

# Letters to the Editor

## PROPOSALS FOR A NEW AIR NAVIGATION CHART

SIR,

The paper by T. Freer and K. J. Irwin describing their proposals for a new air navigation chart (Vol. IV, No. 1) raises an interesting subject, and perhaps some hopes for getting charts produced to the requirements of the practical navigator. In civil aviation there are two distinct needs, those of the pilot navigator and those of the navigator of long-range aircraft. It should be possible to produce a chart that will combine the qualities of the old plotting chart with those of the topographical map to meet each of these requirements.

An important aspect of a chart, that was not stressed, is its ability to cover a given air route. For example the existing 1:2 M. sheet Basra-Karachi does not include the two alternates for Karachi, i.e. Ahmedabad and Bombay. The chart for the pilot navigator should be, I think, similar to the one proposed, but to a scale of 1 : 1½ M., and all coastlines, towns, rivers, &c., should be shown.

For long-range navigation I fail to see why the Mercator projection should be discarded. It covers satisfactorily all the main air routes, and it is really not too difficult to measure distances at the latitude of working. It is also convenient for use with astronomical navigation. Great circle tracks for the Pacific and Atlantic crossings could be printed faintly on the charts, or, alternatively, separate master copies with the tracks and distances shown could be produced.

Once outside Europe pinpointing is reduced by the lack of towns and the unsuitability of the terrain. The few available features might then be enlarged in small inset diagrams placed where convenient on the chart. Clearly this would be impossible on the European chart for lack of space; but then I visualize the navigator of a long-range aircraft changing over to the pilot-type chart as soon as he has obtained a good fix over Europe, so that he can map read or range fly to, say, London.

From the photograph of the proposed chart reproduced in the *Journal* it looks excellent, especially as compared with the I.C.A.O. chart with the same essential information put on it. The high ground should, I think, be marked as shown in the photograph, rather than in a lighter shade; high ground has taken quite a toll of aircraft. The idea of showing all aerodromes with an indication of their runway length is also good, and indeed it might be carried a step further by giving an idea of the weight restriction, either in lbs. or in aircraft types. A list supplied with the chart might give, for instance, such information as 'Normal: Dakota. Emergency: D.C.4'.

May I here make an appeal for the retention of marine lights as shown on GSGS 4647. I have found them a very useful check at night.

Air India International,  
London Airport.

Yours faithfully,  
P. L. NIGHTINGALE.

## RADAR USAGE AND SPEED IN FOG

SIR,

Captain Robb's interesting paper on radar usage and speed in fog (Vol. IV, No. 2) shows that he has given much deep thought to the problem. I do feel,

however, that the solution which he proposes in altering the sound-signal interval could lead to considerable confusion, particularly in busy areas.

The problem is of course one that should receive far wider attention from those responsible for the international regulations. Some new system of sound signals to suit the application of the rule of the road between radar-fitted ships and those without radar seems necessary.

Captain Robb infers, I think rightly, that any radar-fitted ship carries more blameworthiness if she is involved in collision with a ship without radar. Obviously a radar-fitted ship seeing another ship on her PPI will be encouraged to take avoiding action if there is any threat of collision. But what about the other ship? She also has a clear responsibility and definite rules to observe, and furthermore she also has no means of knowing whether the ship whose whistle she can hear is or is not fitted with radar. Vessels which are not fitted with radar will tend to be confused by the alterations of radar-fitted ships, which in dense-traffic areas such as the Dover Strait will probably be frequent.

If the identification of a radar-fitted ship could be clearly established in fog, a ship that was not so fitted could, on recognizing a radar-fitted vessel in the vicinity, remain on course, go dead slow or stop. (In this connection, it does not always follow that because a vessel is approaching fast, or changing her bearing more rapidly than was expected, she is fitted with radar; though this assumption seems nowadays to be made quite often.)

I suggest that the solution for both parties lies in a new system of sound identification. Such a system could be by means of an electric whistle giving a characteristic note, and of a standard specification approved internationally. Such a whistle fitted on or in front of the foremast of all radar-equipped ships would provide a means of identification in fog.

A final point emphasizing the need for the radar-fitted ship to be identified concerns the watchkeeping staff. Many officers in the future who will only have served in ships fitted with radar, will be accustomed to seeing the evidence on the PPI, and will probably act accordingly. They will be quite inexperienced in the practice of the rule of the road in fog without the aid, and therefore they will tend not to appreciate the problems of the fellow who will be moving solely on the whistle blast that he can hear.

Yours faithfully,

R. S. MORTIMER.

SIR,

Of radar in fog, I write from no experience, but from things I have read I incline to the belief that sometimes radar information is pressed beyond its limits. In the old days a master saw a ship only when she was hovering over his stemhead, but with radar he sees a mark at a distance which may reasonably be assumed a ship. This, it would seem to me, is 99.9 per cent of his anxiety relieved, and a few years ago a navigator thus informed might, with some justification, have dined in peace and gone to bed. His modern colleague, however, cannot rest until he has discovered her course, speed, tonnage, port of registry, master's name and funnel markings, all of which seems to me the other 0.1 per cent of importance, the main fact being that there is another ship on an approximate bearing. In my experience, if faced with such a radar problem bristling with doubt, I would, I think, heave-to and let the other vessel do the worrying whilst maintaining a close watch on her reactions. From what I have read, these ought to be interesting.

From accounts of navigational failures, there seems nowadays to be a tendency to make the circumstances fit the desires rather than the possibilities. A case arose where, on a long and shaky dead reckoning, a vessel sighted white water. The master passed this off as a whale blowing, but discovered he was a bad guesser five minutes later. The truth of this matter lies in the fact that he did not want anything to disparage his dead reckoning, and it was probably quite subconscious. He did not expect shoal water, nor want it, and consequently when he saw it he refused the evidence. I suspect that to some extent the same mental attitude may apply to radar interpretations. It may be a reasonable suggestion that over-interpretation, like over-execution, results in confusion and that the meticulous study is apt to produce an unfortunate result.

Mill View,  
Outwood,  
Redhill.

Yours faithfully,  
R. G. BOLTON.

### CIRO CARIC'S TABLES

SIR,

I was particularly interested in the letter you published (Vol. IV, No. 1, p. 105) from the Rev. B. R. Keir Moillet describing the use of Professor Ciro Caric's tables. The form of these tables appears to be very similar to that of some tables I produced in 1947, which were published in Paris by Girard et Barrère, under the title of *Nouvelles Tables pour le Calcul de la Droite de Hauteur à partir du Point Estimé*.

The arguments used in these tables are similar to those mentioned by your correspondent, i.e.,  $\log \text{hav } (l - d)$ ,  $\log \text{hav } (180 - (l + d))$ ,  $\log \text{hav } P$  and  $\log \text{hav } (180 - P)$ . Their use is quick, and necessitates no sign rules, but the method differs from that described by your correspondent in that no table of addition or subtraction of logs is required.

This table is in use in numerous French ships and it occurs to me that your readers and your correspondent may be pleased to know that a table closely resembling the one described exists in France, and that it was conceived without knowing of the estimable work done by Professor Ciro Caric of Yugoslavia.

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Yours faithfully,  
P. HUGON.