

THE UNIT-LINKED APPROACH TO LIFE INSURANCE

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PART I—INTRODUCTION

UNIT-LINKED life insurance can be simply defined as the application of unit trust principles to the 'savings element' of each premium paid and the application of insurance principles to the remaining 'insurance element' only. It has been appearing in various forms for some time now. In North America, it has been mainly of the variable annuity variety, commencing with CREF in approximately 1952. In the U.K. it has been mainly of the endowment assurance variety, commencing in approximately 1957 but not really making a big impact until 1962-63 when the unit trust groups first came on the scene. In Australia it has so far been limited to superannuation schemes with the so-called (by one life office) 'E.F.G.' approach the prime example, commencing in approximately 1965. In each country the position is the same—a remarkably favourable response from the public, particularly in the last few years, causing an urgent reassessment of previously held views, sometimes, unfortunately, most widely and eloquently recorded! There have also been legislative difficulties of varying degrees, most pronounced in North America, least pronounced in the U.K., with the position in Australia not clear.

2. It is not necessary for a unit-linked policy to be equity linked (although it usually is to some considerable extent). Nor is it necessarily linked to units of a unit trust group (although its greatest growth in the U.K. has come from this source). It is, however, necessary to its definition that the 'savings element' be differentiated from the 'insurance element' and credited in unit form, at the unit price then ruling, to each policyholder's individual account; and that this account be thereafter maintained in unit form. Each policyholder's unit account also receives regular income distributions from the unit fund, also credited in unit form at the unit price then ruling. A sample of a policyholder's statement each year is shown in Appendix I.

3. At the time of surrender, death or maturity, the benefit payable from this source is, quite simply, the number of units in the policyholder's unit account cashed, if desired, at the unit price then ruling, subject perhaps to a capital gains tax deduction and, in the case of surrender, perhaps to a surrender charge. Alternatively, the unit account can be left in unit form to accumulate further.

4. The unit fund represents the sum total of all policyholders' unit accounts and the unit price at any time is determined by dividing the total

number of units held into the then market value of the investments held. There may be more than one unit account per policyholder. For example, in Australia, as the name 'E.F.G.' implies, there are three unit funds—an Equity Fund, a Fixed Interest Fund, and a Government Securities Fund. Each policyholder (in this case an employer or trustee) chooses how much of each savings element paid he wishes to go into the respective funds, and has units in three unit funds accordingly.

5. Unit-linked life insurance, as defined above, refers only to those arrangements where the *whole* premium paid is regarded as a life insurance premium, is received by a life insurance company and is then subsequently split into its two component parts *within* the life insurance company. Arrangements now becoming common in the United States of America where one part is paid to a life insurance company and the other part to a mutual fund, perhaps wholly owned by the life company, are not regarded as unit-linked life insurance, although the object is the same. A United States reader may wonder at the distinction. It is largely one of legislation and taxation.

6. Unit-linked policies would be subject to life insurance legislation only, whereas the U.S.A. approach would require one part to be subject to life insurance legislation and the other part subject to mutual fund legislation. In the U.K. and in Australia, mutual funds cannot be sold door to door. Therefore salesmen could only sell such arrangements in the U.K. or in Australia if the entire contract is regarded as a life insurance policy.

7. Taxation has an important bearing also. In the U.K. and in Australia, life insurance premiums are deductible for personal income tax purposes whereas contributions to a mutual fund are not. It is obviously attractive to have the whole premium regarded as a life insurance premium. Also, especially in the U.K., a life insurance company receives more favourable tax treatment, internally, than does a mutual fund (especially a new life insurance company) since, under the so called *I-E* basis, the loadings for expenses are not taxable but all expenses incurred are deductible. With a mutual fund both the loadings are taxable and the expenses incurred are deductible. Obviously, in the U.K., better terms can be offered the policyholder under a unit-linked life policy than one that is split between a life company and a mutual fund, quite apart from the personal tax deductions also available. In Australia a more favourable internal tax position also applies.

8. Part II of this paper will discuss the savings element and Part III will discuss the insurance element of the unit-linked policy. Under each heading comparisons with the conventional approach will be made. Part IV will make some concluding remarks.

PART II—THE SAVINGS ELEMENT

9. It is with respect to the savings element that the unit-linked approach confronts the conventional approach most directly and about which there

is the most argument. This confrontation goes much deeper than merely an equity versus other forms of investment argument. After all, life companies have been investing strongly in equities for some time now under the conventional approach. This paper is far more concerned with how the benefits of *any* investment portfolio are distributed than with the desirability of any particular form of investment. Indeed, for the most part, the paper can be read on the assumption that there would not necessarily be any change in investment policy under the unit-linked approach.

10. The unit-linked approach introduces a new method of surplus distribution to the life insurance industry—the unit trust approach. It formally transfers the investment risk from the life office involved to the policyholder. It redefines the benefit payable in unit terms rather than in money terms (although there may be money guarantees also). It requires that investments held be valued at full market value at all times. It rejects the reversionary bonus method of distributing surplus (interest and capital in particular) and it rejects the traditional role of the actuary as the all-important and mysterious custodian of such surplus, distributing it in amount and in form according to his judgment alone. It asks the actuary to limit his enquiries and his responsibilities to the elements of mortality and expense only, leaving the market place to be the sole arbiter as to when and how interest and capital surplus should be distributed. Finally, it strongly emphasizes that it is the life insurance company's investment policy that really matters and that intending policyholders should make their judgment as between competing life companies on this account rather than on the bonuses they say they are going to declare.

11. In effect, intending unit-linked policyholders are saying to the life office involved 'We don't want your guarantees on investment. We don't want either you or your actuary to have to be bothered about the future of interest rates, nor about future capital appreciation (or depreciation), nor about short-term fluctuations in the market, in making your decisions about premium rates or surplus distribution. We just want you to credit the 'savings elements' of the premiums we pay to your unit fund (or funds), invest these to the best of your ability, tell us exactly what you are doing and why, and give us exactly our share of whatever happens, good or bad, as determined in the market place. We want you to concentrate your thoughts on investment management rather than on its subsequent distribution.'

12. Those defending the conventional reversionary bonus approach have been heard to argue:

- (a) The market place is an unsatisfactory determinant of 'real value'.
- (b) Policyholders should be protected against short-term fluctuations in the market.
- (c) In any case, it is possible to achieve the same results by means of terminal bonuses, special bonuses, fluctuating bonuses, etc., intro-

duced as an added feature for conventional policies. Therefore, there is no need for the unit-linked policy.

- (d) There should be some protection for policyholders against the longer-term type of slump—for example, as occurred in the thirties.
- (e) It is unwise, even dangerous, to transfer the investment risk to the policyholder; the dangers of misrepresentation are very great; this is not what life insurance was intended to provide.

Argument (a)

13. Taking these in turn, (a) is granted, but what other determinant is available in a capitalist society? Certainly the life office involved is not in a better position to determine 'real value'. It is submitted that, unsatisfactory though it may seem at times, real value can only be determined by agreement between a buyer and a seller in the market place.

Argument (b)

14. Argument (b) needs some detailed consideration. As Mr J. L. Anderson (*J.I.A.* 1967, 93, 427) pointed out in discussing Grant and Kingsnorth's paper, 'Unit Trusts and Equity Linked Endowment Assurances'

One of the main criticisms advanced against the investment linked contract was that the amount payable at maturity was at the mercy of market prices at the time. If the primary object of the policy were to secure a capital sum, that was fair comment. He was not so sure that it was fair comment if the primary object were to secure income—for example, if the policyholder had effected his contract with a view to investing the proceeds in order to produce income for his retirement. To consider first the traditional endowment assurance contract, the amount payable at maturity would not depend to any great degree on the level of market prices at the time. The income secured by investing the proceeds, however, would obviously depend on the level of interest rates and on the return obtainable from ordinary shares at the time, so that the income obtainable from the contract could show very considerable variations. Taking the investment linked contract, if it matured when stock market prices were high then, other things being equal, the return obtainable on those securities would be relatively low. If, on the other hand, the policy matured when the market was depressed, the yield obtainable would be expected to be relatively high; so that the incomes obtainable in the two sets of circumstances might not differ very much. Could it not, therefore, be argued that, from the income standpoint, greater stability might be obtained by the investment linked contract than by the traditional with-profits endowment assurance?

15. The question is whether, in the future, stability of income or of capital should be the primary aim of a with-profits endowment assurance policy. The answer depends on whether or not the policyholder expects to spend some or all of the capital provided at maturity in order to live thereafter, or for some other purpose. Certainly, on death, stability of capital will continue to be most important, i.e. the need to ensure that a 'certain sum of money' will be available to meet the then spending needs of one's widow and children. As will be made clear in Part III of this paper, there

is no reason why this cannot just as satisfactorily be provided under the unit-linked approach as under the conventional approach. But is there any longer an appreciable 'certain sum of money' need on maturity?

16. In these days of 'pensions for all' and other forms of social security, of extensive coverage in addition under privately managed pension and superannuation schemes, both for employed and self-employed persons, it is doubtful whether the average person now taking out an endowment assurance policy has any particular 'sum of money' objective in mind at maturity. He has probably decided to contribute towards such a policy (in addition to his various superannuation, pension and other arrangements which go a long way towards meeting his sum of money objectives) as an investment, as an additional cushion against the uncertainties of the future, which may never need to be cashed but is very nice to have just the same, and he obtains important tax advantages also. Thus, for the most part, the unit-linked approach to endowment assurance, emphasizing its investment aspects (i.e. allowing capital values to fluctuate with the market, maintaining a stable income thereon), is probably more suitable to his purposes than the conventional reversionary bonus approach (i.e. maintaining stable capital values but allowing incomes thereon to fluctuate with the market).

17. There is still of course a place for the conventional policy to meet such specific situations as paying off a loan, or a house mortgage, or meeting children's school fees, etc. This business will go on as before, but perhaps more on a non-profit basis than previously. The danger facing the conventional life insurance industry is that this may be the *only* kind of endowment assurance business it will obtain in the future if it does not change its approach. Already there are warning lights in the decreasing share of the 'savings dollar' the life insurance industry is obtaining overseas, and the same position could apply in Australia also.

Withdrawal Plan

18. An important adjunct to the unit-linked approach is the so called Withdrawal Plan. All this really amounts to is that units are only cashed, if cashed they must be, as required. The balance remains in unit form to accumulate further. The Plan can provide, if desired, for a level amount of cash to be paid each month, with the units cashed each month varying with the market, or it can work on an entirely *ad hoc* basis with the policyholder requesting cash as and when he wants it. Maturing policyholders should be encouraged to take advantage of these Withdrawal Plan facilities and cash in only as required, rather than withdraw their proceeds all at once, perhaps at a wrong time in the market, and then later reinvest that portion not required for current spending (again perhaps at a wrong time in the market). Not only is a possible adverse 'market turn' avoided; brokerage and other expenses are also saved. This is in the interests of the life office involved too, since it retains some or all the maturity proceeds for a further

period—perhaps indefinitely. This possibility of using the Withdrawal Plan as a kind of ‘second bank’ remaining fully invested at all times but with immediate access to cash when required, with no penalties involved, and with the effects of market fluctuations minimized as much as possible, is one of the most important features of the unit-linked approach.

Surrender values

19. There is no doubt that, on surrender, the motive is usually to obtain cash, i.e. a capital sum objective. The guaranteed nature in money terms of surrender values under conventional policies is therefore more in line with the probable wishes of a surrendering policyholder, were it not for the following:

- (i) There is a general feeling in the community at large that conventional policy surrender values are too low, having the protection of the continuing policyholders primarily in mind. (Indeed, many offices aim at earning additional profits on surrender.)
- (ii) Where special bonuses, terminal bonuses, etc., have been introduced under conventional policies, it has been noticeable that these are not usually paid on surrender. Thus a further loss is evident.

20. In the author’s experience, although the fluctuating nature of surrender values under unit-linked policies has caused some confusion, there has, nevertheless, been an overwhelming acceptance of the principle of ‘full payout’ involved when the matter is properly explained. Furthermore, the difficulty can in many cases be avoided if some way can be found to make cash loans against the security of the policy rather than for it to be surrendered at an awkward time in the market.

Argument (c)

21. We come now to (c), i.e. the claim that it is possible to achieve the same results by means of terminal bonuses, special bonuses, fluctuating bonuses, etc., introduced as an added feature for conventional policies. Therefore, it is claimed, there is no need for the unit-linked policy. Appendix II offers a possible practical solution to this problem facing conventional life offices at the present time. The purpose was not to suggest a complete solution, nor indeed perhaps the right one, but rather how it would have to be solved for the above claim to be true. Conventional policies could only achieve the same results as unit-linked policies on the following provisos:

- (i) Terminal bonuses would have to be payable on surrenders as well as on maturities and deaths. Few special bonus scales introduced to date provide for surrenders.
- (ii) The terminal bonus scale would have to vary by duration and would not be at all smooth. Any attempt at smoothing, or of having

only a single terminal bonus rate for all durations, would not be in accordance with the unit-linked approach.

- (iii) The terminal bonus scale would apply to the total amount payable in the case of maturities and surrenders and probably to the reserves held in the case of deaths. Application of the scale to sum assured only or to bonuses in force only (e.g. bonus on bonus approach) would not be in accordance with the unit-linked approach.
- (iv) The terminal bonus scale would have to be revised not more infrequently than, say, monthly. An annual determination might mean up to a 15-month delay in reflecting actual market changes and would not be in accordance with the unit-linked approach.
- (v) It is no answer to argue that annual changes in terminal bonus scales, together with some smoothing by duration also, would cause less confusion. Less confusion for whom? Management, the public, the continuing policyholders or the terminating policyholders? What this argument really amounts to is that the terminating policyholders should suffer in order that management, the public and the continuing policyholders shall not be too confused!
- (vi) Attention is drawn to the argument, previously presented in replying to (b), that it is stability of income with ever-fluctuating capital values which should be the primary aim of a with-profits endowment assurance policy—not the other way about.
- (vii) Finally, there is the question of how equitable have been the reversionary bonuses declared to date which determine the basic amount payable. To what extent, for example, have they had to be restrained because of new business strains (both of a valuation and of an expense nature)? The unit-linked approach imposes no new business strain burdens on the policyholders, other than the specific surrender and other charges involved.
- (viii) For the above reasons it is unlikely that the conventional reversionary bonus approach (cum terminal bonus) could match the results under the unit-linked approach. Furthermore, if it is necessary to go to all this trouble in an attempt to achieve the same result, the comparatively simple and automatic methods used under the unit-linked approach would seem much to be preferred and will lead to less confusion.

Argument (d)

22. We come now to (d), the question of protection against the longer term type of slump, such as occurred in the thirties and may well occur again. Here the likelihood is that capital values of investments held will fall (the extent depending on the investment policy followed) but without compensating increases in yields, and so the arguments advanced in

discussing (b) are not strictly applicable. Under the unit-linked approach the proceeds payable will be reduced accordingly. Under the conventional approach they will not, since the sum assured and bonuses declared to date are 'guaranteed'. Now, assuming the same investments are held in both cases, this difference can only come about by granting the conventional policy a lower termination (in the main, maturity) return than the unit-linked policy in good times to compensate for a better return in bad times. Otherwise the guarantee is meaningless.

23. Given that an intending policyholder will regard his endowment assurance policy as an investment, and not to provide a 'certain sum of money' at some future time, and given that his policy is to mature in, say, 30 years' time, he therefore has to weigh the advantages of the unit-linked approach if maturity occurs in good times against the advantages of the conventional approach if maturity occurs in bad times. Thirty years hence is rather a long time to try to assess this. Furthermore, history shows that there have been somewhat longer periods of good times than bad times in the past. The probabilities would appear to favour the unit-linked approach. Finally he can say to himself 'Well, if I am wrong, it's only an investment anyway. If times are bad when this policy matures, I'll be no worse off than if I hadn't taken out the policy in the first place. Every other type of investor will be in the same boat and we will just have to ride out those bad times as best we can.'

24. 'Every other type of investor will be in the same boat'—except those who have had the clairvoyance to have invested in a conventional policy maturing at that particular time. Can it not be suggested that it is one thing to offer guarantees on death (a policy the author thoroughly agrees with—see Part III) it is another thing altogether to offer guarantees on maturity? Does not the conventional approach back the horse of disaster rather too strongly in so doing?

25. The way to protect unit-linked policyholders to some extent from the dangers of a slump is the same as for any prudent individual—a proportion in bonds, in fixed-money securities, in equities and in property. It is the investment policy that will eventually tell the tale, not the manipulation of policyholders' entitlements on maturity. The author, in advocating the unit-linked approach in preference to the conventional reversionary bonus approach, is not necessarily advocating any difference in investment policy—only in the distribution of investment proceeds.

Argument (e)

26. Finally, we come to (e) which says:

- (i) it is unwise, even dangerous, to transfer the investment risk to the policyholder;
- (ii) the dangers of misrepresentation are very great;
- (iii) this is not what life insurance was intended to provide.

27. Point (i) has been answered immediately above, i.e. it is considered that, on balance, the advantages outweigh the disadvantages of accepting the additional risks involved under the unit-linked approach. Also, formal acceptance of this by unit-linked policyholders would have the decided advantage of their then being able to demand, *as their right*, the fullest possible information as to what exactly life office management is doing with *their money* and why!

28. Point (iii) also has really been answered above. Possibly life offices were not intended to offer policies whose values fluctuated with the market. But then, possibly, life offices may not have been intended to invest in equities either. The one goes with the other. Now that life offices are offering special or terminal bonuses, there is, in any case, a certain acceptance of the principle of fluctuating values even under the conventional approach.

29. Point (ii) is the one that requires the deepest consideration. There is no question that there are great dangers of misrepresentation with unit-linked policies, especially if the equity content is high. New life offices can establish themselves on the equity cult without having any particular experience—or ideas—at all as to how an equity portfolio should be managed. Disasters can occur and will occur. Salesmen can present fantastic predictions as to future growth to prospective policyholders. Administrators can invest the proceeds unwisely and to serve their own ends.

30. But these problems are presently with us anyway in the unit trust industry. An entry into unit-linked life insurance really means an entry into the unit trust industry. Whatever legislative requirements there are for unit trusts should apply to the investment portfolio of unit-linked policies. In particular, the requirements of full disclosure of investments bought and sold and of investments held, together with their market values, should be met on a regular basis. To the extent that unit trust legislation is deficient (and it certainly is in Australia) life offices entering the unit-linked field should press for it to be improved so that the same higher standards will apply throughout.

31. Perhaps the greatest problem concerns marketing. The two areas open for life office marketing in Australia, which are not open to unit trusts (as such), are:

- (1) door-to-door canvassing, and
- (2) advertising with proposal forms included in the advertisement.

32. In the U.K., the latter is also possible for unit trusts (as such) provided they are authorized to do so by the Board of Trade and comply with certain stringent conditions laid down by the Board of Trade in so doing. There are also unauthorized unit trusts in the U.K. who are not allowed to advertise. In the U.S.A., mutual funds are allowed to canvass on a door-to-door basis subject to S.E.C. regulations. These regulations, in particular,

require that all mutual fund salesmen be licensed by the S.E.C. after proper examination. Currently, life insurance companies in the U.S. offering a dual package—life insurance on the one hand and a mutual fund on the other hand—have to ensure that their salesmen are ‘dual licensed’ by the State Insurance Department, in order to sell the life insurance content, and by the S.E.C., in order to sell the mutual fund content. In Australia, unit trust salesmen are not allowed to canvass on a door-to-door basis, nor could a unit trust group (as such) advertise with a proposal form included in the advertisement. There is no S.E.C. to police the former, i.e. the door-to-door selling, and there is no Board of Trade to police the latter, i.e. the advertisements.

33. But a life insurance company in Australia and in the U.K. can do both, since there is no legislation covering the marketing activities of life insurance companies, either in the U.K. or in Australia (although the Insurance Commissioner in Australia can control advertising). This means that life companies (in Australia and in the U.K.), whether unit trust orientated or life insurance orientated, have considerable marketing advantages over unit trust groups as such.

34. For this additional freedom life offices should accept additional responsibilities. The author supports the suggestions made by Grant and Kingsnorth for a kind of British Standard (or Australian Standard) to be adopted by all life insurance companies selling unit-linked policies, whether unit trust orientated or life insurance orientated, particularly where the equity content is high, which could require, amongst other things:

- (i) All such salesmen to be licensed with annual reviews.
- (ii) Future growth illustrations made in writing to be on a controlled basis, both as to the rates of growth assumed and as to presentation, and to be accompanied by a statement, featured prominently, that they are estimates only and with no guarantee whatsoever as to actual future performance. Actual past performance also to be given at the same time, and also to be presented in a controlled form.
- (iii) Full information as to the investment fund (or funds) contemplated also to be presented, again in a controlled form, before any sale is made.
- (iv) A ‘cooling off’ period of, say, 14 days after receipt of the policy, during which time the policyholder can cancel his policy and receive his money back.
- (v) The policy to present clearly which benefits are guaranteed in money terms and which are not, and, if the policy is strongly equity linked, also to contain a warning, featured prominently, as to the risks involved.

35. Finally, to bring this problem into perspective, it should be emphasized that an agreement to effect a unit-linked policy, usually on a monthly basis, involves an initial payment of only the first month’s premium, whereas a

lump sum investment in a unit trust (as such) involves payment of the full lump sum, perhaps being the whole lifetime savings of the unit-holder. Subsequently reconsideration of the wisdom involved in the decision made is obviously much more serious in the latter case. For this reason the additional marketing advantages available to unit-linked policies as compared with unit trusts (as such) are reasonable.

Indirect linking

36. This paper assumes the unit-linked approach will be of the Category A type (see Grant and Kingsnorth, § 49). It also assumes that the actual investment performance is directly reflected in the policyholders' accounts. This would seem the only logical approach if, as has been advocated, a major changeover to the unit-linked approach is being contemplated. There are a number of equity-linked policies offered in the U.K., usually of the Category B type, which adopt an *indirect* investment-linked approach. One offers a policy linked to the performance of a well-known unit trust, not connected with the life office involved, but does not buy any of its units. It considers it can do better by investing directly in the types of investments the unit trust is invested in. Another (one of U.K.'s largest life offices) offers a policy linked to the performance of the *Financial Times* Industrial Ordinary Index, consisting at the moment of 30 stocks. But it will not necessarily be investing in these stocks in the right proportions for complete cushioning, since its prospectus states that it expects its investment performance to be 'better than the results of the *F.T.* Ordinary Share Index'.

37. It could be worse too. Such arrangements are possible, it would seem to the author, only on a modified Category B basis, where conventional bonuses replace interest additions, where these are adjusted up or down depending on actual investment performance compared with that promised, and where such policies only play a minor part in the life office's overall with-profit picture. Nevertheless, they are an interesting development.

Fund versus trust

38. A life office entering the unit-linked field has various organizational choices open to it. These are fully covered in Part B of Grant and Kingsnorth's paper. They are.

- (i) Separate life office or existing life office?
- (ii) Direct investment (i.e. a 'No. 2 Fund') or a separately managed unit trust?
- (iii) If unit trust, is it to be wholly owned, partially owned, or not owned at all by the life office involved?

39. Choice (i) would not be open to a mutual Australian life office. By Australian law, the statutory fund of a life office cannot have an interest in

another. The No. 2 Fund approach achieves almost the same result in any case.

40. Choice (ii) is the crucial one and quite obviously taxation considerations are paramount. These will differ depending on the circumstances of the particular life office involved. One important point in favour of the unit trust approach in Australia is that unit trusts do not pay capital gains tax. The unit-holder (i.e. the life office) pays this when units are realized. Thus, from the life office's point of view, there could be a considerable delay in eventual payment as compared with the No. 2 Fund approach. Furthermore, a life office would have no inhibitions about pursuing an active investment policy under the unit trust approach, which it would have under the No. 2 Fund approach. A second advantage is that the management involved is clearly differentiated from that of the rest of the life office. A third, which particularly applies in the U.K., is that more comprehensive disclosure requirements are laid down for unit trusts. And fourth, a unit trust can operate in its own right for additional lump sum purchases not connected with the life office.

41. Choice (iii) depends on the life office involved. A relatively unknown life office might well decide not to run its own unit trust but instead to ride on the back of a well-known unit trust, with perhaps a partial interest in it. A well-known life office is less likely to do this.

42. It would be a pity if the unit trust approach, as distinct from the No. 2 Fund approach, were to be legislatively outlawed in Australia, as it could be of additional advantage to policyholders. Furthermore, an entry by one or more life offices into the unit trust industry could only be for the good of that industry.

Choice of fund (or trust)

43. For the purposes of arguing his case the author has said that he is not necessarily advocating any change in the investment policy followed by life offices—only in the distribution of investment proceeds. Nevertheless, if a unit-linked approach were to be adopted, he would prefer to see a number of choices open to the policyholder, i.e. an Equity Fund (or possibly several, with different objectives), a Fixed Interest Fund, a Government Securities Fund, and, possibly a Property Fund. The policyholder would then have a choice as to what proportions in any or all of these funds his savings could go. The more concerned he is about monetary considerations the more of his premium would be in fixed money securities. The more concerned he is about long-term investment considerations the more might be in the equity type funds. In this way, a variety of desires can be catered for, whereas with one single fund nobody might be completely satisfied.

PART III—THE INSURANCE ELEMENT

44. The insurance element of a unit-linked policy covers mortality, expense, and reserves. It is best illustrated by way of a specific example.

One of U.K.'s largest conventional life offices has recently entered the unit-linked field for the first time by

- (a) forming a unit trust
- (b) issuing endowment policies linked to the performance of that trust.

45. The main details of this particular unit-linked policy are:

- (a) Endowment term—integral years, minimum ten, maximum forty.
- (b) Premiums—payable monthly on the first day of each month (no other method allowed) to provide a monthly investment in units (i.e. savings element) of £4 per month or any higher multiple of £1 per month, as follows:

| Age next birthday at maturity | Monthly premium (£4 in units) | Percentage invested | Additional monthly premium (Additional £1 in units) | Percentage invested |
|--|-------------------------------------|------------------------|---|------------------------|
| Not exceeding | £ s. d. | | £ s. d. | |
| 50 | 4 5 0 | 94.1 | 1 0 6 | 97.6 |
| 51–55 | 4 6 0 | 93.0 | 1 0 9 | 96.4 |
| 56–60 | 4 7 0 | 92.0 | 1 1 0 | 95.2 |
| 61 and 62 | 4 8 0 | 90.9 | 1 1 3 | 94.1 |
| 63 and 64 | 4 9 0 | 89.9 | 1 1 6 | 93.0 |
| 65 and 66 | 4 10 0 | 88.9 | 1 1 9 | 92.0 |
| 67 | 4 11 0 | 87.9 | 1 2 0 | 90.9 |
| 68 | 4 12 0 | 87.0 | 1 2 3 | 89.9 |
| 69 | 4 13 0 | 86.0 | 1 2 6 | 88.9 |
| 70 | 4 14 0 | 85.1 | 1 2 9 | 87.9 |

The above premiums apply for men. For women deduct three years from the actual age and use the above premiums.

- (c) Maturity benefit—the accumulated units.
- (d) Death benefit—the accumulated units plus a *cash sum* equal to the outstanding savings elements to maturity.
- (e) Death benefit guarantee—total cash benefit guaranteed to be not less than the *nominal sum assured*, which is the annual savings element multiplied by the original term in years.
- (f) Surrender benefit—the accumulated units less a surrender charge, which is, initially, a flat £10 per policy plus $\frac{1}{2}\%$ of the nominal sum assured, reducing proportionately to zero over the endowment term. Thus, on surrender after premiums have been payable for half the term, the surrender charge will be a flat £5 per policy plus $\frac{1}{4}\%$ of the nominal sum assured.
- (g) Paid-up policy—the accumulated units, less the surrender charge, provided the surrender value is more than £100.
- (h) Cash value of accumulated units—calculated at the bid price ruling, less a capital gains tax deduction on the market appreciation

involved. The rate applicable will not be greater than the capital gains tax rate then ruling for life insurance companies (but is normally about two-thirds thereof).

- (i) Right to retain units on death and maturity—the accumulated units (less the C.G.T. deduction) may be retained, provided in excess of 100 units.
- (j) Accumulated units—these come from two sources:
 - (i) by investing the savings element paid each month at the offer price then ruling;
 - (ii) by investing the net income distributions on the units already held, payable each six months, after deducting income tax—presently 7s. 6d. in the £ for life companies—also at the offer price then ruling.

46. The main details of the unit trust with which this policy is linked are:

- (a) Primarily invested in U.K. ordinary shares.
- (b) Initial service charge—5% of amount invested (included in offer price).
- (c) Recurrent management charge— $\frac{3}{8}\%$ p.a. of the market value of the trust, deducted from investment income half yearly.
- (d) Rounding adjustment—not exceeding 1%, which may be added to the offer price or deducted from the bid price.

47. Points to note are:

- (a) Simplicity of presentation; the emphasis is on a chosen 'amount to be saved' and a chosen maturity age.
- (b) The difficult matter (for conventional policies) of surrender and paid-up values is easily handled and clear to all concerned (but high by conventional standards—see later discussion).
- (c) Concessionary rates for females and for larger policies. The latter is particularly generous, not significantly in excess of the net cost of the additional death benefit involved.

48. Example: Suppose a prospective policyholder aged 30 next birthday wants to save £10 a month. He can choose between, say, an Age 50, an Age 60 or an Age 70 policy as follows:

Age next birthday 30—£10 per month savings element

| Maturity Age | Term | Nominal sum assured | Monthly premium | Percentage invested |
|--------------|------|---------------------|-----------------|---------------------|
| 50 | 20 | £2,400 | £10 8s. 0d. | 96.2 |
| 60 | 30 | £3,600 | £10 13s. 0d. | 93.9 |
| 70 | 40 | £4,800 | £11 10s. 6d. | 86.8 |

49. For the most part he will choose the Age 60 policy, which gives him the right to an additional ten years' savings (he does not have to worry particularly about continuing to maturity as with a conventional policy)

and an additional £1,200 of death coverage, for an additional cost of only 5s. per month, over the Age 50 policy. For the most part he will not choose the Age 70 policy as being too expensive in the context of a policy aimed at long-term savings (but see discussion *re* whole of life policies below). The older maturity ages are quoted primarily with the older new entrants, say 50 and over, in mind.

Whole of life policy

50. There is no particular reason why this same approach could not be adopted for the unit-linked equivalent of the conventional whole of life policy, by choosing a maturity age of, say, 80 and adjusting the monthly premium accordingly. This would give a nominal sum assured similar to that provided under a conventional policy and would have the decided advantage of enabling the policyholder still to have his 'savings in units' programme of £x per month. However, it should be pointed out that a flat rate of premium becomes increasingly inappropriate the older the maturity age, and, for this particular policy, premium rates would have to be shown according to age at entry. Thus, our 30-year old prospective policyholder, for the most part, would choose between an Age 60 or an Age 80 policy just as he conventionally chooses between an E.A. 60 or a whole of life policy. Unit-linked endowment assurance therefore, in the author's view, could be a valid replacement for both conventional endowment *and* whole of life with-profits assurance.

Decreasing term insurance riders

51. Corresponding to the 'family income benefit' or 'decreasing term insurance' rider commonly added to conventional policies, a similar provision can also be added to a unit-linked policy. The most convenient method would be to provide that, instead of the normal cash sum death benefit equal to the outstanding savings elements to maturity, it can be twice, three times, four times, five times, etc., normal. In each case, of course, the accumulated units are paid in addition. The additional premium can be simply determined by referring to the right hand side portion of the table of premiums presented in § 45. The monthly premium for the normal insurance element, at near to net rates, is obviously the difference between the premium shown and £1. Double this for twice normal; treble it for three times normal; and so on. Thus our 30-year old prospective policyholder desiring to have £10 a month invested in units to Age 60, could choose between the following:

| | <i>Cash sum death benefit</i> | | | |
|-----------------------|-------------------------------|-------------|--------------|-------------|
| | Normal | Twice | Three times | Four times |
| Monthly premium | £10 13s. 0d. | £11 3s. 0d. | £11 13s. 0d. | £12 3s. 0d. |
| Percentage invested | 93.9% | 89.7% | 85.8% | 82.3% |
| Initial death benefit | £3,600 | £7,200 | £10,800 | £14,400 |
| Reduction per annum | £120 | £240 | £360 | £480 |

Alternatively, he could consider the Age 80 policy with similar rider options.

Conclusion on death benefits

52. Enough has now been said on the subject of death benefits to suggest:

- (i) The same flexibility of death benefit provision, including family income benefit riders, can be offered under unit-linked policies as under conventional policies. It can be done more simply, and probably at less cost, but never losing sight of the basic savings element in the policy, which still proceeds to accumulate according to unit trust principles.
- (ii) The conventional with-profits whole of life policy, including family income benefit riders, can also be replaced by a unit-linked endowment policy maturing at, say, age 80.
- (iii) Thus, it is suggested, all conventional death benefit provisions can be handled under the unit-linked approach, with suitable riders if necessary. This not only has the great advantage of standardization, as far as presentation to the public is concerned; it also would enable administrative procedures to be standardized and completely automated with the possibility of cost advantages to the policyholder as well.
- (iv) Finally, far from reducing the life insurance industry's influence in the community, the author believes that such a unit-linked approach generally would:
 - (a) attract many 'savers' back into the industry who are in the course of avoiding it at the present time, and
 - (b) result in more pure life insurance being written.

Under the unit-linked approach the community could be better insured against death as well as better provided for against eventual retirement.

Premiums

53. As indicated earlier, the premiums charged for the cash sum death benefit provided are close to the net mortality costs involved, for additional contributions over £4 per month invested in units. Since the premium rates for the first £4 per month are exactly 3s. per month higher at all maturity ages, it follows that this particular life office is charging approximately the net mortality costs involved, plus a flat £1 16s. 0d. p.a. per policy for expenses, at all levels. However, as was also pointed out above, the constant rate assumption by maturity age, irrespective of entry age, becomes increasingly inappropriate the older the maturity age. At maturity age 60 the error is not more than $\frac{1}{2}\%$, but at age 65 it may be as much as 3%, and at age 70 as much as 7% too high at the younger entry ages. Therefore, at the younger entry ages, policyholders would be well advised to take the Age

60 policy or, if it is available, the Age 80 policy (with rates varying with age at entry) but not anything in between.

Expenses

54. The expenses charged for this particular unit-linked policy are:

- (i) a flat life office charge of £1 16s. 0d. p.a. per policy (see § 53 above)
- (ii) a unit trust charge of 5% of the annual amount invested in units
- (iii) a unit trust charge of 5% of the amount reinvested in units by way of net income distributions
- (iv) a $\frac{3}{4}$ % p.a. recurrent management charge on the market value of the investments held, charged half-yearly.

55. Items (i), (ii) and (iii) above are *net* charges to the policyholder after tax, but item (iv) is a gross charge, since it is charged against the gross investment income of the unit trust before the net income distribution is determined. Following the Grant and Kingsnorth analysis presented in Appendix II and summarized in §§ 41 and 42 of their paper, pro-rating where necessary to allow for 5% instead of $3\frac{3}{4}$ % initial service charge they assumed, and also assuming income tax at 7s. 6d. in the £ deducted from (iv), we have:

Level percentage equivalent of expense charges to policyholder (net)
(Unit-linked policy for £100 p.a. invested in units)

| Item | 10-year term | 15-year term | 20-year term | 30-year term |
|---------------------|-----------------|-----------------|-----------------|-----------------|
| | % | % | % | % |
| (i) | 1·8 | 1·8 | 1·8 | 1·8 |
| (ii) | 5·0 | 5·0 | 5·0 | 5·0 |
| (iii) | 1·1 | 1·6 | 2·1 | 3·3 |
| (iv) | 1·4 | 2·0 | 2·7 | 4·1 |
| Total (Unit-linked) | 9·3 | 10·4 | 11·6 | 14·2 |
| Total (E.A.) | 6·5 | 7·8 | 9·0 | 11·5 |

56. The total (E.A.) figures shown above are Grant and Kingsnorth's estimates of the equivalent *net* level percentage charges under a conventional non-profit endowment assurance policy (see §§ 41 and 42 of their paper). The charges for this unit-linked policy are therefore on a net basis, some 2·7% higher for all terms, or 4·3% higher for all terms on a gross basis, taken overall, and assuming that Grant and Kingsnorth's estimates for conventional E.A. apply at the £100 p.a. level. The argument advanced is that these additional charges are necessary because the unit trust does not have the advantage of 'grossing up' which is available to a life office. But this is not so if things are organized properly. As Grant and Kingsnorth have pointed out (§ 47), the unit trust could sell units to the life office at a discount—conceivably the full 5%—and this discount would then be automatically grossed up in the life office's hands. Hence, it may be thought,

the initial service charge could be correspondingly reduced. But, at the shorter durations, these charges are fully necessary. It would be preferable not to alter item (ii) but, rather, to look at items (iii) and (iv) which build up very solidly indeed at the longer durations. Consideration could be given to waiving item (iii) altogether and reducing item (iv) by one third, i.e. $\frac{1}{4}\%$ instead of $\frac{3}{8}\%$ p.a. The effect of these two adjustments is easily calculated from the above and the adjusted comparison becomes:

| | 10-year term | 15-year term | 20-year term | 30-year term |
|----------------------------------|-----------------|-----------------|-----------------|-----------------|
| | % | % | % | % |
| Adjusted Unit-linked (net) | 7.7 | 8.1 | 8.6 | 9.5 |
| Non-profit E.A. (net) | 6.5 | 7.8 | 9.0 | 11.5 |

57. It must be remembered that the life office deals with the unit trust in bulk and both items (iii) and (iv) were designed to meet the costs of small individual transactions. Therefore, they can be reduced substantially for bulk transactions. On the other hand, individual records still have to be kept and the life office is charging very little for this. Perhaps a better method still than the compromise suggested above, would be to charge the full $\frac{3}{8}\%$ recurrent management charge until units to the *cost* of, say, *ten* times the annual amount invested have been accumulated, with $\frac{1}{8}\%$ applying on the *excess* thereafter.

58. Whether these adjustments are made or not, it would appear that U.K. unit-linked policies (and this example is typical for the industry) do have more than adequate expense margins overall, as compared with conventional non-profit endowment assurances, on a net basis, and also on a gross basis if proper arrangements are made. Their incidence is however different. The conventional E.A. approach does in fact receive the expense margins shown evenly over the duration of the policy. The unit-linked approach receives items (i) and (ii), i.e. 6.8% evenly over the duration of the policy, but item (iii), if applied, and item (iv) are twice as much when the units held are twice as much and so on, i.e. a very rapidly growing figure. When, for example, the value of the units held is twenty times the annual amount invested, a recurrent management charge of $\frac{3}{8}\%$ is equal to 7.5% of the annual amount invested, and at forty times 15%. Item (iii) has a similar progression.

59. But, at the shorter durations, very little indeed is received from items (iii), if applied, and (iv). Nevertheless, the unit-linked approach illustrated above does have at least 6.8% *net*, i.e. 10.9% *gross* coming in by way of expense charges from the outset, which is more than the overall expense margins under a conventional 10-year term E.A. policy.

60. The author has never been particularly convinced that the conven-

tional approach providing for higher expense charges the longer the term chosen has any validity to it. The reason for this is, in part, commissions based on sum assured, but more especially, the use of a constant factor c based on sum assured in the premium rate formula. The increasing nature of conventional E.A. charges by term does seem open to some criticism. However, the unit-linked approach does not take the view that expense margins should be related solely to premiums paid and some increase by term is provided for. It substitutes a formula based on (a) premiums paid and (b) amount invested at any time for the conventional formula based primarily on (a) sum assured, and only secondarily on (b) premiums paid. It also provides that these charges do in fact apply on an increasing basis during the term of the policy whereas the conventional approach applies a level charge each year.

61. In all the circumstances, therefore, the author believes the unit-linked approach to expense charges, particularly on one or other of the adjusted bases suggested above, has a lot to recommend it; that, where they differ from the conventional approach, it is the latter which should be queried rather than the former.

Surrender values

62. Whether by accident or design, there is no doubt that a major feature of unit-linked policies offered in the U.K. has been the high level of surrender values offered. In the particular example quoted, the surrender penalty is £10 per policy plus $\frac{1}{2}\%$ of the nominal sum assured, reducing proportionately over the term of the policy: i.e. when half the term of the policy has expired, the surrender penalty is £5 per policy plus $\frac{1}{4}\%$ of the nominal sum assured. This is one approach. Another is to apply no surrender penalty as such, but to provide that the first two months' premiums are absorbed in expenses and that investment in units only commences with payment of the third month's premium, i.e. the so called 'front-end-load' approach.

63. The front-end-load approach is an additional charge which is never recovered by the policyholder. The surrender penalty approach does provide for eventual recovery by the policyholder, but the rate of recovery is geared to the term of the policy, i.e. the longer the term chosen, the slower the rate of recovery. Both approaches could be improved upon by providing that at the end of, say, 10 years, recovery was effected; i.e. in the first case, by paying a bonus equal to two months' premiums and, in the second case, by using a 10-year reducing period for all terms. Also, there seems no particular reason (other than commissions varying with sum assured which are open to some criticism) why the surrender penalty should vary with the sum assured.

64. The surrender penalty approach involves a speculative element which does not apply under the front-end-load approach, i.e. eventual recovery is at the unit price ruling at that time, and not initially as under the front-

end-load approach. However, it is a gradual process and, if unit prices are rising, so also are some of the expense margins charged. Both points of view have their adherents.

65. But, be that as it may, the problem still remains that, under either approach, the surrender values appear high by conventional standards. Taking, for example, a 20-year term, Age 50, policy for £10 a month invested in units (£2,400 nominal sum assured) and assuming no change in the price of units, the policyholder receives a surrender value after one year—equal to £120 times .95 (being the assumed difference between bid and offer prices), i.e. £114 less a surrender penalty equal to 19/20ths of £22 (£20 18s. 0d.) i.e. £93 2s. 0d. For this he has paid £124 16s. 0d. in premiums. The surrender value paid after one year, assuming constant unit prices, therefore amounts to 74.6% of the premiums paid. If the assumed difference between bid and offer prices were, say 8%, the surrender value would be reduced to £89 10s. 0d., i.e. 71.7% of premiums paid, so such a device as that does not help very much.

66. It is understood that, for superannuation schemes financed by means of endowment assurance policies, it has been usual for surrender values to be guaranteed at least equal to 70% of premiums paid. Whatever reasoning went into this decision by life offices, the same would obviously have to be applied to unit-linked policies. In particular, at least the same reduced commission scale appears necessary. But this does not meet the problem altogether. To some extent there is a new element of thinking introduced, i.e. that existing policyholders do bear some of the cost of early surrenders (and not, conventionally, the other way around). There is, for example, the question of tax. Should the surrendered policy be given credit for the grossed up value of the expenses charged or only the net values shown above? This particularly applies to a new life office, or a rapidly growing one, where it is unable to obtain full relief on expenses because of insufficient interest earnings. Early surrenders do not help at all in eventually arriving at the desired position.

67. Whether this favourable surrender value position for unit-linked policies will last depends very much on:

- (a) whether they can be sold in the quantity desired at the reduced (and probably spread) commissions obviously necessary, and
- (b) whether the actual rate of surrender can be kept low.

If either turns out not to be true, reconsideration of surrender values will be necessary.

68. From the policyholder's point of view, he has received a tax deduction to the value of approximately £20 10s. 0d. on £124 16s. 0d. premiums paid and, if he had invested the net amount himself, and sold a year later, he would have suffered brokerage both ways to the amount of 4.26% (Grant and Kingsnorth, § 13), i.e. approximately £4 10s. 0d. His effective *net* surrender charge is £31 14s. 0d. less £25 0s. 0d., or £6 14s. 0d., which is

probably not too different from the premium he would have had to pay as a separate operation for the £2,400 of one-year term life insurance cover he has also had. Hence, from the policyholder's net of tax and net of brokerage point of view, there is really very little surrender charge at all involved if he puts a commercial value on the life insurance cover also provided. With this in mind, higher surrender penalties could be accepted by the policyholder without too much complaint.

Commissions

69. Whatever level of commissions is decided upon, the author sees no justification for these to be based on sum assured rather than premium. Accepting that the result desired, from all points of view, is as long as possible a chosen endowment term, it would seem that the particular way in which the unit-linked policy is presented achieves this, without the need for added commission encouragement. The prospective policyholder first chooses a certain monthly amount to be invested in units. He then considers a choice of term. The longer the term chosen the higher will be his initial sum assured as will be obvious in the presentation made. The sales representative will be able to advise him dispassionately about his choice of term, since his reward is independent of whatever decision is made.

Reserves

70. Reserves for unit-linked policies are very simply calculated. They are the value of the units accumulated to date less, in the case of the surrender penalty approach, the value of the surrender penalties which would apply if all policies were to surrender at the date of valuation. If anything, the reserve for the decreasing cash sum death benefit is negative at the earlier durations, so a zero reserve would be quite safe (except for Age 80 policies where the premiums do vary by age at entry). At the later durations some reconsideration may need to be given to this, but by that time, as we have seen, ever-increasing margins would be available for that purpose. Since all premiums are payable monthly, on the first day of the month, and the valuation is performed usually at the end of the month, no reserve for unexpired risks is required either.

Actuary's Responsibilities

71. The elimination almost altogether of the need for an actuary's judgment in determining reserves, and also in distributing surplus, is one of the most important features of the unit-linked approach, as has been commented upon earlier. Vast quantities of actuarial literature dealing with such subjects as net premium, adjusted net premium, bonus reserve valuations, immunization and matching of assets, different types of bonuses, premium rates, etc., become largely irrelevant under the unit-linked approach. It should not be thought however that the actuary is any the less needed because of this. His responsibilities remain, with added

significance, in the areas of mortality and expense. Under the unit-linked approach, both of these are guaranteed and the only margins available are the specific loadings made. The actuary cannot look to interest margins nor to the carry forward of an Estate to cover the situation in any way. It is interesting also to note that his responsibilities are clarified in another way under the unit-linked approach. They are clearly to the shareholders—and not to the policyholders—in so far as expenses and mortality are concerned. The major responsibility to the policyholders comes entirely under the heading of 'investment management' and it is to be hoped that a much greater responsibility will be accepted by life office actuaries in the future in this field, particularly under the unit-linked approach, than has been the case in the past.

Guarantees

72. It is noted that the particular unit-linked policy illustrated provides a death benefit guarantee equal to the nominal sum assured (i.e. the amount invested in units times the term of the policy). The cost of this is negligible. Some life offices also offer the same guarantee on maturity. Some others do so only where particularly requested, to cover such situations as repayment of a mortgage on a house, or a personal loan, and an additional charge is made.

73. Where the investment portfolio backing the unit-linked policy is a mixed one, i.e. similar to that for a conventional life office, this guarantee on maturity could be reasonably provided on all policies at negligible additional cost. The guarantee is after all somewhat less than the basic sum assured under a conventional E.A. with-profits policy for the same premium and this has never been a problem. It is the guaranteeing of the additional reversionary bonuses declared which has mainly been the problem.

74. However, when the unit-linked policy is fully, or primarily, equity linked, different considerations arise. It is true that various studies of equity performance in the past suggest that a 1% to 3% additional charge for this guarantee might be appropriate (depending on term) but the author holds the view (a) that it is not really a true guarantee anyway and could in certain circumstances bankrupt the life office involved, (b) that if a policyholder wants such a guarantee he should not be choosing a primarily equity-linked policy in the first place (he should be choosing a 'mixed' linking where the guarantee could possibly apply), and (c), most importantly, if the provision of such a guarantee is going to inhibit the life office in any way in its future investment policy it is much better, for all concerned, that it should not apply.

PART IV—CONCLUSION

75. The purpose of this paper has been twofold:

First, to describe in some detail how unit-linked life insurance does and could operate in the U.K., with some passing references to

Australia in so doing. This may be of some interest for its own sake.

Secondly, and more importantly, to submit that the unit-linked approach should replace the conventional reversionary bonus approach to with-profits life insurance in the future, both in the U.K. and in Australia. In so doing the author has taken the role of an advocate rather than that of a dispassionate observer in order that one side of the case can be presented as well as it can be. The other side of the case can now be heard by way of reply.

76. It must be recognized that the reversionary bonus approach, for the most part, grew to maturity during the 19th century when capital guarantees were important and worth paying for, and when other forms of saving were relatively non-existent, particularly pensions. It has served its purpose well but, in the meantime, other forms of savings have grown up, including unit trusts which are very much a child of the 20th century. Pension and social security arrangements now adequately cover many persons' retirement needs, particularly those who in the past have been customers for life insurance. And so the life insurance policy has come to be sold more on its protection merits and less on its investment merits. It is to re-establish its validity in modern conditions on its investment merits that the unit-linked approach needs to be adopted.

77. The time has now come to recognize that capital guarantees on the maturity of endowment assurance policies are no longer as important as they were and, it is submitted, should be dispensed with.

78. This is the key to the whole matter. Once open the door with that key and a whole new world of life insurance appears—a world where death benefits are still guaranteed in capital terms and can be just as flexibly designed as for conventional policies, but more simply and probably at less cost; where, even so, there is a clearly stated savings element and insurance element for every policy so that policyholders know exactly how much they are paying and for what; where nothing is hidden from the policyholders and nothing is held back; where a policyholder can have a choice of investment policies depending on his own circumstances and feelings about the future and not the single investment policy he has to accept from a life office at present; where the emphasis will be on investment policy and on investment results rather than on bonuses declared, which never seem to have any relation to anything as far as the policyholder can judge; where the role of the actuary is very different; where surrender values and paid-up values are on a much more logical basis, much easier to explain, and with no penalties involved (other than those stated at the outset); where important Withdrawal Plan facilities are available at maturity to provide a 'second bank', fully invested at all times, but with immediate access to cash; where the salesman's rate book will consist of one or two pages only; where his presentations can be more simply made as to the technicalities involved,

leaving him free to concentrate much more on the really important matters that should be considered; where expenses are guaranteed and applied in a more logical way; and where, generally, this will all result in a product which will:

- (a) attract 'savers' back to the life insurance industry,
- (b) result in more pure life insurance being written as well, and
- (c) attract more competent salesmen to sell it.

79. There are indications from overseas that selling and administrative costs can be reduced, with a consequent improvement in expense rates. There is some evidence, both in the U.K. and in Australia, that good salesmen are becoming harder and harder to find to sell conventional policies, with a consequent deterioration in performance and costs. The unit-linked approach could rectify this.

80. The price of all this is to dispense with the maturity guarantee (although a lower one equal to the nominal sum assured could possibly be granted in some circumstances). Is this too high a price to pay? Or, putting it the other way around, is not the provision of a maturity guarantee too high a price to pay for *not* having all of this?

81. Finally, it will be noted that there is no mention of inflation in this paper. This has been quite deliberate. The author has his own views as to whether equities are a good hedge against inflation or not and whether life offices should recognize this or not. This has nothing to do with this paper which would advocate the unit-linked approach even if all of the investments involved were of a fixed-interest nature. Indeed it goes further and suggests that, in the future, policyholders should be given the opportunity to make up their own minds on this matter and that life offices should offer alternative investment choices. The policyholder can then decide whether his policy should be fixed-interest-linked, or equity-linked, or something in between. The life office should not have to decide this for him.

APPENDICES I AND II

APPENDIX I
ACTUAL U.K. EXAMPLE

| XYZ LIFE INSURANCE COMPANY | | | | | | | | | |
|--|---------------|-----------------|-----------------------------|-----------------|------------------|----------------|----------------|-------------------|---------|
| Statement of Account for Year ended 6 April 1969 | | | | | | | | | |
| Name and address | | Policy number | Income reinvested | | Trust | | Units credited | | |
| | | | Units qualifying for income | Income per unit | Amount of income | Price per unit | No. of units | Accumulated units | |
| Date of investment | Premiums paid | Amount invested | £ | s. | d. | £ | s. | d. | |
| B F | 345 | 322 17 1 | | | | | | | 1141.16 |
| 16. 4.68 | 23 | 21 5 0 | | | | 1076.60 | 1.36 | | 7 2 |
| 16. 5.68 | 23 | 21 5 0 | | | | | | | 76.33 |
| 16. 6.68 | 23 | 21 5 0 | | | | | | | 7 6.5 |
| 16. 7.68 | 23 | 21 5 0 | | | | | | | 56.35 |
| 16. 8.68 | 23 | 21 5 0 | | | | | | | 7 8.5 |
| 16. 9.68 | 23 | 21 5 0 | | | | | | | 55.14 |
| 16.10.68 | 23 | 21 5 0 | | | | | | | 51.78 |
| 16.11.68 | 23 | 21 5 0 | | | | | | | 8 2.5 |
| 16.12.68 | 23 | 21 5 0 | | | | | | | 8 3.5 |
| 16. 1.69 | 23 | 21 5 0 | | | | | | | 51.26 |
| 16. 2.69 | 23 | 21 5 0 | | | | | | | 8 4.5 |
| 16. 3.69 | 23 | 21 5 0 | | | | | | | 8 1 |
| TOTAL | 621 | 590 4 5 * | | | | 1432.02 | 1.05 | 6 5 4 | 68.08 |
| | | | | | | | | | 51.26 |
| | | | | | | | | | 8 3.5 |
| | | | | | | | | | 8 5 |
| | | | | | | | | | 50.50 |
| | | | | | | | | | 1602.11 |
| | | | | | | | | | 1652.61 |
| | | | | | | | | | 9 3 |
| | | | | | | | | | 45.95 |
| | | | | | | | | | 1698.56 |
| | | | | | | | | | 9 1 |
| | | | | | | | | | 46.79 |
| | | | | | | | | | 1745.35 |
| | | | | | | | | | 8 6 |
| | | | | | | | | | 50.00 |
| | | | | | | | | | 1795.35 |

* including amount of income reinvested.

VALUE OF YOUR POLICY
AS AT 6 APRIL 1969

The units acquired under the policy and the income arising therefrom are not your property for Tax purposes and should not be shown in your Income Tax Return.

| Total units accumulated | Bid price at 6.4.1969 | Value |
|--|-----------------------|---------------------|
| 1795.35 | s. d. 8 0 | £ s. d. 718 2 10 |
| Benefits assured under condition X of the policy | | 5325 0 0 |
| Current benefits assured at death (To be shown on your Annual Income Tax Return.) | | 6043 2 10 |

The amount shown below is the Company's estimate of its liability to Tax on the element of capital gain included in the value of the units which are linked to your policy. This amount would have been deducted from the proceeds of the policy if the benefits had been paid out on the 6 April 1969.

£26 7s. 8d.

APPENDIX II

*TERMINAL BONUSES FOR CONVENTIONAL POLICIES**(See § 21 of Paper)*

1. Let us simplify the analysis by assuming, in the conventional office considered, that

- (1) all premiums are payable annually in advance on 1 January each year;
- (2) all benefits on termination—death, maturity, surrender—are payable at the end of the year, i.e. 31 December each year;
- (3) in a certain year—Year *Y*—the market value of assets held increases in that year to 20% over book value at the end of the year, as compared with 0% over book value at the beginning of the year;
- (4) liabilities, including that for new reversionary bonuses declared, always equal the book value of assets held;
- (5) 5% of the book value of assets held is paid in that year to terminating policies.

2. Assuming a book value of assets at the end of the year of \$2 million, the position immediately before payment of claims on policies terminating during year *Y* is:

| | Year <i>Y</i> | | |
|--|-------------------------|------------------------|-----------------|
| | Terminating policies | Continuing policies | All policies |
| | \$ | \$ | \$ |
| Liabilities | 100,000 | 1,900,000 | 2,000,000 |
| Book value of assets | 100,000 | 1,900,000 | 2,000,000 |
| Surplus carried forward | Nil | Nil | Nil |
| Market value of assets (up 20% during year) | 120,000 | 2,280,000 | 2,400,000 |
| Surplus at market value | 20,000 | 380,000 | 400,000 |
| % of liabilities | 20% | 20% | 20% |

3. The fair thing to do would seem to be to pay a special bonus to terminating policies equal to 20% of the amount payable less a capital gains tax deduction, revaluing assets upwards by \$20,000 at the same time to pay for it, i.e. a total payout of \$120,000. This we will call Basis I. Comparing this with Basis II, i.e. where no special bonus is paid and no revaluation of assets is made, the comparative position for continuing policies is:

Continuing policies at end year *Y*

| | Basis I | Basis II |
|-------------------------|------------|-----------|
| | \$ | \$ |
| Liabilities | 1,900,000 | 1,900,000 |
| Book value assets | 1,900,000* | 1,900,000 |
| Surplus carried forward | Nil | Nil |
| Market value of assets | 2,280,000* | 2,300,000 |
| Surplus at market value | 380,000 | 400,000 |
| % of book value | 20% | 21% |

* After revaluing the book value of assets by \$20,000 and paying out \$120,000 for terminations (including appropriate transfer to capital gains tax reserve).

4. It seems unfair that, under Basis II, the continuing policyholders should have their share of the 20% market appreciation that has actually occurred, increased to 21%, entirely at the expense of the terminating policyholders. So far so good. However, the position one year later becomes more difficult. Ignore the question of new entrants which only further complicates the position, i.e. assume the Fund is closed to new entrants and assume also:

- (1) there is no further market appreciation or depreciation;
- (2) \$200,000 of new annual premiums is payable at the beginning of the year on continuing policies;
- (3) 5% interest on market values at the beginning of the year is received at the end of the year;
- (4) further reversionary bonuses are declared at the end of the year so that, together with the increased liabilities involved in any case, the surplus carried forward *on book values* at the end of the year is still NIL;
- (5) Basis I was used at the end of the previous year;
- (6) expenses are ignored.

5. Then the position at the end of the following year is:

Continuing policies at end year *Y + 1*

| | New premiums | Old premiums | Total |
|---|--------------|--------------|-----------|
| | \$ | \$ | \$ |
| Book value beginning of year | 200,000 | 1,900,000 | 2,100,000 |
| Market value beginning of year | 200,000 | 2,280,000 | 2,480,000 |
| 5% interest thereon | 10,000 | 114,000 | 124,000 |
| Market value end of year | 210,000 | 2,394,000 | 2,604,000 |
| Book value end of year | 210,000 | 2,014,000 | 2,224,000 |
| Excess market value over book value end of year | Nil | 380,000 | 380,000 |
| % of book value | Nil | 18.9% | 17.1% |

6. Applying the same principle as in year Y , a special bonus of 17.1% (less capital gains tax) might be declared for terminating policies at end of year $Y+1$ instead of 20% (less capital gains tax) in the previous year, even though there was no change in market values during the year. There would be two reasons for this decline:

- (1) Additional new premiums sharing in the past accumulated market gain, but making no contribution towards it; this accounts broadly for the 18.9% figure shown above being reduced to 17.1%.
- (2) The additional liabilities involved, including declaration of a new reversionary bonus at the end of the year. This accounts broadly for an expected 20% special bonus being reduced to 18.9%. This is the same thing as saying that the interest received during the year also shares in the past accumulated market gain but also does not make any contribution towards it.

7. A reducing special bonus in stable circumstances could be misinterpreted by the public, and in any case it would be incorrect. The percentage should obviously vary depending on the proportion of 'new money' to 'old money' involved. The longer the duration of the terminating policy, the higher the proportion of old money involved and therefore the higher the special bonus percentage should be. In this particular example the correct approach would be to pay a special bonus of 20% of the liabilities at the beginning of the year and 0% of the liabilities at the end of the year.

8. As a general rule, for a policy terminating at duration k in a certain year the special bonus payable should be:

$$\sum_{t=0}^k \frac{L_t + L_{t+1}}{2} g_t \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad (1)$$

where L_t was the liability at the beginning of *each* past year t and g_t was the market gain in that year. This assumes that the gain happened evenly over the year and that premiums and interest were received evenly over the year. It also assumes that the liability includes the current (or proportionate) bonus declared and it ignores such items as surplus carried forward, special bonuses, conservatism in the valuation basis, etc.

9. A possible simplification, avoiding having to search back through past liability calculations, might be to assume that the liabilities increased at a constant compound rate i_k . Thus if L_k is the amount now payable on termination at duration k and P is the annual premium, then, allowing, say, for the whole of the first year's premium being absorbed in expenses i_k might be obtained by solving for i_k in the following expression:

$$L_k = P \bar{S}_{k-1|} \quad \text{at rate of interest } i_k$$

where P might be the actual premium or some proportion of it.

10. It would follow, then, that it could be assumed that:

$$L_t = P \bar{S}_{t-1}^- \quad \text{at rate of interest } i_k$$

$$\text{or } L_t = L_k \frac{\bar{S}_{t-1}^-}{\bar{S}_{k-1}^-} \quad \text{at rate of interest } i_k$$

11. The special bonus then becomes (substituting in (1))

$$L_k \sum_{t=0}^k \frac{\bar{S}_{t-1}^- + \bar{S}_t^-}{2\bar{S}_{k-1}^-} g_t \quad \text{at rate of interest } i_k$$

12. In other words, the special bonus factor to be applied to the amount payable on termination is:

$$\sum_{t=0}^k \frac{\bar{S}_{t-1}^- + \bar{S}_t^-}{2\bar{S}_{k-1}^-} g_t \quad \text{at rate of interest } i_k \quad . \quad . \quad (2)$$

In practice, a single rate of interest i_k could be used for all terminations occurring at duration k at a certain point of time without affecting the equity involved greatly.

The function $\frac{\bar{S}_{t-1}^- + \bar{S}_t^-}{2\bar{S}_{k-1}^-}$ is, after all, a relative one.

13. Thus, knowing g_t the market gain for each year t in the past, and determining on an i_k varying by duration k at date of termination, a set of special bonus percentages could be determined, varying by duration k , which would apply to the amount payable on terminations occurring at duration k at a certain point of time.

14. This formula would work satisfactorily for surrenders and maturities. In the case of surrenders, any surrender charges involved would be presumably deducted before determining the amount payable, and the same special bonus factor as for maturities applied thereto seems appropriate. For deaths certain problems arise. Here the amount payable can be considerably in excess of the liabilities thereon. It would seem wrong to grant deaths the same special bonus factor based on amount payable. On the other hand, to base it on the surrender value otherwise payable would seem somewhat less than generous. Some higher basis, say, the reserves held, might be more appropriate.

ABSTRACT OF THE DISCUSSION

The author, in introducing the paper, thanked all those who had made it possible for him to present it in London. He had no additional points to make on the paper itself. The 'case for the prosecution', so to speak, was contained in the synopsis attached to the notice of the meeting. If possible he would like that synopsis to be incorporated in the report of his opening remarks.

Author's synopsis:

Life offices have shown a growing tendency in recent years to accept the principle of terminal, special, etc. bonuses, in addition to reversionary bonuses, when distributing surplus to policyholders. However, there would appear to be a considerable difference of opinion as to how, and to what extent, this altered principle should be applied in practice. The dangers of confusion in the public's mind are obvious. Before this goes too far, the author believes that the unit-linked approach, which follows the same altered principle, but which has a *standard* method of application, should be seriously examined.

The paper describes this very different approach as fully as possible in order that members may have something specific to consider when forming their own views on this matter. As an example, the question of death benefits is examined at some length in order to show that a similar degree of flexibility, on a guaranteed basis, is possible under the unit-linked approach as under the conventional approach.

A number of important advantages is claimed for the unit-linked approach, having to do with such matters as (i) improved presentation to the public, (ii) easier administration, (iii) an *automatic* determination of equity between policyholders, (iv) surrender values, paid up values, reserves and expense charges on a more logical and easier to understand basis, (v) choices of investment objectives available, and (vi) generally, an emphasis on investment results (which can be more readily understood) rather than on bonuses declared (which cannot).

The life insurance policy has come to be sold more and more in recent years on its protection merits. It is to re-establish its validity in modern conditions on its investment merits that, it is claimed, the unit-linked approach needs to be adopted.

The price for all of this is to dispense with the maturity guarantee (particularly that traditionally associated with reversionary bonus additions). But, the paper argues, in the changed world we now live in, where pension and social security arrangements give most people all the guarantees for the future they really want, policyholders lose more than they gain by having this guarantee.

There was one further point. In the synopsis he had given as one of his reasons for writing the paper—the growing use of terminal bonuses and the consequences of that. Since coming to the U.K. he had also noticed how many life offices were then offering equity-linked life policies. Those life offices had only to introduce a fixed-interest fund, or perhaps invest a proportion of their funds in fixed interest, and they would be of the type of unit-linked approach described in the paper; so the discussion was urgent for that reason as well as the reason mentioned in the paper.

He doubted if there really would be three ways of distributing surplus in the U.K. in the future. Would they have the reversionary bonus system in the main, with a minor amount of terminal bonus attached, or would they have a reversionary bonus system

with a strong element of terminal bonus distribution in it, or would it be the unit-linked approach he had described, and which appeared to be coming from the life offices themselves? It was important for actuaries to discuss that matter and to come to some conclusion about it. The public was likely to get very confused about it all otherwise.

Mr D. J. Le Grys, in opening the discussion, said that the author had made a very strong case for the unit-linked policy and had suggested that it might be preferable for policyholders and insurance companies if a major switch to unit-linked policies were made, pointing out that unit-linked policies had had a remarkably favourable response from policyholders both in the U.K. and abroad. The first question to ask was whether that was due to the nature of the contract and the method by which surplus was distributed or if there were other reasons. In the U.S.A. over the previous 25 years, the insurance companies had largely lost the battle for the savings dollar, which had been won by the mutual funds. Insurance companies there had not been permitted by the authorities to invest their normal life funds in equity stock or other growth investments to any great extent; in fact, some companies had imposed voluntary limits below those allowed by the authorities. Thus, the results from traditional endowment assurances were dependent on the results of fixed-interest investments which made them a very secure type of investment with little growth prospects. They had proved to be unattractive as soon as the alternative was available of investment in equity stock through a mutual fund.

Similar considerations applied in many countries in Europe. American mutual funds had transacted large amounts of savings there by using variations of unit-linked policies. Again, they were offering the policyholder a type of investment which the local insurance market was not able to provide since investment by insurance companies in equity stock was regulated in many countries and maximum percentages imposed. Unit-linked policies linked to U.S.A. mutual funds were very popular in the Middle East and parts of Africa with the appeal of investment in the U.S.A. stock market. Local stock markets were in many cases small and unstable and the supply of local equity stock of good quality was small. Of necessity, traditional endowment policies offered by local offices were largely geared to the results of fixed-interest securities. He believed that the fact that unit-linked policies had offered policyholders a different type of investment, namely, investment in equity stock or ordinary shares of a stable and sound stock market, had accounted for the success of the policies abroad. The actual form of the contract and the method of distributing surplus was of secondary importance.

Comparisons between unit-linked policies and traditional endowment assurance policies could best be made by considering the position in the U.K., for three reasons. First, under both unit-linked policies and traditional endowment assurances, the assets of the life fund were largely invested in U.K. securities and there was little investment abroad. Secondly, there were no statutory restraints on an insurance office's investment programme. Thirdly, there was no difference in the legislation governing the marketing and sales methods of either unit-linked policies or traditional endowment assurances. The strength of the traditional endowment assurance in the U.K. was simply that it gave the policyholder both investment growth and worthwhile guarantees. If the policyholder preferred a traditional policy to a unit-linked contract, it was because the guarantees were more valuable to him than any extra amount at maturity on a unit-linked contract.

How great was the cost of the guarantees and how much larger were the returns on a unit-linked policy? That was difficult to compute because the value of the unit-linked

policy fluctuated on a day-to-day basis while the traditional policy averaged out the experience. Comparing the proceeds of matured policies was not a good guide since so few linked plans had matured, but there was nothing to suggest that policyholders of traditional policies had suffered at all. Comparisons made early in 1969, when equity prices were at a peak, showed in favour of the unit-linked policy, but the comparison certainly looked different at the current level of prices. Looking to the future, traditional policies would show lower returns if the prices of fixed-interest securities, which the life fund must hold to some extent, were fixed too high relative to the prices of other investments and, secondly, if capital appreciation, when it occurred, were held back in the life fund and not passed on to policyholders. At some periods in the past, fixed-interest stocks had been relatively over-priced in the market, especially in relation to equity prices but the balance appeared to have been righted over the last decade.

When to give policyholders the benefit of capital appreciation and the form of the bonus by which it was given to traditional policies was one of the main problems currently facing actuaries in insurance offices. There had been criticisms that capital appreciation had not been granted quickly enough in the past and that some generations of policyholders had not received their fair share of the appreciation. He would not consider that criticism well founded for, if all else failed, a special terminal bonus could be granted to make up for any shortfall under the normal reversionary bonus system. In practice, it was unworkable to grant special bonuses that exactly matched the results of a unit-linked policy, but it was not necessary since the policyholder had accepted the principle of averaging out the good and bad investment periods and accepted that his investment plan did not precisely reflect the day-to-day market conditions.

However, relying on terminal bonuses to deal with capital appreciation was unsatisfactory since it tended to reduce the attractiveness of the traditional policy as an investment plan. A bonus system that relied on large, fluctuating terminal bonuses gave no guarantees to the policyholder and he was probably left with more uncertainty than if he had a unit-linked policy. Though it imposed more difficulties for the actuary and required him to use more sophisticated valuation methods, especially on the treatment of assets, a bonus system that produced a regular high bonus periodically with relatively small or nil terminal bonuses was to be preferred to a system that relied on a high terminal bonus.

With the traditional policy, the policyholder received one major advantage that was not available under a unit-linked contract. The traditional with-profits policy shared the surplus from the office's non-profit business and, in a mixed life fund of an established office, that benefit could be considerable. The extent varied from fund to fund but, if the subsidy from non-profit business were considered as an extra investment profit for with-profit policyholders and expressed as a rate of interest, the figure in an established office could be in the region of 3% p.a. gross. That would mean that, other things being equal, the assets underlying a portfolio of unit-linked business ought to be invested to give an extra yield of 3% p.a. gross to give maturity benefits comparable to traditional with-profits endowment assurances.

Because of the greater guarantees under a traditional endowment assurance and because of the subsidy from non-profit policies, he thought that if it could be properly explained the traditional policy would be preferable for the majority of savers in the U.K. The guarantees were important and he was encouraged in that belief when he heard that colleagues in the unit trust industry were trying to devise methods so that a unit-linked policy's maturity value was dependent on the average experience of the three years before the maturity date. The unit-linked policy would always appeal to

the relatively sophisticated investor who appreciated that values could fluctuate and who was taking the definite view that equities or properties, or whatever was the special underlying investment, would, in the long run, show considerably greater returns than a broad investment policy.

If an office took the view that unit-linked policies and traditional policies were both valid types of investment plans and that a policyholder might require one or the other or a mixture of both plans—a traditional policy, say, for his basic savings and the unit-linked policy for his 'on top' savings—then it would appear logical for an office to try to introduce a comprehensive but flexible investment plan to cover both types of investment. In that case, the simple unit-linked policy shown in Part III of the paper and a traditional endowment assurance policy did not fit into one plan. Under the unit-linked policy, the premium would be split between the life assurance part and the investment part, while on the traditional policy there was no apparent split. On the unit-linked contract, there would be a deduction for capital gains tax; the policyholder had dividends but received no profits and the treatment of expenses would differ between the two contracts. Trying to marry those two different concepts into one overall investment plan would probably confuse both the prospective policyholder and the company salesman. For that reason, the office might prefer issuing a policy which gave an indirect link of the Category B type and might prefer a with-profits valuation of the Category B type rather than a non-profit policy. As pointed out by Skerman in the discussion on Grant and Kingsnorth's paper, a non-profit Category B type policy had disadvantages because there was a conflict of interest between the policyholders and the insurance companies. It also had disadvantages if the units of the unit trust were available to the public for direct purchase. The unit trust had to be invested to achieve a certain minimum running yield, say 3% net after tax, and for that reason it might be unattractive to the general public. He thought that units of such a trust should not be offered for sale without that special feature being mentioned.

A with-profits variety of Category B eliminated many of those difficulties and using a Category B approach the office would not show a split of the premium between the life assurance part and the investment part. It could charge expenses on the same basis as a traditional policy and have a consistent basis for taking a share of profits, if any, for shareholders. To make the overall similarity to a traditional with-profits policy closer, the allowance for capital gains tax liability on the unit-linked policy could be taken out of surplus. That meant that the emerging bonus—which would probably be declared in the form of extra units—would be lower but there would be no large deduction at the maturity date. One argument against allowing for capital gains tax liability in such a way was that difficulties could occur in periods when prices moved up sharply since a nil or negative bonus could emerge. However, the office would not have to pay tax on the life fund until it realized units and, in the long term, sufficient allowance could be made, though it would be necessary to adjust surrender values in the short term.

On the question whether it was preferable to link a unit-linked policy to an internal fund or to a unit trust, operating a unit trust proper could be expensive and time-consuming. If the office did not wish to offer units to the public direct but merely wished for a link for its unit-linked policy, it was probably cheaper to use an internal fund rather than to set up a formal unit trust.

There was, he felt, no reason why unit-linked policies should not be charged with the same loadings for initial expenses as traditional policies, and no reason why, in the absence of any special marketing arrangements, the surrender values on unit-linked contracts should not be similar to those on traditional policies. If the acquisition costs

and the commissions were similar, the surrender values ought to be similar and it must be unsound to introduce a surrender value basis that favoured policyholders who terminated early at the expense of those who continued. In the specimen unit-linked policy shown in Part III of the paper, it would appear that the loadings to cover initial expenses were 10s. 0d. % of the sum assured and £10 to cover fixed expenses. Grossing those margins up at 7s. 6d. in the £1 appeared to produce an amount for acquisition costs that was below the acquisition costs currently being paid in the U.K. or below the cost of running a sales force if the office were selling direct to the public. If that were so then the office could not afford to sell that policy unless they offered it as a second choice policy to the prospective policyholders who did not want a traditional policy or who had specifically asked for a unit-linked contract. He thought that that type of sales approach was what the author advocated. If the unit-linked policy were to be sold on the same terms as the traditional policy, then much wider allowances for initial expenses were required.

There had been special cases in the U.K. market where offices offering unit-linked policies were able to issue contracts with only small surrender penalties. In one case, an office had formed a unit trust in conjunction with a joint stock bank. The bank was prepared to sell a special unit-linked policy through its branches without involving the insurance office's sales force. The bank arranged the medical examination and presented cases to the insurance company for underwriting with some of the insurance office's documentary work completed. The bank received a renewal commission only and so the insurance company could afford not to impose a surrender penalty. On the other hand, the bank was running the risk of not recouping its expenses and giving its services at an uneconomic rate. Some insurance offices had sold large amounts of unit-linked business through newspaper advertisements. In some cases in the past it had been business acquired very cheaply but it was not unknown for the unit trust managers to pay for the actual cost of advertising the unit-linked policy and for the insurance office to repay the unit trust managers by a contribution spread over the policy's duration. Again, the office could afford not to impose a harsh surrender penalty but the unit trust managers were running the risk of not recouping their expenses. Similar arrangements were common with policies where the link was with a building society deposit. Generally there was little surrender penalty and the building society financed the selling costs and the advertising costs.

In §§ 54-61 of the paper, a comparison was made between the total net expenses of a unit-linked policy and a non-profit endowment assurance. Under the endowment assurance policy, if the expense charges were expressed as a percentage of the premium, they rose with the term of the policy to a much greater extent than the unit-linked policy, a trend he would have thought to be correct since actual expenses, both initial and at renewal (but not commission), were largely constant per policy. The amount of premium on longer-term cases tended to be lower than on short-term contracts and applying the percentages to the average amount of premium produced expense allowances which were sufficient to cover expenses, after allowing for commission, which were constant per policy.

In the examples shown, the expense allowances under a unit-linked policy were received by the office later in the policy's duration than under a traditional policy and, from the office's point of view, that was a disadvantage since the office would obviously prefer to collect the allowances to cover expenses as soon as possible. If required, an office could always change that on a unit-linked policy by adjusting the premium formula and the percentage invested in units.

It was suggested in the conclusion that a switch to unit-linked policies would attract more savers back to the insurance industry, result in more pure life assurance being written, and attract more competent salesmen. He agreed that to achieve those ends was highly desirable but a mere switch to unit-linked policies on its own was unlikely to bring any significant progress. There were many things that insurance offices needed to do, such as making better marketing plans, doing more market research, ensuring that their investment plans were more easily understood by the public, and training the company's sales force to sell positively and to acquire a broad financial knowledge. Those were the types of exercise which had to be undertaken, rather than changing the form of the contracts, if a larger share of the savings market was to be attracted back to life assurance.

Mr C. E. Barton strongly agreed with the main theme of the paper—that the unit principle was the best means of equitable participation. Besides being so simple, it recognized the fact that the policyholders, or members of the fund, were the risk bearers and should gain full benefit from the successes of the fund and withstand the full impact of its failures. That was what participation meant. In joining together to form a large group, the members considerably minimized their risks but they could not completely eliminate them. The risks which remained on any one day must be borne by that day's policyholders; they could not properly be borne by those of tomorrow or yesterday. As the risks were borne, so should the benefits accrue. That had not been generally recognized in the profession and the author was to be congratulated on coming from the other side of the world to try to make them see sense.

The actuary could not stand fluctuations; whenever he came up against them he wanted to smooth them, which was all right, but if he could not smooth them he tried to smother them. Fluctuations in Stock Exchange prices might be embarrassing. He found it surprising and disappointing that with more and more investment being channelled through institutions—and actuaries—there seemed to have been more and more fluctuations in the market. He thought the trend should have been towards more stability. But, whatever the reason, if there were fluctuations they should not ignore them. Yet that was what had happened in the so-called conventional reversionary bonus approach and the advent of special or terminal bonuses had made but little difference. Not only had the conventional actuary tried to average more than he was capable of averaging, but he had been bound by a peculiar notion of a moving average which moved up but not down—an escalating average!

It was a serious reflection on their profession that after some 14 years of special or terminal bonuses, there had been virtually no explanation, either by companies to their policyholders or within the profession, as to how those bonuses were determined. The opener had tried to make a case for the conventional approach and did not even want terminal bonuses but a high regular bonus. Significantly, he had qualified his suggestion with 'If it could be properly explained'.

He recalled submitting a paper to the Students' Society some 6 years previously (*J.S.S.*, 17, 504) outlining a theoretical basis of adapting the unit principle to participating assurances. As far as he knew, no office followed it in practice and it was not known what principle was followed.

The author had stated that to support the unit principle of participation was not necessarily to be taken as supporting investment, at all times and in all circumstances, in ordinary shares and property and went on to suggest that the unit principle should apply to fixed-interest investments as well. He agreed with the author but thought he

might have mentioned, obvious though it was, that the value of a fixed-interest investment varied with changes in the level of interest rates and, the longer the term of the investment, the greater was the variation caused by a rise or fall in the interest rate.

In suggesting a scheme whereby an investor could choose between an equity fund and a fixed-interest fund, the author in § 43 stated that, whilst the man concerned with long-term investment considerations would tend to put most of his money into an equity fund, the man concerned with monetary considerations would prefer a fixed-interest fund. That appeared to overlook that the market value of the fixed-interest fund would vary with changes in interest rates. Here was scope for the conventionalist to bring in immunization and say that he could offer something superior to a straight application of the unit principle. Thus, in a theoretically immunized position—which for various reasons could not be achieved in practice—it would be possible to have a fixed-interest fund such that, whilst changes in the rate of interest would inevitably affect the immediate total value of the fund, the ultimate maturity amount received by each individual investor would be the same as if there had been no change in interest rate.

It was paid-up immunization that he had in mind; investments already made would be immunized but not those to be made in future. If there were a rise in interest rates, the value of a policy which was about to mature would not change, as it would if the unit principle were applied without modification, but on the other hand a member whose policy was due to mature many years hence would secure less benefit from the higher rate of interest than he would under the unmodified unit principle; the higher rate of interest would apply to his future investments but not to interest on, or reinvestment of, his past investments. The converse would apply to a fall in interest rate. Under an immunized fixed-interest fund, however, it would be necessary to recognize that, whilst the effect of a change in interest rate would not affect the ultimate maturity amount, the surrender value of more recently effected policies would be affected to a greater extent than if the unit principle were applied without modification; the surrender value of older policies on the other hand would be less affected. So in practice an immunization approach could secure not complete stability, because of the practical limitations of the theory, but more stability in ultimate maturity values of policies of all durations, and more stability in current values of policies of long duration, but less stability in current values of policies of short duration. Investors were as much and perhaps more concerned with the current or surrender value of their investment in the early years as they were with the maturity value and the surrender value in later years, and therefore he was not at all sure that the idea of an immunized fixed-interest fund would be attractive—even if it could be understood! It would also tend to be less attractive from the point of view put by Anderson, and quoted by the author, that income may be more important than a cash sum at maturity. Then there would be considerable complications in administration and presentation. So he doubted whether a fixed-interest fund aimed at immunization was a runner. It might be that he had mentioned it only because, unit advocate that he was, he was still an actuary reluctant to forsake the fascinating mathematical considerations which, as the author had said, the unit principle rendered largely irrelevant.

In the system put forward in Appendix II for applying the unit principle to conventional participating business, the author seemed to have not allowed for interest on the special bonus for the period from the time the appreciation was achieved to the maturity date. Should the formula in § 8 of the Appendix not contain the term $(1+i)^{k-1}$? Also he thought it should be made clear that L_n , the liability in relation to which appreciation

was allocated, should include previous allocations of appreciation or depreciation. It could be argued that for conventional business, with its guaranteed basic sum assured and reversionary bonuses, the allocation of appreciation on equity investments should be related to that part of the policyholder's share of assets which was not guaranteed rather than to the whole of his share of assets. It was an argument opened by G. V. Bayley in the discussion on Benz's paper of 1959 (*J.I.A.*, 86, 22 and 26), and it was a feature of which the speaker had taken account in the system suggested in his Students' Society paper. That more sophisticated approach was a necessary corollary of the guarantees but it was so much simpler not to have guarantees.

An important difference between the author's approach and his own, apart from those he had already mentioned, was that he catered for depreciation as well as appreciation. It was fundamental to a system of full participation that there must be downs as well as ups. Since it was so fundamental to the principle advocated by the author and himself, it was a pity that depreciation was not considered in Appendix II. He had also suggested that separate consideration should be given to appreciation or depreciation caused by a change in the rate of interest as distinct from that caused by actual or expected changes in dividends and rents and, to the extent that appreciation was discounted in the purchase price, i.e. the extent implied by the reverse yield gap, it should not be reflected in any special bonus.

Mr L. W. G. Tutt, F.F.A., observed that the unit-linked approach to life assurance advocated by the author appeared to introduce a theoretical inconsistency. One element of the premium was to cover a mortality risk, and that was based on the insurance principle, which was essentially a technique for redistributing losses whereby average losses were substituted for actual loss costs. The other element was a savings element which introduced a specific risk, for, in the author's own words, 'it formally transfers the investment risk from the life office involved to the policyholder'. Thus an inconsistency arose because it involved a policyholder who was willing to pay a premium in the one case to avoid risk and in the other to bear risk.

That naturally led to the question whether in practice the person interested in buying a life assurance policy really did want one which was unit-linked. There was the growing popularity of that type of policy but there was also the point that they lived in a society in which, in general, for one reason or another, prospective purchasers were unable to obtain precisely what they wanted and had to make do with the next best thing available. Might it not be that a prospective life policyholder basically wanted insurance but that he was resorting to unit-linked because the conventional type of policy did not adequately provide it in an economy geared to continuous inflation? The author deliberately chose not to mention inflation but, were it not for the inflation which had occurred over the previous 20 years and the conceivable inflation of the following 20 years, they would probably not have been discussing unit-linked assurances.

It was against the economic background, namely, the circumstances in which they lived and could expect to live in the future, that traditional life office practice, resulting as it had done in a movement away from conventional contracts and towards those with variable benefits, needed to be questioned. In the British National Report submitted less than two years before to the Eighteenth International Congress of Actuaries it was indicated that, in recent years, British life offices had experienced an unprecedented run of improvements in their financial fortunes, offices generally reporting 'substantial excesses' of market values of their assets over book values encouraging them to take special action and, in grand total, the British offices had transferred some £100 million

from assets or investment reserves into current revenue. As well as that most important point, there was the method of its distribution and here Young, when introducing the British Report in Munich, implied that the method of terminal bonuses, as generally applied in Great Britain to give policyholders the benefit of favourable investment experience as regards capital, could not perhaps be regarded as a fully fair one.

There was also the question of the traditional British system of uniform reversionary bonuses in connexion with conventional with-profits policies, which the National Report referred to as the simplest of all forms of rough justice; elsewhere the Report stated that it was a competitive world and a 'halo' was not a saleable commodity. The reversionary bonus system was allied with the typically British method of valuation of liabilities and here the net premium method, apart from its artificiality and technical deficiencies in times of unstable monetary values, did not accord with the spirit of disclosure which on the assets side had then widely led to the publication of market values.

However, he did not agree that the unit-linked approach should supplant conventional with-profits policies. Rather did he consider that, subject to evolutionary modifications, the traditional insurance approach which permitted the policyholder to insure both the mortality and investment risks, coupled with equitable surplus distribution, might often be preferred to, and should continue alongside, the unit-linked approach of transferring the investment risk on to the policyholders. The author referred to contracts where nothing was hidden from the policyholders and nothing was held back. One of his own points was that that philosophy could apply to both, and he did not agree with the author's wording in § 21 (viii). It was not a question of achieving the same result; it was rather a question of two different methods achieving equally equitable results. The author himself referred in Appendix II to a possible solution for a modified terminal bonus approach. Furthermore, in connexion with the problem of allowing for changes in capital values, an asset share technique to provide as much flexibility as possible could be adopted, which was in fact an extension of the contribution method of allocating surplus.

The preceding remarks related to modifications of the conventional type of policy but this did not necessarily mean that the unit-linked approach as advocated by the author did not also desirably require modification. For example, not all would agree that capital guarantees on the maturity of endowment assurance policies should be dispensed with. It was both reasonable and appropriate for a life office to offer an additional assurance under equity-linked contracts involving a guarantee of asset value, and he had presented a general simulation model based on the Monte Carlo rejection technique for evaluating the net risk premium for an asset value guarantee at maturity under such policies.

Mr R. J. M. Kilroy thought there was a market for both types of policy and the maximization of private savings meant that both ought to be available. That was probably best for the life assurance industry and for actuaries as well.

In § 54 of the paper, the author had listed the expenses charged for a typical U.K. unit-linked policy. In considering the net charges to the policyholder, however, items (ii) and (iii) were irrelevant, since what the policyholder suffered was not the initial service charge but the jobbing margin between the offer and bid prices of units. If that margin happened to be 5% throughout the duration of the policy, and provided the managers had kept unit prices at a consistent position in the range between the maximum offer and minimum bid prices permitted by the Board of Trade, then the figures in § 55 would hold good whatever the level of initial service charge. Similarly, if the jobbing

margin were higher than 5%, the net charges to the policyholder would be higher than those shown even if the initial service charge were nil.

The charges listed were also questionable from the point of view of the receipts of the office. Items (ii) and (iii) could not be taken in isolation but had to be considered in conjunction with the situation that arose when the units allocated to a policy were eventually paid out at bid price. Usually the units could be reallocated to the continuing policyholders so that the office would take a jobbing margin in lieu of the initial service charge that would otherwise accrue from the creation of fresh units. If that margin were higher than the initial service charge then the receipts of the office would be increased by the difference, and *vice-versa*. An analogous situation arose in the unit trust if the units had been previously transferred to the policyholder on death or maturity. Item (iv) was not a net receipt to a U.K. office since the trustee would require a considerable part of it, perhaps as much as 1s. 8d.% per annum. The fee had no counterpart in orthodox endowment assurance business.

Apart from those points of detail, the concept of relating unit-linked loadings to those in non-profit endowment assurances seemed to him to be open to argument. The loadings in unit-linked business were meant to cover not only the larger costs involved in administration but also to provide a profit margin for the office. In orthodox business, on the other hand, an important part of the potential profit margin derived not from the expense loadings but from the eventual interest surplus. The author had emphasized the responsibility of the actuary to the shareholders (and presumably, in appropriate circumstances, to the with-profits policyholders also) and that responsibility would seem to require the provision of a reasonable rate of return on the capital employed in operating unit-linked business. Fixing that rate of return, in relation to the forces of the money management market, would then form the natural starting point for derivation of the required loadings.

The theme of the paper was a plea for the Australian market to face the new requirements of its public. However, when faced with a member of the public who had the temerity to ask for a maturity guarantee in his unit-linked policy, the author promptly gave him a black eye! The arguments in § 74 might well be criticized using the same techniques that the author had deployed so effectively in Part II of the paper. A considerable number of U.K. life offices had then grasped the nettle and that particular problem was one of the more interesting ones left to the actuary in a field where his skills were otherwise rarely required. The fact that the problem required the use of simulation and allied techniques would partly justify the long-forgotten statistics and probability theory in the examinations.

Considering the effect of a maturity guarantee on investment policy, he said there was considerable disagreement in the unit trust industry as to whether a trust, if it foresaw a slump in equity markets, should go substantially liquid. The main argument against was that the investor had chosen equities and was entitled to have them through thick and thin. That problem could well inhibit the investment manager of a unit trust faced with a bear market. However, as Ratcliff had said in a previous discussion, the life office was completely free, under the type of scheme discussed in the paper, to take a view and protect its position under maturity guarantees by reducing its total holding of units below the number credited to policies and switching into other types of investment. That procedure was similar to the tactics that the office would adopt in similar investment conditions in respect of its ordinary funds and such freedom of the life office was important when a maturity guarantee applied. One of the disadvantages of the 'No. 2 fund' approach was that it was difficult to have that freedom without the risk

of complaints from policyholders that the investments of the fund were no longer what they originally purported to be.

Mr J. Plymen remarked that besides Britain and Australia, another territory where there had been a lot of progress of the unit-linked movement was South Africa, where the pattern had been rather similar to that in Britain. Most of the running had been made by the newer offices, with the traditional companies following rather belatedly and apparently rather reluctantly. As the author pointed out, local legislation had a considerable effect on the design of investment-linked contracts. In Australia and in South Africa, it was necessary for a life office to invest, say, 30% of its funds in government stocks. Consequently in those countries, mixed funds had developed with an appropriate proportion of fixed-interest investment. The sort of mixed fund that the author envisaged was rather more a creature of government legislation than of policyholders' choice. In the U.K., apart from building society contracts, the most likely development was towards the equity-linked contract.

The author certainly presented investment-linked contracts in a new and highly attractive light. It was very difficult to disagree with his theme that such contracts, as he described them, were really much more logical, flexible and attractive than traditional with-profits contracts. There was little doubt that, if a life insurance industry were being started in the U.K. from scratch, the investment-linked contract, with its greater equity, better surrender benefits and better flexibility, would be the way to do it. However, the existing life offices had substantial investment profits from past successful investment. The accounts of some famous life offices published at December 1969 had shown market values revealing investment cushions of 10 to 15%. One office showed a cushion of 37% over its book values, a remarkable figure and very creditable to the people concerned. In such circumstances, it should not be difficult for the traditional policy to provide a better result than the equity-linked policy which had to start from nothing.

The better result from the traditional policy would not be obtained unless established offices adopted a rather more generous distribution policy. Sometimes life assurance reports, when admitting an investment surplus of tens of millions, would rather patronizingly throw a million or two of investment write-up into the surplus account. He could not help thinking of the squirrel sitting on a huge bag of nuts, waiting for a bad winter! Surely they could make more generous distributions; then the investment-linked policy ought to be thoroughly left behind by the traditional contract.

He then considered the point of view of the shareholder, for whom a replacement of the traditional contract on any scale by investment-linked contracts would be extremely disadvantageous. The generous bonus loading, with its automatic contribution to profits, disappeared, and left an exiguous margin from the temporary assurance and possible margins from operating the unit trust. In practice, the unit trust might be operated by a merchant bank which would get that part of the margin as well. In due course, as the business developed, investment-linked contracts would have a degree of similarity and competition become very severe. The margins under such contracts would then get very slim. In effect, long-term with-profits life assurance, as currently transacted, with its built-in profits margins, might gradually be replaced by something similar to short-term fire and accident insurance, where margins had disappeared or turned negative.

For a proprietary office the situation was clear. It was certainly not economic and it was in fact a dereliction of the directors' duty to transact investment-linked contracts in the life fund where the shareholders' portion of the profits was only 10% and the

policyholders had 90%. If the shareholders' proportion of profits was 10% of the exiguous margins on investment-linked contracts, it was not worth while doing the business at all and the office concerned ought to pass it over. What they really should do was to transact it in a special fund where 100% of the profits went to shareholders, and in those circumstances it might be economic.

The motivation of a mutual office was always rather a mystery. His feeling was that mutual offices had developed in the past to transact life assurance when the business was very profitable and had wide margins. The problem was in distributing the large surplus among the policyholders. The mutual principle was good for the sort of business which automatically made profits. On the other hand, the mutual office had no shareholders to fall back upon and he rather doubted whether it was right for a mutual office to enter into what was a distinctly entrepreneurial activity. He thought it would not be difficult for an office transacting investment-linked business to lose money on mortality, and he thought they could also lose money on the expense loading, particularly as competition forced up surrender values. Operating a unit trust could lose money as well; it had a high overhead cost and, if economic conditions knocked down the money coming in, the trust management could go into the red. He doubted whether a mutual office, with only its with-profits policyholders to fall back upon, was entitled to transact that sort of operation.

Altogether, he felt that the development of the investment-linked contract, which could not be resisted, was going to present very considerable problems for life assurance managers in future years.

Mr M. J. Taylor considered that one of the biggest and most interesting problems with which the profession had grappled over recent years had been the equitable distribution of surplus. The grafting of the uniform terminal bonus system on to the uniform reversionary bonus system was only a very imperfect solution. How nice, therefore, *pace* § 71 of the paper, to be able to dispense with actuarial judgment in valuing the fund and distributing surplus. However, he just had a feeling that, in the practical world, things were not quite so simple for two reasons, one of which was mentioned only implicitly by the author, and the other ignored altogether.

First, the author made the assumption that there was shareholders' capital available to finance the new business strain, which there was bound to be even with normal front-end-loaded policies. For that, and for a number of other reasons, it was difficult to envisage the unit-linked approach in the context of a mutual office.

The second point was the notable omission of any reference to the deduction from claims payments for the office's potential liability to capital gains tax. It was a simple matter to show that once a fund had matured, even with a steadily increasing premium income, a negative cash flow could be expected from time to time, as of course the volume of claims was directly linked to the price of units. Hence it was necessary to make such deductions and reserve them. Most offices in the U.K. deducted 20% of the chargeable gain which, compared to the tax rate of 30%, could probably be shown to be at a conservative level. However, to whom did those reserves belong and, in the event of their becoming more than necessary, to whom would they be distributed? To deem them to belong to policyholders at once destroyed the unit-linked approach and introduced the element of redistribution that that approach was at pains to avoid. Logically, they belonged to shareholders, but the actuary continued to be responsible to policyholders to ensure that those reserves were maintained at a proper level. In other words, he ought to resist pressure from shareholders to allow those reserves to be

distributed or used for something else—at the expense of future claims where the tax deduction would have to be at a higher level than otherwise necessary. Doubtless some formula could be worked out but he regarded the statement in § 71 as substantially incorrect.

Whenever two or three actuaries were gathered together in the name of unit-linked assurance, capital guarantees were talked about at length! In his development, the author was perfectly logical and correct in not giving maturity guarantees—with a wholly unitized fund. The only reserves available to back up such guarantees were shareholders' funds, which would probably be insufficient, or capital gains reserves, which ought to be kept for something else. One conclusion, somewhat perversely, was that, from the point of view of the policyholders, the best bet was a unit-linked policy with a conventional office. As regards the capital gains tax reserve, when the unit-linked cash flow was negative the office need not sell units—in contrast to a wholly unit-linked office. Hence, the deduction made by a conventional office could justifiably be far less than by a unit office. Also, a conventional office would normally hold sufficient free reserves to back up capital guarantees on unit-linked policies, for which, of course, it would be remunerated. That was unlike a wholly unit-linked office where such a guarantee, in really bad conditions, would be worthless or, in the words of the author, might bankrupt the office.

Mr A. K. Tudor asked whether, although the author claimed to be offering what the policyholder wanted, he was really putting the case for what he thought the policyholder ought to want. How far life offices should go in leading the policyholder in that way was perhaps controversial but, even granted that to some extent they should, he suspected that the author was leading the policyholder in a direction dictated by life offices' own expediency rather than the policyholder's real need. The key to the argument was in § 23, where the author imagined the intending policyholder in choosing a unit-linked policy as saying to himself 'If I am wrong, it is only an investment anyway. If times are bad when the policy matures, I shall be no worse off than if I had not taken the policy out in the first place. Every other type of investor will be in the same boat and I shall just have to ride out those bad times as best I can'. That was a terrible philosophy. Was it to be the policy of the future, supplanting all conventional types of assurance except a few non-profit policies to cover fixed sums? The maturity of a life assurance into which the policyholder had committed a significant part of his life savings was a considerable event. He planned for it very carefully.

Many people chose a sound, well-established life office because it was trusted to produce a good return on savings but, in future, according to the author's plans, that return was going to be placed at the whim of the stock market, where prices were determined by the turnover of a multitude of much smaller sums than life office portfolios, often on transient considerations. But that was not the worst. The policyholder was going to be allowed to choose what form of investment his premiums were put into so that, if the choice turned out to have been wrong on the day of maturity, as it most probably would be, the life office actuary could say 'It was your choice; it was not my fault'. If life offices adopted that course in the future, they would be abrogating the responsibility which the majority of policyholders would wish them to take—the responsibility of providing, after the necessary life cover, a secure and reliable out-turn at maturity, as high as possible but with sufficient traditional management to protect them on the day against the wayward vagaries of the economy and of the market.

He knew that the author had an answer: it lay in his quotation from Anderson which

had already been mentioned (see § 14). If the policy matured when stock market prices were high, then, other things being equal, the return available on the proceeds would be relatively low, and vice versa, so that the incomes obtainable in the two sets of circumstances might not differ very much. He believed that the number of policyholders who were interested in a fixed sum of money at maturity rather than income was a much greater proportion of the whole than the author assumed. Moreover, while the convenient inverse ratio of capital value to income might be partially true of a fixed-interest portfolio, it was profoundly not true of an equity portfolio. Put simply, a policy providing, for example, 100 units of the *F.T.* Index on the day of the meeting would produce nearly £38,000, which would buy an annuity at 65 of about £5,300 at the best rates available. Eighteen months previously, the same policy would have been worth close to £50,000, which would have bought an annuity of about £6,000 at that time. It was a period when annuity rates had moved so as to offset the difference in capital values to some extent; interest rates had gone up while equity values had gone down. It would not be difficult to find a period when the reverse was true, which would destroy the argument concerning stability of income even more than the example he had given. He was conscious that his argument was to some extent against terminal bonuses as well but terminal bonuses could be justified on the ground that they were additional benefits over and above the traditional ones a policyholder had come to expect (and respect) and not a substitution for them, as unit-linked benefits were.

In the author's world of mainly unit-linked policies, where traditional capital benefits would be provided increasingly in non-profit form, what would happen to the profits and who would take the risks? There would be both traditional profits from non-profit business and mortality and miscellaneous profits from unit-linked business. He found it difficult to visualize it all being passed to shareholders or all being shared among a diminishing band of with-profits policyholders. The problem was accentuated in a mutual office. He would not mind being one of the diminishing band of with-profits policyholders. Perhaps that was the consideration which would reverse the author's trend and restore popularity to orthodox assurance. He was not sure that the latter was as moribund as a lot of people—not, on the whole, actuaries—would like them to believe. Where was the deterioration in salesmen's performance to which the author referred in § 79? He had not seen that, at least in the office he knew best.

Mr M. H. Field agreed with a large number of the author's arguments but there were some aspects on which he wished the author had gone a little farther. The opener had referred to Category B policies but the author, in § 36, stated that he had assumed that the unit-linked approach would be of the type described by Grant and Kingsnorth as Category A, where the policyholder benefited directly both from capital appreciation and dividend income on the units credited to his account. The author had mentioned contracts of Category B type but had not related them to the context of his paper. The Category B contract passed capital appreciation to the policyholder but the dividend income was retained by the life office and corresponding adjustments were made either to the premium scale or to the form of the benefit. There were several policies of that type on the market; they were successful and attractive. However, in the context of the paper with its emphasis on the unit-linked approach to assurance, they were less satisfactory than Category A type policies. First, the policyholder and the actuary were left in some doubt as to whether the loss of dividend income was really matched by the adjustment in other benefits. Secondly, as the opener had indicated, there was perhaps some conflict of interest in the management of the unit trust, in that capital appreciation

and income accrued to different parties. Thirdly, there could be a further source of confusion in the minds of the public when deciding which type of contract to select. In Category A, an illustration of the workings of the policy could bring into account both income and capital appreciation whereas in Category B only capital appreciation could be allowed for; thus a 'growth rate' of, say, 7½% implied different levels of investment performance for the two types of contract.

In § 69, the author mentioned that he saw no justification for commissions to be based on sum assured rather than premium. He agreed wholeheartedly. He would also be the first to admit that adequate amounts ought to be set aside for marketing and that the payment of commission was as good a method of achieving a successful marketing operation as any. However, basing initial commission on the sum assured had affected the classes of business sold and had resulted to some extent in policyholders effecting policies for a longer period than they had intended. Also it was a major factor in determining the level of surrender values, particularly in the early years, and to some extent at least resulted in the poor comparison in that respect with the Category A unit-linked policy, which generally did not pay a commission based on sums assured.

Mr Plymen had referred to the 30% rule for investment in some countries. Might not that problem be solved by issuing two types of contract, one wholly gilt-edged-linked and one wholly equity-linked? They would have to be kept in the proportions 30 to 70 but might be sold to different policyholders.

Mr D. H. Craighead noted, as one of the causes of the rapid rise in the sale of unit-linked policies, the extension of sales by unit trusts seeking means by which full-time salesmen could sell to the public with the added appeal of tax savings on contractual periodic payments. Sales of unit-linked insurance plans had been given added impetus by thrusting new insurance companies looking for different products with a special appeal. As far as the public was concerned, however, the appeal of unit-linked policies arose from equity-linked concepts, with a strong emphasis on their being used as a hedge against inflation. Although he took the author's point in regard to unit-linked policies standing on their own rights and having special attractions, the advertising pressure had been quite different.

It was probable that most people who were in any way concerned with financial affairs, and even many who were not, had come to feel that inflation would be with them as a permanent feature of financial life, only the extent and intensity varying from period to period. If that factor were accepted in general principle, it was necessary that insurance be so designed as to eliminate, or at least reduce, the adverse effects of inflation over a long period of time. It had been sad recently to see a death claim paid out of, say, £1,000 on a policy taken out in the 1930s and to consider the different measures of value in that sum between the time the insurance was arranged and the time it was paid out. Some means had to be found of overcoming the effect on an insurance policy of the steady erosion in the value of money. If they failed in that, the basic stability afforded by life insurance protection would slip away and the public might well become more concerned with purely term assurance, as had happened in some parts of the Continent after the second world war.

There was no doubt that equity-linked policies had found a ready market because they struck a respondent chord. Whether with-profits policies would have filled the gap adequately had offices started paying out in time capital gains derived from their equity

investments was arguable. The fact remained that the public considered that it could obtain the full effects of capital gains from equity-linked policies whereas it might or might not receive similar benefits from with-profit policies.

It was pleasant to see that the author had placed the traditional with-profit policy in its true context as a highly developed and sophisticated article. Actuaries had lived so long with the concept of profit-sharing in life insurance that they had become beguiled by its apparent simplicity, as exemplified by the basic wording 'with participation in profits', forgetting all the mental turmoil of student days in following the complexities of emerging profit. In contrast, the unit-linked policy appeared complicated because of its detailed wording, but was easily understood by a discerning public because it spelled out precisely the benefits, even if those benefits depended on the vagaries of changing patterns of capital values and interest rates. It carried an inherent rigidity and could not provide for changing conditions, but the investment benefits all went to the policyholder, and that feature was attractive. He had been surprised to hear equity-linked policies described as flexible. Greater freedom was provided to insurance companies who could offer more different types of insurance; but the equity-linked plan was anything but flexible in the hands of the policyholder who had opted at inception for one type of investment and could not change it even if conditions altered radically. The insurance company handling unit-linked insurances became less of a banker, making investments for joint profit, and more of a trading concern, where its expenses were covered and its profits obtained from the expense margins and the management fees for controlling the funds. Where those margins were fine, volume had tended to make them attractive to new companies expanding rapidly in an open market but, as had been pointed out, in any true comparison of the costs, as developed in § 55 and later, account had to be taken of the fact that the unit-linked contract did not give the company any part of the profits made on investments.

There was little doubt that a stake in equity investments would be more valuable than a stake in fixed-interest investments if there was either no reverse yield gap or while the reverse yield gap took into account insufficiently the likely added value arising from capital improvement and growing dividends. A close look at the mortgage or gilt-edged market, however, seemed to indicate that a more realistic relationship existed with the equity market than for many years, and the time when the choice of equity investments in preference to others had proved so rewarding had probably passed. If some margin still remained, it would be no more than consistent with the added risk involved. Current thinking was in terms of total return, both capital gains and interest income, rather than in terms of investment income alone. The future was less likely to show a considerable extra return from equity investment as against fixed interest and was more likely to show some measure of relationship, any improvement in return being balanced by uncertainty and variations of a temporary nature. If that were the case, then with-profits policies, carrying as they did greater flexibility and more room for manoeuvre, might well come back into their own, particularly in the hands of expert management. There might then be seen a strong counter-attack against the attractiveness of equity-linked. With a realistic appraisal of advantages, the traditional with-profit policy might emerge as a complicated but highly attractive article in comparison with the equity-linked—not as a simple form of investment but on the basis of distributing, fairly quickly in terms of relative time, that same proportion of profits derived from capital gains and increasing dividends as from other sources of profit. The counter-attack could well be quite devastating, particularly at the time when equity-linked contracts were beginning to mature and a direct comparison became possible, particu-

larly if offices then started distributing some of the large profits made and retained in days of more careful management and restricted distribution.

Mr A. C. Baker said that, in a unit-linked insurance company, the policies did not owe anything to any other part of a life fund but were complete within themselves: in those circumstances he would have expected the expense loadings in the premiums to be higher than they would be in a conventional life fund. They had to cover inflation at rates which might not yet be foreseen in the years to come. For mortality, there had to be wider margins in the premiums in the unit-linked contract than was necessary in the conventional life fund. On the investment side, they were restricted in many more ways than was the conventional life fund. Summing up, it seemed to him that the unit-linked contract must *a priori* be a second-class contract.

The meeting was not to discuss commercial aspects but actuarial ones; however, it was quite clear that if something was to be sold which suffered from those disadvantages, the emphasis had to be on the selling. That was where the unit trust companies had had things all their own way. They were selling one product and basing the appeal on a comparatively recent period of inflation. He agreed wholeheartedly that life office actuaries had to find the right methods fairly quickly of distributing their equity appreciation. It was true that many life offices already had their with-profits contracts and liabilities more than 100% covered by equity stocks and property. They had nothing to fear from unit-linked contracts so long as (a) they matched the marketing expertise and (b) they distributed the equity profits as they emerged. At that point, the difficult area of special bonuses based on equity appreciation and terminal bonuses was reached. Equity appreciations shown in company accounts were not all free to be given away. With a stock yielding $1\frac{1}{2}\%$ gross, it required many years of appreciation before there would be any surplus appreciation to give away, because the cover and the bonuses in the earlier years would be based on yields of perhaps 6 or 7%. He felt that a lot of the arguments on the equity side had been almost deliberately confused and he was very glad that the meeting had given an opportunity of uncovering some of the confusion.

Mr D. M. Patton was against the author, who appeared to think that the main object of an insurance company was to benefit savers. Separate organizations existed for the benefit of savers, such as savings banks and unit trusts; those organizations did not concern themselves unduly with the risks of life and death and their clients asked only the maximum return for their savings. A life insurance company or society, on the other hand, existed to insure against contingencies. In the case of life assurance, the basic contingency was death and, in the case of pensions, it was long life, but two additional contingencies had always been provided for, namely, loss of capital and loss of income. The life assurance or pension policy thus provided complete security.

Without diminishing that security, insurance companies had developed the sale of endowment assurances as a means of provision against death or a rainy day and they had also made, so far as with-profit policies were concerned, some provision against the possibility of inflation. Even so, the endowment assurance policy was still fundamentally a life assurance contract and enjoyed taxation advantages as a result. It was not in the interests of the life assurance industry that companies should seek to benefit those who wanted only to save, nor was it appropriate for bankers or unit trust managers to seek to provide life assurance for their customers. There was, however, scope for both groups to work together and he saw no objection to an insurance company joining with unit trust managers to offer life assurance as a supplement to (not a replacement for)

savings in a unit trust and, again, certain tax advantages might result. He hoped, however, that the actuary would not endeavour to establish his own unit trust or equity fund but would concentrate on the life assurance element and leave the unit trust managers to look after their own business. Moreover, since investment in unit trusts was contrary to the basic principle of insurance, because it lacked the absolute security of capital which insurance companies offered, he did not consider that life companies should sell unit trust-linked policies actively through their own sales force. In fact the life company should specify in writing in the quotations and in the policies that it was not responsible for the performance of the unit trust investment.

The author seemed to think that the traditional advantages of an insurance company—security and stability—were of no value to savers and that capital guarantees which were important in the nineteenth century were no longer worth paying for. In reaching that conclusion, the author seemed to be influenced by the fact (mentioned in § 23) that history showed that there had been longer periods of good times than bad times in the past. No doubt that was true but it was equally true that more people lived to 65 than died before that age, yet surely that was no argument against life assurance.

The author looked forward to a new world in § 78. Did he really think that it was in the policyholder's interest that the rate book should have only two pages? Did he really think that policyholders would know just what they were paying, and for what? The speaker imagined that very few existing unit-linked policyholders realized exactly what deduction would be made for capital gains tax when their policies became payable and what profit that would give the insurance company. Mr Taylor had suggested that one job of the actuary was to decide what to do with profits on capital gains tax deductions. He (the speaker) had thought that as the contracts were non-profit, those profits would be handed over to the shareholders. He agreed that the contract should be sold by a proprietary company selling unit-linked policies only and that there should be no question of expecting with-profit policyholders to assume investment risks.

Mr A. T. Grant observed that it had seemed to be less of an actuarial than a business discussion, less concerned with what actuaries should do than with guesses as to what the customers might do. Some of the remarks seemed to be premised on the idea that no choice was to be available to the customer: that would be decided in many cases by the market or by the individual office. As it was a business meeting, he chose to take the point of view of an investment analyst, looking at the industry from the outset in the simplest terms he could conceive:

Product: joint product; savings and insurance—implying some conflict?

Nature of business: absolutely no production problems; non-existent stock problems; entirely marketing, after-sales service and finance.

After 200 years of scientific life assurance, such an industry ought to have its marketing so buttoned up that absolutely nobody would ever have an opportunity to come in selling a different product or with different methods! Apart from marketing, since the management had only internal matters such as finance and expenses to look after, not only would finance be very well looked after but the expenses would be analysed and understood very carefully, and any professional bodies tied to that industry would be deluged with papers on expenses.

Limitations on trade: few; technically reserve requirement and size and prosperity of established offices may have prevented easy entrance of new indigenous companies to the industry.

Structure of industry: high proportion of mutual offices which have competition from proprietary offices but less motivation to make profit.

It was well understood that mutual offices, acting in the interests of the current policy-holders, would do best for them by winding up, but that would destroy the entire industry!

Brokers: interesting marketing channel directing part of business but not all; considerable competition but relatively little innovation.

Management: little marketing aggressiveness because of slightly lower intensity of competition—e.g. remarkably little advertising; comparatively little innovation of new policies; little analysis in modern terms of expenses; remarkably little running of the industry as business and greater emphasis on professionalism as opposed to profit; very good performance in investments; problems of success in giving away the surplus.

Competition in recent years: development of powerful competition from the unit trust field with a new design of contract which was well received by the public; the new contract could be designed to involve minimal initial strain, and could allow for some aggressive expansion without so much anxiety about reserves; it had maximum disclosure, and minimal front-end-loading; different marketing methods from those previously adopted were used.

It seemed to him that the author had issued a good prospectus on how to set up a brand-new industry from scratch, but it would be naive to think that insurance companies would simply disappear in their established form if other forms were introduced, and it was necessary to consider how the two could co-exist.

He had sympathy with the earlier speakers who thought the market's preference between the two types of contract was not a once-and-for-all decision and might vary from time to time with big swings of the pendulum.

The first reaction from the established industry had been slight annoyance; the second and more lasting reaction was that the life offices had begun in a variety of ways to respond to the challenge thrown upon them:

- (i) Marketing surveys were in hand. He was surprised that they had not been done a considerable time earlier; one of the beauties of the life assurance field was that, whereas it was easy to identify the average number of cars per head in the country and that that was probably as many cars as could be sold, it was very difficult to see the limitation of life assurance in the same terms.
- (ii) A rash of terminal bonuses had suddenly appeared as a well-understood method of adapting results for the maturing policyholder without an undue overall liability in case investments turned downwards.
- (iii) Rather more executives had been to business schools, studying other business attitudes and ways of going about things.
- (iv) In the previous few months, there had been a trend towards greater disclosure by life offices.

He thought that the competition thrust on life offices was a good thing and that the unit trust industry had been the best thing to happen to the life assurance industry, which was by no means dead. He believed that they would jointly co-exist and that, in so doing, they would not merely compete but expand savings by increasing the market.

He was anxious for the students who would have two syllabuses to cope with rather than one. He was concerned with the position of brokers, for it seemed that part of the

conflict related to methods of marketing rather than design of contract, and that there might well be greater polarization in forms of marketing between direct selling and selling through brokers.

The two most important things for the general health of life assurance coming from such competition would be more disclosure, which he would welcome and which would be extremely good for the competitiveness and effectiveness of life office management, and the general presentation problem of the unit trust type life offices. That put very squarely before management the question of what management regarded as the criterion of success. There seemed to be a considerable variability in regard to what was meant by success. Was it greater sales of insurance, more National Savings, maximum levels of bonus for policyholders, or profits for shareholders—and were those policyholders or shareholders the present ones or were they some future unspecified generation?

Miss M. C. Allanach, in closing the discussion, said that it was inevitable that the paper had formed the basis of a further discussion on equity-linked contracts, notwithstanding that Mr Melville had not limited himself to this approach but had referred generally to unit-linked contracts. The subject was one on which discussions were bound to continue.

It was interesting to see how over the years the climate of opinion regarding the issuing of such contracts had gradually undergone a change. At the time of the discussion at the Faculty on the paper by Grant and Kingsnorth there had been a large number of people who gave a firm 'No' to the idea of life assurance companies issuing any equity-linked contracts. Mr Tudor was still rather inclined to that view and one or two other speakers had expressed some doubts. The general consensus was certainly very much more in line with, and probably further advanced than, that at the second discussion on the Grant and Kingsnorth paper some four months later at the Institute, where there had been very few voices raised against, and the general feeling had been that there was a place for the contracts in the offices' shop window—but 'as well as' and not 'instead of'. So they came to the author's paper, with the author taking a very strong line in favour of unit-linked policies and a number of speakers—particularly Mr Barton and Mr Field—strongly supporting him, Mr Le Grys only partially supporting him and she feeling that there was still a place for the conventional policy as well.

She had wondered how much the various dates at which the discussions were held had influenced the views then expressed, but there were a number of other factors which had gradually led to the development of the contracts. Nevertheless, the current investment climate and the long-term view of what effect that was likely to have had probably affected the course of the discussions. If the current discussion had been held more than a year before when the stock market was booming, possibly there might have been even stronger support for that type of contract and none other. Over the past year, there had been other factors, in the U.K. at least, such as the growth of other forms of investment contracts, the property bond, the building society-linked scheme, and the S.A.Y.E. contracts, and it seemed to her that there was possibly some turning back, because of the break in the market, to the idea of a mixture of investments. The author was also clearly attracted to the idea of a mixture, in so far as his unit itself would be a mixed unit, mixed by the office and not by the individual. Later in the paper, when looking to the future, he indicated that the individual should be given the choice of the actual investments he made. One or two speakers had supported that. She personally felt that that was too onerous a burden to place on all individual policyholders although she would support it in the more sophisticated area of pension fund managers.

There had been an appreciable amount of support for selling a mixture of the equity-

linked contract and the life office type of policy. If the conventional policy were to flourish alongside the equity-linked contract, that would turn very much on the methods of distributing investment surplus to conventional policies.

A number of speakers had supported the author's view that any surplus or deficit on the 'savings' side of the contract should be entirely reflected in the value of the unit of investment adopted, and Mr Barton was one who supported this view. Mr Craighead pointed out that that approach was extremely rigid and it was not nearly as flexible as the present arrangement of reversionary and terminal bonuses. She disagreed with putting all the eggs in one basket; the individual policyholder was probably less sophisticated and more cautious than either the author or Mr Barton thought. She agreed with Mr Tudor's comments on the part of the paper which said that, if something went wrong, the policyholder would think it was 'only an investment anyway', and could not agree that there would be many policyholders who would take that rather philosophical line! She had wondered how wholeheartedly the author held that view, for he talked elsewhere of a place for the conventional policy to meet specific needs.

A number of speakers had mentioned the problem of dealing with the profit from their non-profit business and from miscellaneous sources and Mr Plymen had referred to a possible surplus from capital gains tax. Mr Craighead had described the conventional policy as more sophisticated and she felt that there was still tremendous scope for considering methods of distributing surplus by way of terminal bonuses and averaging investment performances, as well as the possibility of a contribution method. All the various methods had one theme in common—a levelling out of fluctuations and a cushioning of the policyholder from their effect. There was nothing really mystical about the actuary's work in that context. The actuary would be using his expertise to achieve as steady and secure a contract as possible in line with a tradition which policyholders still expected of a life company. Of course, policyholders had pressed and were pressing for a greater share of the capital profits in good times but would they have been as vocal had the reverse situation obtained? She very much doubted it but, for any who would, there should be a pure equity-linked contract, and for the remainder the conventional type of policy.

Several speakers had talked on the question of guarantees, almost cancelling each other out. One or two were very firmly in favour of offices attempting to provide guarantees. Mr Barton, with his immunization technique, had guarantees of maturity values in mind. Mr Taylor agreed with the author as far as a wholly unitized fund was concerned and she felt that offices should not give a guarantee on unit-linked contracts in view of the very great difficulty of assessing its cost. Offices were guaranteeing mortality and expenses and could have a number of problems there, but she still considered that the investment side should not be guaranteed and that the choice should be very clearly left to the policyholder.

There might have been more discussion on the various safeguards or otherwise in selling unit-linked business—certainly the safeguards listed in § 34 of the paper—but very few had touched on that. Mr Patton had spoken forcibly of the need for strong warnings to the individual at the sales stage of exactly the type of contract and the guarantees to which he was committing himself.

The author had expressed himself as supporting the fully-linked Category A contract and she supported him, but Mr Le Grys and others were more inclined to the Category B contract. As Mr Field had put it, the question under the Category B contract was how to deal with any surplus, and immediately the contract lost the clarity of a Category A contract.

No-one had taken up the author's challenge on the possible extensions of unit-linked contracts. He had mentioned the possibility of whole life contracts, or a temporary assurance contract. The cost of the cover could be assessed for those, although it would probably be necessary, as he had pointed out, to have age-related premiums for the older ages at entry. It seemed to come back to the question of what the public wanted. Offices could perhaps consider offering equity-linked contracts providing income benefits. However, she was conscious of the fact that, as Mr Grant had implied, offices had perhaps not done enough research to find out what the customers wanted. If the public wanted something cautious, they should be offered it but those who were prepared to accept the investment risks should be offered a policy with those risks, provided they were clearly understood.

Considering the comparison between the expense loadings of an equity-linked contract and an ordinary conventional endowment assurance, she was not so surprised by the fact that, from the illustration in the paper, the equity-linked contract cost rather more than the conventional contract. Her surprise, if anything, was that the difference was so relatively small, for the cost of, in effect, allocating units and allocating income to individual policies was probably at least as great, if not more so, than the methods of assessing and applying reversionary or terminal bonuses that offices had used in the past. Certainly it was true to say that investment in a unit trust was more expensive than a direct investment for comparable amounts of money. The unit trust, of course, worked out very reasonably for a series of small investments but, taking the series of investments of small sums of money combined with the mechanical complexities of allocating units and income to policies, it was not surprising that the unit-linked policy appeared to be more expensive. Mention had also been made of commission and she agreed that there was a case for basing commission on premiums. It was virtually a universal practice in the U.K., however, to base it on the sum assured and it would be very difficult to change.

There had been some references to surrender values and Mr Le Grys described one or two ways in which the otherwise large front-end-loading could be avoided. Apart from those methods, she would have expected the aim to be for the surrender values to follow a very similar pattern.

A number of people had touched on capital gains tax and the general view was that a 20% deduction was not unreasonable. Mr Taylor mentioned that the 20% could possibly be under-stated if the fund got into a situation where units had to be sold as then the office would be liable to a greater amount of capital gains tax.

The President (Mr J. B. H. Pegler), in proposing a vote of thanks to the author, said that the author had challenged existing doctrine and practices. There was nothing wrong with that; in fact, he was all for it, and seemed to remember doing something similar himself. The author had described himself as being 'for the prosecution' and was perhaps prosecuting his actuarial colleagues for being a bit old-fashioned and slow to change with the times. He did not propose to act as judge and deliver a verdict in the case but on behalf of the profession, of which he had the honour to be the ceremonial head, he would put one or two points in defence. First, he would defend it against Mr Barton, who said that actuaries hated fluctuations, as if that were something to be ashamed of. It was not; it was something to be proud of. Actuaries on the whole were associated with insurance, and the main purpose of insurance was to smooth out fluctuations. It was important to be clear whether one was talking primarily about life assurance cover or about savings and their difficulties all arose from the fact that, in

life assurance, the two were mixed up together. Secondly, he put in a brief defence against the attack made by Mr Plymen, who likened actuaries to avaricious and over-careful squirrels sitting on excessively large bags of nuts. When Mr Plymen looked at stock market prices, he would have noticed that some of those nuts had been pinched from the squirrel and that the actuary had to be rather careful about distributing them!

The fact that it criticized existing practices was one of the features that had attracted the Institute to the paper. It brought out the difficulties facing life offices as a result of investing so substantially in ordinary shares and other investments with fluctuating market values. It was a valuable paper and he thought the discussion had shown that the decision to put the author's arguments to debate was a correct one. They were all extremely grateful to the author who, although he had written the paper for the Institute of Actuaries of Australia and New Zealand, had allowed the Institute to have it and, what was more, had come 12,000 miles to present it.

The author, in reply, said that at the start of the discussion he had mentioned that it seemed to him that there were three methods of distribution of surplus: (i) the method that very strongly emphasized reversionary bonuses, with minimal (if indeed any) terminal bonus; (ii) the method which had reversionary bonuses but an ever-increasing terminal bonus element; and (iii) the unit-linked version he had proposed. Speakers had been strongly in support of all three of those methods and therefore it would be his conclusion that all three methods were going to continue. He would be returning to Australia with that thought.

Back in the 1870s, there had been considerable discussion between actuaries as to the right method of distributing surplus. There were all sorts of methods being proposed and discussed but the industry settled on the reversionary bonus method. It was not really the method that most of the actuaries wanted; it happened to have got going and to be recognized and it was the one that had stood the test of time and won. He did not really believe that they were going to see three methods of surplus distribution carry on. He could not tell from the discussion which one was going to win but he was sure that only one would. The public would otherwise be too confused.

As far as the terminal bonus approach was concerned, he believed that was a thoroughly confusing method. Just how much should be made terminal, and how little? It had to be a choice between those speakers who favoured the reversionary bonus system without any terminal bonus and those who favoured the unit-linked approach. He could not see the terminal bonus in the middle.

There had been a lot of discussion on what the public was thought to want or ought to want. His own view was that they should give the public what it wanted.

Mr K. A. C. Wheeler, who was present at the meeting, subsequently wrote:

Mr Melville's concluding words, 'The public should be given what it wants' appear to me completely to beg the question. Unit trusts and life assurance policies neither do sell nor would sell in great volume without the powerful aid of interested parties. If the remuneration to the broker or seller of life assurance and units were identical for a given cash outlay by the buyer, including either no tax relief on life assurance premiums or an equivalent relief for unit trust purchases, I submit that unit-linked life assurance policies would not have arisen in the U.K.

I also suggest that Mr Melville's paper is an accident of history in that if, since life assurance began, it had developed as Mr Melville suggests is desirable, with higher variable investment results, good and bad, very good and very bad, then it would have

dawned on some bright person in due time that by devising a reversionary bonus approach, the evils of boom and slump in the market could be ironed out. What a paper Mr Melville would then have written and, to be fair, what opposition there might well have been to such a disturbance of accepted practices. Level or steadily increasing guaranteed additions? What a preposterous idea and what an investment risk for actuaries to undertake on behalf of their offices, particularly if it was suggested during or just after a prolonged slide in market values.

Mr P. Milburn-Pyle submitted the following written contribution:

The life assurance market in South Africa is exhibiting trends very similar to those apparently being experienced in Australia, as gathered from Mr Melville's paper. It would not be true to say that in South Africa the 'unit-linked' approach is in the process of entirely supplanting the traditional with-profits type of policy; in fact, the unfortunate slide in ordinary share values that took place in South Africa from May 1969, after the dizzy heights to which such values had previously climbed, resulted in the public taking a somewhat jaundiced view of policies linked to unit trusts that were wholly or primarily invested in ordinary shares, and a swing back to the traditional type of with-profit policy inevitably followed.

However, there is now a trend developing which follows similar lines to those described by Mr Melville, and possibly goes somewhat further than appears to have been the case in Australia. The practice is rapidly developing in this country for life offices to set up special internal portfolios of investments, each portfolio containing a reasonable mix of fixed-interest and equity assets; dividing the portfolio up into 'units'; and using the whole of the premium paid under the new class of linked policies (after deduction of charges for expenses, commission and term cover) in the purchase of units in this portfolio. All investment gains, including unrealized capital appreciation, achieved by the assets making up the special portfolio remain the property of the portfolio, and all investment losses and investment expenses are debited to the portfolio. The value of the portfolio, and hence the value of a unit therein, will thus vary from time to time.

The term assurance cover is purchased from the remainder of the life office, and designed to ensure that on death, the sum of the term cover in force at that time plus a guaranteed minimum value of the units that have been accumulated to that date, is not less than a specified amount. The guaranteed minimum value is frequently of the order of the amounts invested in units plus $4\frac{1}{2}\%$ per annum compound, and as the office retains the full right to vary the contents of the portfolio as it deems advisable, the guaranteeing of this minimum value, on death or maturity, does not really pose any great problem.

It is too early to say whether this system will replace the traditional with-profits arrangement, but much interest is being shown in it. It is a valuable means of enabling a new life office to market a with-profit product on competitive lines, and of avoiding new business strain by virtue of a 'front-end-loading', but even for an established office, it is a practical means of countering the argument much heard these days (despite the share slide over the last year) that life offices do not pass on sufficient of their capital appreciation. It has a further advantage in overcoming problems of equity in distribution of profits among successive generations of policyholders.

Valuation is very simple, essentially consisting of no more than reserving for the term cover plus an amount equal to the market value of the units. If a guarantee of value of units has been given, the value placed on the units for reserve purposes must have due regard to this.

The trend is really no more than a continuation of that which began with the introduction of deposit administration pension schemes in this country, whereby the insurance and investment elements became separated and the policyholder was prepared to bear the risk of fluctuations in his investment results, in return for the possibility of overall gain compared with the alternative of the life office being the arbiter of the extent to which he should participate in investment profits.

The author subsequently supplemented his verbal reply to the discussion with the following written remarks:

I would like to thank all those who contributed to the discussion of my paper. The discussion for the most part centred on the price to be paid for replacing the conventional approach with the unit-linked approach, but did not really go that very difficult step further and *measure* this against the advantages claimed in the paper and summarized in the author's synopsis which has been incorporated in my opening remarks.

There is also a price to be paid for *not* adopting the unit-linked approach. The six advantages claimed are part of that price and the re-establishment of the life insurance policy on its investment merits is another. I suppose I would have to agree, however, that the general feeling of the meeting, with a number of exceptions, was in favour of the unit-linked approach operating in addition to the reversionary bonus approach for already established life offices. But for a newly established life office, I detected considerable sympathy for the view that its only method of surplus distribution should be along unit-linked lines.

The other major difference of opinion was whether or not there should be a choice of unit funds available to policyholders. I agree that, with only one unit fund available invested in a mixture of fixed interest and equities, an additional freedom would be allowed to the life office involved and, to this extent, the unit-linked approach could be brought more in line with the conventional approach. But I am not sure that this is a good idea for all the other reasons that I have given in my paper.

As to the growing tendency to declare terminal bonuses in addition to reversionary bonuses, I would agree with those speakers who, in rejecting the unit-linked approach, felt logically bound also to reject the terminal bonus approach. By the same token, any actuary who accepts the terminal bonus approach should be logically bound to accept the unit-linked approach also and, having done so, should at least allow that the automatic nature of the unit-linked approach *might* be preferable to the extremely subjective nature of the terminal bonus approach. Irrespective of the rights and wrongs of the two approaches, I feel that there would be at least as much danger of marketing misrepresentation under the terminal bonus approach as under the unit-linked approach. One of the reasons why I like the unit-linked approach is because it takes the 'competition' out of surplus distribution and rests the case entirely on investment performance.

On the question of profitability, I would agree with Mr Le Grys that there was no reason why unit-linked policies should not be charged the same loadings for internal expenses and for surrender as for traditional policies, although the hope is expressed that appreciable economies may be possible under the unit-linked approach. I feel that there would be as much, if not more, profitability under the unit-linked approach if the contract was effectively a non-profit one with 100% of such profits going to the shareholders. This would more than make up for the 10% (or less) of the interest surplus given up. But, as Mr Plymen points out, for those companies who have chosen to write unit-linked policies as part of their overall life fund (with 90% or more of the profits going to the policyholders) then, of course, the unit-linked approach would be less

profitable. The unit-linked policy need not be a second class policy—only if the life office involved deliberately makes it one.

Several speakers were of the view that the unit-linked policy was difficult to envisage in the context of a mutual life office, and with this view I have considerable sympathy. Mr Taylor makes a good point in denying the author's claim in § 71, in so far as the reserve built up from past capital gains tax deductions is concerned. I would agree that the actuary's responsibility to policyholders would continue in this area, but this hardly justified his statement that § 71 is substantially incorrect. On other matters of detail, I would agree that I am firmly opposed to the Category B approach, on the grounds of possible misrepresentation as well as of equity.

On Mr Barton's criticism of Appendix II, perhaps it was not made clear that the formula given was intended to apply to a *cash* terminal bonus declared *at date of termination*. Would it be helpful to say that k is the date of termination and t represents all past dates and that the payment envisaged is made at time k ? The interest earned is therefore assumed reflected in the reversionary bonus element, which is why it was not provided for in the formula. Also, it was intended that g_t should be negative as well as positive. In denying his specific criticisms of the formula I would, however, agree that Barton's other suggestions were a definite improvement if, of course, one wanted to do any of this in the first place.

We now come to the various 'commercial' arguments presented. Mr Le Grys's point about non-profit business, Mr Plymen's squirrel with his huge bag of nuts waiting for a bad winter, Mr Craighead's vision of a possible devastating counter-attack at some future date, Mr Grant's powerfully sardonic thoughts on co-existence, and Mr Taylor's point along the same lines, all say the same thing—that the entrenched life office, with its perhaps unfair retention of past accumulated surplus, could make the going tough in competing with the unit-linked approach.

There are a number of points I would like to make about this. In the first place, as I have said earlier, there would seem to be some sympathy for the view that a new life office should choose the unit-linked approach as its only method of surplus distribution. And to some extent, therefore, this is an argument against new life offices being established at all. In the second place, an established life office is in fact surprisingly 'young' really, because of the tremendous new business written in recent years, and the additional surplus earned from the past, if declared, would not make as much difference as one might like to think. In the third place, life offices would have been in a stronger position to launch this counter-attack if they were not, as most of them now are, already offering the unit-linked approach anyway.

Finally, I would agree with Messrs Grant and Plymen, who in different ways set out to illustrate that although the unit-linked approach cannot be resisted, it was going to present very considerable problems for life office managers in future years. It was to demonstrate this, primarily, that the paper was written in the first place.