittedly, the formula is akin to that for reversions contingent on survival, but for the sake of completeness that for reversionary life interests should also have been given. Another somewhat surprising omission is the valuation of a reversion expectant on the death of the survivor of two lives but contingent on surviving one of them only. This is not an unusual type of interest and arises most often where a Fund is charged with an annuity, so that the reversioner has only to survive the main life tenant to take a share of the annuity fund absolutely.

The actuary who deals with reversions and life interests will have little difficulty in appreciating the finer points which he will meet commonly in practice, and he can, therefore, supplement the text-book from his experience, but for the majority of actuaries experience will be limited to valuations for probate and the like, with an occasional opinion on the apportionment of a Trust Fund. A specimen valuation report showing what to incorporate and what to omit, would, therefore, have been useful.

Income tax is not a subject on which it is often possible to be definite, but the authors have dismissed this important subject somewhat summarily. The underlying principles and considerations could have been discussed without giving hard and fast rules which, it is appreciated, cannot always be expected to apply.

E. K. R.

*Guides to Official Sources, No. 2, Census Reports of Great Britain 1801-1931.*

Interdepartmental Committee on Social and Economic Research.

[Pp. iv + 119. London: H.M. Stationery Office, 1951. 3s. 6d.]

THE Interdepartmental Committee on Social and Economic Research was appointed in 1947 to survey and advise upon research work in Government Departments and to investigate the possibility of information collected by one Department being made available to workers outside the Department to whom it might be of potential value. Amongst other objectives the Committee set itself the task of providing short guides to the published statistics of individual Departments. In many Departments the number of different published sources of information is formidable, and the total value of the material encompassed by them is too great for their discovery to be left, as at present in many instances, to the interplay of chance and curiosity—however far from idle the latter may be. The first guide, which related to the Ministry of Labour, was published in 1948 and has already been reviewed (*J.I.A.* LXXVII, 154). A later booklet is promised which will deal with research material in the Board of Trade.

The introduction to the present booklet contains an excellent historical account of the development of the statutory powers which now support the routine conduct of Censuses and of the manner in which the questions have become more searching and the schedules more elaborate. In particular, the diagrammatic representation of the questions asked at each Census is to be commended; from this chart, for example, it can be seen at a glance that 'sex' has been asked for at each Census since 1801, 'age in years' only from 1851 onwards and 'place of work' only on one occasion—in 1921. A detailed list of the Census Reports by title, year of publication and Order Paper or Command Number is wisely preceded by a warning that comparability between one Census and another is affected by changes in the form of the information, the definitions used, the classification and the boundaries of local areas. Hence, if continuity is desired, 'there is often advantage in looking through later Reports before extracting data from the earlier ones'.

An account is given of the successive changes in procedure. In early Censuses a primary responsibility was assigned to Justices of the Peace and not until 1841 did the conduct of the Census in England and Wales pass to the General Register Office. The authors claim that 'the first Registrar General planned the details of the Census of 1841 with the same care and thoroughness that characterized the organization of the civil registration of births, marriages and deaths which he had accomplished in 1837. The method of conducting the enumeration on that occasion has stood the test of time and has not been substantially altered since'—a remarkable tribute. The Registrar General for Scotland by separate enactment took responsibility for the Scottish Census for the first time in 1861, five years after the initiation of civil registration of births, deaths and marriages in that country; not till the passing of the Census (Great Britain) Act, 1900, did Parliament again revert to a single enactment for the taking of a Census throughout Great Britain. Machines were used for tabulation for the first time in 1911 and enabled much greater detail to be given in the Reports. Diagrams reappeared in 1911 after having been absent since 1851. There are many other interesting historical facts which are not without methodological significance.

An important provision in the guide is a chapter dealing with the subjects which have been selected on various occasions for special study, e.g. Fertility of Marriage, 1911-21, or Dependency and Orphanhood, 1921. In each instance the scope of the inquiry is defined and reference is given to the appropriate Report. It is of interest to read how the dictionary of occupations was elaborated and how Farr, who contributed so much to the classification of disease, also played a major part in improving the classification of occupation. The difficulties encountered in occupational and industrial enumerations are dealt with at some length. A detailed guide to the contents of all Occupation Tables is given by reference to Census date, Volume and Table No., Classification, Area and Population, and Characteristics. A worker may soon discover, for example, whether or not there is likely to be a table available showing the number of female workers aged 20-24 employed as boot and shoe operatives in a particular county in 1871 (either in England and Wales, or in Scotland). Similar lists are given of tables relating to birthplace. The difficulties inherent in the enumeration of physical or mental infirmity are illustrated by an account of the practical experience of successive attempts—attempts which led only to the expression by the Commissioners for England and Wales of their 'decided opinion that statements made by persons as to the deficiencies, mental or bodily, of their children or other relatives are not worth the cost of labour of collection and tabulation'.

Another and more recent special aspect considered is the attempt to deal with *de jure* as well as *de facto* enumeration in 1931. This problem arises in respect of persons who were at addresses other than their home addresses on the night of the Census.

From special subjects the booklet passes to special groups and indicates what specific information may be obtained of the Armed Forces or of people in institutions of various kinds, e.g. hospitals.

Next follows a useful chart showing at a glance into what areas the population was divided in successive Census Reports; this is accompanied by a chapter describing the nature of the various areas, ecclesiastical, administrative, etc., involved.

Copies of the schedules and forms used in 1801 and of the Householder's Schedules of 1851 and of 1951 are displayed in Appendices.

This Guide is well arranged and indexed and shows a nice balance between adequacy of detail and condensation to practical needs. It will greatly facilitate demographic research at a time when such studies are expanding. It makes stimulating reading itself. As we intimated on a previous occasion the content of these Guides can hardly be criticized, but we do wish they would appear more rapidly. The present rate of one every three years is too slow! B. B.

*State Insurance in U.S.S.R.* by F. V. KONSHIN.

[A text-book for financial and economic higher education establishments.  
Pp. 403. Moscow, 1949. 11.70 roubles.]

MEMBERS will be interested to learn of the recent development of insurance business, much on the traditional lines, within the U.S.S.R. The book under review is a simple exposition in Russian of the principles and practice of

insurance; a copy of the book and an English translation have been presented to the Institute Library.

The first four chapters, which deal with the general economic background, cast scientific arguments into a political mould which will be repellent to most British actuaries; but this is only on the surface—froth which can be ignored. These chapters describe how the system of insurance provides against calamities which may destroy or damage the means of production; they are designed to show that there is just as much need for such insurance provision in a socialist as in a capitalist economy, and that the insurance fund must be separated from other funds. The State Insurance (Gosstrakh) is a government monopoly under the Ministry of Finances of the U.S.S.R. All classes of insurance are transacted, but the main class seems to be insurance of farm buildings, live-stock and crops. There is a discussion of the possible need for reinsurance; the author computes the standard deviation ( $\sqrt{npq}$ ) in an assumed distribution of risks and comes to the conclusion that no reinsurance is required even for a sum at risk approximating to  $\frac{1}{25}$  of the expected strain; but this section does not recognize that the security for excess claims depends more upon the financial backing of the fund, by reserves or otherwise, than upon the theory of probability.

Chapter IV surveys—inadequately—the history of insurance in capitalist countries. The author does not deal with the birth of scientific life assurance in 1762, and does not know that insurance companies have been pioneers in preventive measures, e.g. by establishing fire brigades. The Life Assurance Companies Act, 1870, was occasioned by the failure of two companies, the Albert and the European, not by 'frequent bankruptcies'. Industrial (not 'national') insurance is expensive because of the home service to policyholders, not because of the size of clerical staffs. 'Lloyds' is not a company. The distribution of the population in British towns is the exact opposite of that imagined by the author, workpeople tending to live in the centre and employers on the outskirts. Underwriting profits in British insurance are usually put to reserve and dividends are mainly paid out of investment income, not out of profits.

After the Revolution in Russia, private voluntary insurance was begun in 1921 and was made a state monopoly in the U.S.S.R. in 1925. The usual types of abuse were encountered; there was negligence and sabotage; false and exaggerated claims were made; administration was inefficient and the whole structure had to be reorganized from time to time. Collective life assurance—a form of assessmentism—was introduced in 1929 and was successful for a time; about 15 million persons were insured by the middle of 1941. As always with this type of insurance the experience became unfavourable. The claims under collective life assurance were 37% of the premiums in 1931 but rose to 70% in 1937 and to more than 100% in 1940–42, expenses being a further 20% of premiums. The reasons given are the familiar ones, well known in the history of this type of insurance, e.g. in U.S.A. in the nineteenth century. The issue of new contracts had to be abandoned as from 1 January 1943 when level-premium life assurance was introduced. It is stated that six years later there were three million life assurances in force.

Chapter IX is an elementary exposition of life contingencies using the international notation. The mortality table is based on the statistics of the 1926–27 census, relating to the male population of towns; the following is a comparison with the E.L. 10, males England and Wales, 1930–32.

## Rates of mortality for male lives

Age $x$	$q_x$	
	Russia 1926-27	England and Wales 1930-32
20	·00543	·00316
30	·00720	·00340
40	·01142	·00562
50	·02087	·01128
60	·03722	·02415
70	·06519	·06035
80	·11481	·1145

Mortality has fallen in both countries since that time. It is explained how interest operates to reduce the level of premiums and a rate of interest of 5 % p.a. is assumed. The policyholders do not seem to get any share of the profits, and the author is unaware that in British life assurance the participating policyholders mostly take 90-100 % of the profits. The loadings for expenses in the Russian formula are:

Initial expenses	20 per 1000 assurance
Administrative expenses	1·4 p.a. per 1000 assurance
Commission for collection of premiums	10 % of gross premiums

Business is secured through agents who are paid commissions on a fairly high scale. The initial and percentage loadings merely cover the commission.

The types of life assurance granted are whole-life, endowment and temporary assurance, a simplified endowment assurance corresponding to industrial assurance, and accident insurance. War risks are excluded. The life assurances provide for payment of the sum assured if the life assured is permanently and totally disabled by accident. The life assured has power to designate, and to change, the beneficiary, but in default of such designation the assurance is forfeited to the state!

The book contains no reference to the investment of the life assurance funds, a notable omission; also the scheme of organization includes sections for tariff planning, accountancy, audit and so on, but no investment department. The life assurance funds are assumed, without comment, to earn interest at the rate of 5 % p.a., and it seems that the state must, in effect, pay this rate of interest for the use of the money. There is no suggestion that the rate of interest may vary from time to time, nor awareness that such a high rate of interest is a sign not of generosity but of a scarcity of savings.

Judgment of the soundness of the enterprise must await fuller information about the financial backing, the investments and the adequacy of the premium assumptions in the light of actual experience. The State Insurance seems to look to mere size to overcome many of the difficulties encountered in building a new enterprise.

British actuaries look with sympathy on the development of life assurance, on sound lines, wherever it may be, and it is to be hoped that the development of life assurance and of actuarial science in Russia will go hand in hand.

M. E. O.