

CORRESPONDENCE

To the Editor of the *Transactions of the Faculty of Actuaries*.

DEAR SIR,

Valuation of Widows' Funds.

In *T.F.A.*, xvii., p. 207, there appears a communication from Mr. Alexander Fraser pointing out that in the valuation of Widows' Funds it is necessary, in certain cases, to make sure that the apparently conservative practice of ignoring appreciation is not in reality negated by the increased liability brought out when the appreciation is written up and the correspondingly reduced valuation rate of interest employed.

I have recently had occasion to consider this question in the valuation of a Widows' Fund where the rate of annuity is considerably in excess of the amount provided by the contributions of the members and where the market value of the investments as compared with the book value shows substantial appreciation.

On the figures shown in the Accounts the effective rate of interest earned by the Fund was £3, 18s. 7d. per cent., and the valuation was made at $3\frac{1}{2}$ per cent. interest.

When the securities were written up by £104,400, taking that figure as the proportion of the appreciation which excluded any increase above par value, the rate of interest earned became £3, 8s. 7d. per cent., and the valuation was made at 3 per cent.

A comparison of these valuations serves to corroborate Mr. Fraser's conclusions.

Sections of the Fund	Book value of Fund divided into its component parts on a $3\frac{1}{2}$ % valuation basis — $3\frac{1}{2}$ % Net Liability	Fund written up by adding to each Section its own proportion of the £104,400	3% Net Liability	Written up Fund, less 3% Net Liability
Annuitants . . .	£219,501	£249,959	£230,457	+£19,502
Bachelors . . .	26,252	29,895	34,273	- 4,378
Husbands . . .	267,654	304,793	310,617	- 5,824
Widowers . . .	2,251	2,565	2,594	- 29
	£515,658	£587,212	£577,941	+ £9,271
Future Entrants	108,500	123,552	173,200	- 49,648
	£624,158	£710,764	£751,141	-£40,377
$3\frac{1}{2}$ % Surplus . . .	128,228	146,022	—	+146,022
Total Fund . . .	<u>£752,386</u>	<u>£856,786</u>	3% Surplus	<u>=£105,645</u>

From the foregoing figures the following results may be obtained :—

	3½% Valuation	3% Valuation	Effect on Surplus of writing up securities, with 3% valuation
Total Fund	£752,386	£856,786	
Liability excluding that for future entrants	515,658	577,941	
Surplus before providing for future entrants.	£236,728	£278,845	Surplus set free . £42,117
Reserve for future entrants.	108,500	173,200	Reduction in Surplus 64,700
			Net reduction with 3% valuation . <u>£22,583</u>

So far as the existing annuitants are concerned, the appreciation is more than amply sufficient to cover the corresponding reduction in the valuation rate of interest. As regards all classes of present contributors the allocated share of the appreciation falls short, in varying degree, of the amounts required to meet the increased liability. Taking existing annuitants and existing contributors together, however, their total share of the appreciation is more than is required to offset the effect of the reduction in the valuation rate of interest from 3½ per cent. to 3 per cent. Nevertheless, as in the example given by Mr. Fraser, the inclusion in the liability of the amount necessary to maintain the rate of annuity to future members, in view of the inadequacy of their contributions for the purpose, more than counterbalances the position.

Instead of the 3 per cent. valuation involving an addition to the surplus, as happens before the liability for future entrants is taken into account, the inclusion of that liability results in a reduction of the surplus, as compared with the 3½ per cent. valuation, by no less than £22,583.

In the case under review, therefore, the policy of ignoring the appreciation, with the idea of husbanding the resources of the Fund, would fail to fulfil the purpose in view.

Yours faithfully,

HUGH W. BROWN.

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