

ness effected was fully as marked as in the accident branch; the years' total of about \$35,600,000 in new policies being well on to \$5,000,000 greater than that for 1905. Premiums increased by over \$125,000 to a sum of \$670,000; while claims paid amounted to \$408,000, an increase of \$137,000 over the 1905 loss payments. Losses actually incurred during 1906 were, however, considerably less than those paid during the twelvemonth, and amounted to \$333,000 as compared with \$282,000 in 1905. The expansion of the Dominion's general industrial interests brings with it increasing scope for the operations of liability companies, so that this important branch of insurance may be looked to for steady growth year after year.

EXPENSES OF CANADIAN NEW BUSINESS.

Continuation of a Review and Condensation of a Paper Prepared by Colin C. Ferguson, B.A., A.I.A., for the Actuarial Society of America.

Having explained the actuarial theory and indicated the practical effects of the Canadian Method of making allowance for the new business expenses of a life company, Mr. Ferguson proceeds to compare it with the Select and Ultimate and the Preliminary Term Methods.

PRELIMINARY TERM METHOD.

The Preliminary Term Method is so well known that a detailed description of it is considered unnecessary. It is remarked in passing that it does not commend itself to actuaries generally and is particularly objectionable when applied to limited payment life policies and endowment assurances. The Modified Preliminary Term Method is an improvement on the above in that its application generally to all plans of assurances is unobjectionable. In fact, so far as the first year allowances are concerned it is the basis on which the Canadian Method is founded.

A fatal weakness in the Preliminary Term Plan, even in its improved form, is the fact that the reserves produced by it are less than the level net premium reserves throughout the whole premium paying period of the policy. This objection is effectually overcome by the Canadian Method.

THE SELECT AND ULTIMATE METHOD.

This method, as its title indicates, employs two mortality tables—a select and an ultimate. It is assumed that the actual experience of the company will conform to, or be more favourable than, the expected mortality as shown by the select table, and that accordingly there will be a substantial gain from mortality during the first five years in comparison with that expected by the aggregate table. The position of Mr. Miles M. Dawson, the method's ardent sponsor and advocate, is that we may legitimately anticipate that saving and spend it in procuring new business. The money not being actually in hand, it is necessary to borrow it from some source and most naturally from the reserve on the particular policy. At the end of the first year, repayment will start, the savings in the first year's mortality being then realized. The process is continued until the loan made by reserve to loading is entirely repaid by mortality.

The Select and Ultimate reserves are lower throughout the whole duration of the policy than the normal reserves as brought out by the Select table. The allowance for initial expenses is based on an anticipation of loading and so the only difference between the Select and Ultimate and the Canadian method is that in the former case, a small portion of the loading on *all* future premiums is anticipated, while in the latter, a larger percentage of the loading of the *first four* renewal premiums is spent in advance. In each case the amount anticipated is regarded as a temporary loan from reserve.

It will thus be seen that the Select and Ultimate method is very similar to the Modified Preliminary Term method. The principle is exactly the same in each. The Modified Preliminary Term method fixes the first year's net premium and allows the subsequent ones to take care of themselves. The Select and Ultimate method determines in advance the renewal net premium and then calculates the first to correspond. The effect of both on the normal level premium reserves is to lower them throughout the whole premium-paying period of the policy. To complete the comparison, it should be recalled that the Canadian method fixes the first year's net premium in the same manner as does the Modified Preliminary Term method. Instead of adjusting all the remaining net premiums, it merely increases four of them so as to bring out normal reserves at the end of the fifth year.

It is hoped that this explanation of the Select and Ultimate method will greatly simplify the matter. It accounts for the allowance for initial expenses on an anticipation of part of the provision specially provided for those expenses, namely, the loading. It may also commend the method to those who, heretofore, have strongly objected to it as anticipating the mortality gains, which in their opinion should not be used to supplement loading. This explanation, however, discloses an unfavourable feature in that it shows a permanent impairment of loading. If the loading be calculated on the Ultimate net premium, it is true that this impairment will disappear, but, when the Select net premium is used, part of the loading on every premium after the first is hypothecated, and the Select table is actually the basis of the Select and Ultimate method of valuation.

The Canadian method possesses greater elasticity than the Select and Ultimate method in that it is applicable to any Mortality Table whether constructed on the Select basis or not. It is true that a Select table may always be constructed on the principles employed by Mr. Dawson, but the process is artificial and results in confusion. In the Om Table, the effects of selection are assumed to extend over ten years, and so the Select and Ultimate method when applied to this table produces reserves lower than the Ultimate for each of the first nine durations.

An examination of the tables given in the appendix will show that, although the Select and Ultimate method as a measure for new expenses gives perhaps a larger allowance than the Canadian method, it does not give an equal relief so far as reserves are concerned. This point has been well brought out by Mr. D. P. Fackler in a letter to the *Spectator* of January 17, 1907. In this connection