

the event of his desiring to rectify and beautify the results given by his formula.

I am, Sir,  
Your obedient servant,

*Edinbro',*  
1 July 1887. T. B. SPRAGUE.

#### CLAIM ACCELERATION RESERVE, &c.

*To the Editor of the Journal of the Institute of Actuaries.*

SIR,—For some time past I have been intending, with your permission, to correct an oversight on *J.I.A.*, xxiv, 76, for it would seem that claim acceleration reserve should be based on the theoretical instead of on the actual date for payment, at any rate as long as the fraction combined with the annuity-value in capitalizing future premiums is dependent on the date of their falling due rather than of their being received. That is, that the interval necessary for proof of death and title ought not to be taken into account, unless the grace days allowed for renewals are considered on the other side; or, in other words, if claims are payable immediately, a full half-year's (not five months') interest must be reserved, unless the  $\frac{1}{2}$ , or whatever it is, used with the  $a$  in valuing the premiums is not fixed by the average of their due-dates only, but regard is also had to any delay there may be in the cash reaching the office.

And, as I am writing, I would add that the formula on *J.I.A.*, xxvi, 54, looks less formidable if  $y$  be written for  $\frac{x-1}{2}$ ; while, later on,  $\frac{2x^2}{x^3}$  instead of  $\frac{2}{x}$  is an ugly mishap.

I am, Sir,  
Your obedient servant,

C. D. HIGHAM.  
3, Princes Street, Bank, London,  
26 May 1887.

#### FRIENDLY SOCIETY LEVIES.

*To the Editor of the Journal of the Institute of Actuaries.*

SIR,—In the last number of the *Journal* (p. 389) Mr. King refers to the above subject, and gives very simple demonstrations of the formula for the value of the future death levies,

$$W = \frac{m(m-1)}{2} \bar{A}_{xx},$$

where  $m$  is the number of members,  $x$  the average age, and  $l$  the sum paid by each member at a levy. The proof he gives of the above, by the use of contingent assurances, I may say, was suggested to me some years ago by Mr. H. J. Rothery.

It frequently happens that levies are made not only at the deaths of the members but also at the deaths of their wives, and a similar method of dealing with these leads to an equally convenient formula by which to value them. If we assume that all the members are married, and that  $w_1, w_2, w_3, \&c.$ , represent the ages of the wives of