

I should add that the above examples are not quoted by way of criticism of the eminent writers named but merely as illustrations.

I am, Dear Sirs,

Yours faithfully,

A. T. TRAVERSI.

Wellington,

New Zealand.

10 August 1918.

P.S.—Though in the problem dealt with by him Dr. Sprague very clearly differentiated between a rate and a probability, nevertheless his awkward expression “the annual marriage rate among bachelors who do not die in the year” (*J.I.A.*, vol. xxi, pp. 413 and 415) involves some confusion regarding the definition of a rate, and it is surprising that his terminology in this instance should apparently have remained unchallenged. If “rate” is defined as in the second paragraph of this letter (*mutatis mutandis*), it is clear that the function in question could be described with the most rigid accuracy and with greater simplicity as *the annual marriage rate among bachelors*, notwithstanding Dr. Sprague’s deliberate rejection of the latter expression in favour of his own.

Dr. Sprague’s phrase is in fact a distinct misdescription of the function, and a realization of this fact would be of considerable help to students. If we were really in pursuit of the marriage rate among bachelors who do not die in the year we should require to exclude altogether from the figures the bachelors who die in the year. True, it might at first sight appear that there should be no difference between the annual marriage rate among bachelors and that among bachelors who do not die in the year, seeing that the rate among bachelors who die in the year is nil: but as indicated above, we cannot add or subtract rates.

Similar remarks apply to the phrase “the annual death rate among bachelors who do not marry in the year.”

A. T. T.

#### THE NATIONALITY OF TETENS.

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

DEAR SIRS,—May I be permitted, as a Corresponding Member of the Institute, to call attention to an excusable error concerning one of my countrymen, which I happened to notice in that reliable standard work, the Institute *Text-Book*. I find that the first inventor of commutation-columns (J. N. Tetens) is called a German professor,

although the place where he was born, namely, Kiel, was Danish at that time and belonged to Denmark for the next 127 years. I need not go into details, as these have already been given by F. Hendriks in the first volume of this *Journal* (p. 2) ; only I may add, that the error has probably arisen from the fact that Tetens, although professor at a Danish University, published scientific papers in German, in order to obtain a wider circulation for them.

Yours very truly,

J. F. STEFFENSEN.

*Ehlersvej 8,*

*Hellerup, Denmark.*

*28 March 1919.*

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