

FORUM

Visual Direction Indication for Ships

Captain A. Wepster

ALREADY many years ago Captain A. Vreugdenhil proposed the use of visual aids to supplement the sound signals used to indicate changes in heading. His idea of using visual aids was based on the erratic behaviour of sound and the consequent possibility of misinterpretation of sound signals.

Choosing between two possible systems, the directional illuminated arrow and, for example, flashing lights, he preferred and constructed an illuminated arrow, visible as such from a distance of approximately 1½–2 miles. He was against the use of synchronous flashing lights, pointing out the large difference in speed of propagation between sound and light signals and consequent possibility of errors when different sound signals are given in quick succession.

In 1962 the Dutch vessel *Amstelland* was the first to be equipped with a visual direction indicating signal of the Vreugdenhil patent type. It was introduced by a Dutch Notice to Mariners of 8 June 1962 (No. 112, item 2173) which reads:

Trials with optical manœuvring signals. The Dutch m.s. *Amstelland*, plying between Europe and South American ports, will, as of early June 1962, be equipped on a trial basis with light signals indicating the direction of change of ship-heading. These signals will be used as an additional clarification of the prescribed sound signals, but will *not* replace them.

- (i) These course change signals will be given with a configuration of a number of white lights, arranged above the crosstree of the foremast in such a manner that they will appear in the form of a horizontal arrow. This arrow will have a length of approximately 20 ft. The arrowheads will under normal weather conditions be visible with the naked eye at a distance of at least 2 miles. The signal will be visible from all directions.
- (ii) When the arrow is lit and points to starboard, it indicates: 'I am altering my course to starboard.' When the arrow is lit and points to port, it indicates: 'I am altering my course to port.'
- (iii) It is explicitly pointed out that the above mentioned signals indicate the direction of turn of the *Amstelland* and are not meant to invite any action from any party receiving the signal.
- (iv) It will be appreciated if Masters of other vessels and other experts who have seen the signals will comment on them to The Directors of N.V. Koninklijke Hollandsche Lloyd, Oostelijke Handelskade 12 te Amsterdam (C).

Reports from the Master of the m.s. *Amstelland* to his Company have so far only been favourable.

During the 1960 Safety Convention visual aids to supplement sound signals were discussed when dealing with Rule 28 of the Collision Regulations. The following is taken from the documents circulated during this conference.

NAV/Regs/SR. 6-30 May 1960 page 4 under 18.

Rule 28—Synchronized light and sound signals.

There was considerable support for the proposals by the German Federal Republic, Netherlands, Sweden and the United States of America that the use of light signals coupled

with whistle signals should be recognized in Rule 28. Delegations referred to successful experience with signals of this nature and in particular it was pointed out that they had been used effectively in the Great Lakes for a number of years.

The delegate for *France* asked how synchronization was to be achieved from the observer's point of view on account of the disparity between the relative speeds of light and sound; the time delay between his sighting the light signal and hearing the sound signal would depend on the distance of the observer from the ship making the signal. The delegate for the *United Kingdom* said that his Administration would oppose strongly any suggestion that the use of signals of this nature should be compulsory. He pointed out that such a practice was not now prohibited by the Rules unless the lights used were such as would be in breach of the provisions of Rule 1(b) in that they might be mistaken for the prescribed lights or might impair their visibility or distinctive character or interfere with the keeping of a proper lookout. In the circumstances, he suggested that the writing into the Rules of permission to use these signals could be justified only in the interests of achieving standardization; but it seemed that no single system had earned recognition in this manner by establishing its pre-eminence above all other such systems. To be given such recognition a system should be proved to be foolproof and quite incapable of producing any fresh hazards by giving misleading information in circumstances when the light was seen and no sound signal was heard; or by being mistaken for a signal in the Collision Regulations or a local navigation mark. The delegate of the *U.S.S.R.* expressed his interest in the proposals made but agreed with the views expressed by the United Kingdom and suggested that it was not now expedient to extend the use of these signals to all vessels by recognizing their use in Rule 28. The delegate for *Denmark* suggested that only approved apparatus could safely be used and that international standards should be agreed before the signals were granted recognition.

The discussion was not concluded.

NAV/Regs/SR. 7-31 May 1960 page 1 under 3.

Rule 28—Synchronized light and sound signals.

The general view of the Committee was that it should take positive steps to recognize the use of light signals associated with sound signals; that this recognition should be granted in the Rules; and that the text proposed by the U.S.A. should be adopted. In adopting the following text for insertion in Rule 28, the Committee understood that it would not have the effect of forbidding the use of other visual signals associated with sound signals provided their character was not such as to constitute a breach of Rule 1(b):

'(d) All whistle signals provided in Rule 28(a) and (b) may be further indicated by a visual signal consisting of a white light so constructed and located as to be visible all round the horizon, of the same range of visibility characteristics as those lights required by Rule 2(a)(i) and (ii), and so devised that it will operate simultaneously and in conjunction with the whistle sounding mechanism, and remain ignited and visible during the same period as the sound signal.'

From IMCO document IMCO/SAFCON 5 Navigation and Collision it appears that five nationalities proposed visual signals to supplement sound signals. They were: Bulgaria, Germany, the Netherlands, Sweden and the U.S.A.

An important item in the discussions on Rule 28(c) is the sentence: 'In adopting the following text for insertion in Rule 28(c), the Committee understood that it would not have the effect of forbidding the use of other visual signals associated with sound signals provided their character was not such as to constitute a breach of Rule 1(b).'

In view of the above mentioned SAFCON discussions and the favourable reports received from the Master of the *Amstelland*, the Royal Netherlands

Shipowners' Association's Navigation and Radio Committee, after studying this matter of visual direction indicating signals for ships, drafted a Recommendation on Trafficators at Sea. This recommendation, reproduced in translation below, has now been issued to all Netherlands shipping companies belonging to the Association.

Translation of Enclosure to the Royal Netherlands Shipowners' Association
Circular No. 3717

RECOMMENDATION ON TRAFFICATORS AT SEA

The increased intensity in shipping traffic, as well as increased speeds/tonnage of vessels causes the navigator to have less time at his disposal for decisions. Also the frequency of having to make navigational decisions has become greater.

In a great number of collision accidents it has become evident that many cases can be attributed to errors in judgment and human mistakes.

We refer to articles *scheepsrampen en menselijke fouten* (Ship disasters and human errors) by Captain H. J. Korver, published in the nautical periodical *De Zee* 1963.

In these articles a comparison was made with car traffic on the road. The committee points out that indication of a change in direction, given by means of an optical signal (trafficator or flasher-light), is already compulsory for all motor vehicles. In road traffic these safety increasing measures have been taken.

The decision concerning a manoeuvre about to be executed is influenced by the manoeuvre of the other vessel. Timely and clear indications of the other vessel's manoeuvres and vice versa should contribute to increased safety, because doubts will be excluded. The means now at our disposal are insufficient because of relatively low travelling speed (sound signal) as well as because of indistinctness (sound signal; one white lightflash).

The Netherlands shipping Court of Inquiry has given the following recommendations concerning the above (See: *Sophocles/Leland I.* Doan 26-2-1965 No. 40):

1. Unambiguous navigation is of great importance. This particularly applies to cited case, where custom is different from regulations. The ineffectiveness of sound signals as a means of communication should always be taken into account.

By a timely and bold turn to either side, a ship shows its intentions and the meeting vessel's doubts are excluded.

2. Since it has been repeatedly proven that sound signals as a means of communication are not reliable, it is desirable to introduce an additional system of visual signals.

Particularly in moderate and reduced visibility, when the lapse of time in which to take decisions becomes critical, a clear indication of the manoeuvre about to be executed will increase safety.

Of the several systems of direction-indication aboard vessels, viz. coloured lights, one white arrow, illuminated arrow, the committee believes Captain Vreugdenhil's system of an illuminated arrow to be preferable.

In this context Bulgaria, Germany, the Netherlands, Sweden and the United States of America suggested during the SAFCON 1960 the use of light signals next to sound signals.

The above resulted in Rule 28(c) of the Regulations for Preventing Collisions at Sea:

'Any whistle signal mentioned in this Rule may be further indicated by a visual signal consisting of a white light visible all round the horizon at a distance of at least 5 miles, and so devised that it will operate simultaneously and in conjunction with the whistle sounding mechanism and remain lighted and visible during the same period as the sound signal.'

The committee is of the opinion that such a means of visual indication of a manoeuvre is inadequate for the following reasons:

- a. Great difference in travelling speed between light and sound increases the chance of indistinctness.
- b. The short time for which the light signal is visible.
- c. The manoeuvre is coded; viz. a certain light/sound signal means a certain manoeuvre.

In this connection it is therefore important that the SAFCON 1960 documents contain the following passage regarding the text of Rule 28(c):

'In adopting the following text for insertion in Rule 28, the Committee understood that it would not have the effect of forbidding the use of other visual signals associated with sound signals provided their character was not such as to constitute a breach of Rule 1(b).'

In order to increase safety in navigation, the Committee recommends installation on ships of the Vreugdenhil trafficator system wherever possible.

As a result of this recommendation the second Netherlands vessel to be equipped was m.s. *Moerdijk* of Holland America Line. It is to be expected that several other Dutch vessels will in the future be fitted with a similar trafficator, to improve safety of navigation by the prevention of erroneous interpretation of sound signals.

'The Impact of Radar on the Rule of the Road'

Captain J. F. Kemp

COMMANDER Clissold (19, 109) has produced a very well considered argument to demonstrate that the Steering and Sailing Rules are inadequate for present-day use and that in the future they are likely to fall well short of traffic requirements.

I agree entirely with this assessment and I agree in general with his proposed solution. His suggested Rule *requires* action to be taken by both parties to every encounter where there is risk of collision, and the most important objection to this is that it implies dual responsibility for manoeuvre. This is something which many people consider highly undesirable despite the fact that it apparently succeeds in the case of Rule 18, and to proceed directly from the present Rules to Commander Clissold's Rules would, I believe, be too large a step to be generally acceptable.

My own suggestions (this *Journal*, 18, 233) lead in the same direction as Commander Clissold's, i.e. they would require the present giving-way vessel to take action similar to that which his Rule prescribes and would give the present privileged vessel the option of doing so or of maintaining course and speed. The only change of action *necessary* if my suggestions were adopted in place of the present Rules would be in a relatively unimportant overtaking case and apart from this it is expected that in the majority of clear weather encounters most craft would behave exactly as they do now. The permissive manoeuvres would be