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The Met.Office

# The Marine Observer

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# THE MARINE OBSERVER

A QUARTERLY JOURNAL OF MARITIME METEOROLOGY PREPARED BY THE MARINE DIVISION OF THE METEOROLOGICAL OFFICE

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COVER PHOTOGRAPH: Common Tern on the bridge-wing dodger of the *Seki Cedar* on 10 June 1995 in position 41° 30'N, 09° 57'W. Signs of weathering are evident in the bird's faded bill. Photograph by Captain P.W. Jackson.



Letters to the Editor, and books for review should be addressed to the Editor, *The Marine Observer*, Met. Office (OM), Scott Building, Eastern Road, Bracknell, Berks RG12 2PW.

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# Annual Report of the Observations (Marine) Branch for 1995

## 1. Voluntary Observing Fleet (VOF)

At the end of the year 1995, the United Kingdom VOF of commercial ships and other units consisted of 493 Selected, 1 Supplementary, 59 MARID, 16 Auxiliary Ships plus 2 Light Vessels Automatic (*Channel* and *Greenwich*) and 37 Oil Rigs and Platforms. All these stations make voluntary observations of the weather in full WMO *SHIP* code, at specified synoptic hours: they are equipped by the Met. Office with meteorological instruments and the necessary books and forms for this purpose, these being supplied on loan for so long as the stations are undertaking the voluntary observing work.

Different scales of instruments are carried on the various classes of observing ship, ranging from a full set on Selected Ships, of which the Precision Aneroid Barometer is the most significant, to the use of the ship's own instruments in the case of the auxiliary observers. MARID observers are ships engaged mainly on the coastal trades of northern Europe, including the North Sea, engaged in collecting data on sea temperature and local weather; the data transmitted by these ships give vital information for the forecasting of fog, and the formation of sea ice.

The oil rigs and platforms use the same general code format as ships, providing useful weather data from the North Sea and Continental Shelf oil fields. Liaison for these units is given by the Offshore Adviser based in Aberdeen Weather Centre.

The United Kingdom VOF forms part of the World Meteorological Organization (WMO) scheme of Voluntary Observing Ships, presently comprising a total of about 7,300 of the world's merchant ships.

The VOF ships and rigs are serviced by seven Port Met. Officers located at the main port areas around the country, who regularly visit observing vessels of both the U.K. and other countries' observing fleets to offer advice and check instruments. Through the Marine Superintendent at the Marine Division offices in the Scott Building in Bracknell, mutual liaison is maintained with their Port Met. Office counterparts around the world, continuing the vital international co-operation which does so much to encourage additional ships to volunteer for this useful work.

Amongst the many interesting new recruits during the year was the yacht *Heath Insured* manned by lone yachtswoman Samantha Brewster (see photograph on page 47), who set off from Southampton's Ocean Village at the end of October to sail solo around the world westbound. She aimed to beat Mike Golding's 161-day world record set in 1994, which itself overturned Chay Blyth's 286-day world record set in 1972. By challenging both records, Sam, who is sponsored by direct insurers Premium Search, will be the first woman to sail around the world, east to west, non-stop and unaided. The 28 year-old Suffolk girl, who has been sailing since she was 12, will guide the 67-ft steel cutter, on which she crewed with thirteen others during the 1992-1993 British Steel Challenge, and expects to be alone at sea for up to six months, returning between Easter and May Day. Sam's boat is equipped with all the latest satellite technology, rigging and tracking equipment, installed during a two-month refit at Devonport Dockyard, Plymouth, when the craft was adapted by the strict specifications of Adrian Donovan, her skipper and official weather observer during the British Steel Challenge three years ago.

*Photo. by Peter Bentley/PPL*

Lone yachtswoman Samantha Brewster on board the recently recruited *Heath Insured* prior to departing on her solo attempt to sail the yacht westbound around the world. (See page 46.)

The number of meteorological logbooks received from ships during 1995 showed a decrease of 5 over the previous year's total of 864. Of the 940 logs received, 81 were from North Sea oil rigs or platforms and the remainder from ships. Ships' Officers' entries in the logs are carefully checked and passed through various quality and accuracy controls, before being assessed by the Nautical Officers in the Marine Division. From these assessments a rough order of merit is deduced, leading to a fair method of nominations for the annual 300 Excellent Award Books, and four Long-Service Award barographs presented to Masters.

Additional reports entered in the ships' meteorological logbooks are always thoroughly checked and then copied to various scientists or other experts. We are presently fortunate to correspond with a total of twelve such experts, who graciously give of their time and special knowledge and continue to exhibit considerable enthusiasm on receipt of the sightings reported first hand by merchant ship observers, as demonstrated by their evaluations and subsequent comments (see *Observers' Forum* on page 88). In 1995 we were fortunate to obtain the agreement of two new correspondents to take over the role of commenting on certain types of ships' reports, following a gap of a few years without any experts to receive these reports. Mr Andy Whittington, Assistant Curator of Entomology at the Royal Museum of Scotland, Edinburgh, has kindly agreed to receive all the insect reports, after Mr Richard Gooden of World Butterflies in Dorset temporarily took care of the lepidoptera offerings.

A marine zoologist aboard one of our newest recruits has gamely volunteered to cast an eye over the extensive backlog of three year's cetacean reports, the first occasion on which anyone has agreed to do this since Mr Dennis McBrearty retired from doing this task at his original home in Cambridge. Kelly Hughes of EarthKind's environmental vessel *Ocean Defender* was put in touch with us by the

Master of the converted 200-ton ex whale catcher, Captain Douglas Burn, when he asked to become a Selected Ship last November. As we prepare this report, Miss Hughes has already provided comments for her first batch of whale and dolphin sightings and is looking forward to receiving more reports.

A dozen or more drifting buoys equipped with Automatic Weather Stations continue to be deployed across the Atlantic, some of these deployments being made by arrangement with observing ships *en route* to the Caribbean. These stations relay reports through the French ARGOS satellite system. The U.K. also has eight buoys moored around the country's shores. The Met. Office has also joined forces with Météo France in a collaboration to deploy an Anglo-French buoy off the coast of Brittany in the Bay of Biscay. The new buoy is one of a type developed by the Met. Office, which, according to the French counterpart to this journal, *MetMar*, 'has reached an indisputable technical competence in the field of anchored met. buoys', and is capable of working continuously in the severe environment of the north-eastern Atlantic Ocean.

Each Met. Office buoy is equipped with instruments to measure air pressure and temperature, humidity, wind speed and direction, plus sea-surface temperature, wave height and period. The buoys are also fitted with their own power supply, navigation lights and transmitters, the collected data being sent via Meteosat to Darmstadt in Germany, where they are redirected to Bracknell. The buoys' deep water moorings employ a sub-surface float with negative buoyancy to create a 'false seabed' and are operated at depths of over 3,000 m. Servicing *in situ* takes place once every six months and replacement after 18 to 24 months.

The Met. Office Observing System for Ships (MOSS) was installed on one additional observing ship to bring the number of observing vessels fitted with this automatic data entry and transmission package to 32.

## 2. Ocean Weather Ship

Ocean Weather Ship *Cumulus* maintained routine operations throughout 1995, keeping station in the region of position 52°N and 20°W during her five-week deployments from her base at Greenock, Scotland, where she regularly called for stores and crew changes for about two days. The weather ship was operated and manned by Marr Vessel Management of Hull on the Met. Office's behalf, as she has been since the nominal 'purchase' of the weather ship from the Royal Netherlands Met. Institute (KNMI) in 1985 for £1.

Annual drydocking of the weather ship was stemmed at Milford Haven, South Wales, between 25 July and 3 August, when KNMI officials carried out the annual inspection of their ship, expressing satisfaction that she was being maintained in the style to which she was accustomed before being handed over to the U.K. ten years earlier.

## 3. International and domestic activities

Captain Gordon Mackie, Marine Superintendent, attended a number of conferences and committees during the year, either as Chairman or member, representing the Office or in some cases WMO.

From 6 to 8 March he attended the WMO International Oceanographic Commission session at Geneva as Acting Chairman in place of the Head of WMO's Ocean Affairs Division, Dr Peter Dexter, who suffered an accidental injury just before the meeting. Captain Mackie delivered the keynote speech at this session.

Later the same month, from 27 to 29 March, he attended an expert meeting on the monitoring of observational data, under the chairmanship of the Co-ordinating Group for COSNA (Composite Observing System for the North Atlantic), held at the European Centre for Medium-range Weather Forecasting at Reading, Berks.

This was followed later in the year by the sixth Session of CGC at Geneva, held between 21 and 25 August, at which Captain Mackie was again called upon to preside, owing to sickness of the President for the session. COSNA is in part a successor to the North Atlantic Ocean Stations Agreement, which was an intergovernmental agreement for the operation of Ocean Weather Ships, terminated in 1990. The COSNA agreement is designed to ensure that regular meteorological observations continue to be forthcoming from the North Atlantic area, as they are of vital importance for the assessment of the development of weather systems in the forefront of Europe, and the quality of global and regional forecasts. COSNA attains increasing importance in the context of WMO's Global Climate Observing System as a whole. The COSNA comprises surface and upper-air observing stations on ships and in coastal positions; moored and drifting buoys, and remote sensing systems; meteorological satellites, both geostationary and orbiting; and aircraft meteorological platforms. The future of OWS *Cumulus* and financial contributions from benefiting European countries was also debated at this meeting.

Captain Mackie attended the Maritime Safety Committee of the International Maritime Organization (IMO) headquarters in London between 9 and 22 May. Between 26 and 29 June he was in attendance at the 1995 Session of the Automated Ship Aerological Programme (ASAP) Co-ordinating Committee at Hamburg. He arranged for the preparation and publication within the Marine Division in May, of the ASAP Newsletter covering upper-air soundings carried out in 1993-94 by the merchant ships of the four participating countries. The U.K. withdrew from the programme in 1994, but continues to support its ASAP-type operations on board the Royal Research Ship *Bransfield* of the British Antarctic Survey.

On 31 August the Marine Superintendent took part in a BBC Radio 4 broadcast entitled *Here is the Shipping Forecast*, reflecting the considerable interest by many sections of the General Public, in addition to traditional seafarers, in this subject. He also attended the IMO in London for the 41st Session of the Sub-committee on Safety of Navigation (SON) between 18 and 22 September, becoming attached to the Working Group for the revision of Chapter V of the SOLAS Convention, for which a draft revision was prepared but with no significant changes for 1999. From 26 to 28 September he was in Athens attending the International Hydrographic Organization Commission on the Promulgation of Radio Navigation Warnings, to review the status of GMDSS Marine Safety Information broadcasts, taking into account users' comments. There was also a training programme for IHO Navarea Co-ordinators on the operation of Inmarsat-C equipment.

Between 20 and 24 November he was present at the International Oceanographic Commission meeting in Paris concerned with the Integrated Global Ocean Services System. He was represented in Oslo by Deputy Marine Superintendent, Captain Stuart Norwell, from 29 November to 1 December for a meeting held at the Norwegian Meteorological Institute on the establishment of an ASAP station on the Ekofisk oil platform. Captain Norwell also accompanied the Marine Superintendent on a number of national and international engagements, in

preparation for his new role as Head of the Marine Division on Captain Mackie's retirement at the end of 1995.

On 16 March Captain Norwell visited the *Cutty Sark* at her permanent Maritime Trust berth at Greenwich, London, to make a presentation of an antique mercurial barometer in response to a request from the ship's Master, Captain Simon Waite, MNI.


*Crown Copyright*

Captain Simon Waite, Master of the *Cutty Sark* receives an antique 'FitzRoy' barometer for installation on the vessel, from Captain S.M. Norwell.

Captain Waite wrote to the Marine Division in December 1994, asking what meteorological instruments the *Cutty Sark* may have been fitted with during her period under the Red Ensign between 1870 and 1895. As a result, the Met. Office made a formal presentation to Captain Waite of a 'FitzRoy' barometer of a type that was in production during that period. The ship's Master volunteered to have the necessary repairs made to the barometer before display on board the famous Tea Clipper, preserved for posterity at her berth by the River Thames.

## 4. Publications

The new edition of the brochure *Weather Services for Shipping* was published in the New Year and is available without charge from the Marine Division or Press Office. The publication was extensively revised and updated, and is expected to remain current, with minor amendments, for two years.

A new, eleventh, edition of the *Marine Observer's Handbook*, was published in May and distributed to observing ships and interested users and was well received by purchasers and the marine press.

## 5. General

Once again inscribed barographs were presented at two separate ceremonies by the Chief Executive and the Marine Superintendent to four shipmasters, in recognition of their long and efficient service to the cause of voluntary weather observing on merchant ships.

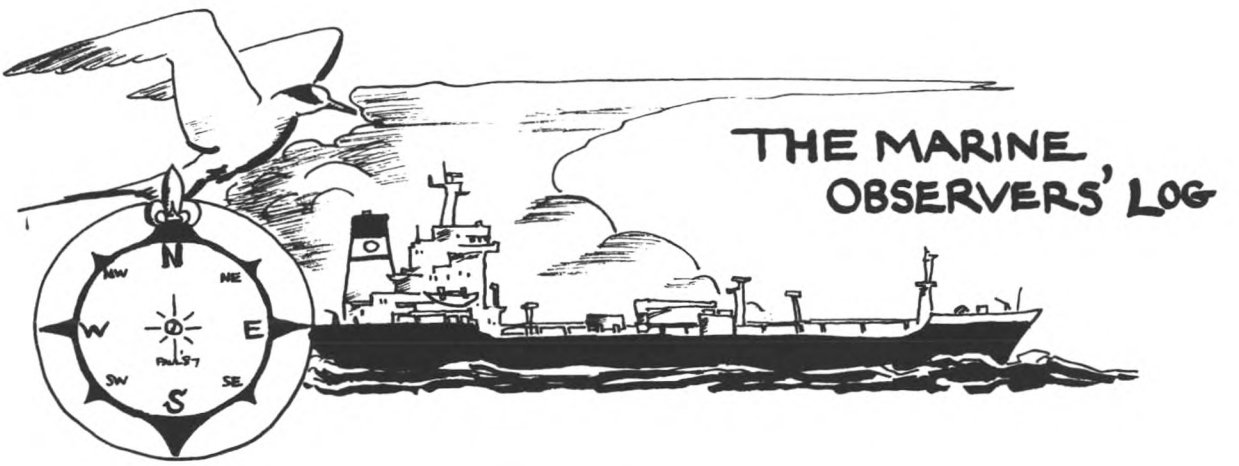
A total of 300 Excellent Award books were presented to Masters, Principal Observers and Radio Officers as tokens of appreciation for their meteorological logbook recording efforts. The books chosen for presentation were *Sea Power, a Global Journey* by Luc Cuyvers, *Cassell's Concise English Dictionary (plus Atlas and Gazetteer)*, 1995 edition and *Philip's World Atlas and Gazetteer.*

A number of the nominees listed in the October 1995, and earlier, editions for receipt of Excellent Award books have still not claimed their just rewards, despite regular efforts made to trace recipients with outside help. Previous editions of the journal may be consulted by officers who think they have been nominated for an award in past years.

Timings of the Shipping Forecasts broadcast on Radios 3 and 4 were altered in October at short notice by request of the BBC programmers. After some discussion they finally agreed on 0048 as the new time for the Radio 4 closing down coastal forecast, followed by the inshore information, and 0550 as the new time for the early morning inshore forecasts on Radio 3.

## 6. MetROUTE Ship Routeing Service

Established in 1968 as the Met. Office Ship Routeing Service, MetROUTE handled a record number of voyages of commercial vessels, continuing to advise shipmasters of impending conditions in sufficient time to take avoiding action to minimise the effects of developing storms. With the help of the Met. Office's global wave model, swells generated by distant storms, which can produce such unpleasant conditions for even the largest vessels when combined with wind waves, can also be predicted. One of the most notable clients during the year was P&O Cruises' new liner *Oriana*, recruited into the Voluntary Observing Fleet and designed to carry 1,975 passengers at speeds in excess of 25 knots, which received weather advice from MetROUTE during trials in the North Sea and Baltic. The Cunard liner *Queen Elizabeth 2* also received similar services on her annual round-the-world voyage. The Coastguard also took the benefit of Met. Office advice, whilst dealing with a serious pollution threat posed by a 350,000 dwt tanker holed off the coast of Ireland.




# April, May, June

*The Marine Observers' Log* is a quarterly selection of observations of interest and value. The observations are derived from the logbooks of marine observers and from individual manuscripts. Responsibility for each observation rests with the contributor. All temperatures are Celsius unless otherwise stated. The standard international unit for barometric pressure is the hectopascal (hPa) which is numerically equivalent to the millibar (mb).

## TROPICAL CYCLONE 'MARLENE'

### Indian Ocean

m.v. *Ormond*. Captain R.M. Ellsmoor. Mizushima to Richards Bay. Observers: the Master, Mr A.M.P. Henderson, Chief Officer, Mr V. Fernandes, 3rd Officer and ship's company.

9–10 April 1995. In the days leading up to the time of observation weather reports and facsimile maps were studied closely and the position of the storm was plotted; all reports indicated that 'Marlene' was dissipating, with maximum winds down to 35 knots. However, as a precaution the vessel's course was altered well to the south since Marlene was forecast to continue due east and so would pass to the north of the ship. The pressure was steady at around 1007 mb until 0600 UTC on the 9th, with winds at 20 knots but a gradual fall then occurred until reading 1001.3 mb at 1800 when the fall became rapid and the wind rapidly increased. The following sequence of observations was then taken.

| Date | Time | Wind | | Pressure | Remarks |
|---|---|---|---|---|---|
| | | Dir'n | Speed (kt) | (mb) | |
| 9th | 2200 | 334° | 63 | 991.7 | |
| | 2230 | 034° | 66 | 988.0 | |
| | 2300 | 354° | 58 | 987.2 | |
| | 2345 | 290° | 75 | — | Alter course to minimise effects of sea and swell. |
| 10th | 0000 | 290° | 70 | 981.9 | |
| | 0012 | 242° | 31 | 981.0 | Wind backed quickly. The wind continued to drop slowly for a few minutes, with the pressure steady. It was obvious that the vessel was in the eye of the storm or passing along the edge of it. |
| | 0022 | 222° | 101 | 981.9 | Courses adjusted to keep sea and swell on the bow. Vessel's speed 2.5 knots. Visibility nil. |

| | | | | |
|---|---|---|---|---|
| 0100 | 180° | 67 | 985.9 | Courses adjusted to keep sea and swell on the bow. Visibility improving. |
| 0130 | 168° | 58 | 990.7 | |
| 0200 | 199° | 50 | 995.4 | |
| 0300 | 160° | 54 | 999.4 | |
| 0400 | 170° | 40 | 1002.6 | |

The wind remained steady in speed and direction for the next few hours while the pressure continued to rise, reaching 1012.1 mb at 1800 on the 10th. Despite the vessel's transmission of an observation at the height of the storm, showing winds of 70 knots, and another three hours later showing 54 knots, the next weather reports and facsimile maps received stated that winds to be expected in the vicinity of Marlene were 35 knots with gusts to 45 knots.

Position of ship at 0000 UTC on the 10th: 19° 48'S, 78° 54'E.

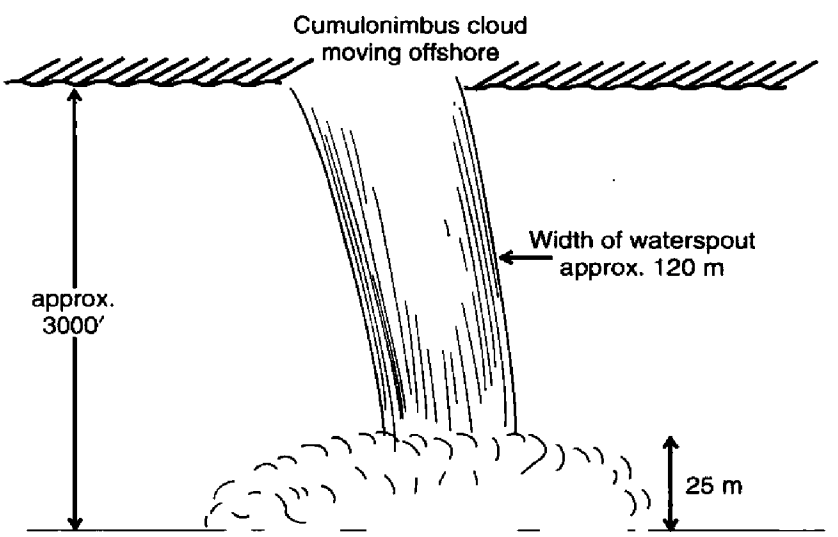
## WATERSPOUT

### Strait of Malacca

s.s. *Flinders Bay*. Captain A.E. Spencer. Singapore to Jeddah. Observers: Mr S. Azim, 3rd Officer, Mr G.E. Kelly, Radio Officer and Mrs Kelly.

14 June 1995. The vessel departed Singapore at 0220 UTC and whilst near Pisang Island (about 8 n.mile on the starboard beam) the vessel encountered light rain. Heavy rain obscured the island which was visible only by radar.

A waterspout started to build up on the vessel's starboard beam at a distance of about 4 n.mile. As shown in the sketch, it formed from a cumulonimbus cloud which was moving offshore and which had a base at about 3000 feet. The water below it was at first very agitated and then in turmoil.




At this time the bottom of the waterspout was 10–15 m above the sea but after 30 minutes it dipped into the sea and gradually widened until it was approximately 120 m in diameter and rotating very fast while spray was lifted about 25 m into the air. More than an hour later the waterspout retracted from the surface while at the same time the speed of rotation seemed to slow down and it began to dissipate. The waterspout was slowly lost from sight as the vessel continued to head away from it.

Position of ship: 01° 24'N, 103° 10.2'E.

*Note:* Mr M. Rowe, of the Tornado and Storm Research Organistion comments:

'This is a good description of a waterspout. There are two features which are relatively unusual: firstly, the width of the spout, 120 m, is greater than appears to be normal, and the duration — at least an hour— is certainly longer than normal.'

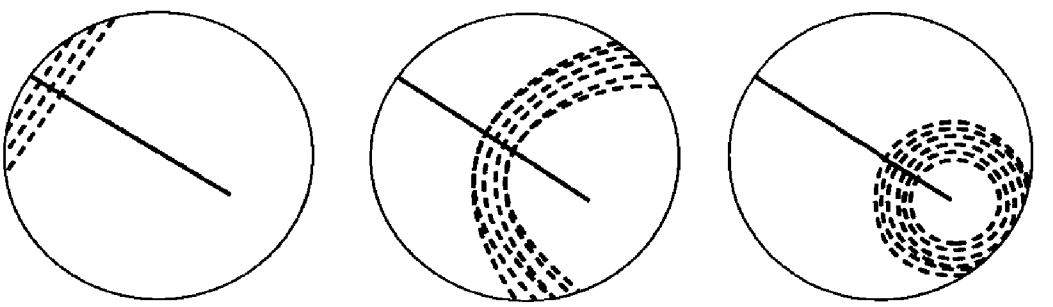
## DUST IN SUSPENSION

### Eastern North Atlantic

m.v. *Seki Cedar.* Captain P.W. Jackson. Barcelona to River Tyne. Observers: the Master, Mr G. Simpson, 2nd Officer, Mr D. Watson Chief Engineer Officer and Mr B. Barrow, Lookout.

1 June 1995. The vessel had passed through the Strait of Gibraltar between 1200 and 1400 UTC and set course for Cape St Vincent. During and after transit of the strait the pressure fell 5.5 mb over a four-hour period during which time there were strong E'ly (Levanter) winds. The wind slowly decreased as offing increased and 1 okta of cirrus cloud was beautifully illuminated at sunset. Dusk was similarly inspiring as a deep-red band of 5° depth formed above the horizon.

At 2020 a marked wind shift occurred as the following wind ceased and a gentle W'ly wind of force 2–3 commenced. The sky was cloudless by this time. At 2040 a band of disturbance was noted ahead on the radar which was offset on 12 n.mile range to the south-east quadrant. The disturbance band was similar to clutter and was aligned 020°–200° in straight lines about 3 n.mile deep and were detected as the bands entered the screen at a range of 17 n.mile. As the ship neared this disturbance the bands curved towards the ship until they encircled it at 2135 at a range of 4–7 n.mile.




It was estimated that the disturbance band was stationary and it fragmented astern thereafter. The sky remained cloudless throughout and no sighting occurred of any visible atmospheric particles. Shortly after this observation, a second similar phenomenon happened at 2230.

Position of ship: 36° 33'N, 07° 50'W.

*Note.* Mr J.F. Hayes, Master Mariner, Senior Lecturer at Fleetwood Nautical Campus, comments:

'The following Levanter in the early part of the report may have carried a layer of airborne dust which was almost stationary where the weather changed to the light Atlantic westerlies. This dust would have been at 2000–3000 metres and would have helped to give the splendid sunset observed.

'The straight leading edge would appear to curve as the dust, closer than 4–6 n.mile, is no longer detected in the radar's vertical beam width.

'The circular echo would be when the vessel was directly below the band of dust which appears to be at least 10–12 n.mile wide to produce the sequence observed.'

## CURRENT

### Eastern North Atlantic

m.v. *Eastern Bridge*. Captain L.P. Bridges. Saldanha Bay to Port Talbot. Observer: the Master, Mr N. Jerrum, Chief Officer and Mr C. Edwards, 3rd Officer.

23 June 1995. At 1518 UTC the vessel crossed the boundary line of the Equatorial Current, the direction of which being 100°–280°. The line was observed by the ship's radars at a distance of 7 n.mile prior to transit of the area. The sea temperature before crossing the line was recorded as 25.3° and a subsequent reading gave 27.7°, both readings taken at the surface using the sea-water bucket provided. A shear to port was noticeable in the ship's course (an alteration of 4° was witnessed by the ship's course recorder) before the autopilot engaged starboard helm up to a limit of 12° to bring the ship back on course. An allowance of +5° for set was then applied to keep on the required track.

Position of ship: 01° 19.2′N, 10° 25.2′W.

## ICE

### Arctic Ocean

m.v. *Arctic Ranger*. Captain A.W. Walker. Deep-sea fishing voyage, Hull to Bear Island. Observers: the Master and Mr M. Allison, Wireless Operator.

25 April 1995. At 1700 UTC an ice finger was first sighted as the vessel was engaged in fishing operations 24 n.mile south-west of Bear Island, numerous observations were made as it was approached and an icefield was sighted moving south towards the finger at 1945. The vessel approached the ice finger and commenced fishing along its southern edge, at times coming as close as 6 m to the ice. See photograph on page 71. After the catch was hoisted on board, the vessel started processing while lying in the bay formed by the ice.

In open stretches of water to the north of the ice finger there were numerous growlers with smaller fingers of ice and ice-floes while on a northern bearing at approximately 3 n.mile were small icebergs (as viewed through binoculars) in open water. It was believed that ice so far south in this area was an unusual occurrence as, according to the *Arctic Pilot Volume 2*, 'Bear Island is usually clear of ice by March and only occurs very rarely at this time of year'.

Weather conditions at the time were: air temperature –5.0°, wet bulb –5.2°, sea 4.0°, pressure 1033.3 mb, wind NE×N'ly, force 2.

Position of ship: 73° 57′N, 18° 18′E.

*Note*. Captain A. Maytham, the Port Met. Officer at Cardiff and also a past officer with the Met. Office Sea Ice Unit, comments:

'There are three areas in the North Atlantic Ocean where sea ice can occur at virtually any time and they are associated with currents and ice melt. The currents are the Jan Mayen Current, the Bear Island Current and the North East Current; all three can develop an "odden" (meaning "tongue").

'These ice tongues are formed when ice, which is fresh water, melts and is carried away from the ice edge by the current. The cold water then encounters cold air at 0° and re-freezes. Due to the anomalous expansion of water (see *The Mariners Handbook*, NP 100, pp. 96–97), the fresh water which is less dense than the warmer saline water below, stays on the surface and can re-freeze. Salt water in the same area with the same temperatures would not freeze but would become more dense, sink and then be replaced by warmer water from below. Again, NP 100 states that fresh water freezes at 0° whereas salt water freezes at –1.9°.

'The reported sea temperature of 4° and air temperature of –5° are in accordance with requirements together with small bergs to supply the fresh-water melt. This is also an area where heavy icing could occur with strong winds.

'This surface ice may not last long for a number of reasons:

1. Up-welling will decay it rapidly.
2. An increase in air temperature.
3. Precipitation.
   (a) Rain causing direct melt.
   (b) Snow which insulates the ice from cold air therefore allowing decay from below.
4. Normal decay from absorption of infra-red heat. (Ice in an odden is always nilas or new ice, and dark).
5. Ice drifts into warmer waters or is blown back into pack-ice.'

## CETACEA

### Bay of Biscay

m.v. *Zenatia*. Captain J. Brown. Arzew to Antwerp. Observer: Mr S. Warren, 3rd Officer.

21 June 1995. At 0915 UTC whilst on a north-easterly heading, 100 or more small porpoises were seen on the starboard bow heading in a westerly direction. Some of them were leaping clear of the water, clearly enjoying themselves while others came right up to the ship's side and swam with it for a few minutes before getting bored and swimming away.

The length of the porpoises varied from about 1–2.1 m and they were black in colour with white 'flashes' extending from the head to just behind the dorsal fin. The dorsal fin itself was small and came to a sharp point and the snout was small but well defined, also coming to a sharp point. Unfortunately there were no books about marine life to consult and so no identification was possible.

Position of ship: 44° 44′N, 09° 01′W.

*Note 1.* Readers may already have noted from pages 47 and 89 of this edition that we are very pleased to have, at last, a source of identification for cetacean sightings. Kelly Hughes, a marine zoologist representing the charity **EarthKind** and working on their vessel the *Ocean Defender,* has volunteered her help in identifying cetacean species and we now print her first contribution, relating to Mr Warren's report.

'It is suggested by the observer that the herd of cetaceans are porpoises. However, given the position of the sighting in the Bay of Biscay, this is unlikely. I suggest that these were Striped dolphins which are often seen in groups of 10-500 (although up to 3000 have been recorded). Adult Striped dolphins are between 1.8–2.4 m in length and newborns are approximately 1 m long. This herd is therefore a mixture of adults and calves.

'No mention is made of a distinctive, long, dark stripe along the flanks. Nevertheless, Striped dolphins have a prominent, white, V-shaped blaze initiating from above and behind the eye, with one finger narrowing to a point below the dorsal fin whilst the other continues backwards towards the tail — this was mentioned by the observer. From a distance, they may be confused with Common dolphins but these have a yellow hour-glass pattern on the flanks, have a larger sickle-shaped dorsal fin and longer slender snout.'

*Note 2.* **EarthKind** defines itself as 'a dynamic international partnership working for humane, sustainable future, which recognises the interdependence of all life and the indivisibility of compassion'.

### Indian Ocean

m.v. *British Esk*. Captain P.R. Anderson. Kandola to Singapore. Observers: Mr T.T. Latto, 2nd Officer and Mr A.D. Ganguly, Cadet.

18 June 1995. During the afternoon 4–8 Watch several whales were observed at some distance from the vessel and clear identification was not possible. However, at 1130 UTC one large whale was watched for several minutes while it was close to the port bow before diving. A single vertical blow was noted as the whale moved alongside the vessel, and a small fin near the flukes was seen. When diving, the whale's flukes were visible.

On consulting *The Seafarer's Guide to Marine Life*, it was decided that the visitor was a Blue Whale as it displayed the diving characteristics and also fitted the description given for the species. At the time of observation the vessel was on a course of 110° at 14 knots.

Position of ship: 05° 47.9′N, 80° 09.8′E.

*Note*. Miss K. Hughes, marine zoologist on board **EarthKind**'s *Ocean Defender*, comments:

'The observers rightly identify the whale as a Blue whale. Although there is no estimation of length (other than that the whale was large) the observers state that the whale showed its flukes on diving. Only two members of the six rorqual species have this characteristic, the Humpback and the Blue. These two species can be differentiated at sea (other than by size difference) by their different blows — that of the Humpback being bushy and that of the Blue, as the observers state, a single, vertical, slender blow. The characteristic dive sequence of a Blue mentioned by the observers is a single blow every 10–20 seconds for a period of two to six minutes, followed by a dive usually for 5–20 minutes.'

## SEALS

### South Atlantic Ocean

m.v. *Ironbridge*. Captain D.G. Olley. Saldanha Bay to Redcar. Observers: Mr R. Moore, 2nd Officer and members of ship's company.

4 May 1995. Just after leaving Saldanha Bay a dark patch of water was observed fine to port. The water appeared to be disturbed and, as the vessel passed it, it was observed that the disturbance was caused by a group of seals. They numbered approximately 100 and it was thought that the frenzied activity of the seals together with the presence of a large number of seabirds indicated that a shoal of fish had been happened upon.

The vessel passed relatively close to the seals but they did not seem unduly worried and continued their dining. Sadly, owing to a lack of appropriate publications, a positive identification could not be made.

Position of ship: 33° 03′S, 17° 46′E.

*Note*. Dr F. Evans, of the Dove Marine Laboratory, Cullercoats, comments:

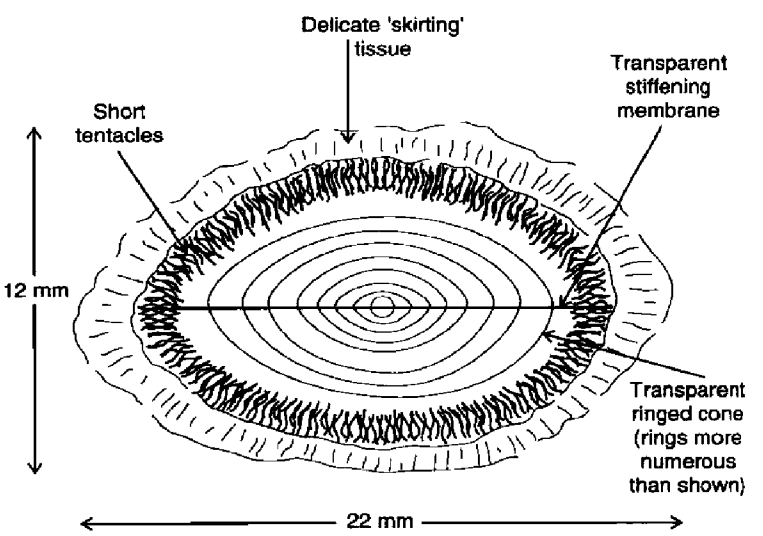
'Although I have no specialist knowledge of the Pinnipedia, I am fairly confident that the seals in this report were Cape Fur Seals, *Arctocephalus pusillus*. Fur Seals differ from true seals in having external ears and are sometimes called sea lions. The Cape Fur Seal lives along the 2000 km of African coast between Cape Cross and Algoa Bay, with about 15 rookeries used for breeding. They occur in considerable numbers, although much reduced in the past by sealing.'

## VELELLA

### North Pacific Ocean

m.v. *Pacific Pintail*. Captain K.N. Young. Fukushima to Panama. Observers: Mr R.P.C. Mitcheson, 3rd Officer and members of ship's company.

22–24 May 1995. At about noon on the 22nd the vessel was passing through what appeared to be tank washings but on inspection through binoculars the 'washings' were found to be myriads of small jellyfish. During the next 48 hours they were continuously observable in the wake during daylight hours; all appeared to be juvenile and none were much bigger than the sizes indicated in the sketch. They were thought to be Portuguese Men O'War.




On the 24th there were particularly dense accumulations and so specimens were fished for using a milk crate lined with mutton-cloth and drawn with heaving line. Three specimens were thus caught but did not survive the experience. The largest was drawn and measured whilst floating in a tea cup. Eastward of 38° 15′N, 150°W the jellyfish became less numerous and were not seen after the 25th.

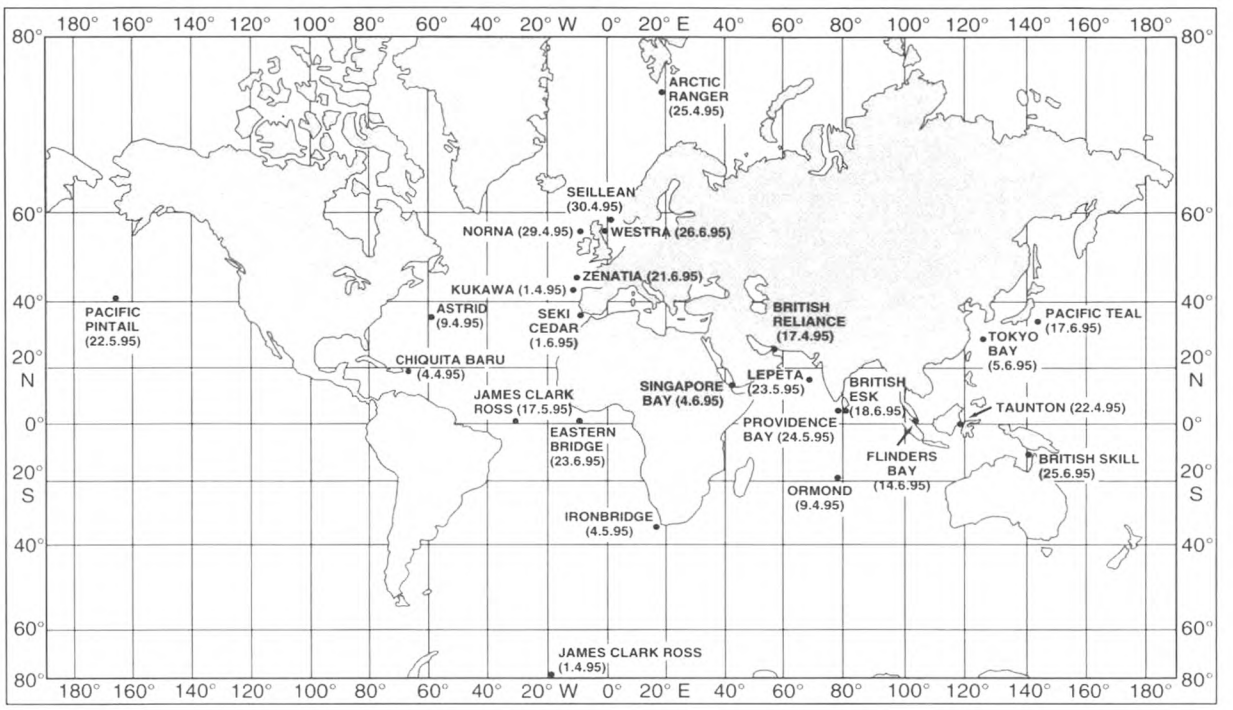
Position of ship on the 22nd: 40° 10′N, 164° 25′W.

*Note*. Dr F. Evans comments:

'The account of the extensive sightings of what were in fact *Velella*, or By-the-wind-sailors, reflects earlier records received in the Met. Office to a remarkable degree. Identification as *Velella* was certain, thanks to the excellent drawings, although the observers mistakenly identified the creatures as Portuguese Men O'War. Here is an example of how helpful good sketches can be.

'May I refer to *The Marine Observer*, October 1986, pp. 66–68. There I have an account of numerous sightings of *Velella* by a dozen merchant ships in the spring of 1985. They extended over great stretches of the Pacific, from about 160°E to about 130°W and centred around 40°N. Interestingly, one of the reporting ships described the phenomenon as "looking like oil tanker sludge", which corresponds well with the present "appeared to be tank washings". The 1985 event seems to have been an unusually intense one but I suspect that it recurs in most years, passing unrecorded in marine biological circles. Unfortunately, although dense, the aggregations are not sufficient to be picked up by satellite, so we are left with merchant ship records alone to record this megatonnage outburst of lowly animal life in the high ocean. *Velella* is carnivorous and its consumption of grazing zooplankton at the sort of density described, is enormous, with an inevitable effect on the ecology of the Pacific.

'As you may suppose, I was pleased indeed to have the record to add to my files.'




Position of ships whose reports appear in *The Marine Observers' Log*

## BIRDS

### North Sea

m.v. *Seillean*. Captain D. Tobin. On station, Donan Oil Field. Observers: Mr V.A. McAdam, 2nd Officer, Mr M. Davies, 2nd Officer, Mr A. Gurney, Radio Officer and Mr J. Rhodes, ROV Engineer.

30 April 1995. At 1225 UTC the bird shown in the photograph on page 77 was spotted by Mr Rhodes as he noticed a quantity of feathers flying around outside the Radio Room window. The bird, perhaps a female Kestrel, was perched on top of a light fitting and holding a smaller bird in its claws. The bird stayed on the light fitting, eating its prey for about 10 minutes, it then flew off to another part of the ship to continue its meal for a further five minutes. After that, it was seen several times generally flying around and sometimes landing on the vessel.

At the time of the first observation the wind was SSE'ly, force 5 and the visibility was in excess of 10 n.mile.

Position of ship: 58° 22.7′N, 00° 52.7′E.

*Note*. Commander M.B. Casement, O.B.E, of the Royal Naval Birdwatching Society, comments:

'The photograph clearly shows a female Sparrowhawk (*Accipiter nisus*). Note the pale eye-stripe and patches at the nape (back of neck), also the distinctive barred tail. The behaviour of preying on small birds is typical of this species, and it is reported fairly frequently on board ships at sea.'

### North Atlantic Ocean

f.p.v. *Norna*. Captain D.L. Rattray. Fishery patrol duties. Observers: Mr A.R. Davidson, Chief Officer and Mr D. Wright, A.B.

29 April 1995. At 0700 UTC the bird, shown in the photograph on page 77, was seen sheltering on the foredeck over which the sea was breaking. Throughout the day the vessel continued on a south-easterly course towards the Mull of Kintyre, as waves broke over the deck throughout. At 1800, when off Islay, the bedraggled bird was rescued, put in a box and taken into the shelter of a deck house.

On inspection the bird appeared to be a young Curlew and was left overnight with fresh water and food. The next morning it seemed none the worse for its ordeal and was taken ashore by Searider and landed on an isolated section of foreshore on the north-west coast of Arran where it walked from its box unaided.

At the time of the first sighting the wind was SE'ly, force 8 with rough seas and there had been an ESE'ly gale for the previous 12 hours.

Position of ship at 0700 UTC on the 29th: 56° 47'N, 08° 50'W.

*Note*. Commander Casement comments:

'The photograph shows a Whimbrel (*Numenius phaeopus*) and clearly shows the pale eyestripe.'

## BAT

### Arafura Sea

m.v. *British Skill*. Captain G.M. Hallett. Singapore to Kumul Terminal, Papua New Guinea. Observers: Mr K. Dann, 3rd Officer and members of ship's company.

25 June 1995. At 0100 UTC the vessel was engaged in picking up the Torres Strait Pilot, Booby Island on a beautifully clear and bright morning. As the Pilot reached the top of the ladder a large 'bird' was observed flying in from the stern, and on closer inspection it was seen to be a huge great bat. It made two circles of the ship's beam before settling under the manifold cross-overs, much to the consternation of the crew members working there!

The bat was in sight for about a minute only and no volunteers came forward to have a closer look but the main points noted, apart from it appearing in broad daylight and making the entire ship's company slightly nervous, were that it was so very large having a wing-span of about 60 cm while the wing membrane was light-brown and its body was dark-brown and velvet-like. During the night watches it could be heard screeching from the bridge wing but again, no volunteers presented themselves to investigate further.

Owing to the size of the creature, it was believed to be a fruit bat although the observers wondered if a sighting at sea and in daylight was unusual.

Position of ship: 10° 36'S, 141° 50'E.

*Note*. Mr J. Edwards Hill, of Edenbridge, Kent, comments:

'This was a sighting and subsequent landing of a species of large fruit bat (Megachiroptera), apparently of the Black Flying Fox (*Pteropus alecto*). This species is similar in size to the specimen reported, and has dark soft fur. It is relatively common in eastern Indonesia and the northern coastal region of Australia, occurring on several of the smaller islands. A fruit-eating species, it may fly for some miles in search of fruit-bearing trees and usually roosts in coastal forests. Occasionally, fruit bats may be seen at sea, even in daylight.'

## INSECTS

### Panama Canal

m.v. *Chiquita Baru*. Captain D.M. Rae. Cristobal to Balboa. Observers: the Master, Mr E.D. Tan, Chief Officer, Mr J.S. Tamayo, 3rd Officer, Mr P. Salvador, Bosun and members of ship's company.

4–12 April 1995. Whilst the vessel was in southbound night transit of the Panama Canal a swarm of flying insects was observed on deck. On the 5th, after the transit, the insects were still present in the vicinity of crane No.2, so to satisfy their curiosity the observers tried to investigate further. They discovered that the insects were in fact bees, and a beehive [sic.] was found under the exhaust vent shaft housing (outer part) of masthouse No.2. The Third Officer readied his camera and took the photograph shown on page 77. The Master and Chief Officer noted the swarm when the vessel arrived at Armuelles and were informed that the insects were bees. On the 8th the bees were still present when the vessel departed but had changed their shelter to the hatch coaming of No.2 Hold, on the lee side.

During the next two days the vessel passed through the Panama Canal, northbound, with the bees still on board but on the 12th, whilst *en route* to Gothenburg, the Chief Officer made his rounds and inspection on deck to find that the bees had died and were scattered around the area of the swarm's last shelter.

Position of ship on the 12th: 19° 12′N, 66° 21′W.

*Note*. Mr A.E. Whittington, Assistant Curator of Entomology, at the Royal Museum of Scotland, Edinburgh, comments:

'There is little further to be said about the bees, other than that bees often swarm in search of new hive facilities. Obviously this behaviour is utilised by man through the construction of artificial hives but in nature bees search for crevices and rot-holes in trees. Swarming is a means of propagating — creating new (or duplicate) swarms and preventing swarms from reaching unmanageable sizes. Death of the observed swarm was most likely to be by starvation since the bees were unable to reach a source of nectar.'

### Red Sea

m.v. *Singapore Bay*. Captain P.A. Furneaux. Singapore to Suez. Observers: the Master, Mr A.B. Millar, 2nd Officer and Mr J. Geddes, 3rd Officer.

4 June 1995. Between 0400 and 0600 UTC while passing through Bab el Mandeb, near Perim Island, hundreds of butterflies or/and moths were seen around the ship. Their sizes varied up to a wing-span of 60 mm and some of the smaller insects stayed with the vessel for several hours. It was thought that the insects were possibly migrating. At the time of the observation the air temperature was 31.0°, wet bulb 28.9° and the wind was SSE'ly, force 1–2.

Position of ship: approximately 12° 36′N, 43° 18′E.

*Note*. Mr A.E. Whittington comments:

'Short and long-range migrations by insects (particularly Lepidoptera — the butterflies and moths) is a well-known global phenomenon. There are carefully documented records of mass migrations across the width of Africa, the length of the U.S.A. and from west Africa to Europe. Thus, crossings of Bab el Mandeb are relatively short by comparison. Many of the species of insect found in Africa also occur in the Yemen but no further into the Arabian Peninsula, possibly because of the extreme aridity.'

## BIOLUMINESCENCE

### East China Sea

m.v. *Tokyo Bay*. Captain D.S. Hughan. Busan to Kaohsiung. Observers: Mr S. Braund, 2nd Officer, Mr C. Puttock, Cadet and Mr M. Roberts, SM1.

5 June 1995. At 1830 UTC whilst the ship was on a course of 218° at 21.5 knots what seemed to be hundreds of fishing lights were seen right ahead of the ship and stretching from horizon to horizon. As the ship approached them it became apparent that the lights were bioluminescence.

The appearance was like large single 'blobs' approximately the size of tennis balls while at the main concentration the water seemed to be 'bubbling up' in a line stretching to both horizons. When the ship passed through the line, the luminescence gave off such a glare, as bright as daylight, that it was possible to read the identification numbers of the containers on the focsle. The duration of the phenomenon was about 5 minutes or 1.5 n.mile.

Position of ship: 30° 20.3′N, 125° 01.1′E.

*Note*. Dr P.J. Herring, of the Southampton Oceanography Centre, comments:

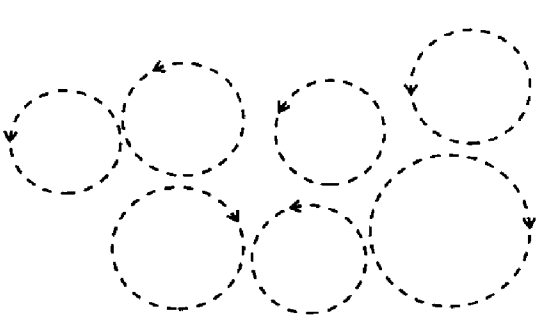
'This is a most unusual account which I am unable to interpret. The "blobs" were probably jellies or Pyrosomas (cylindrical colonies of luminous sea-squirts). The "bubbling up" effect sounds as if the vessel crossed an oceanic front at which luminous plankton had collected but it is not clear what was causing the blobs to light up ahead of the vessel's approach. Pyrosomas do glow for long periods, and can be set off by another light, so they might have been the cause. If other jellies were the sources I would have expected them to flash rapidly rather than glow steadily.'

### Strait of Hormuz

m.v. *British Reliance*. Captain N.J. Greig. Fujairah to Kharg Island. Observers: the Master and Mr P.N.W. Collings, 2nd Officer.

17 April 1995. At 1525 UTC whilst in the westbound lane of the Traffic Separation Scheme and shortly after settling on a course of 270°, a small amount of blue phosphorescence was noticed in the sea waves ahead (the swell being very low). Suddenly, the wind appeared to blow quite strongly, swirling around the vessel and then for as far as the eye could see and all round the vessel, phosphorescent cartwheels of bright-blue light began forming. The bands of light were roughly 30 cm thick while the maximum diameter of the wheels was 15–18 m.

Their direction of movement seemed random and they were spinning at high speed, some chasing each other, others spinning in opposite directions next to each other, see sketch.



Whole groups dumbelled around each other, all spinning in apparently random directions. The display lasted for about 18 minutes before petering out.

Conditions at the time were as follows: dry bulb 24.0°, pressure 1006.8 mb, wind W'ly, force 5 with gusts of 24–30 knots. There was cloud cover of 6 oktas and the visibility was 10 n.mile. The ship's draft was 9.7 m in ballast.

Position of ship: 26° 37.2′N, 56° 35.8′E.

*Note.* Dr Herring comments:

'A quite extraordinary account of phosphorescent wheels occurring in one of the places where they are most often seen. In the 200, or so, cases of this phenomenon reported in the last 100 years, never have so many wheels been described so close together, nor has there been any association with wind change. I am very intrigued but at a complete loss to explain how the wheels were produced. None of the previously suggested causes (see *The Marine Observer* article "Phosphorescent Wheels: Fact or Fiction" [1985, pp.194-201.]) seems appropriate here.'

### North Pacific Ocean

m.v. *Pacific Teal.* Captain D. Marr. Cristobal to Kobe. Observers: Mr M. Constantine, 3rd Officer and Mr M. Sheldon, AB.

17 June 1995. At 1242 UTC bioluminescence was sighted in the form of a blue-white glow on the leading edge of the bow wave, extending to approximately 5 m along the crest. Upon noticing it, the Third Officer tried a number of tests: first, he tried shining the Aldis lamp onto the wave, then flashed the light but there was no noticeable change in the bioluminescence; next, the echo sounder was switched on (electromagnetic pulse at 50 KHz) on various ranges but this had no effect either. A short while later the wind increased to force 4 and at about this time a number of occasionally sparkling blue-white lights were seen roughly 500 m off the starboard beam. At first, these were attributed to small light buoys marking a long drift-net; however, after watching the area for a while, it seemed that the light or glow was actually bioluminescence appearing on the surf of the wind wave crests.

At the time of the initial observation the sea temperature was 21.3°, wind N×W'ly, force 3–4, swell 340° at 6 seconds and 1.5 m height. Course of ship 271° at 12 knots.

Position of ship: 32° 52.3′N, 143° 51.8′E.

*Note.* Dr Herring comments:

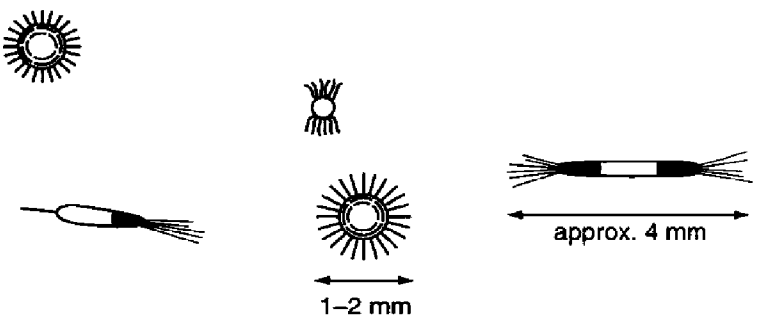
'The description fits a dinoflagellate or possibly small zooplankton source. I think dinoflagellates are the most likely cause. They do not respond to an Aldis lamp. It was interesting to read that the echo sounder had been tested, though without effect. It might affect the responses of some animals.'

## DISCOLOURED WATER

### Indian Ocean

m.v. *Lepeta.* Captain D. Freeman. Ras Tannurah to Singapore. Observers: the Master, Mr C.P. Kendall, 2nd Officer, Mr Z.U. Islam, 3rd Officer and ship's company.

22–24 May 1995. At 0515 UTC whilst 200 n.mile west of the west coast of India large areas of water, light-orange in colour, were observed spread out in wide bands. Upon sampling the water, the discolouration appeared to be dense concentrations of plankton, the general sizes of which are shown in the sketches.




The vessel was in position 16° 35′N, 69° 28′E and continued to steam through such patches for the next eight hours on a course of 128° at 13 knots.

On the next day at about the same time, in position 13° 17′N, 73° 20′E, more areas of light-orange discoloured water were encountered, again spread out in wide bands running in an east-west direction. The ship was following a similar course as before, at 12 knots. On the 23rd at 1200 the areas of discolouration were becoming more dense as the vessel headed further south (12° 09′N, 74° 21′E) and several Humpback Whales were sighted swimming along the edge of the coloured water. At this point the vessel had been passing through discoloured water for seven hours. No further discolouration was seen after 1300 but on the 24th at 0300 the vessel encountered further patches for another hour.

Position of ship at 1300 on the 23rd: 11° 57′N, 74° 28′E.

*Note.* Dr Herring comments:

'I cannot identify the organisms concerned, which according to the scales on the sketches are much larger than most kinds of phytoplankton. Some may have been radiolarians, which can form aggregates, and the longer ones perhaps *Trichodesmium*, a species a phytoplankton that looks like grass seed and often forms small mats. It can fix atmospheric nitrogen and therefore flourishes in tropical waters which contain very little dissolved nitrogen.'

*Editor's note.* In addition to the above account, we have received from the Master of the *Providence Bay* (Captain R.A. Kenchington) a report of a Red Tide on 24 May 1995 some 200 n.mile west-north-west of the coast of Sri Lanka, in position 06° 15′N, 78° 03′E. (See potograph on page 71.) Captain Kenchington said, '... it was noted through binoculars that there was quite a large body of dormant particles present. It was considered by some on board that the Red Tide was oil pollution, there was no taint noticeable in the air, and Sri Lankan waters are known to be very rich in marine life'.

Dr Herring was unable to definitively identify the cause of the streaks which he believed the Master was quite right to consider as some form of plankton. He said streaks of this appearance often denote a surface bloom of algae, aggregated by the effects of wind. This may have been the case here but normally separate particles would not be visible. However, some algae, like *Trichodesmium* whose reddish tinge gives the Red Sea its name, do aggregate in floc-like or sawdust-like particles. If the particles were clearly visible then animal plankton (e.g. krill) would seem more likely but they are rarely seen in large numbers at the surface by day.

## RADAR PROPAGATION

### North Atlantic Ocean

m.v. *Kukawa*. Captain B.N. Jones. Abidjan to Teesport. Observers: the Master, Mr E.S. Boye, 2nd Officer and Mr M.E. Manuel, 3rd Officer.

1 April 1995. At 1030 UTC whilst 85 n.mile west of the north-western Spanish coast, the coast was observed on the 3-cm radar (only) at a range of 10 n.mile and

to the east of the vessel, that is, in the true direction of the coast. Other targets (vessels) were observed with exceptional prominence at ranges of about 60 n.mile.

A few minutes later at 1045 the coast was again observed on radar but appearing to be north of the vessel, 16 n.mile off, with the image apparently having gone through a deflection of 90°. The phenomenon faded at about 1100.

Weather conditions were: dry-bulb temperature 16.0°, sea 14.6°, pressure 1030.1 mb (rising), wind NE'ly, force 3. There were no clouds at all and the visibility was good.

Position of ship: 42° 19'N, 10° 50'W.

*Note.* Mr J.F. Hayes comments:

'This appears at first sight to be a straightforward example of super-refraction allowing the display of second trace returns from the northern Spanish mountains. The unusual aspect of this sighting is the reported rotation of the echoes through 90° for which I have no adequate explanation.'

## RADIO PROPAGATION

### North Sea

f.p.v. *Westra*. Captain N.E. McInnes. On patrol duties. Observers: the Master, Mr J. Barkess, Chief Officer and Mr R. Young, Seaman.

29 June 1995. At 0700 UTC VHF reception of distant stations was noted when Nordeich Radio in Germany was heard at a distance of some 360 n.mile, followed closely by Helgoland Radio. Abnormal reception was noted during the day, mostly consisting of a continuous carrier reception on VHF Channel 16. At 1520 when the vessel was in position 57° 10'N, 01° 45'W (Aberdeen approaches), Ostende Radio was clearly heard calling m.v. *Belocean* on Channel 16, again at a distance of about 360 n.mile. Distorted signals from British North Sea Coast Radio Stations and Coastguard centres continued until 2200.

These signals were grouped directionally, a selection from the south followed by some from the north, indicating increasing then fading propagation in different directions at different times.

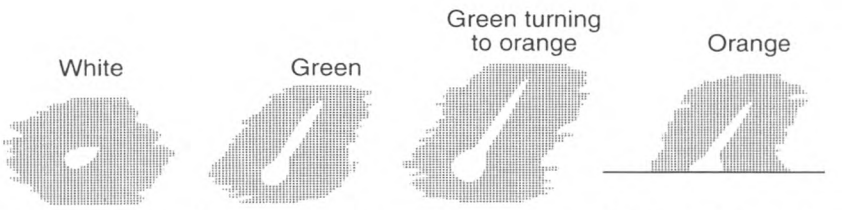
Position of ship at 0700 UTC: 57° 02'N, 01° 10'W.

## METEORS

### North Atlantic Ocean

s.t.s. *Astrid*. Captain G. Ulrich. Bermuda to Ireland. Observers: Mr P. Compton, Chief Officer, Mr K. Wilson, Ms A. Martell, Mr T. Downes and Mr O. Isaacs, crew members.

9 April 1995. The usual tedium of a mid-Atlantic morning watch was suddenly interrupted at 0545 UTC by a brilliant, intense light. At first it appeared as a bright-white cone-shaped object; then, as it descended, its trail became more apparent. When first noticed by Mr Compton, the trail had a distinctive green tinge along its length but the colour began to change, this time to bright-orange. By now, the other crew members of the watch had also spotted the 'blaze', which had four distinct stages of descent, falling towards the ocean (see sketches).




Throughout this period, the meteor and the trail itself remained intact and its path continued as a slight arc. In the distant sky, by way of a backdrop, Jupiter was identified; this however, had been totally overshadowed by the power of the light coming from the falling meteor. The colours then disappeared as rapidly as they had formed out of the blackness. As there was no evidence of any contact with the ocean, the observers assumed they had witnessed a fireball. The duration of the flight had lasted approximately 4 seconds from the first sighting of light to its exit from view.

At the time of the event the weather was dry and mild while the visibility was very good.

Position of ship: 33° 52.31'N, 59° 25.25'W.

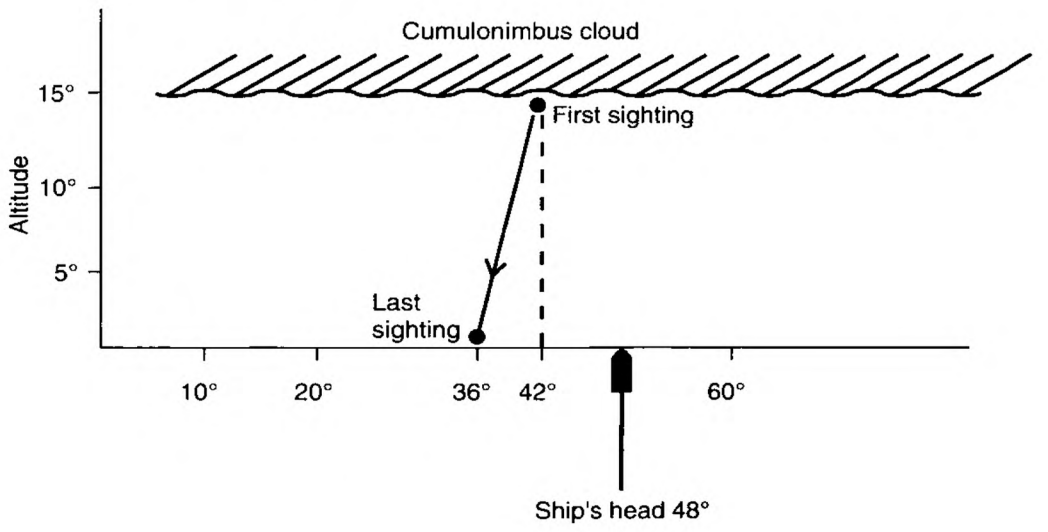
*Note.* Mr Miles, Director of the Artificial Satellite Section of the British Astronomical Association, comments:

'The report is a good description of a fireball produced when a fragment of interplanetary material is burned up in the atmosphere. The colours were due to ionisation of the gases in the upper atmosphere. It is doubtful if any material actually reached the surface.'

## Celebes Sea

m.v. *Taunton*. Captain L.J. Hesketh. Saldanha Bay to Japan. Observers: Mr P. Dasgupta, 3rd Officer and Mr J.K. Bhadra, Radio Officer.

22 April 1995. The vessel was in the Makassar Strait on a course of 048° at 13.5 knots when, at 1250 UTC a meteor was sighted. The sky was overcast with cumulonimbus clouds and although there was no rain at the time of observation, lightning was visible in the distance but thunder was not audible. Just before the meteor was spotted, the clouds in its vicinity were lit up more brightly than by the lightning already seen and then the meteor broke through them at an azimuth of 42° and altitude of 15° before hurtling down and presumably falling into the sea at an azimuth of 36°, see sketch.



The meteor lit up the entire horizon on its way down and then disappeared at or very near the surface, hence the assumption that it fell in the sea although the observers were not near enough to actually hear a splash and verify this. Bright-silver in colour when it first appeared, the meteor quickly changed to a bright golden-yellow and resembled a large fist ball. No trail was observed and the entire sighting lasted about 5 seconds.

Position of ship: 00° 57.5'N, 119° 57'E.

*Note.* Mr H. Miles, Director of the Artificial Satellite Section, British Astronomical Association, comments:

'This sighting was definitely due to a fragment of interplanetary material decaying in the atmosphere. I am of the opinion that the appearance of it hitting the sea was an optical illusion. More likely, it passed over the horizon when still high up in the atmosphere. The confusion arises because it is impossible to estimate distance based solely on the brightness. Where similar types of events occur over land, the reporting that it fell in a nearby field is very common. It must have been a very bright meteor for it to have been visible through the cloud. Often such events have led to material reaching the surface but in this case such ideas are of academic interest only.'

*Editor's note.* In one of Mr Miles' earlier comments (*The Marine Observer*, January, 1988) he makes the point that if a meteor does survive its entry into the atmosphere and reaches the surface, then something like an intense sonic boom would be heard, and the account of the event would probably run to pages!

We read recently of a meteor apparently about the size of a basketball that passed over Perth in Western Australia before disintegrating. The noise associated with the incident, in early May 1995, tripped burglar alarms and resulted in a flood of emergency telephone calls to the police from people believing their properties were being broken into.

## AURORA AUSTRALIS

### Weddell Sea

R.R.S. *James Clark Ross*. Captain C.R. Elliott. Scientific cruise. Observers: the Master, Mr J.B. Marshall, Chief Officer, Mr S.I. Wallace, 2nd Officer, Mr A. Gatti, 3rd Officer and ship's company.

1/2 April 1995. The vessel was on passage in the southern Weddell Sea as part of A23 Section of the World Ocean Circulation Experiment (WOCE) when the aurora was fist sighted at around 2100 UTC. On first sight, it was a glow 5° above the horizon but during the next hour it developed in intensity and magnitude as it rose to 25° above the horizon and covered an arc between 120° and 200°. The display took the form of patches of lime-green light developing into rayed bands which shivered as though curtains were being shaken from the top. Below this a steady homogeneous band formed about 5° above the horizon, in the shape of a long thin cigar.

The display was active, moderate to bright and lasted until about 2200 although slight activity was still taking place at 0330 on the 2nd when cloud building up in the south-east obscured it.

At the time of observation the vessel was heading 058°, the gyro error being nil, giving a compass error of 4°E. The variation from British Admiralty Chart 4024 was recorded as 7½°W (corrected for 1995), the closest line of magnetic variation on the chart running approximately 350°–170°.

Position of ship: 71° 49.7'S, 19° 30'W.

## SPACE DEBRIS

### North Atlantic Ocean

R.R.S. *James Clark Ross*. Captain J. Burgan. Rio de Janeiro to Grimsby. Observers: Mr R.C. Jackson, Chief Officer and Mr S. Jenkins, SG1.

17 May 1995. At 0650 UTC whilst the ship was on a course of 021° at 12.7 knots, a magnificent 'meteor' display was observed, consisting of four main lights which appeared at about one point off the starboard bow and descended from an altitude of about 15°. They were moving very swiftly and finally disappeared from view at three points on the starboard bow at perhaps 12° altitude, the display having lasted for 10 seconds.

The lights were in a diamond formation with the leading meteor showing a bright-green hue while the magnitude was estimated to be several times that of Venus whereas the three other trailing lights were yellowish-orange in colour, each having a magnitude similar to Venus. Each of the four lights had a long light tail which contained numerous weak bursts of light which looked like explosions of light of a much smaller magnitude.

The 'vapour' trails remained for 50 minutes and, presumably owing to their high altitude, turned white as the eastern sky lightened with the dawn, and were very confused and entwined by the time of sunrise at 0748. There was 1 okta of cloud in the sky but at no time was the display obscured from view.

Position of ship: 01° 12.8'N, 29° 37.1'W.

*Note.* Mr H. Miles comments:

'There is little doubt that the phenomenon seen was the decay of the last few fragments of manmade material burning up in the atmosphere. The position of the ship, the direction of the observed meteors and the time suggest that the event was linked to the launching of Intelsat 706 using an Ariane rocket, from Kourou in French Guiana.'

## MISCELLANY...

### An additional mélange of maritime sightings

*Atlantic Universal.* 12 April 1995. At 0905 UTC in position 02° 02'N, 11° 44'W Captain R.J. Kendall noted two pods of pilot whales, numbering about 12 in each, about 300 m apart and relaxing on the surface without swimming in any particular direction. They were unperturbed by the vessel which passed about 50 m away from them.

*Cast Wolf.* 11 May 1995. While bound for Felixstowe, Captain T.H.W. Yeo noted a well-weathered iceberg accompanied by several growlers when south of Newfoundland, in position 46° 15'N, 54° 24'W at 1215 UTC. The maximum length above water was about 60 m and its highest point was about 8 m; the iceberg was drifting in a westerly direction.

*Chiquita Deutschland.* 17 May 1995. A large whale, possibly a Humpback Whale was sighted by Chief Officer P.T. Clegg and Mr J. Aquilino, Third Officer at 1000 UTC in position 34° 12'N, 53° 46'W.

*Eredine.* 27 May 1995. A school of approximately 250 Bottlenose Dolphins passed either side of the vessel. They included adults and juveniles while some of the adults were noted to form into groups of six to ten individuals within the main school. The dolphins were seen at 0800 UTC in position 07° 10′N, 77° 43′E.

*James Clark Ross.* 12 May 1995. A pod of about 20 False Killer Whales was watched by Captain J. Burghan, Chief Officer R. Jackson and most of the ship's company, in position 19° 34′S, 38° 24′W.

*Lima.* 3 May 1995. At 2130 UTC in position 26° 19′S, 05° 07′E large numbers of green bioluminescent flashes in varying intensities were observed down the full length of the ship's sides and out to a distance of 25 m. No glow was evident in a water sample and there was no response from the sample to torchlight. The sighting was made by Third Officer Mr J. Davies and Cadets D. Gray, C. Baker, R. Woolven and H. Nizam.

(*Note.* Dr Herring identified the flashes as coming from animals such as jellies which would have been hard to catch in a water sample.)

*Moreton Bay.* 3 April 1995. In position 25° 26′N, 35° 36′E a small, solitary bird was seen standing on containers or circling the vessel for about four hours before flying off in a southerly direction. It stood about 50 cm high and was mainly white but had a slight yellowish patch on the top of its head and a reddish to yellow beak. It was identified as an egret.

(*Note.* Commander Casement has subsequently identified the bird as a Cattle Egret, a common species throughout Africa and Asia and a frequent hitch-hiker on ships.)

*Newport Bay.* 4 April 1995. A very bright light was seen at 2315 UTC by Chief Officer A. Lewington, Mr M. Wise, Third Officer and Mr A. Close (P.O.E.) at Port Said anchorage. The light was a sphere having a bright white tail which extended behind for six or seven times its width. The light remained in the sky for about 6 seconds before breaking up into five pieces, each with a white tail; these lasted for a further 2 seconds before disappearing.

*Pacific Crane.* 4 June 1995. At 0450 UTC in position 39° 49′N, 142° 08′E, the vessel encountered an extreme wave of 10 m in height. At the time the water depth was 220 m and the vessel was at reduced speed owing to severe adverse weather conditions, pitching very heavily at times and also shipping frequent seas. There was a deep depression to the south and the wind was SE×E'ly, force 7. Sea conditions were: sea waves height 2 m, period 6 seconds; swell waves south-westerly, height 5 m, period 10 seconds.

*Sachem.* 2 June 1995. The vessel encountered a tide rip lying 166°–346° in position 03° 42′S, 144° 39′E. Water on the western side was a brackish green turning to a clearer blue as the ship crossed the demarcation line, steering 125°. There was a slight starboard shear on crossing the line and the sea temperature remained 28.5° throughout.

*St Helena.* 4 May 1995. A bright meteor was noted by Mr N. Mogg, Second Officer and Mr M. Yon, Lookout in position 29° 25.9′S, 12° 09.1′E when the vessel was on passage from Cape Town to St Helena. The meteor had a very bright tail and lit the surface of the sea like a lightning flash during its descent, then exploded before reaching the surface.

*Shetland Service.* 17 April 1995. A partial parhelic circle was seen by Chief Officer I. Ferguson, Mr B. Dunsdon, EDH and Mr P. Close, Second Engineer, to the left of the sun between 1750 and 1840 UTC, low cloud preventing sighting of any phenomena to the right. Vivid rainbow colours were also seen in a mock sun which was visible throughout. The vessel was on station in the Kittiwake Oil Field.

A Guillemot was freed unharmed from a tangle of fishing net after personnel on the Kittiwake Platform asked the vessel to assist the bird.

*Toisa Cougar.* 23 April 1995. Aurora borealis in the form of an arc which later became a rayed band, was seen in position 61° 36′N, 01° 18′E.

*Vidal.* 20 April 1995. Captain K.H. Halstrik, Mr S. Singh, Third Officer and Mr R. Mebrido, AB watched bioluminescence in the form of 'dirty' green-blue flashing lights in the water along both sides of the ship between 2000 and 2359 while in approximate position 25° 41′S, 07° 00′E.

*Western Bridge.* 29 June 1995. Mr J. Parkin, Third Officer watched a Sperm Whale as it swam roughly parallel to the ship at a distance of about 0.5 n.mile, in position 38° 22′N, 12° 16′W. It was about 8 m long and was seen diving and surfacing about 1 n.mile astern as the ship left it behind.

*Photo. by M. Allison*

Part of an ice finger photographed from the *Arctic Ranger*. (See page 55)

*Photo. by Captain R.A. Kenchington*

Red tide photographed from the *Providence Bay* on 24 May 1995. (See page 64.)

## SCENE AT SEA

*Photo. by Captain L.J. Fletcher*

Waterspout in the Strait of Malacca at 2350 UTC on 30 June 1995, photographed from the *Botany Bay*.

*Photo. by T.T. Latto*

Above: Blue-and-White Flycatcher (*Cyanoptila cyanomelana*) pictured on board the *Welsh Venture* while off O Shima Island, Japan, on 3 May 1994.

Commander M.B. Casement, O.B.E. of the Royal Naval Birdwatching Society, identified the birds and says that the flycatcher is a common summer visitor to Japan and breeds throughout north-east Asia while the goshawk breeds in north-east Asia, south-east China and on Taiwan, migrating southwards through south-east Asia including Malaysia and Hong Kong.

Below: Chinese Goshawk (*Accipiter soloensis*) (male) on board the *Providence Bay* on 17 May 1995 at 0900 UTC whilst in the outer approaches to Hong Kong waters. It remained on the bridge wing for over an hour, apparently resting before leaving the vessel near land.

*Photo. by Captain R.A. Kenchington*

# Tropical cyclone generated wave spectra at Waglan Island*

BY W.L. CHANG and K.H.TAM

(Royal Observatory Hong Kong)

Wave spectra are useful in many aspects of coastal engineering. For the South China coast, tropical cyclone generated wave spectra have been derived by Chen (1979), Cheng (1986), Poon (1988), Chen *et al.* (1990), and Li *et al.* (1991). This note gives an example each of the shallow water, double-peaked and deep water spectra obtained at Waglan Island during the respective passages in the South China Sea of Severe Tropical Storm (S.T.S) Nathan in June 1990, Typhoon (T.) Zeke in July 1991 and S.T.S Brendan also in July 1991. Figure 1 shows the tracks of these tropical cyclones, details of which can be found in the Royal Observatory's *Monthly Weather Summary* for the relevant months.

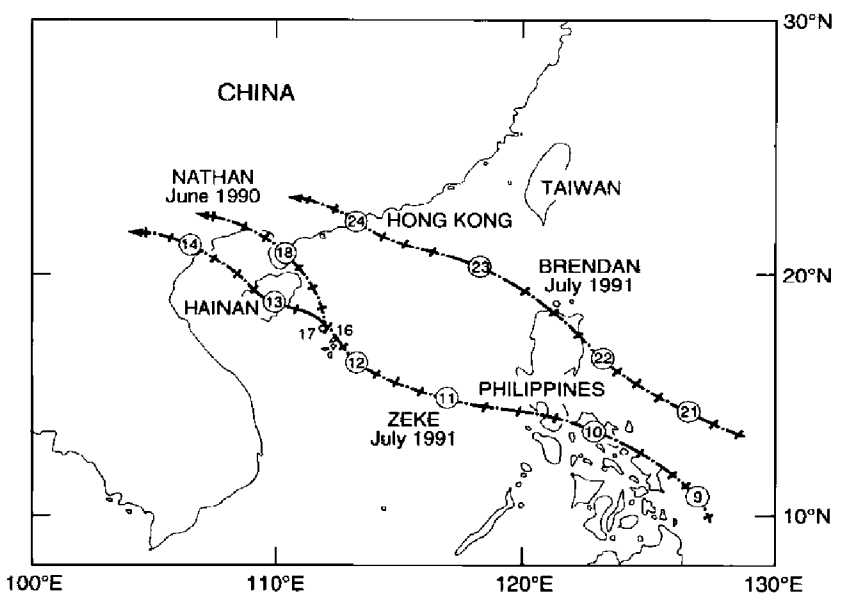



Figure 1. The tracks of S.T.S. Nathan, T. Zeke and S.T.S. Brendan. Numbers along the tracks are dates of the months.

The wave recorder is of the acoustic type, lying off Waglan Island and on the sea bed at about 28 m below mean sea level. Spectral densities are calculated using FFT via IMSL's subroutine SSWD and the Tukey-Hamming window. A total of 960 data points are used in the computations for the first two storms, and 420 for the third. These correspond to 16 and 7 minutes of data respectively, the sampling rate being 1 Hz. Noise in the data is removed by a first order median filter (Brock, 1986), and where the wave record is particularly noisy, also by eye.

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* Reprinted from WMO/TD No. 621, and by courtesy of the Director of the Royal Observatory, Hong Kong.

The Acronyms are explained as follows: FFT — Fast Fourier Transform; IMSL — International Mathematical and Statistical Library; TMA — T (Texel) refers to the Texel Storm Data, M (Marsen) refers to the Marine Remote Sensing Equipment, A (Arsloe) refers to the Atlantic Ocean Remote Sensing Land–Ocean Experiment.

The spectral density of the waves generated between 10.30 p.m. Hong Kong Time (HKT) and 10.46 p.m. HKT on June 17, 1990 by S.T.S. Nathan is shown in Figure 2. It is single peaked with the peak frequency $f_m$ at 0.12 Hz (8 to 9 s). The high frequency side has a $f^{-3.3}$ dependence, where f is the frequency, suggesting that for this case the waves are those of finite depth (Kitaigorodskii *et al.*, 1975). This spectrum fits reasonably well the TMA shallow water spectrum proposed by Hughes (1984).

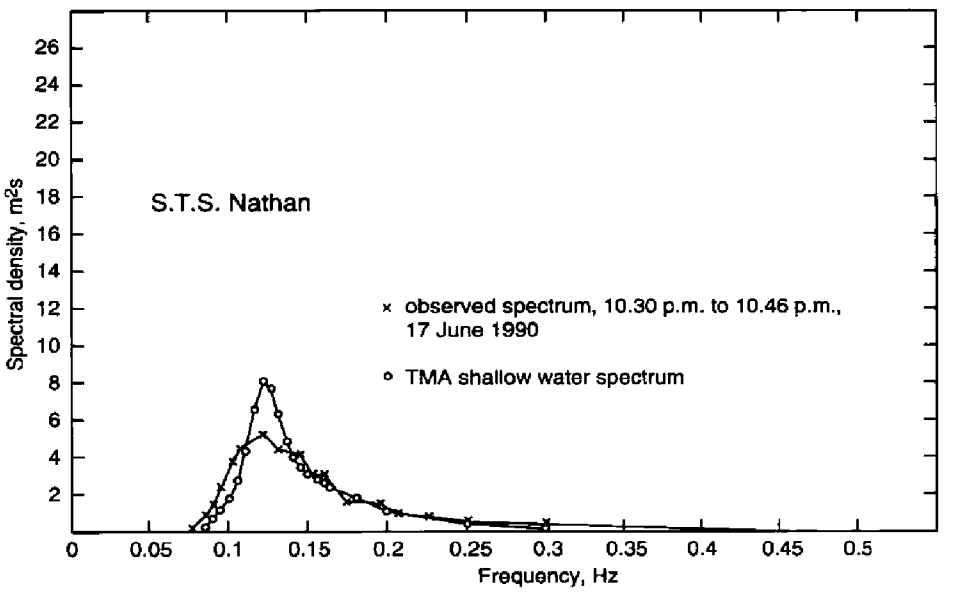


Figure 2. Wave spectrum of S.T.S. Nathan. The significant wave height was 2.7 m. Nathan was closest to Hong Kong at around midnight HKT on 17 June, 1990 when it was about 390 km to the southwest.

Zeke's spectral density (Figure 3), as calculated from Waglan's wave record between 10.30 p.m. HKT and 10.46 p.m. HKT on 12 July, 1991 shows two peaks. The larger peak is around 0.11 Hz (about 9 s), and the smaller peak is at 0.18 Hz (5 to 6 s).

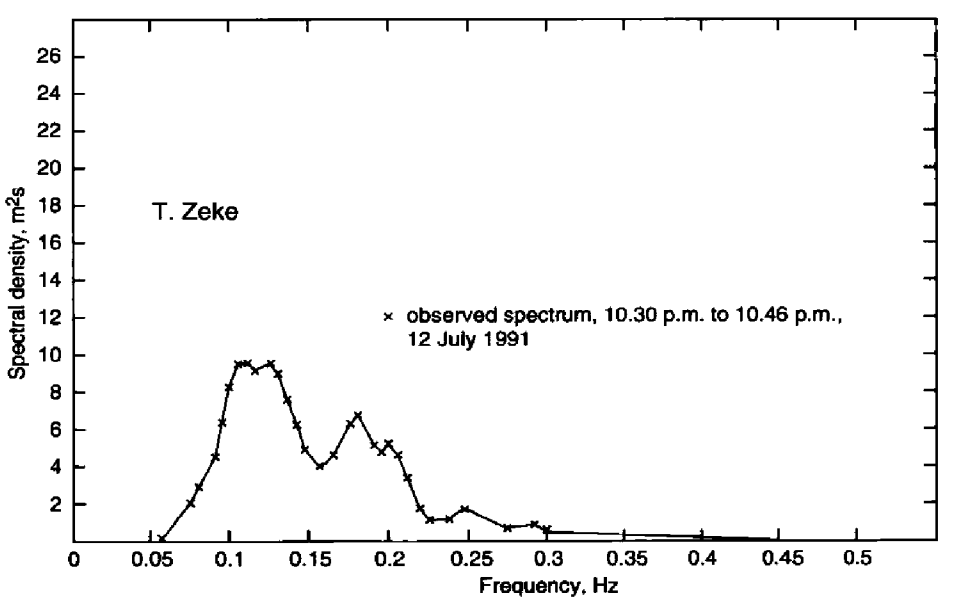


Figure 3. Wave spectrum of T. Zeke. The significant wave height was 2.5 m.

Without directional information the origins of the two peaks are difficult to identify. A possibility is that the first peak is due to waves generated by winds nearer the centre of Zeke which at that time was about 520 km to Hong Kong's south-southwest and travelling up to arrive at Hong Kong as swell, and the second to waves generated by local winds which were mainly from the northeast with speeds of about 10 m $s^{-1}$.

The closest approach of Brendan to Hong Kong was at about 4 a.m. HKT on July 24, 1991, when it passed about 80 km to the territory's south-southwest. The wave spectrum (Figure 4), calculated from measurements made about four and a half hours later, is single peaked with $f_m$ at 0.155 Hz (6 to 7 s) rather than multi-peaked as would have been expected from waves generated so near the centre of the storm. The Pierson-Moskowitz (P-M)/Bretschneider spectral form with a $f^{-5}$ dependence for the high frequency range seems to describe Brendan's spectrum well.

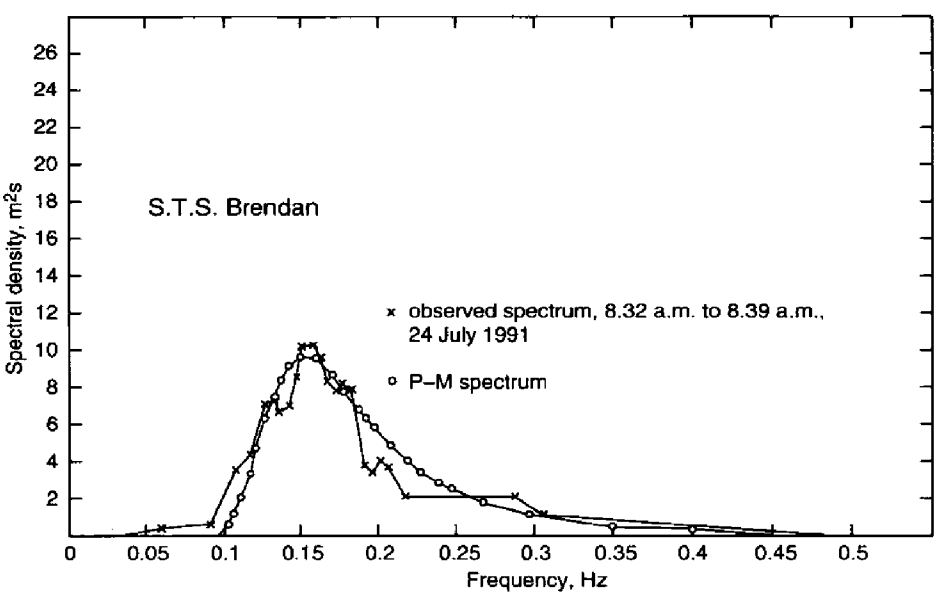


Figure 4. Wave spectrum of S.T.S. Brendan. The significant wave height was 2.9 m.

The reasons for the wave spectra of different shapes merit further investigation, but is beyond the scope of this note.

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# Current Practices

In the July and October editions of this journal we reproduced in two parts an article which originally appeared in the *Journal of Navigation*, May 1985, on the reliability of surface current observations by the present Head of the Royal Netherlands Met. Institute (KNMI) Bureau of Marine Affairs, George Venendaal, with a promise of a discussion of today's methods and a look into the future for obtaining reliable ocean current data. We continue with an update on the establishment of KNMI's new computer program for recording ocean currents.

# KNMI sea surface current program TURBO6-TRACKOB

Over the last eighteen months, co-operation between software development scientists in both the Netherlands and the U.K. Met. Offices has resulted in the creation of KNMI's new program called TURBO6-TRACKOB. The first part is an acronym for Turbo **S**ea-surface current **I**nde**X**ing, whilst TRACKOB stands for 'track observation'.

The purpose of Turbo6 is to facilitate the making of a sea surface current observation, which will be stored in a computer file. The Turbo6 program needs at least a DOS Personal Computer with one diskette drive, and was extensively tested before being passed to the World Meteorological Organization at the end of 1995, for ultimate promulgation and use on Voluntary Observing Ships. Turbo6 follows KNMI's Turbo1 program for preparation of a surface weather observation, which was briefly described in an earlier edition of *The Marine Observer*.

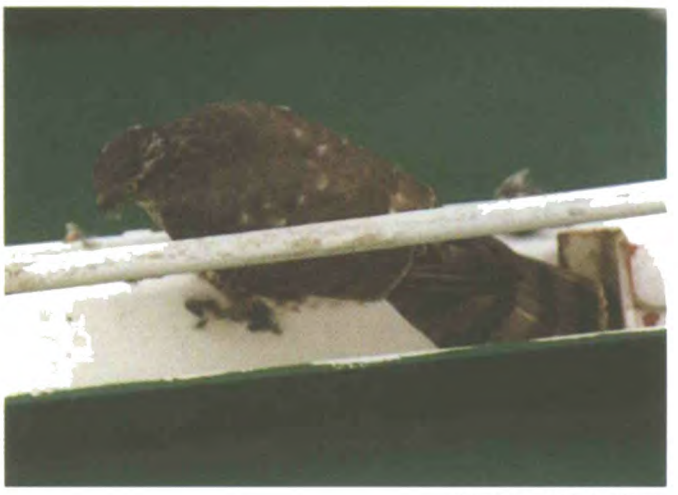
After completion of a surface current observation, a TRACKOB report holding a sequence of surface marine observations can be prepared. TRACKOB is derived from the WMO Code FM-62, *Report of marine surface observation along a ship's track*.

The Turbo6 primary screen emphasizes to the observer that courses and distances run **through the water** should be entered. Surface current observations must not be made when only data of ground tracks are available. The latter does of course always apply to the recording of ocean current data, whether by computer or manually entered in the meteorological logbook.

The main screen of the program invites the user to enter date, times and positions for the beginning and end of the run and type of fix used: further windows ask for the observer's code number, ship's call sign, wind direction and force, course and distance vectors, draught and average speed. Details of each of the elements are accessed by use of function keys and movement around the screen is facilitated by use of other keys. There are extensive HELP notes and the opportunity is given to enter additional remarks, such as 'distance by engine revolutions'.

The Turbo6 program checks the observation with more than 60 checks built in, drawing the user's attention to each of three error-levels and highlighting the dubious values. On completion the computed current direction and velocity data are displayed on the screen and can then be permanently stored by pressing a function key.

The resultant data from the Turbo6 program are used to partially compile the TRACKOB report, which includes a sequence of surface currents, sea temperatures and salinity observations along a ship's track on a daily basis. The TRACKOB program compiles the report into the seven or ten groups of WMO Code FM-62, making a suitable format for transmission on the Global Telecommunications System.



Left: Sparrowhawk (female) pictured on board the *Seillean* on 30 April 1995. (See page 59.)

*Photo. by V.A. McAdam*

Right: A Whimbrel given shelter aboard the *Norna* on 29 April 1995. (See page 60.)

*Photo. by Captain D.L. Rattray*

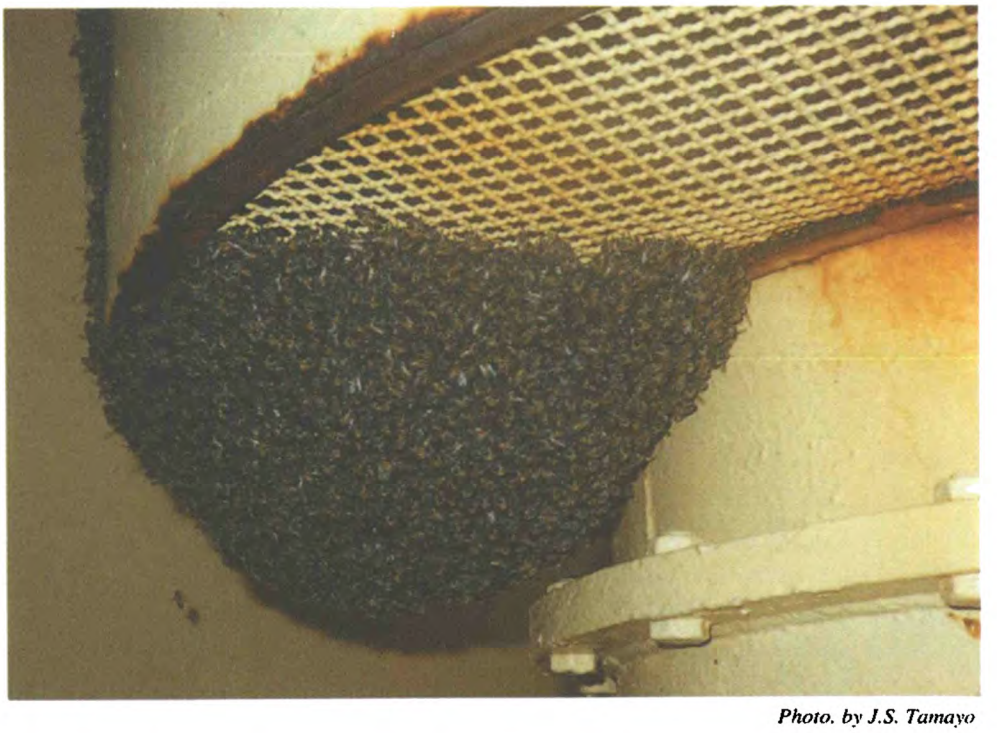


*Photo. by J.S. Tamayo*

A swarm of bees at home on the *Chiquita Baru* on 5 April 1995. (See page 61.)

*Photo. by courtesy of the Southampton Oceanography Centre*

The Royal Research Ships *Challenger* and *Discovery* alongside at the Southampton Oceanography Centre. (See opposite page.)

# New Oceanography Centre opens in Southampton

An article in the Autumn 1995 edition of *IMS Newsletter* foretold of the expected opening and facilities of the new Southampton Oceanography Centre (SOC) last September, ten years after a report from the U.K. House of Lords Select Committee on Science and Technology called for greater collaboration in Britain between research institutes and universities. In particular, the report argued for the strengthening of the links between the University of Southampton and the Institute of Oceanographic Sciences Deacon Laboratory (IOSDL), which in turn belongs to the Natural Environment Research Council (NERC).

The new £48 million premises, which houses some 450 research scientists, lecturing and support staff as well as 480 undergraduate and postgraduate students, accommodates under one roof the following:

- NERC's IOSDL, formerly based at Wormley in Surrey, and the James Rennell Centre for Ocean Circulation;
- NERC's Research Vessel Services relocated from Barry in South Wales to the Centre;
- The University of Southampton's Departments of Geology and Oceanography, together with components of the Faculty of Engineering and Applied Science, including the Underwater Acoustics Group of the Institute of Sound and Vibration Research, are also housed in SOC.

Our long association with our correspondent on the subject of bioluminescence reports from ships, Dr Peter J. Herring, PhD, continues as he has made the move to Southampton from Wormley with IOSDL. We are very fortunate to have his continued co-operation after more than twenty years of receiving his stimulating and informative comments on the marvels of luminescent wheels and illuminated seas, as well as a number of expert articles on his subject.

The Royal Research Ships *Charles Darwin, Discovery* and *Challenger* are all Selected Ships of the Voluntary Observing Fleet, and constitute the U.K.'s only fleet of ocean-going vessels specifically equipped for deep-sea oceanographic study and research. The new Centre is now home port for the three ships. (See photograph on opposite page.)

Southampton University's Department of Oceanography is the premier U.K. department for the teaching of and research in oceanography, and in addition to its collaboration in a number of international oceanographic projects, it plays a leading role in studying local coastal processes, research and marine environmental monitoring. The Department of Geology is also recognized internationally for excellence in research and teaching. Current research in marine geology and geophysics, micropalaeontology, geochemistry and geomechanics includes strong links with the hydrocarbon and mineral industries and with environmental and engineering projects. Teaching in both departments covers all aspects of marine and earth science at undergraduate level.

The new SOC building has been designed to maximise the benefits of creating a large community of marine scientists, with the major objective of being able to conduct research and teaching at a high level and to respond to changing national and international needs and interests. Included in the facilities are a research aquarium, temperature-controlled areas, pressure testing tanks and a wide range of laboratory areas. The U.K. National Oceanographic Library will be housed on the site as will biological and geological collections of international importance.

Working with the marine industry is seen as essential to the success of the SOC. The Centre is among the founders of a new company called Marinetech South Ltd,

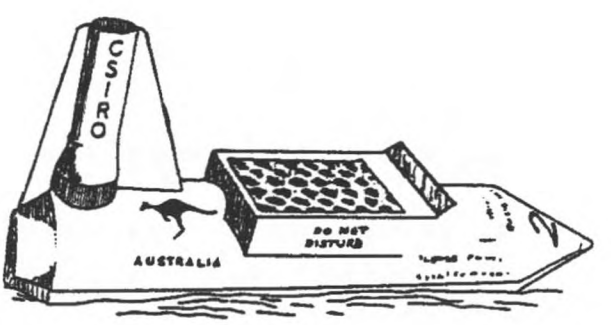
which has been formed to develop existing links and encourage new joint ventures. Collaboration with other scientists across the world is also essential: an agreement was signed with Woods Hole Oceanographic Institution, Massachusetts, in 1994 and the opening of the SOC last September was marked by two international conferences in Southampton — The Challenger Legacy and the European Marine Biological Symposium.

Further information about the Centre can be obtained from the Director, Professor John Shepherd, Southampton Oceanography Centre, Empress Dock, Southampton SO14 3ZH: tel: +44-1703 595105; fax: +44-1703 595107.

# Oceanography 'Down-under'*

**Satellite-tracked drifters**

The Division of Oceanography of the Commonwealth Scientific, Industrial and Research Organisation of Australia designs and builds surface drifters and uses them to collect information on ocean currents and the environment. The drifters resemble small white torpedoes 1.6 m long by 0.4 m diameter, which float horizontally to reduce their drag to wind, waves and currents. A large sea anchor suspended 20 m beneath each drifter 'locks' its movement to that of the ocean currents. The drifters are equipped with sensors to measure sea temperature, and a tilt switch to indicate if they have lost their sea anchors. Solar panels provide the power.




A satellite-tracked drifter

The program began in 1972 and is now making use of its third generation of satellites. These are launched by the National Oceanic and Atmospheric Administration in the U.S.A. for collecting environmental information. They carry a package developed by CLS-Argos in France that can simultaneously listen to the 400-Mhz transmissions from several hundred drifters, record their data and fix their position to an accuracy of 500 metres.

The transmitters used in the drifters are also used to track land and sea creatures and racing yachts.

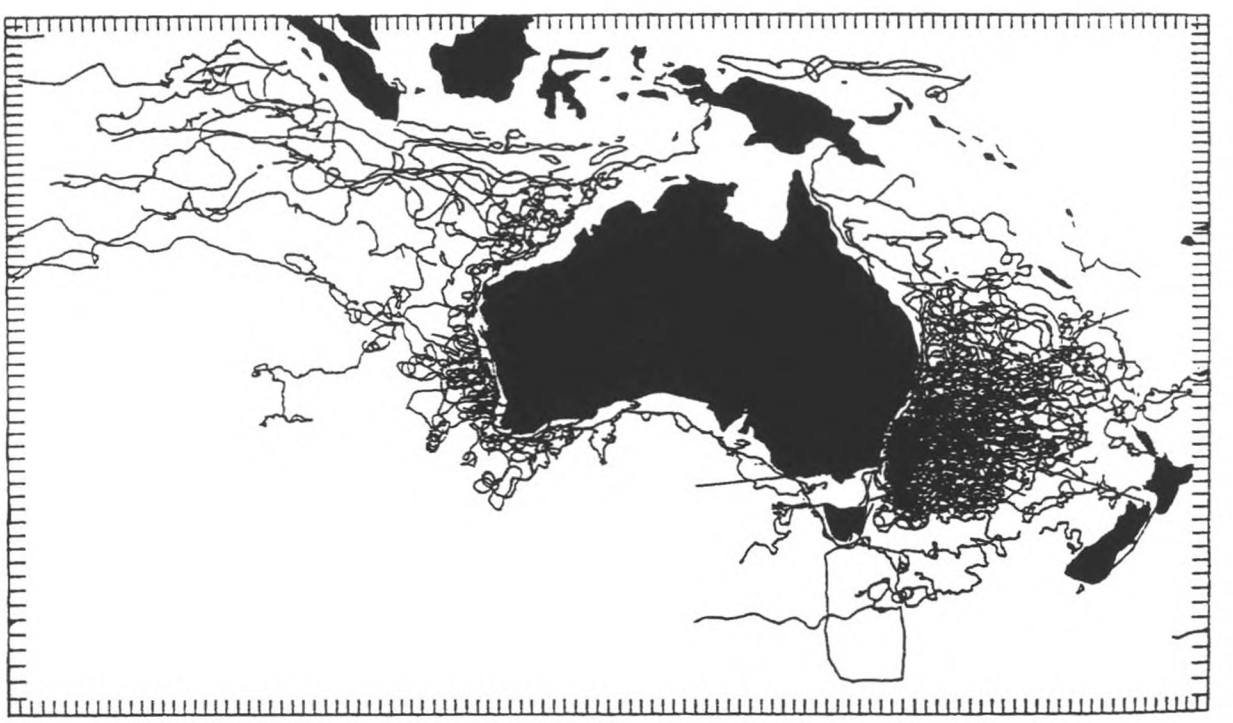
The drifters have been used with notable success to study the East Australian Current. They revealed that huge eddies, almost as big as Tasmania, could have lifetimes of at least 18 months as they revolved roughly every five days. Furthermore, two of them could 'marry' after a courtship that involved them

*Reprinted from WMO/TD-621 by courtesy of the World Meteorological Organisation and CSIRO Division of Oceanography, Hobart, Tasmania.

waltzing around one another for several rotations. The near-surface water from one eddy finished up on top of the other eddy. Off Western Australia the drifters traced out 2000 km of the path followed by a current that was then named the Leeuwin Current.

Over the past few years the Division has advised Moonraker Technology Pty in Hobart, in its quest to build satellite drifters. The company has produced a new design of drifters for customers in Australia and has made its first export delivery – to the U.K. Antarctic Division biologists attached a Moonraker electronics unit in a pressure case to an elephant seal at Macquarie Island. The unit survived dunkings to 1200 m depth as the seal moved some 1000 km south to Antarctica to fish at the continental shelf edge. Elephant seals are declining in numbers and hard information on their behaviour is very scarce.

Satellite-tracked drifters are useful tools for oceanography. Large international 'fleets' of them are planned to gather information for day-to-day weather reports, ocean current studies and research on climate change.



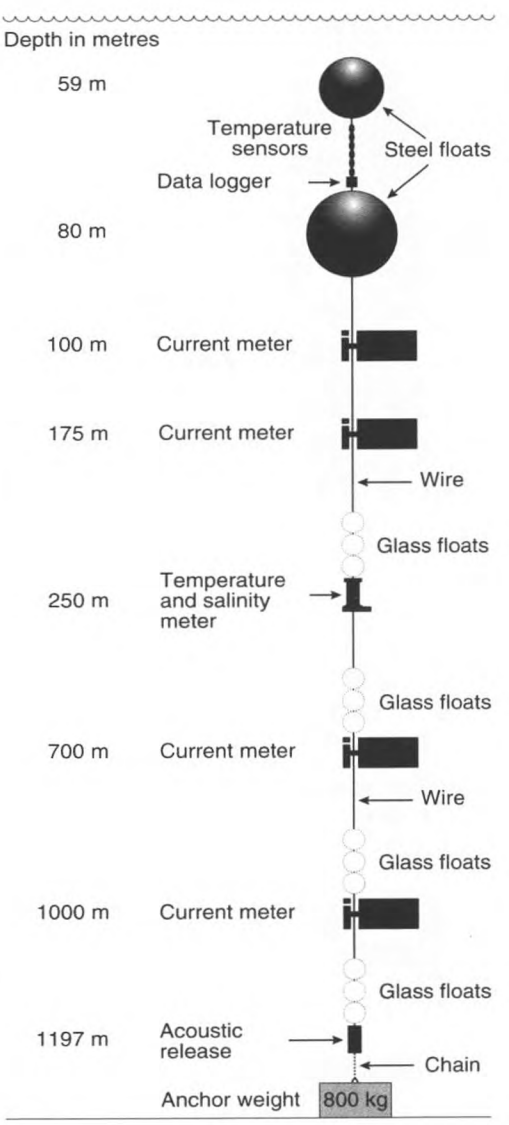
The diagram shows the tracks of drifters in the region of Australia over the course of 15 years. The rectangular track south of Tasmania marks the path followed by R.V. *Sprightly* in 1978.

**Buoys and Moorings**

Oceanographic ships are essentially mobile data gatherers. Their strength lies in their ability to collect information over large areas. However, they are too expensive to be used as a stationary platform; instrumented moorings efficiently fill this role.

Instrumented moorings are a way of keeping instruments at a particular location in the open ocean for long periods — normally several months — to record the variation with time of such ocean parameters as currents, temperatures and salinity.

A typical mooring has a top float, an instrument line and a release device and an anchor weight at the bottom. When the mooring is deployed by a research vessel, recording instruments are attached to the line at predetermined depths. Floats are also attached along the length of the instrument line to keep it near vertical and to provide flotation when the instruments are retrieved. An essential part of most larger moorings is the 'acoustic release' device, which is located between the instrument line and the anchor on the sea-bed. When the recording period is completed, and the research ship returns to retrieve the mooring and its instruments, the ship transmits specially coded acoustic signals through the water column down to the anchor cable below it. The buoyancy provided by the floats then allows the entire instrument line to float to the surface for retrieval by the research vessel.




An example of the mooring deployed by the Division is shown in the schematic diagram. The Moorings Group in the Division of Oceanography is responsible for developing mooring systems and associated technology to support the Division's oceanographic field programs.

Several mooring types are used, depending on data requirements:

*Large surface moorings* are used when weather and near-surface data are required. The surface float is a very large fibre-glass toroid with a displacement of 1.5 tonnes. The instrument line is a wire rope in the top 1000 metres and then nylon rope to the bottom. The anchor is a 3 tonne mass. Such moorings can be anchored in depths to 5000 metres. If equipped with a weather station, the surface buoys can be monitored by the ARGOS satellite system, which gives their position and relays some data.

*Small surface moorings* are used primarily to measure the currents and temperature structure in the water column. The top float which is usually of steel, can be up to 500 metres below the surface. It is fitted with a radio beacon to assist recovery. The instrument line is wire to 1000 metres, and dacron rope to the bottom. Back-up flotation provides a safety aid.

*Bottom moorings* consist of a package containing the instrument (usually a tide gauge), flotation, release and anchor.

The Moorings Group is currently using 50 current meters, 2 weather stations, 2 Acoustic Doppler Current Profilers, 6 temperature-salinity recorders, 8 tide gauges, 2 Thermistor strings and 16 acoustic releases.

Over the past seven years, CSIRO has deployed over 100 moorings, with a recovery rate of about 96 per cent.

## Seventeen days with *Leonia*

A variety of sightings were made on the vessel's southbound passage from Juaymah in the Persian Gulf towards the Cape of Good Hope and thence towards Antifer, and the first of them was made at 0632 UTC on 13 June 1995 as *Leonia* left the area of the Gulf of Oman. The wind was SE'ly, force 3 and the visibility was 8 n.mile when observations were made of a slow-moving pod of eight dolphins moving north-east. They had grey or grey-white backs [1] but did not appear to have the characteristic beak of the Bottlenose Dolphin. The second cetacean observation of the day came approximately 40 minutes later when two large schools of what appeared to be differing species were encountered. The closer group consisted of about 30[2] individuals close in appearance to Spinner Dolphins, some of which leapt from the water and turned somersaults before landing; the second school contained about the same number but seemed to be made up of the Spinner type of dolphin and the unidentified species seen earlier.

Both schools passed within 1 n.mile of the vessel and appeared to be feeding; they were accompanied by a variety of seabird species, possibly boobies, herring gulls and cormorants, all taking advantage of the dolphins' disturbance of the water.

Later in the day, at 1250, a small flock of birds numbering seven or eight individuals was noticed flying very close to the bow of the vessel. Their flight path was less than one metre above the sea which meant that only the upper parts of their bodies were clearly visible but their backs were dark and their wings were

*Note.* All identifications made in this account are as given by the observers, with the exception of those in notes [1] and [2] which follow the article and have been given by Kelly Hughes, marine zoologist on board the *Ocean Defender*, operated by **EarthKind**.

longer than those of normal landbirds. The flight consisted of a long period of gliding interspersed with a few wing beats and the wings were seen to be cutting the water at intervals. They flew at the bow for about five minutes and left unnoticed and were identified as Wedge-tailed Shearwaters from various sources of literature on board.

It was to be a week before another significant bird sighting was made. Late in the afternoon of the 20th a number of birds were seen 'ducking and diving' forward of *Leonia*; on closer inspection of them it was decided, with the aid of *Seabirds of the World* by Peter Harrison, that they were Masked Boobies. Some of them were observed diving unsuccessfully for fish and, as the day drew slowly to a close, the sun dipping below the horizon, their numbers increased and many came to roost on the foremast.

As the first tendrils of dawn touched the sky on the following morning, there was interest among the observers about how many of the 'passengers' had remained with the ship throughout the night, and they found that 15 or so were still perched on the foremast. As daylight gained a hold, the night visitors stirred, spread their wings and dived for breakfast.

Whilst taking the morning star sights, a larger and different species of bird arrived on the scene and started to fly among the boobies, scattering them and causing them to fly away. After the larger bird had had his fun, he flew off to cause disruption elsewhere and *Leonia*'s boobies returned to continue their escort of the ship towards the Comoros Islands. The larger bird was identified as member of the Skua family.

Three days later and the ship now followed a south-westerly course through almost calm seas at the southern end of the Moçambique Channel. At 0830 on the 23rd an area of disturbed water was seen ahead and when examined more closely it seemed to be affected by a stronger wind than that being experienced by the sea in the area of the vessel (SW'ly, force 2). There was no corresponding 'line' of cloud above the very marked boundary between the differing areas. The air temperature was taken prior to crossing the boundary and was found to be 22.5° while the sea temperature was 25.2° and the pressure was 1016.5 mb. Immediately on crossing the boundary, the wind backed by 20° and increased to force 4 while the air temperature increased to 24.1°, the sea temperature rose to 25.7° and the pressure also rose, to 1017.1 mb. Thirty minutes after crossing the boundary, the wind veered to S×E'ly and decreased to force 3.

On the 28th the vessel was rounding the Cape of Good Hope, passing 30–40 n.mile off Cape Town during the morning. The sun had just risen behind Table Mountain and a magnificent display of crepuscular rays had been watched. At this time, there were large numbers of seabirds on the water nearby and in the air ahead. For the next three hours the *Leonia* was treated to a marvellous gathering of the local bird population, with so many species present that identification was sometimes made almost impossible.

Large flocks of up to 50 or 60 Cape Gannets were flying parallel to the ship, using the bow wave and the wake as a fishing ground and diving range. Cape Petrels in flocks of 20–30 were flashing around parallel to the water and flying in formation between rafts of Kelp Gulls which seemed content to float around watching the display, then leapt *en masse* into the fray when a shoal of fish was spotted. In amongst all this activity Great Winged Petrels and Black-browed Albatrosses were seen although there was some argument on board as to whether the latter were in fact larger Kelp Gulls. Other species of birds were observed but they were not so accommodating in numbers as those already mentioned, so were

much harder to identify. These included one which, tired of the competition, tried to land on the bridge deck but thought better of the idea on seeing the large number of people there. The bird was about 30 cm long, brown with white flashes on the wings which gave an untidy appearance as if some of the feathers were missing. In appearance or jizz it resembled one of the skua family. By 1100 the birds had begun to thin out, leaving only an occasional raft of 10–20 Kelp Gulls.

Now into the South Atlantic Ocean, the *Leonia* held a lifeboat drill on the 29th and the crew had just been stood down when the Lookout spotted the blow from a whale on the starboard bow; the vessel's course was altered to approach closer. On nearing the area of the sighting it was determined that there were up to 15 whales travelling in two groups, the closer one consisting of four individuals two of which appeared to be calves. The further group also contained calves.

An approach was attempted to within 200 m but at a distance of 300 m the whales dived but one then surfaced behind the ship and was estimated to be 30–40 m long. However, they had by this time been under observation by most of the bridge staff for about an hour. The whales were travelling in a north-westerly direction and seemed to be using the Benguela Current although they did not seem to be moving very fast, perhaps 5–8 knots. The adults were dark grey-brown in colour and appeared to have a pronounced hump towards their head, the flukes were raised on diving. It was assumed that they were Humpback Whales.

**Acknowledgement**

We are grateful to the following for their contributions: Captain A.F. DeVanney, Mr M.J. Watts, Chief Officer, Mr A.A. Pathan, 2nd Officer, Mr R. Parker, 3rd Officer, Mr G. Vijayaratnam and Mr M.D. Zailani, Cadets.

*Note 1.* The observers describe a small group of eight dolphins with grey-white backs and lacking a beak; characteristics of the Risso's dolphin. The 'white' on the individuals' backs are scratches which may be teeth marks from other Risso's: such scars may be useful in individual identification. As Risso's age their colour changes from dark-grey in the young to light grey/white in older individuals. Adult Risso's vary in length from 3–3.8 m and have a distinctive tall dorsal fin mid-way along their backs. They tend to travel around in small social units (perhaps family groups) some of which are shy and retire away from passing boats whilst other groups have been recorded breaching and spy-hopping so that their pectoral fins are completely clear of the water. Risso's can be seen from tropical to temperate waters of all seas. They tend to prefer offshore waters although they are sighted in coastal waters of the Atlantic, especially around the British Isles and Ireland.

*Note 2.* The observers suggest that the dolphins are spinners because of their acrobatic nature. However, the illustration [not shown in the article] clearly depicts a black stripe along the flanks of these dolphins. On this basis I suggest that the sighting was of a group of Striped dolphins.

Striped dolphins usually occur in large schools and are extremely active and conspicuous. Individuals frequently perform amazing acrobatics including breaches, back somersaults, tail-spins and upside-down porpoising. They have been observed associating with other dolphin species, so it may be possible that they were feeding in the same area as the Risso's. They are distributed mainly offshore in all tropical, subtropical and temperate seas.

# AURORA NOTES APRIL TO JUNE 1995

By R.J. Livesey

(Director of the Aurora Section of the British Astronomical Association)

Observations of the aurora made by mariners during the period and received up until the time of writing are given in Table 1. The aurora observed by the *James Clark Ross* coincided with the arrival of a shock wave in the particle streams coming from the sun that resulted in a magnetic storm. The aurora observed by the *Toisa Cougar* was associated with a sudden increase in magnetic disturbance that followed a day of almost total quiet in the Earth's magnetic field.

**Table 1 — Marine aurora observations April to June 1995**

| Date | Ship | Geographic Position | Time (utc) | Forms in Sequence |
|---|---|---|---|---|
| 1/2 Apr. | *James Clark Ross* | 71° 50'S, 19° 30'W | 2100–2200 | G.$m_4$P+$m_1$RB.RV.HB |
| 22/23 | *Toisa Cougar* | 61° 36'N, 01° 18'E | 0006 | RB |

KEY: $m_4$P = 4 light patches; $m_1$RB = single rayed band; G = glow; HB = homogeneous band; RB = rayed band.

The most active auroral storm in mid-latitudes reported in the period took place on the night of 7/8 April and was accompanied by a major magnetic storm. This was one of a series of events that began in January 1995 and terminated at the beginning of June. Lesser auroral events in the series took place on 2/3 May and 31 May/1 June. These were attributed to coronal hole activity on the sun.

The aurora of 7/8 April was initially well observed from South Island in New Zealand, then reported by Scottish observers as far south as Portpatrick, to be followed by observations from North America as the Earth progressively rotated under the active auroral ovals. Looking at the data from both hemispheres, it is useful to remember that high flying research aircraft positioned at equivalent geomagnetic latitudes and longitudes in the Northern and Southern Hemispheres (termed the conjugate points) have demonstrated that observers at these points see similar auroral activity.

In these notes we have hitherto referred to the explosive type transient events on the sun, such as coronal hole mass ejections, the particle streams from which compress the Earth's magnetic field and trigger off major magnetic and auroral storms. The latter are seen well down into lower latitudes and are sometimes visible in the tropics. We have also referred to the quieter repetitive aurorae seen at higher mid-latitudes that are caused by the particle streams from coronal holes each time the sun rotates. There is a third type of auroral activity which is called the auroral substorm and is associated with an equivalent magnetic substorm. The auroral substorm is principally a feature of the auroral zones in both hemispheres and will be observable by ships and aircraft suitably located.

Whereas a major aurora may be active for many hours and is a relatively infrequent occurrence, the substorm is almost a daily event lasting only an hour, or so, around local magnetic midnight. In British waters this is at about 2100 UTC when the observer, the magnetic pole and the sun are in the same straight line on the axis of the auroral oval. The substorm is not specifically related to solar

activity but rather with instabilities in the Earth's magnetic field brought about with a southerly orientation of the interplanetary magnetic field in space which can be quite variable in direction. Two or three substorms can overlap in one night.

Prior to a substorm, quiet auroral arcs lie east and west along the auroral ovals. In the first five minutes of the storm an arc may brighten suddenly together with the formation of some rays but there is no movement of forms. In the next five minutes, a bright bulge develops in the auroral oval, with an expansion polewards. Folding bands appear within the bulge and move towards the evening side to form what is called the western travelling surge. Auroral structures drift eastwards and break up in the morning sector to form cloud-like homogeneous patches. By this time the substorm is 30 minutes old. During the following half-hour the surge degenerates, the bulge contracting and weakening while many rays present disappear. For the second hour after commencement, the poleward arcs drift equatorwards and back into the auroral oval to fade or become faint, leaving perhaps an auroral glow or patches of light in the morning sector. Thereafter any arcs remaining may fade away.

In the North Atlantic, for practical purposes, the auroral zone may be defined as a line joining James Bay, Ontario with the coast of Labrador, Iceland, North Cape and Novaya Zemlya so that any ships in adjacent waters may well detect the effects of substorms. Auroral substorms are linked to magnetic substorms and both can appear in the middle of major auroral and magnetic storms and can be detected by the appropriate magnetic signatures on magnetograms on the instruments of magnetic observatories. A major auroral storm has global implications but a substorm is local to its own longitudinal sector.

The size of the auroral oval and hence the auroral zone is also affected by the strength of the Earth's magnetic field which at present is declining significantly. As a result, the auroral zone should get larger and there may be a greater possibility of seeing auroral storms more readily in the mid-latitudes.

The year 1995 was a good one for noctilucent cloud (NLC) apparitions. Dr David Gavine assembled some 245 observations made in western Europe. The minimum geographic latitude at which NLC were observed on each of 48 nights is given in Figure 1.

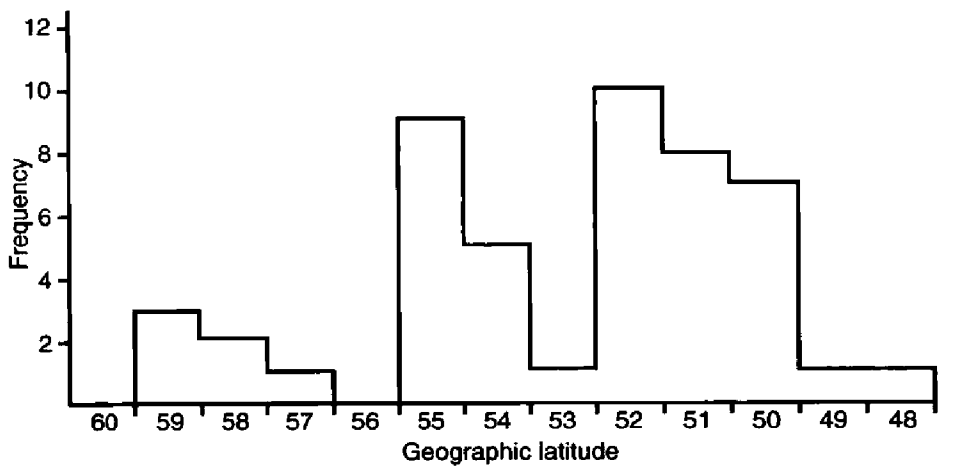



Figure 1. Minimum geographic latitude at which NLC were observed.

The most widely observed event took place on 23/24 June and was reported as practically all-sky from Denmark. Three events were photographed on 30 June/ 1 July, 15/16 and 17/18 July from as far south as 46° 48'N in the state of North Dakota, U.S.A.

# Observers' Forum

**Increase of interest in observing**

Captain P.W. Jackson, Master of m.v. *Seki Cedar*, managed by Denholm Ship Management of Glasgow and owned by Sekihyo of Tokyo, was spurred to write to us at length with his thoughts on the present state of observing practices at sea. Captain Jackson recalls from personal experience his eternal gratitude to certain Senior Officers in his youth, who provided him with enthusiasm, education and example and encouragement in matters meteorological, which formed part of the prerequisite for a life-time career in the Deck Department. This enthusiasm has been well demonstrated in his observing returns since the day he filled in his first log aboard an Ellerman City Liner in 1963.

He believes that the electronic age of GPS, Satcom and Fax, invented by 'our' generation, has removed much of the initiative required of our formative years at sea. It is apparent to him that meteorological education in colleges for Navigating Officers in the last ten years has become low key, trivialised and of 'boring' presentation, no doubt taught as a secondary subject.

Although today's watch-keepers are no less intelligent or highly qualified than their predecessors, their duties are far more comprehensive and intensive. His two Navigating Officers on *Seki Cedar* spend twelve hours per day on bridge watchkeeping, as well as carrying out other off-watch duties such as ship maintenance, administration and safety requirements. With no breaks in the trading pattern and reduced support from GP manning, there is less time for 'the distraction' of weather observations, allied to the belief that ships' data are of less importance in today's electronic data-gathering world, particularly on short-sea trading such as coastal and Mediterranean routes.

Captain Jackson's example and encouragement, passed on from his own mentors, shows that ships' observations still have a very important part to play, and he finds an increasing interest taken. Young watchkeepers having a personal responsibility in compiling the fair copy met. log, including remarks and additional entries, have shown increasing interest, enhanced by the spur of Excellent Awards. *The Marine Observer* is also perused and all editions on board are thumbed at length by subsequent personnel. Finally, Captain Jackson says that he does not wish for personal praise as this may have a negative effect on his observers, but recent Marine Division letters to him have only highlighted his method of leading by example in encouraging willing weather watchers.

**Expert advice**

As mentioned in the 'Annual Report', two new scientific experts have joined our group of correspondents who give of their time to provide professional comment upon the great variety of interesting reports we receive from ships' observers, to bring the number to twelve such volunteers.

Mr Andy Whittington of the National Museum of Scotland now accepts all the insect reports and makes a very thorough analysis of them, leading to his expert comment in reply. In the first batch sent to him after a break of some years without such co-operation, he was sent some boxed insect specimens, which after a considerable delay since being captured on board, had become somewhat odorous. His advice on the preservation of any dead insect is to immediately set about drying out the corpse as thoroughly as possible, by placing it between layers of tissue in a non-humid atmosphere. To preserve the specimen satisfactorily, it

should be placed in a leak-proof container of pure alcohol, rather than any solution of drinking spirits which generally cause deterioration of the subject. Such containers can then be handed to a Port Met. Officer in the U.K. for onward transmission to the Office, or mailed in a suitably padded package. Particular care should be taken with the handling of delicate insects such as butterflies, moths and beetles.

Miss Kelly Hughes is a Marine Zoologist on board EarthKind's floating environmental vehicle, *Ocean Defender*, and says she is very pleased to receive the backlog of ships' cetacean reports that has built up over nearly four years, and to be given the opportunity to analyse and comment upon them. That she has taken up this task with such alacrity should be of benefit particularly to those who make a point of reporting their dolphin, whale and porpoise sightings in their meteorological logs. We hope to be able to provide copies of Kelly's comments to all the ships concerned in due course, but it is an unfortunate fact that some delay must occur between receipt of report and a letter to the ship with which the reply can be sent. Although sometimes requested by the individual keen observer, our resources cannot stretch to sending further copies to their home addresses. In addition, although many competent observers send us very fine reports and photographs direct to the Marine Division office, we would rather have them kept to the log where all additional information we may need is kept together.

Dr Frank Evans, Extra Master and Doctor of Philosophy, who provides the knowledgable commentary on marine life generally, was pleased to receive recent evidence of further phenomenal blooming of Velella ('By-the-wind-sailor') in the North Pacific Ocean (*Pacific Pintail's* report on page 58). He continues to emphasise that confirmation of sightings of commonly seen creatures of the sea is to be encouraged, since by being common we need to have proof of their continuing health and existence.

**Radio Officers' Association launched**

Mr Paul Durkin of Burnham-on-Sea, Somerset, England, former ship's Radio Officer in such companies as P&O and Sealink, has formed the Radio Officers' Association of Europe. The association is for practising and retired Radio Officers with experience afloat or ashore in the service of Europe's Merchant Marine.

Paul Durkin aims to attract suitably qualified individuals and keep them in touch with their profession, arrange selected discounts on travel and insurances and establish a helpline. He says the membership subscription of £10 per year represents good value in terms of the discounts available alone, but the main purpose is to enable Radio Officers to keep in touch.

Mr Durkin has also agreed to put the Met. Office Marine Division in touch with retiring Radio Officers who have co-operated in the transmission of weather observations on board ship. We would like to have the opportunity to acknowledge our debt to these officers for their valuable work in this field, by arranging retirement notices in this journal. For many years such advice often came from Personnel Departments of the Radio companies, but in recent times such information has been sparse to the point of non-existence. We would be very pleased to hear from co-operating Radio Officers approaching retirement before their breed becomes the dinosaur of the GMDSS age.

For full information about the Association, potential members should contact Paul Durkin on his telephone/facsimile number 01278 785389.

# Book Reviews

*Lloyd's Maritime Atlas of World Ports and Shipping Places*. 215 mm × 305 mm, vi + 64 plates + geographical and alphabetic indexes, *illus.*, ISBN 1 85978 004 0. Lloyd's of London Press Ltd, Sheepen Place, Colchester, Essex CO3 3LP. Tel: 01296 772277. Fax: 01206 772118. Price: £45.00, including postage.

Since publication of the first edition of this respected work from the Lloyd's stable in 1951, new editions have been produced at approximately two-yearly intervals, and in this eighteenth edition the publishers have gone to ever greater lengths to ensure the contents are up-to-date and simple to employ. Compared to the previous edition, new country borders have been amended, the port facilities coverage extended, including necessary revisions and all that could be done to keep this standard reference book for all involved in the shipping and related fields seems to have been introduced. With its distance tables plus the geographic and alphabetic indexes complementing the 64 pages of eye-catching maps, the whole work appears first class.

The publishers highlight the link with *Lloyd's Ports of the World*, which features more detailed information on ports and their facilities, making for an unbeatable team of reference works of their type.

*The Sea — Our Heritage* by Jean Cantlie Stewart. 140 mm × 220 mm, 304 pp. *illus.* Rowan Books, Davieburn House, Drummuir, Keith, Banffshire AB55 3QB. Paperback edition, price £8.95: hardback, £14.95.

By the most remarkable of coincidences, the launch of the original hardback edition of Jean Stewart's provocative treatise on the parlous state of our Navies, Merchant and Royal, in 1994, seems to have been followed by a chink of light illuminating a revitalisation in the fortunes of our Fleets.

Whether this is in any way attributable to the effects on readers of this remarkable book may be debatable, but the fact remains that demand for it in its first two years since publication, both in Britain and overseas, have lead to an early initiative for production of the second edition, in paperback.

The author has provided an extensive record of British maritime history, culminating in the factors contributing to the decline and present ills of the Merchant Navy in particular. The seventeen chapters cover much of the history, development and roles of the navies, leading to the conclusion that a change of attitude towards matters maritime is required on the part of people and politicians.

This book still remains a *tour de force* worthy of attention by the naval historian, the student of seafaring and all who have an interest in the preservation of our maritime heritage.

*Knotting with Modern Rope* by Percy W. Blandford. 145 mm × 210 mm, vi + 152 pp., *illus.*, ISBN 0 85174 630 6. Brown, Son & Ferguson Ltd, 4–10 Darnley Street, Glasgow G41 2SD. Tel: 0141 429 1234. Fax: 0141 420 1694. Price: £12.95.

This handy-sized hardback book is the first of its kind in our knowledge to address the different approach required to the knotting of modern cordage made with synthetic fibres. With great changes made in recent years in the materials used to make ropes and smaller cordage, the author sees the need to modify the

teaching of knots from earlier days in favour of a flexible approach to the requirements of knotting with modern materials. The result is an interesting mixture of the traditional and the adaptations made, to apply to experience of knotting with modern ropes.

After a short explanation of the different methods of construction of traditional and synthetic ropes, the author describes all the possible knots, and the tools to work them, that today's mariner may need in his everyday work on board. Many of the adapted knots seem to require a greater length of synthetic rope than was needed with natural fibres. Naturally many of the standard knots are described unchanged, and there do not appear to be many innovations for special use with synthetic cordage. However, the adaptations introduced are of interest and will doubtless be of much use to the seamanship student, who could also benefit from the simple but clear sketches throughout.

J.F.T.H.

# Personalities

RETIREMENT:—CAPTAIN GEOFFREY HEPPLE retired in October 1995 after a sea career of almost 42 years.

Geoff Hepple was born in July 1937 and received his schooling at the Hull Grammar School, followed by pre-sea training at the Hull High School for Nautical Training, known locally as the Boulevard College, a friendly rival to Hull Trinity House. His first intention had been to become a deep sea fisherman, having made several 'pleasure voyages' to Iceland, Bear Island and Spitzbergen during his school holidays, on one of which he was a stowaway.

Instead he became a cadet with J. & C. Harrisons of London ('Hungry Harrisons') and 'for his sins' paid off 20 months after joining his first ship, s.s. *Harpalycus*. He was appointed to the 1935-built converted coal burner one week after he recalls having the entry stamped into his Discharge Book 'Entry into the Merchant Navy — 1st April 1954.' He still remembers the Superintendent remarking as he issued the book "Are you sure you know what you are doing, Son?" After gaining his Second Mates Certificate in 1958 he joined Lamport & Holt of Liverpool, and in 1962 at the early age of 24 he found himself as Chief Officer on the U.K. to River Plate and Brazil refrigerated liner trade. Earlier in the same year the Met. Office received the benefit of the first of 46 meteorological logbooks he compiled, 12 of these being classed as 'Excellent'. He was rewarded with Excellent Award books in 1983, 1989, 1993, '94 and '95.

Two years after gaining his Masters Certificate in 1963, Captain Hepple joined Houlder Brothers, transferring to P&O Bulk Shipping a further ten years later. His first command was the *Eridge* in 1977, followed by 18 years on the tankers, bulk carriers and LPG/LNG ships of P&O Bulk, before retiring on 26 October 1995.

After seeing all the changes at sea over more than forty years, from basic navigation without electronic aids to the high technology and high pressure of today's low-crewed vessels with management virtually alongside in the office on board, thanks to modern communications, his junior colleagues look upon him with envy. We are pleased to hear that he is happy to enjoy family life and follow more closely the ups and downs of Hull Rugby League Club, and we wish him well in retirement whilst offering thanks for his keen co-operation over many years.

RETIREMENT — CAPTAIN J.F.T. HOUGHTON retired after 13 years with the Met. Office Marine Division, following a sea-going career lasting 34 years.

John Houghton was born in December 1930 and educated in his home town of Berkhamsted, Herts, following his father, who was by then School Doctor. After two years pre-sea cadetship on H.M.S. *Worcester* at Greenhithe, Kent, he became apprenticed to the P&O Steam Navigation Company in May 1948, sailing in the cargo carrier s.s. *Khyber*, an ex-Victory ship built in the United States during World War II. In the third and last year of his apprenticeship, in March 1951, he sent in from the P&O operated Troop Ship *Empire Fowey* (the ex-German passenger liner *Potsdam*) the first of his 32 meteorological logbooks, including 4 marked Excellent.

In his 22 years with the P&O Company he served in all ranks up to Senior Chief Officer, in passenger, general cargo and refrigerated vessels on the Australian and Far East trades, obtaining his Masters Certificate in July 1957. In 1971 he transferred to Denholm Ship Management, Glasgow, his first command in September 1974 being the 24-knot gas turbine ship *Eurofreighter*, on the trans-Atlantic container service for Seatrain. He twice served lengthy periods as Captain of *Vancouver Forest*, firstly in 1975 when the ship was in her original rig of lumber and bulk carrier, and again for two years from 1979, after the ship's conversion to a self-discharging container ship on the Europe to Arabian Gulf run. His final sea appointment was as super-cargo of one of the first purpose-built and manned Ecuadorian reefers, after four months of which he was mightily relieved to return to dry land when redundancy struck in April 1982.

Captain Houghton was appointed as a Nautical Officer in the Marine Division in November 1982, and the following year took over as Deputy Editor of this journal. In his twelve years in the position he has seen the change to colour photographs, new design cover and printing style, and a relaxation of the rigid style which survived from the first post-war edition in 1947, thanks largely to the innovations suggested by the experienced Sub-editor, Mrs Jan Freeman. He has also maintained a regular correspondence with ships' Masters and Observing Officers in acknowledgement after regular assessment of their meteorological logs, the contents of which have been the lifeblood of shipping forecasters and historical climatologists since observing for the Met. Office began in 1855.

He is a Liveryman of the Honourable Company of Master Mariners and a Fellow of the Nautical Institute, serving as Honorary Secretary of the London Branch of the Institute for five years from 1982. In 1956 Captain Houghton married his wife Barbara, after meeting and sailing with her for two years when she was a Stenographer in one of the famous five P&O 'white sisters', *Strathmore*, a ship which became his second home during his three separate appointments to her in different ranks. Following his retirement at the end of January this year, they will no doubt be spending much time visiting their two daughters and two grandchildren from their Woking home, but not before the completion of their long-awaited 6-week trip to Australia visiting many friends made during their earlier travels, as well as relatives and expatriate settlers. May the years of experience in his newly-discovered aptitude in editing this journal be of benefit in his desire to fill his days of leisure with writing and composition, among other pursuits.

# Notices to Marine Observers

## APPOINTMENT OF NEW MARINE SUPERINTENDENT

Captain Stuart M. Norwell, former Deputy Marine Superintendent of the Met. Office, has succeeded Captain Gordon Mackie as Marine Superintendent on the latter's retirement (see *The Marine Observer*, January 1996, pages 40–41).

Captain Norwell has 36 years of experience in the service of the Met. Office to his credit. He was born in Greenock in May 1939, trained for the sea on H.M.S. *Conway* and served his apprenticeship with the Donaldson Line from 1956. From 1959 he served on Ocean Weather Ships as Navigating Officer and then Master, having obtained his Master's Certificate in 1965. During this period he was on North Atlantic weather observing duty on the converted Royal Navy 'Flower' class corvettes, as well as the conversions of RN 'Castle' class frigates, afterwards becoming Shore Captain at the OWS Greenock base. In 1978 he commenced a 15-year appointment as Port Met. Officer for Scotland and Northern Ireland, based first at the Met. Office's Glasgow Weather Centre and subsequently at the present office in Greenock, before moving to Bracknell Headquarters in November 1993.

*Photo. by G. Allen*

Captain Mackie hands over as Marine Superintendent to Captain Norwell at the Marine Division offices in the Scott Building, Bracknell.

Captain Norwell is married, and his wife Anne and their two grown daughters, one of whom recently married a Scottish surveyor for Det Norske Veritas specialising in oil platform surveys and now based in Oslo, are all members of the nursing profession.

Captain Mackie becomes the Met. Office Consultant for the operation of the Ocean Weather Ship *Cumulus*, for which purpose he can be contacted either at the Marine Division Scott Building offices, or at his home on fax no. 01734 890379.

## CHANGE OF ADDRESS — PORT MET. OFFICER, LONDON AND SOUTH-EAST ENGLAND

At the end of January 1996, the Port Met. Officer for South-east England moved premises from Grays to the following address:

Captain E.J. O'Sullivan, Port Met. Officer, Trident House, 21 Berth Tilbury Dock, Tilbury, Essex RM18 7HL. Tel: 01375 859970. Fax: 01375 859972.

## YOUR BEST BRIDGE SHOT

Whilst we are not many months into this year, we are already planning to publish a Voluntary Observers' calendar for 1997. To make it a genuine U.K. observers' production, we are seeking the co-operation of all those on board ships and rigs of the VOF to send us 35 mm colour prints or slides taken by themselves since the beginning of 1995, for possible selection and use in the calendar.

Only the best photographs will be included in the calendar, with the subject matter left to the discretion of the photographer: however, it is likely that scenes in landscape format, of marine weather, natural life or the observing ship and oil platforms receive priority.

Every contributor of an original photograph published in the calendar will receive thanks in the form of a book reward. Contributors will retain the copyright of their work.

Prints or slides should be sent to the Editor, *The Marine Observer*, Met O (OM), Scott Building, Eastern Road, Bracknell, Berks RG12 2PW, U.K., to arrive by the closing date of 31 July 1996, together with the following details;

Name, rank, ship or rig and home address of the photographer, for follow-up correspondence;
Date, time, position, voyage from and to, and description of the subject, and whether the print refers to a particular meteorological logbook entry.

The 1997 calendar would naturally be distributed to all marine observing stations, and with the help of as many as possible, we look forward to our observers making it a success. The Editor reserves the right to select photographs at his own discretion.

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