Letters to the Editor

'THE ACCURACY OF ROUTE WIND FORECASTS FOR AVIATION'

SIR,—After reading the excellent paper by Mr. C. S. Durst on 'The Accuracy of Route Wind Forecasts for Aviation' (this *Journal*, Vol. VII, p. 28) and the discussion which followed, I feel it necessary to explain the way in which I estimated errors in the actual head-winds from post-flight analysis of B.O.A.C. Comet flight records. With your permission I wish, therefore, to give the following explanation of my work referred to in the body of Mr. Durst's paper.

Over a period of several months, B.O.A.C. provided Mr. Durst with details of 'actual' and forecast head-winds during cruising flight on all the Comet I route stages. The 'actual' head-winds were calculated by B.O.A.C. by measuring the distance between fixes selected as close as available from the charts to the top of the climb and the end of the cruise, and converting the time and distance to a mean groundspeed for the cruise. This answer was then compared with an estimation of the mean true airspeed for the corresponding period in order to obtain a mean head-wind component for the cruise. All this work was done on the ground.

With the kind permission of B.O.A.C. I was allowed to examine all the relevant logs and charts in order to make an attempt at estimating the order of error in the head-wind component thus derived. For this purpose, I assessed the quasi-maximum errors in each of the two fixes used, in the distance measurement due to using times logged to the nearest minute, in the measurement of distance on the mercator chart used, in the derivation of groundspeed from a Dalton computer, in the individually logged true airspeeds and in the estimation of true airspeed for the cruise. This involved the detailed examination of a large number of logs and charts for each route stage.

As the discussion on Mr. Durst's paper arose from the quoted 8 knots standard error for the London–Rome stage, I give as follows the estimated errors in knots for that stage under each of the parameters quoted above:

	Knots (95 per cent figure)
Fixing (r.m.s. of the two used)	10
Timing	5
Distance measurement	4
Derivation of groundspeed on Dalton computer	3
Estimated mean true airspeed...	10
R.m.s. of 95 per cent errors	16
Estimated standard error	8

From this I hope that it will be clear that my analysis was not concerned with the plotting of air positions or the finding of actual air experienced navigational wind velocities. I submit that my figure of an 8-knot standard error for this

route is probably much smaller than that likely to be incurred in the calculation of head-wind components from air-derived navigational winds.

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Yours faithfully,
H. Keeling

'FIVE YEARS' PROGRESS IN MARINE RADAR'

SIR,—Mr. A. L. P. Milwright of A.S.R.E. has kindly pointed out to me an error in my paper 'Five Years' Progress in Marine Radar' (this *Journal*, Vol. VII, p. 59). The error occurs on page 67 in the paragraph headed *Aerial Performance*, where it is stated that 'to avoid losing the target when the ship is rolling, the vertical beam-width may not, by the Ministry of Transport specification, be less than 20° . . .'. It appears that I have fallen into a somewhat common error in assuming that the meaning of Clause 9 of the Ministry's specification can be expressed simply as a beam-width. It appears that the real significance of this clause is that the performance of the set must not fall below that required by Clause 3 over an arc of 20° in the vertical plane. This, in turn, means that a radar set in which the performance is higher than the minimum specified may have a vertical beam-width (between ½-power points) of considerably less than 20° and yet meet the requirements of Clause 9. In some modern British radars the vertical beam-width might be reduced to 10–15°.

I think it is important that this error should be corrected in print.

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Yours faithfully,
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ERRATUM

In Table II of Captain Wylie's paper (Vol. VII, p. 64) column v should indicate that the Marconi Mk. IV radar has a differentiator.