

## ORIGINAL TABLES.

ON THE CONSTRUCTION OF TABLES OF VALUES OF  
ENDOWMENT ASSURANCE POLICIES.

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

SIR,—In sending you, for publication, a further instalment of Tables of Endowment Assurance Policy-values according to the H<sup>M</sup> Table, permit me, in the first place, to point out a slight typographical error in the paper which accompanied the former portion of the tables. On page 370, vol. xxii, the formula for the value of  $\sum_n V_{x|}$  should read  $n - \frac{\sum(1 + |t-2|a_{x+1})}{1 + |t-1|a_x}$ , instead of  $n - \frac{\sum(1 + |t-2|a_{x+1})}{1 + a_x}$ , as there printed.

I may also take this opportunity of pointing out certain checks upon the accuracy of the preliminary stages of the work, which I have found it advisable to introduce. Referring to the table given on the lower part of the page just referred to, the accuracy of column (2) may be proved by observing that its *sum* must be equal to  $S_{19} - S_{49} - 30N_{49}$ . Column (3) may be checked by an independent calculation in logarithms, using seven-figure logarithms, at least as far as age 37, after which point six figures will be quite sufficient, as the annuity-values after that age consist of only five figures in all. The requisite logarithms or cologarithms of  $D_x$  to six places can be taken direct from the Institute Tables. The correctness of column (4) may be proved by constructing it from the last age backwards; then the number in this column opposite age 20 should be equal to the result of the direct summation of all the numbers in column (3) from age 21 onwards. The correctness of the reciprocals in column (5) can easily be proved by multiplying each one, as it comes into use on the machine, by the corresponding annuity-value, before going on to calculate the column of policy-values. Column (6) may be proved by addition, its sum being equal to the difference between the first and last numbers in column (3).

I am,  
Yours, &c.,

Sydney, N.S.W.,  
7 September 1881.

D. CARMENT.