

THE ACCURACY OF BUBBLE SEXTANT OBSERVATIONS

SIR,—I have read Mr. Hagger's paper (this *Journal*, Vol. V, p. 380) with keen interest, but I feel driven to protest against his 'Historical Summary', which does less than justice to the state of the art, before 1940. For example, the Mark IX sextant was not 'being developed' but was in full production, having had extensive trials a year or more earlier. Neither is it fair to imply that the selection of the arithmetic-mean system was made with a pin. Actually plenty of experience had been gained with both systems, since median-marking was a feature of the Favé-Lepetit sextant, purchased in 1936, and mechanical averaging was first introduced on the Husun Mark XII in February 1938.

The main problem of astro-navigation before the war was that of survival in face of electronic competition, and the fact that it did survive, and even developed somewhat, was almost solely due to the pressure of a few enthusiasts at Air Ministry, notably the late Wing Commander F. M. V. May. Is there no one left to lift the veil on those critical years?

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Yours faithfully,

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A. J. HAGGER writes: In trying to sketch, in a few words, the state of knowledge at the beginning of the work of A. & A.E.E. it was not possible to give a full account, and if less than justice has been done to the work of the pioneers of the aircraft sextant I hope that they will accept my apologies. May I thank Mr. Byers for his correction, that the R.A.F. Mark IX sextant was being introduced, and not as stated, developed. Both median-marking and averaging sextants had been used, and each had its active supporters, to whom great credit is due for the introduction of the sextant in air navigation. Each had evidence of successful use, but the arguments brought in their favour were conclusive on neither side, as judged from minutes of meetings at which their merits were compared. The fundamental work of Professor Plaskett on the nature and magnitude of sextant errors resolved the uncertainty of these earlier discussions.

 NAVIGATION AT SEA WITH A STAR LATTICE

SIR,—I have read the very interesting and practical paper of Lieutenant-Commander R. B. Michell (this *Journal*, Vol. VI, p. 63). He states in his paper that 'star lattice charts are not yet available . . .' It occurs to me that the projection of the proposed plotting charts might be worth study with a view to the standardization of the chart length of one degree of latitude throughout the useful range of latitudes. This would permit the use of a standard ruler for marking off the minutes of sextant altitude along the star intercepts.

For example, if the chart length of 1° of latitude is fixed at 3 inches, then 1' represents $1/20$ inch, which is about the smallest division for practical chart draughtsmanship; it could with advantage be $1/10$. A thin opaque perspex ruler slotted longitudinally would provide eight working edges which could be marked with one scale of sextant altitude and a choice of seven time scales. A transparent ruler would provide one altitude scale and three time scales.