

## COURSE AND DISTANCE CORRECTION

SIR,

It should be explained that the method of course correction proposed in A. J. Tyrrell's paper (Vol. V, p. 39) only applies strictly to a flat Earth. To obtain the course correction for the globe (assumed spherical), it is necessary to imagine that portion of it which is represented in Fig. 1 of the paper to be expanded into a Mercator chart. The expanded lengths of the lines AB, BE, CE, measured in minutes of the equator, become  $AB \sec M$ ,  $BE \sec M'$ ,  $CE \sec M''$  respectively, where  $M$ ,  $M'$  and  $M''$  are the (true) middle latitudes of the lines. If  $L$  is the latitude of the estimated position,  $M' = M'' = L$  nearly and, assuming the lines to be rhumb lines, the formula for the sphere becomes  $\tan$  (course correction) =  $CE/AB \sec M \cos L \pm BE$ .

If accurate results are required it is therefore necessary to enter the table with  $AB \sec M \cos L \pm BE$  and CE as arguments. The value of  $AB \sec M \cos L$  can of course be calculated before noon. The simpler procedure proposed in the paper will usually give results which are sufficiently approximate; but if the latitude is high it will not do so unless the difference of the latitudes of A and B is small.

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(at sea).

Yours faithfully,  
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