Using Fig. 1 alone and ignoring the sign of the bearing change the curve E' would be obtained, which again is a mirror image of E and shows almost equally clearly the satisfactory trend of events. It is possible, however, that the reversal of direction of curve E' at the point X might be misinterpreted and it is for this reason that the double graph may be considered preferable.

The curves in the figures are quite easy to compute but the writer will willingly send anyone interested to try the method, copies of Fig. 1, of size approximately 8 × 10 in., if the user is prepared to give a brief report on his results.*

Captain F. J. Wylie comments:

Mr. Slater's curves present an interesting alternative to the use of tables. I would say at once that the principal shortcoming of both my suggested table and his curves is that they do no more than warn that all is not well; they do not give information which would help choice of manœuvring action. The table and curves are, of course, built on exactly the same data, the main difference between Mr. Slater and myself being that his presentation deals with actual distances, whereas mine uses factors relative to the initial range used. It appears to me impossible to construct either a single table or a single set of curves to cover a variety of initial ranges except on the factoral basis I have used. If one uses that, one must accept a little simple arithmetic. It seems possible to make Mr. Slater's curves comprehensive only by similar or perhaps less simple arithmetic or by waiting for the range to close to a convenient (arithmetically) figure.

Basically, I prefer curves to tables, but in this case I am not yet convinced and will be most interested to hear more comment.

D.f. Loop Errors due to Heel

from Francis Chichester

YACHT and other small-boat navigators must often wonder what error in a d.f. loop reading on a radiobeacon may be due to heel. The error is in fact quite small, the maximum for a 25° angle of heel being 2°8 when the bearing is quadrantal to the boat's heading, i.e. when the relative bearing is 45°, 135°, 225° or 315°. When the relative bearing is 0, 90°, 180° or 270°, i.e. when the beacon is ahead or astern or abeam, the error is nil.

Table I gives corrections to the nearest ½ degree, to be applied to the relative bearing of a beacon for 15° and 25° of heel. It makes no difference whether the boat is heeled towards or away from the beacon.

As the heel increases the complete arc of silence of the loop will disappear because the bottom of the tilted loop will be nearer to the beacon than the top of the loop and some signal will result. In practice this makes little difference to the observing; the loop operator will probably write it off as bad conditions because of the lively movement likely to accompany 25° of heel in a seaway.

* The Institute will gladly forward correspondence to Mr. Slater.

TABLE I. CORRECTIONS TO RELATIVE BEARING OF A BEACON FOR HEEL

15° Heel		25° Heel			
Bearing	Corrⁿ.	Bearing	Corrⁿ.	Bearing	Corrⁿ.
0		0		185	
	0		0		−1
15		5		195	
	−1		−1		−2
75		15		210	
	0		−2		−3
105		30		235	
	+1		−3		−2
165		55		255	
	0		−2		−1
180		75		265	
	0		−1		0
195		85		275	
	−1		0		+1
255		95		295	
	0		+1		+2
285		115		300	
	+1		+2		+3
345		120		325	
	0		+3		+2
360		145		345	
			+2		+1
		165		355	
			+1		0
		175		360	
			0		

Plane Sailing or Horizontal Navigation

from Lieut.-Commander D. W. Waters, R.N.

PROFESSOR TAYLOR*.contends that the expression used to describe a course of action so simple as to leave no room for mistakes is *plain sailing*; that this is nautical in origin in that it derives from a *simple* or *plain* system of navigation based upon the use of a *simple* or *plain* (manifestly foolproof) chart; that this system of navigation was known originally as *plain* (*simple*) *sailing*—which expression she traces back to Richard Norwood's *Doctrine of Plaine and Spherical Triangles* of 1631, and that it was sophisticated into *plane sailing* in the eighteenth century in the belief—which she holds to be erroneous—that the expression described a form of navigation based upon the use of a *plane or flat* chart on which the Earth was drawn as if the Earth and oceans lay in one horizontal plane area and not upon the surface of a sphere or, more accurately, ellipsoid; and, finally, that the *Admiralty Navigation Manual* is in error in teaching mariners that

* Taylor, E. G. R. (1956) All plain sailing. This *Journal*, 9, 230.

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