CORRESPONDENCE

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

DEAR SIRS,

I regret having to draw your attention to the fact that in editing my remarks on Coward's paper on *The Distribution of Sickness* you have fallen greatly below your usual standard. Instead of shortening and clarifying my remarks you have, I fear, on this occasion made me appear to have talked nonsense—and this in substitution for some remarks which I thought, and still think, were significant.

The trouble lies at the end of the sentence commencing at the foot of p. 31 of *J.I.A.* Vol. LXXV, where you represent me as contemplating a sample of deaths only, which thus misses the whole point of my remarks.

In my actual remarks at the meeting I contemplated a set of cards in respect of a hypothetical population, assumed to be sufficiently large to permit the assumption of binomial variation for moderately sized samples therefrom. I then compared a random sample of cards taken at the beginning of a year with a random sample taken at the end of the year. In the former case the lives in the sample would be observed throughout the year and the deaths among them would be recorded on the cards. In the latter case the deaths among the entire population would be recorded on the cards before taking the sample.

From the probability point of view these two procedures would give identical results; but the latter procedure brings out clearly that it is the sampling of cards (the selection of lives) which introduces probability into the set-up. If we take our sample at the beginning of the year and observe the lives over a period of time there is a temptation to think in terms of a force of mortality operating in some kind of random way to select some lives to die and to contemplate that time is of the essence of the problem. Looked at from the point of view of the sample at the end of the year, after all the deaths have occurred and have been recorded on the cards, it is clear that we have emptied out all metaphysical ideas of a force of mortality operating in time and we have reduced the problem to one of selecting lives from a population, some of which have the characteristic 'death'. We have also avoided the decidedly awkward question whether the lives are 'homogeneous', a concept which introduces far more confusion than clarity into many of our theoretical problems. Is it not true that the former way of looking at the matter has often been associated with so-called *a priori* probability and that the latter way has been associated with the frequency view of probability? And yet, is not the latter way also the classical approach through N equally likely alternatives, where N is the total number of the population?

Yours faithfully,

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