purposes. This statement is incomplete and I would like to clarify the impression left with your readers.

The IBM MABS tracks up to 21 targets continuously while performing either automatic or manual acquisition. However, since the MABS also prioritizes targets according to threat potential (based on C.P.A. and T.C.P.A.), only the six most threatening are displayed continuously on the alpha-numeric data display and on the PPI. Should the operator wish to obtain data on the fifteen targets of lower priority he can request them in groups of six, in descending order. Each group, six at a time, is displayed on both the alpha-numeric display and the PPI. After a fixed period of time the system automatically returns the display to the six highest priority targets; this is to insure that the most threatening targets are always displayed and that the operator cannot be misled. The operator also has the facility to place any target in the first group manually if he so desires, thereby making its data continuously available. Should the operator wish to determine which 21 targets are being tracked, he can command 'Mark all tracked targets' The system will indicate by identification number, on the PPI next to the target, which 21 targets are currently being tracked by the system.

Captain Wylie's comparison of systems is limited to the C/A function and only considers that aspect of the IBM MABS. MABS is an integrated system and its functions include position fixing by Decca, Omega and satellite, as well as route tracking, route planning and adaptive autopilot. These functions, including C/A, run concurrently in the computer. To update Capt. Wylie's information I may add that MABS is now in production.

V.H.F. Interference

Captain Ivan Downer

(Shell Tankers Ltd.)

HAVING read Professor Hugon's informative paper on 'Navigation in the French merchant navy' and in particular his remarks regarding the cluttering of the 182 kHz band, I would hazard a guess that he has not listened to the v.h.f. channel 16 band in recent years, when clear of the U.K. and continental areas.

In the open sea well away from land this channel is not often abused, but off the West African coast between about 13° N. and 22° N. the air at night is, more often than not, cluttered with noises like animal and bird calls for long periods on channel 16, and during the day with lengthy chitchat, possibly between foreign fishermen, on this and other channels.

The channel is cluttered to a lesser extent off the Comoros Islands, but on passing into the Persian Gulf all hell breaks loose on the air. Practically every shore station uses channel 16 as its working frequency, and there seem to be shore stations working from every nook and cranny on the coastline of the Gulf; this, coupled with the often extraordinary radio reception in that area, results in absolute bedlam from which nothing worthwhile can be understood. Here again animal and bird-like noises are common and, if during one of the infrequent periods of comparative silence, a ship should call a shore station or vice versa,

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just about every shore station within hearing also starts to call ships, resulting in a complete jamming of communications.

If, as Professor Hugon has suggested, the use of v.h.f. were extended a more rigid control of radio traffic on v.h.f. would have to be enforced. An aircraft equipped with a v.h.f./d.f. set would soon be able to detect the offenders, especially of the animal and bird-call type and those who at times re-broadcast music. I am convinced they are not entirely ship-borne offenders, as one often hears the same type of noise in an apparently similar voice in the same area time after time.

A Geometrical Construction for Horizontal Angle Fixes

T. R. Meaden

THE method here described for finding the position of an observer from horizontal angles to fixed marks, without the use of a station pointer and without the necessity of drawing position circles, was devised by the author and although it may not be original it may be of interest to other navigators.

In Fig. 1 the observed horizontal angles are APB $= \theta$ and BPC $= \phi$ where A, B

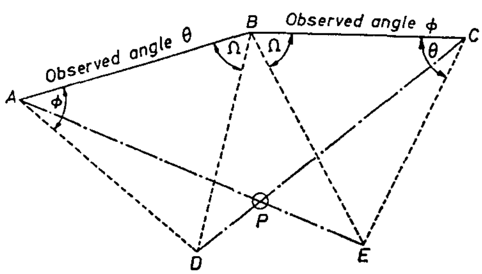

FIG. 1

and C are the fixed marks. Join AB and BC. Let $\Omega = 180 - (\theta + \phi)$. Draw the angles $\angle$ABD and $\angle$CBE each equal to Ω. Draw the angles $\angle$BAD $= \phi$ and $\angle$BCE $= \theta$. Join AE and BD. Their intersection at P is the required point of observation. If $(\theta + \phi)$ exceeds $180°$ a slightly different construction is necessary and is shown in Fig. 2, where $\Omega = (\theta + \phi) - 180°$.

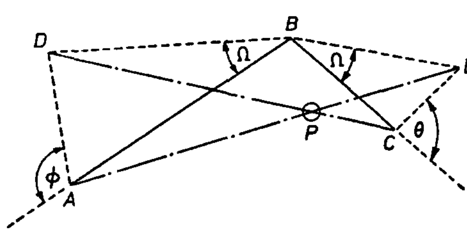

FIG. 2

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