benefits payable on withdrawal. The choice of investment media and investment manager is discussed. In both cases areas where actuarial advice may be required are noted.

The benefits which might emerge from final salary and defined contribution schemes are illustrated by comparing results obtained from a 'model scheme'.

Finally the paper analyses some ways in which the simple defined contribution pension scheme can be amended so as to achieve particular objectives which might not, of themselves, suggest the use of such a scheme. Those described are

(*a*) The use of age-related contributions.
(*b*) The use of service-related contributions.
(*c*) 'Matching' the company's contributions to those of the member.
(*d*) The incorporation of a final salary guarantee.
(*e*) Making use of a choice of investment funds.
(*f*) Investing a part of the contributions paid in the shares of the sponsoring company.

ACTUARIAL VALUATION OF PENSION SCHEMES

BY P. WORTHINGTON, F.I.A.

(Synopsis of a paper presented to the Society on 19 March 1985)

THE paper, concentrating on privately invested pension schemes, discusses the various purposes for which an actuarial valuation can be undertaken: consideration of the discontinuance position; provision of an Actuarial Certificate A; the ongoing actuarial valuation and, for the purposes of the pension, aspects of purchases and sales of companies and their subsidiaries.

The author considers that a discontinuance valuation should take into account the benefits to which members would be entitled were they normal withdrawals. The major reason being that the discontinuance certificate would then compare the benefits available to those who left just prior to any notional discontinuance with the ability of the scheme to continue to provide them. The author states that it is of great importance that any certificate given should set out clearly the benefits and assets taken into account in order that any reader should not be misled. The need to compare assets and liabilities as factually as possible means that the actuary will tend towards considering the cost of buying benefits from an insurance company rather than the cost of continuing the scheme on a closed basis. The incidence of expenses into the future would make calculations for a closed scheme difficult to substantiate. Some subjective judgements must be made and the requirement to publish the percentage cover, if less than 100%, could lead to some pressure for revision from companies where calculations show a percentage cover of less than 100%.

An actuarial valuation for the purpose of providing an Actuarial Certificate A produces few additional problems to the discontinuance position other than that of considering, within the statement, the next 5 year period. This is normally achieved by comparing the funding rate being paid with the minimum required to support Guaranteed Minimum Pensions.

The purpose of the on-going actuarial valuation is to recommend a single funding rate; most clients prefer a single rate combined with a willingness to discuss rather than a range of alternatives which should be adopted for the scheme. The author recognizes that valuations are based on assumptions as to future experience and therefore that a range of different assumptions could be made. He argues that no one basis is correct and that it is perfectly proper for an actuary advising a number of clients to adopt different bases for different clients. What is important is that the actuary draws to his client's attention the effect that deviations in experience from his assumptions will have and the subjective likelihood of those deviations occurring. Actuaries are being asked more frequently than previously to provide some form of certificate concerning the adequacy of the funding of the pension scheme. The statements made are often woolly and, the greater the scrutiny to which they are subjected, the less they appear to say. The author questions whether or not it is appropriate to make such statements.

An on-going valuation of a pension scheme requires a valuation to be placed on the invested fund. The paper discusses the advantages and disadvantages of one particular method, that of assuming a notional portfolio where the fixed interest content exactly matches the fixed money liabilities of the scheme, and the remainder of the assets are assumed to be invested in U.K. equities. Portfolios hold an increasing proportion of property and overseas stocks and it is difficult to argue that it is correct to place a different value on these holdings, relative to their market value, than on a similar holding in U.K. equities. A lower value would imply that the actuary should speak out against them and, therefore, an assumption that they are U.K. equities is a conservative approach.

RIDER BENEFITS AND OPTIONS ON LIFE ASSURANCE CONTRACTS

BY M. R. T. NORTH, F.I.A. AND P. J. SAVILL, F.I.A.

(Synopsis of a paper presented to the Society on 2 April 1985)

THE addition of extra benefits and options to a basic life assurance contract has been a traditional feature of products in the U.K. market. However, the main

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