

## CORRESPONDENCE

## CONSTRUCTION OF MORTALITY TABLES

(To the Editors of the Journal of the Institute of Actuaries)

SIRS,

In the course of the discussion on Mr C. H. Wickens's paper on "Australian Mortality" (*J.I.A.* Vol. LXI, pp. 203-213), references were made to a process which I described in my paper, submitted to the Institute of Actuaries in March, 1907. Some doubt was expressed as to the justification for the adoption of a method based on that process in the construction of the Australian 1911 and 1921 tables. I venture to give the following explanation, in the hope that this doubt may be removed.

Of course, the life table functions  $d_x$  and  $L_x$  are distinct from the enumerated death and population figures, but the rationale of the method of mortality table construction under consideration depends on the calculation of unadjusted values of life table functions by means of *ratios* derived from the enumerated data.

It is not suggested that the ordinate of the curve of enumerated population is identical with  $l_x$  of the life table, or that the ordinate of the curve of enumerated deaths is identical with  $\mu_x l_x$  of the life table. The process consists in obtaining adjusted values of  $\mu_x$  by equating the ratio  $\mu_x l_x : l_x$  to the ratio between the respective ordinates of the curves mentioned.

With regard to the notation, while I do not think it of great importance, there is something to be said in favour of avoiding confusion by not using life table symbols to denote enumerated populations and deaths. In this particular matter I am interested to note the practical use that Mr Wickens has made of my formulae, but I must disclaim the lead attributed to me by him. In my paper I refrained from using the symbols  $L_x$  and  $d_x$  in the ratios on the left-hand side of the equations. I used these symbols in the ratios on the right-hand side only, *i.e.* where the reference is to life table functions.

Yours faithfully,

J. MAYHEW ALLEN

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