attracted my attention when Taylor and Sadler[1] published their paper in 1953. In 1956 a note by me on this subject was published, with a comment by Mr. Sadler,[2] which offers much the same explanation. I, too, was unaware that there was any evidence of Hariot's familiarity with the conformal property of the stereographic projection.

In a later paper published elsewhere[3] I extended the relationship between the equiangular spiral and the rhumb line to provide a set of graphical constructions and formulae for the conical orthomorphic projections, either on the sphere or the spheroid.

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1 Taylor, E. G. R. and Sadler, D. H. (1953). The doctrine of nauticall triangles compendious. This *Journal*, **6**, 131–147.

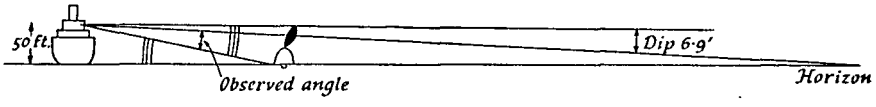
2 George, F. (1956). Hariot's meridional parts. This *Journal*, **9**, 65–69.

3 George, F. (1960). A spiral transformation for the conical orthomorphic projections and a graphical construction. *Empire Survey Review*, **15**, 215–222.

Distance by Vertical Angle—Height Unknown

from P. H. Sayers

AN interesting, easy and useful method of finding the observer's distance from a ship, buoy or isolated lighthouse, the height of which is unknown, is by measuring the angle between its waterline and the horizon. To this is added the angle of dip for the height of eye.



From the figure it can be seen that the angle so obtained is equal to the angle at the object between the observer's height of eye and his own waterline.

By using Lecky's tables or the formula

$$\text{Dist.} = \frac{\text{Height of eye} \times 0{\cdot}565}{\text{Angle in minutes}}$$

the distance is obtained.

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Example:

Height of eye 50 ft., dip 6·9 (1) Measured angle 15′
(2) ,, ,, 120′

(1) $$\frac{50 \times 0{\cdot}565}{21{\cdot}9} = 1{\cdot}3 \text{ miles}$$

(2) $$\frac{50 \times 0{\cdot}565}{126{\cdot}9} = 2{\cdot}23 \text{ cables}$$

This can be used for checking radar ranges on low scales or for station keeping, &c.

The Improvement of Navigation Lights and Signals

Bernard Hayman (Editor, *Yachting World*)

DOUGLAS Lindsay's article in the *Journal* (**20**, 249) raises numerous interesting points and I agree with much of what he says, but he has orientated himself so strongly towards the problem of the big ship that he has recommended a change that would bring complete confusion at the smaller end of the scale.

The most useful points Mr. Lindsay raises are the need for increased ranges for ships' navigation lights, coupled with the dangers of extraneous lights. Both these points apply in their own way to small vessels. However, I disagree with Mr. Lindsay's article where he refers to the meaning of a single white light. He starts his argument by saying:

> 'There can be few things which the officer of the watch at sea more dreads meeting than the amorphous blob of white light all on its own. It can be anything from the stern of the *Queen Mary* (disappearing rapidly) to a small boat hurling itself to instant oblivion beneath one's bows. It has many other meanings between these extremes, and owing to its totally negative form does not tell the navigator straight away anything whatsoever about how he should interpret it.'

But this is not so because, under the present rules, a single white light always means that the vessel seeing it must take avoiding action.

Mr. Lindsay then goes on to recommend that the single white light should be reserved solely for small craft, such as are defined in Rule 7.

In the first place, I can hardly believe that Mr. Lindsay really wants to give 'all power driven vessels of less than 65 ft. and all vessels under oars or sails of less than 40 ft.' automatic right of way over all other shipping, which is what his proposal means. But, even worse, what about the men on watch in the small vessels themselves? The essence of the present Rule of the Road is that a ship's