

Met. O. 972

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THE MARINE OBSERVER

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Letters to the Editor, and books for review, should be sent to the Editor 'The Marine Observer', Meteorological Office, Eastern Road, Bracknell, Berkshire RG12 2UR

LONDON: HER MAJESTY'S STATIONERY OFFICE

Editorial

In the field of maritime weather data collection, 1986 is proving to be an exciting year, showing a progressive implementation of recent fresh projects together with the introduction of several innovative systems.

Automatic Weather Stations (AWS) of various types continue to be deployed in the United Kingdom and offshore. Whilst transmission methods vary from one system to another, the sensors employed in AWS are of generally similar types. Wind direction and force are obtained by Porton wind systems, consisting of a light but robust unit incorporating cup generator anemometer and wind vane, linked to synchronous transmitters and receivers; wet and dry-bulb temperatures are recorded by platinum resistance thermometers; surface pressure by a transducer and precipitation by tipping bucket.

In 1936 there were of course no automatic means of transmitting observations from ship stations. Fifty years ago, *The Marine Observer* contained an editorial by the Marine Superintendent of the day, Captain L. A. Brooke Smith, RD, RNR, in which he drew attention to the need for continuation of the practice of drawing weather charts at sea, or of visualising from wireless reports the general distribution of the wind and weather. 'The main object of the work of the corps of voluntary marine observers, up to the present' he wrote, 'has been to provide information to aid navigation, at the same time furthering the service of meteorology in its work for the community at large, including aviation.' At that time there was no radar, no facsimile receiver, no satcom and very limited weather forecasting by radio for mariners; but there was as great a need for ships' weather reports as there is today.

With some Marine AWS now being installed on oil and gas platforms, automatic readings are supplemented by manual observations enabling such variables as present and past weather and cloud factors to be given in the final message in SHIP code.

The planned deployment around the U.K. coasts of offshore buoys fitted with AWS equipment continues, with 6 at present operational and others due to come into service progressively. These offshore buoy units use battery power to both store data until required and to automatically transmit them on interrogation, thereby providing useful flexibility in operation. The systems generally make hourly observations, though some do so only every 3 hours. Such hourly data are the bread and butter of both forecasters and climatologists.

Marine AWS are also to be installed, in due course, on automatic light-vessels which Trinity House are progressively introducing to replace manned light-vessels.

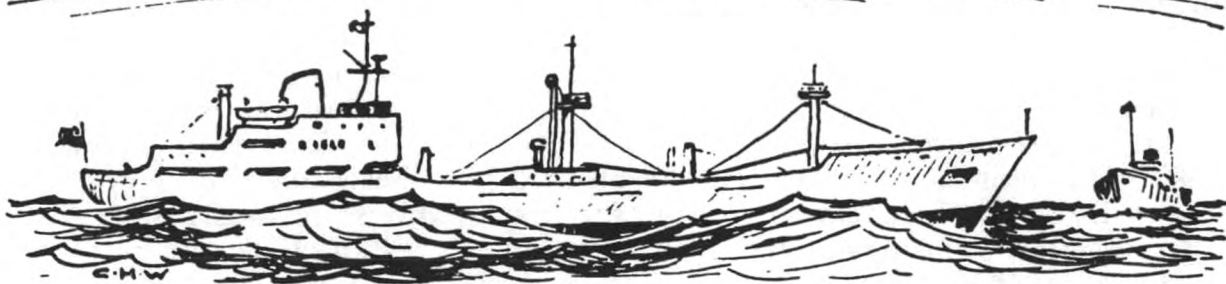
It is interesting to reflect on the number of advances made in only the last ten years, not only in the instrumentation employed but also in the diversification of vessels on which they have been mounted, compared with previous decades. Since the first co-ordinated marine observations were made on board commercial and naval ships, starting in 1855, the only new type of vessel used for this work up to comparatively recent times has been the light-vessels. We now have the benefit of data received from oil rigs, gas platforms, moored buoys and drifting units, and it would be of interest to know what opinions there would be of their value in another 150 years time. Some of the documents held in the National Meteorological Archives at Eastern Road, Bracknell, are older than 150 years of age and most remain of extreme interest. Many of these early meteorological records may be shown, on request, to members of the public, although advance notice of a proposed visit is always appreciated, by telephone to Bracknell (0344) 420242, extension 2521. Such items as Admiral Beaufort's diaries, dating from the late 18th century, as well as a ship's log from H.M.S. *Beagle* when Captain, later Admiral, FitzRoy was in command, are held in store; there are also most of

the meteorological log books compiled on board ships since the Met. Office was founded. Of particular interest is a collection held on behalf of the Royal Meteorological Society, containing some of the earliest known works on meteorology. Other technical records comprise all original weather records compiled by, or on behalf of, the Met. Office, as well as the official working charts of the Central Forecasting Office. Records from Scotland are kept in Edinburgh and those from Northern Ireland in Belfast. The earliest registers kept by scientific staff are those from the King's Observatory at Kew, commencing in 1842 and ending in 1980. Since 1980, all data have been stored on automatic systems, some of them 'captured' from the Marine AWS previously described.

Despite the increasing numbers of new, automatic, systems for acquiring much needed weather information, it will be clear to seafarers and other readers alike that there is still no reliable substitute for the observations provided by ships' staff from the oceans of the globe. We hope to be able to encourage continuing, indeed increasing, provision of that which is already a most beneficial commodity.

J. F. T. H.

THE MARINE OBSERVERS' LOG



October, November, December

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.

Observing officers are reminded that preserved samples of discoloured water, luminescent water, etc. considerably enhance the value of such an observation. Port Meteorological Officers in the U.K. will supply instructions on how to preserve and pack such samples on request.

HURRICANE 'KATE'

North Atlantic Ocean

m.v. *Harold La Borde*. Captain N. H. Malpass. Newhaven, Conn. to Point Lisas, Trinidad. Observers: the Master, Mr S. N. Harris, Chief Officer, Mr S. Hind, 2nd Officer, Mr A. M. Clifton, 3rd Officer and ship's company.

16–18 November 1985. At 0001 GMT on the 16th, a warning was received of the imminent danger of tropical storm 'Kate'. The ship was bound for the Sombrero Passage and the storm was some 480 n. mile dead ahead of our intended course and was stationary with winds of up to force 9. The decision was made to alter course to the south-east so that more time and sea room would be available to alter course again if the storm was to track north or east, whilst keeping the vessel heading in the general direction of its destination and despite expecting head winds.

At 0600, the wind began to increase to ENE'ly, force 5–6, and at 1200 a further advisory received warned that the storm was nearly stationary in position 21·8°N, 64·5°W with winds up to force 10. By this time, the ship was experiencing winds of NE'ly, force 7–8, and the course was altered to 125°, whilst 3-hourly weather observations were commenced, the pressure being 1016·9 mb, falling. The advisory received at 2000 put the storm in position 21·5°N, 65·0°W, with winds up to force 10, and tracking 250° at 4 knots. This put Kate at her closest point of approach at 280 n. mile south-south-west of the ship's position. Kate was upgraded to a hurricane at 2200 on the 16th, having wind speeds of force 12 with gusts to 85 knots.

At 0400 on the 17th, the vessel was experiencing NE'E'ly winds of force 8-9 and was beginning to roll and pitch heavily. Frequent moderate to heavy showers also occurred although the visibility remained good at 8-10 n. mile, whilst the pressure reached its lowest point of 1013.5 mb. A request was received at 0740 from San Juan United States Coast Guard, for us to proceed to position 22° 41'N, 64° 25'W, where a liferaft was reported to be drifting. The vessel altered course to 186°, and in doing so, rolled extremely violently in excess of 25°; during the alteration, the Chief Cook was thrown from his bunk, fracturing a shoulder. Winds experienced at this time were NE'E'ly, force 8, with swells of 5 m coming from 070°, whilst the pressure was 1013.9 mb. The vessel was released by USCG at 0910 and resumed its course of 125°, again rolling violently during the alteration, and at 1200, the wind decreased to ENE'ly, force 7. It was thought the wind would decrease more as Kate moved farther west; however, at 1600 it had increased to E'ly, force 7-8 and four hours later had reached SE's'ly, force 8-9. By 2200, Kate was over 350 n. mile south-west of the ship and our course was altered to 160°.

On 18 November at 0400, the wind began to decrease again, becoming SE's'ly, force 6, with the pressure reading 1018.4 mb and the skies clearing as the rain showers ceased. An advisory at 1000 gave the position of Kate as 21.7°N, 72.6°W with wind speeds of force 12 gusting to 95 knots. It was clear that the vessel was moving away from the effects of Kate, and over the remainder of the day, the wind decreased steadily and the pressure continued to rise. The vessel's motion then became more comfortable although a heavy swell remained, and a direct course to Trinidad was resumed at 1200. Hurricane Kate proceeded to track up the Old Bahama Channel and on to the north coast of Cuba where it threatened the southern states.

Position of ship at 0001 GMT on the 16th: 28° 53'N, 67° 11'W

Position of ship at 0400 GMT on the 18th: 22° 41'N, 62° 33'W.

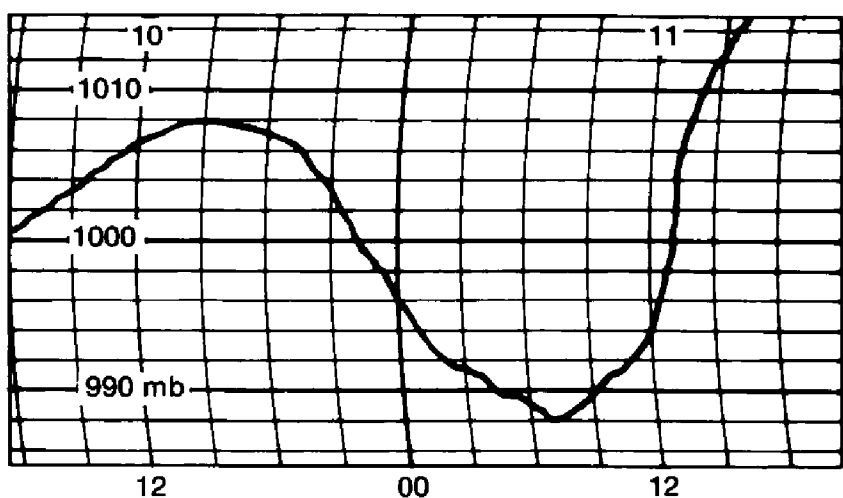
PASSAGE OF DEPRESSION

North Sea

d.v. *Ali Baba*. Captain J. Geddie. On Station, Beryl Oil Field. Observers: the Master, Mr W. Sinclair, 1st Officer and ship's company.

10-11 October 1985. Between these dates, the vessel experienced a vigorous depression. At noon on 10 October, the depression was deepening in position 57°N, 18°W, and was expected to pass the ship's location during the 11th. Meteorological extracts covering the period follow, accompanied by the barogram which shows the pressure changes associated with the passage of the depression.

Date and Time (GMT)		Wind		Wave Height	Pressure and Remarks
		Dir'n	Force	Estimated (ft)	
10th	1900	S	4-6	4-8	1011.0 mb.
	2100	SSE	6-7	6-10	1006.0 mb.
	2300	S'W	7-8	6-11	997.0 mb.



Date and Time (GMT)	Wind Dir'n	Wind Force	Wave Height Estimated (ft)	Pressure and Remarks
11th 0200	SW	8-10	9-14	992.0 mb.
0400	WSW	8	—	Wind dir'n steadies. Rain starts.
0500	WSW	10	—	Wind dir'n steady.
0700	WSW	9-10	15-22	989.0 mb. Rain ceased 0630.
0800	W'S	9-11	20-25	990.0 mb. Rain squalls 0830.
0900	W	12+	20-25	995.0 mb. At 0950, wind W'ly, force 11-12.
1200	NW'W	11-12	35-45	1001.0mb
1300	NW	11-12+	—	—
1400	NW	11-12+	35-40	1010.0 mb.
1600	NW'W	10-11	25-35	1015.0 mb.
1700	NNW	8	—	Rain squalls cease.
1900	NNW	7-8	20-30	1020.0 mb.
2200	NW	6	17-25	1024.0 mb.

Position of ship: 59° 30'N, 01° 32'E.

Note. During the 11th, m.v. *Vigilant* in position 60° 07'N, 01° 30'W, encountered the same depression. Maximum winds of force 9 were noted at 0300 and 1200, whilst the minimum pressure recorded was 983.2 mb, occurring at 0500.

HEAVY WEATHER

North Pacific Ocean

m.v. *Valdivia*. Captain H. M. J. Churchill. Kaohsiung to Kalama (Washington). Observers: the Master, Mr J. D. Dickinson, Chief Officer, Mr A. W. Stevens, 2nd Officer, Mr G. D. S. Hope, 3rd Officer and ship's company.

14-19 November 1985. Between these dates, the vessel, on a course of 090°, encountered a depression and associated heavy weather. The following report is derived from the meteorological and deck logbooks.

Date and time (GMT)	Wind Dir'n	Wind Force	Temperature (°C)		Pressure and Remarks
			Air	Wet bulb	
14th 2300	S	5	11.0	10.8	1007.7 mb.
15th 0300	SE	8	10.1	—	1004.9 mb.

During the next 28 hours, little change was noticed with the wind remaining force 8 throughout, and the pressure steady at around 1003 mb to 1004 mb. The ship was pitching heavily throughout to a very heavy swell, speed remained about 9 knots.

Date and time	(GMT)	Wind		Temperature (°C)		Pressure and Remarks
		Dir'n	Force	Air	Wet bulb	
16th	1800	ESE	8	10·3	—	1005·1 mb.
17th	0600	E	8	10·0	—	1002·7 mb.
	1000	E	8	9·8	—	999·6 mb. Very rough and heavy swell.
	1400	E	8	9·2	—	993·6 mb. Mist and intermittent rain showers.
	2100	ENE	5	10·4	9·0	984·1 mb. Dense fog impairing visibility. Moderate sea, but still very heavy swell.
	2300	ESE	4	10·6	10·6	982·8 mb. Dense fog prevails. Vessel altered course to 135° to alleviate heavy pitching and rolling in the very heavy swell.
18th	0400	SE	2	10·6	10·3	980·9 mb. Fog still prevails. Rippled sea and very heavy swell.

From 0400 to 1100, the wind remained steady at SE'ly, force 3. Pressure dropped to 978·0 mb, but otherwise, conditions were the same as at 0400. It was thought that the ship was in the middle of the low-pressure system.

1200	SE	8	—	—	979·5 mb. Good visibility, overcast sky, very rough sea and heavy swell
1300	SE	8	11·0	10·9	980·1 mb.
1400	SSE	8	10·6	10·3	980·1 mb.
1500	S'E	8	10·6	10·3	981·2 mb.
1600	S	8	10·8	10·3	982·5 mb.
1700	S	10	11·2	10·9	983·4 mb.

At 1700, the sea state was extremely rough with a very heavy swell. The vessel was shipping frequent heavy seas over the bow, and heavy rain with spray reduced the visibility considerably. The ship was then hove to, and was still in this situation at 2300. During this time, the wind stayed s'ly, force 9, whilst the pressure rose to 992·6 mb. However, at 0100 on the 19th, the wind decreased to force 8, and with the pressure at 995·0 mb, the vessel resumed passage on a course of 071°. There was still a very heavy swell at this time.

The wind slowly backed to SE'ly, and decreased to force 6 by 1000, visibility was good and the pressure had risen to 1005·3 mb. A very heavy swell was encountered for another 20 hours, during which time the vessel was able to make 10 knots.

Position of ship at 2300 GMT on 14 November: 44° 50'N, 176° 42'E.

Position of ship at 0100 GMT on 19 November: 44° 12'N, 165° 18'W.

LIGHTNING AND CORPOSANTS

Red Sea

m.v. *Liverpool Bay*. Captain M. Brackenridge. Kobe to Suez. Observers: Mr M. Leech, 2nd Officer, Mr M. Elson, Seaman and ship's company.

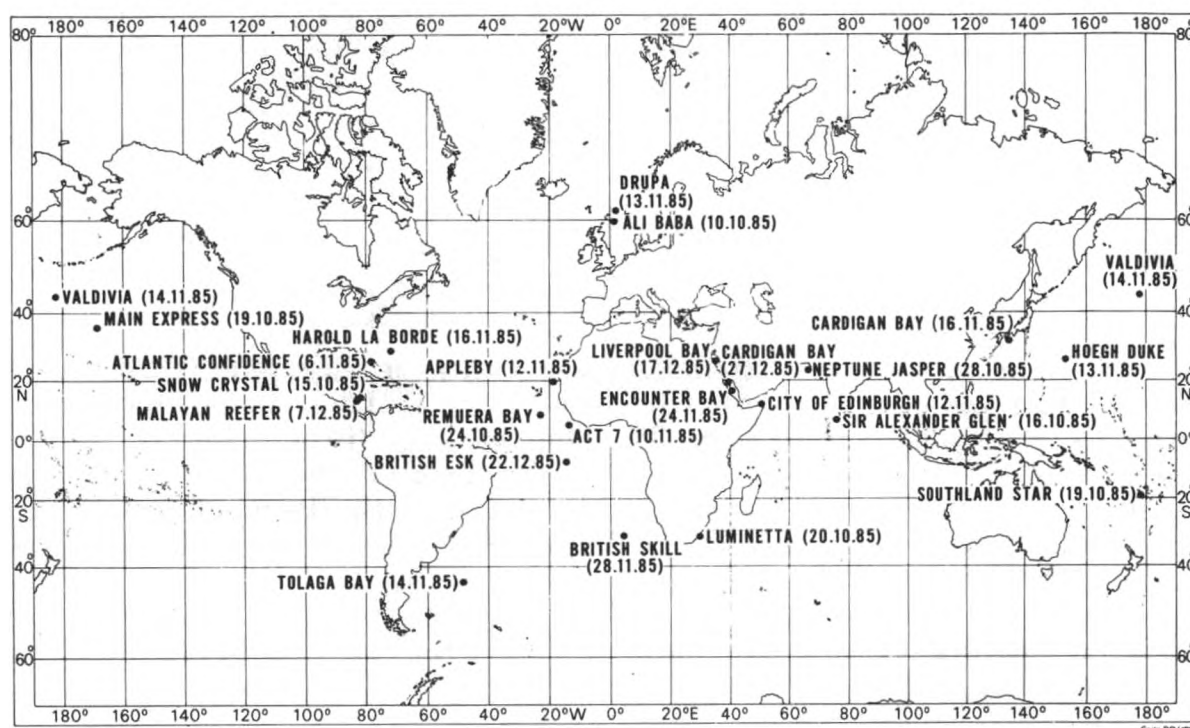
17 December 1985. At 1830 GMT, lightning flashes were visible in clouds on the horizon; the quantity, frequency and duration were noticed to be larger and longer than usual. The cloud cover was increasing to a complete cover of what appeared to be stratocumulus, the base of which was estimated to be 1500–2000 feet, but this must have been the base of the cumulonimbus. By 1900 the lightning was well established, the whole cloud cover was being lit up by large flashes, and occasionally, a large fork would arc from one side of the sky to the other. Only occasionally did the lightning arc down to the sea and these flashes seemed to have an abnormally large diameter. Constant thunder was being heard by 1930.

At 2015 the air could be felt to be charged with static. Aerial tips glowed green and buzzed, whilst body hair was made to stand on end, and the indicator lights on a row of empty integral reefer containers (on the third tier) were energised. A very heavy shower fell between 2030 and 2045, discharging the heavy static and the pressure dropped sharply by 1.4 mb. The air was now clear, but lightning continued astern and diminished as the vessel steamed north; even so, the storm was still visible on the horizon astern at 2200.

All members of the ship's company who witnessed this phenomenon agreed that to their collective experiences to date, it was unique in intensity and dramatic effect. One suggestion before the lightning was identified as such, was that the holocaust had arrived. This may sound over-dramatic, but at the time, it seemed understandable.

Conditions at 1800 were: air temperature 25.5°C, wet bulb 24.0, pressure 1004.3 mb, wind SE'E'ly, force 3.

Position of ship: 25° 40' N, 35° 20' E.



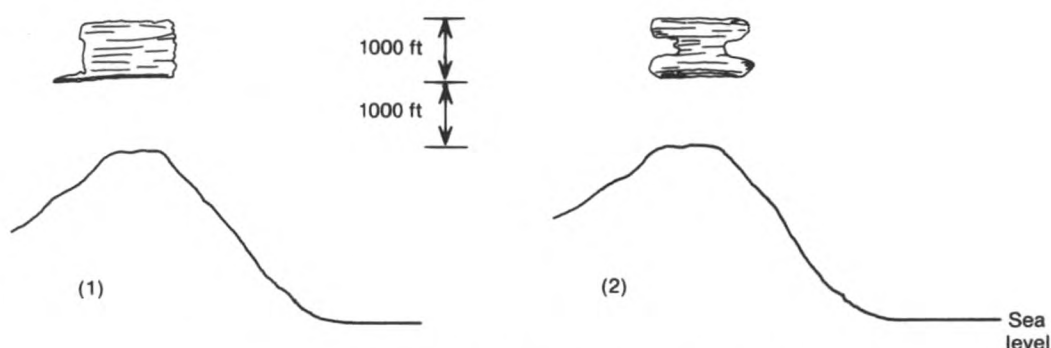
Position of ships whose reports appear in *The Marine Observers' Log*.

OROGRAPHIC CLOUD

South Pacific Ocean

m.v. *Southland Star*. Captain P. W. Hutchinson. Auckland to Suva. Observer: Mr N. Wright, 2nd Officer.

19 October 1985. At 1800 GMT while approaching and rounding Cape Washington on the Fijian island of Kandavu, a distinctive altocumulus cloud was observed over the peak of Nambukelevu (840 m). When first noticed, it had the classic 'pile of plates' shape as shown in the first sketch, but the form was constantly changing, and within ten minutes, it had altered to the shape in the second sketch. After another ten minutes, it had regained its original outline, but the top was less distinct and more fibrous.



Another thirty minutes later, the cloud was still visible 15 n. mile astern, although off centre and slightly upwind of the summit. Occasionally, the cloud spread sideways, but its depth remained constant at approximately 1000 feet, which was also its altitude above the summit.

Weather conditions at the time were: air temperature 25·2°C, wet bulb 22·8, pressure 1012·9 mb, wind ENE'ly, force 3.

Position of ship: 19° 00'S, 178° 00'E.

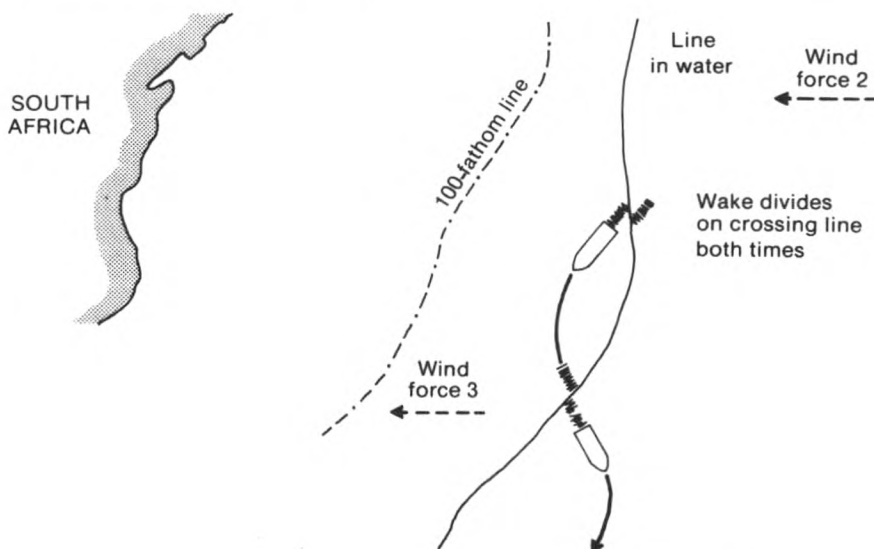
CURRENT SHEAR

South African Waters

m.v. *Luminetta*. Captain J. B. Watson. Durban to Mossel Bay. Observers: Mr H. R. Shuttleworth, Chief Officer and Mr C. Sahoo, Helmsman.

20 October 1985. The ship was 10 n. mile off the coast of South Africa and on a course of 220°, when, at 0300 GMT, a line was sighted in the water on the starboard side and appeared to follow a direction of 205°, the approximate course of the 100-fathom line some 3 n. mile inshore.

The line cut across the ship's intended track, and as the vessel crossed it, the wake which had until then been straight, divided into two sections as shown in the sketch. A marked reduction in the ship's speed was noted (up to this point, a



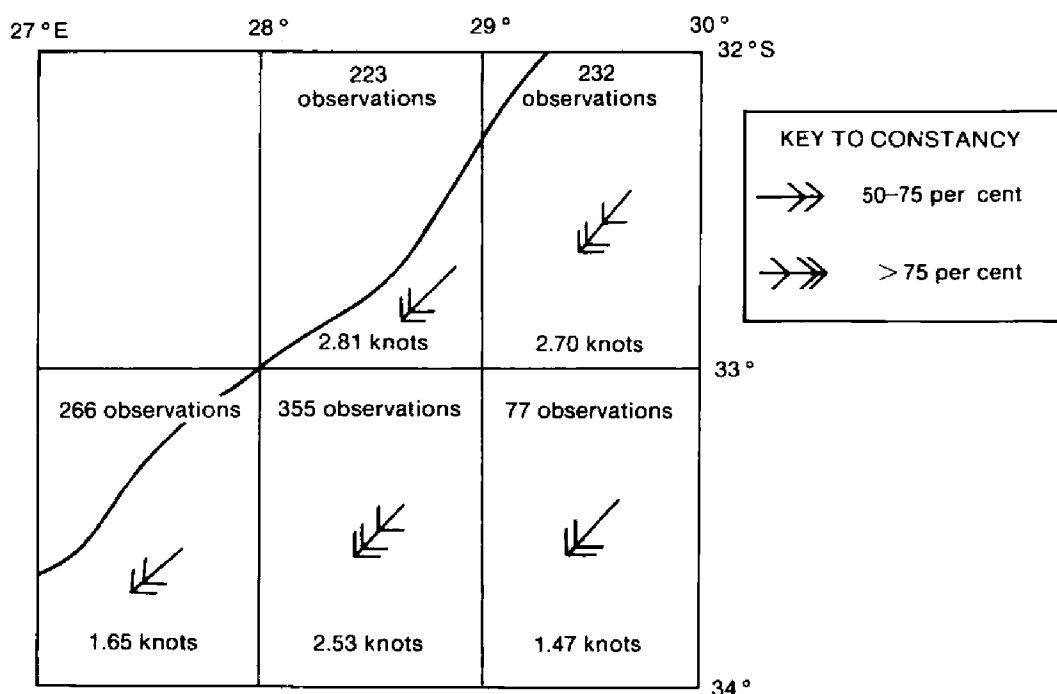
speed of 3–4 knots more than was to be expected over the ground had been experienced). An alteration of course to port was then made to bring the ship outside the line. When it cut the line a second time, the wake divided as before and

the ship's speed increased again. There was a difference in wind speed on either side of the dividing line. On the inshore side, the wind was E'ly, force 3, whilst on the offshore side, it was E'ly, force 2.

Position of ship: 31° 45' S, 29° 35' E.

Note 1. Mr J. D. Lankester, of the Ocean Currents section, Meteorological Office, comments:

'This report illustrates well the rapid increase in current rate just off the shelf and in the relatively warmer surface waters of the Agulhas Current. The waters inshore may sometimes be of Southern Ocean origin that have been dynamically upwelled by the slope onto the shelf and beneath the Agulhas surface waters. The complexity of mixing mechanisms in this area are probably related to the



prevalence of abnormal waves and the incidence of frequent eddy formation. The diagram for the Agulhas Current, September to November, shows the predominant surface current sets to be highly constant to the south-west, with an average rate of the top 50 per cent of about 2.5 knots.'

Note 2. A satellite picture showing the Agulhas Current off southern Africa appears opposite page 188.

TIDE RIP

Arabian Sea

m.v. *City of Edinburgh*. Captain J. E. Pritchard. Port Kelang to Suez. Observers: Mr J. H. Gibson, 2nd Officer and Mr R. Noble, 3rd Officer.

12 November 1985. While passing Cape Guardafui, the vessel passed through what appeared to be a tide rip at what was assumed to be the boundary between the Gulf of Aden and the Arabian Sea. The rip ran along an approximate line from Cape Guardafui bearing 145°/325°. (See photograph opposite page 200.) The water on the Arabian Sea side was bright blue with a temperature of 27.0°C and its state was appropriate to the wind at the time which was SE'ly, force 2. Upon crossing the tide rip, the sea-water temperature dropped to 23.0 and the water's colour changed from bright blue to what appeared to be graphite grey, although at times, the sea seemed to be brown in colour. Whether this colouration was caused by natural land sources or by pollution, the observers were unable to decide, but there was no evidence of oil on the sea surface.

Once across the tide rip, the sea state became equivalent to that caused by an E'ly, force 4 wind, although no appreciable increase in wind speed was noted on the anemometer. However, once clear of the tide rip, it was found that the wind had backed to the north-east.

On crossing the rip, the ship was sent off course by one degree to starboard before the autopilot compensated.

Position of ship: 12° 04'N 51° 08'E.

DISCOLOURED WATER

Eastern North Atlantic

m.v. *Remuera Bay*. Captain C. B. Walgate. Port Chalmers to Flushing. Observers: Mr I. M. Overton, 2nd Officer and Mr R. K. Q. Butler, 3rd Officer.

24 October 1985. At 1545 GMT, irregular bands of light orange/tan coloured water were seen on the surface. Initially, they were thought to be caused by a pollution discharge of some kind.

At 1600 a water sample was collected using the sea-water temperature bucket, and put into a preservation bottle. Looking closely, the water contained numerous very light-brown fibrous strips, averaging 1 cm in length. Following the sampling instructions, formalin was added together with a label giving details, the lid was screwed on tightly and the bottle stowed away from heat.

When looking again at the sea, it was seen that the same discolouration was visible between the most noticeable bands, but was less readily detectable. The particles causing it seemed to be under, not on the surface, and were more concentrated in the leading edge of each band where the colour was brighter. Behind this section of about 1 m in width, the concentration decreased over 4–5 m until the sea colour returned to that ahead of the leading edge. The distance between each main band varied between 10–15 m to hundreds of metres.

Later, as the sun became lower, 'silver' strips of water were seen. These were similar in appearance to sea areas affected by little or no wind, and were almost 'oily'. However, on approaching them, the water was as 'ruffled' as adjacent water. There were no particular concentrations of discolouration associated with these areas.

Up until 1850 the phenomenon could be seen in all directions from the vessel; after that time, the low sun cast a glare across the sea, preventing further visual observations, and so the radar was brought into use. Here, bands were seen, and ran in a similar direction to the alternating discoloured and 'oily' areas of water.

Throughout the period of observation, the wind was very light and variable, although ENE'ly, force 2 was recorded at times. A low, short swell from the north-north-east was running, and the vessel was steering 020° at 19.75 knots.

Position of ship: 09° 23'N, 23° 12'W.

WHALES

North Sea

m.v. *Drupa*. Captain J. Hullock. Brent Oil Field. Observers: Mr D. R. Norman, 2nd Officer, Mr A. I. Jennings, 3rd Officer, Mr M. Pond, Mr M. Stainton and Mr K. Smith, G1S, and Mr G. Harrison, G2S.

3–4 November 1985. At 1230 GMT, a group of about 100 Longfin Pilot Whales (mixed adults and juveniles) were observed ahead of the ship. They swam down the starboard side, about 10 m off, and were leaping well clear of the water, thus it was possible to see the long fins. Perhaps the heavy swell caused this behaviour. The whales were swimming north at about 4 knots.

The following day, another group of around 50 adults and juveniles were observed crossing ahead of the ship and heading approximately north. There was a high swell of about 6 m, and occasionally, the whales would leap into the air on the face of the wave, and enter it lower down at a steep angle, resulting in them flipping over on to their backs. Both adults and juveniles were observed doing this, and the ship did not seem to bother them. When in the lee of it, they swam down the side at about 5 m off.

Position of ship: 61° 22'N, 01° 26'E.

Note. Mr D. A. McBrearty, of the Department of Anatomy, University of Cambridge, comments:

'Long-finned or North Atlantic Pilot Whales (*Globicephala melaena*) have been seen off our coasts in all months. The observers were fortunate in seeing them leaping clear of the water as they are probably the least acrobatic of small whales and seldom perform in this way. Spy-hopping, pitch-poling ("standing" straight up in the water) and lobtailing (thrashing the surface with the tail flukes) are more frequently reported. Possibly the heavy swell induced the performance on this occasion.'

Equatorial Eastern Atlantic

m.v. *ACT 7*. Captain N. D. T. Johnson. Rotterdam to Melbourne. Observer: Mr W. J. K. Copland, 2nd Officer.

8 November 1985. At 1820 GMT, a solitary whale was sighted ahead of the vessel, blowing at regular intervals, with the dorsal fin and part of the body in view.

The approach of the vessel did not appear to disturb the animal, although at this time, it commenced leaping, nose first, out of the water. Its main distinguishing features were a long, pointed snout, mottled green blotches on a light-grey underside, the upper portion of the body being darker, and a small dorsal fin with a rearward curvature. The body length was 5–6 m.

This may have been a Sowerby's Whale, although no teeth were seen along the lower jaw. The vessel passed close to the whale which continued leaping clear of the water for a short time before travelling off slowly in a north-easterly direction.

Weather conditions were: dry bulb 27.0°C, sea 26.8, wind variable, force 2.

Position of ship: 05° 20'N, 13° 26'W.

Note. Mr D. A. McBrearty comments:

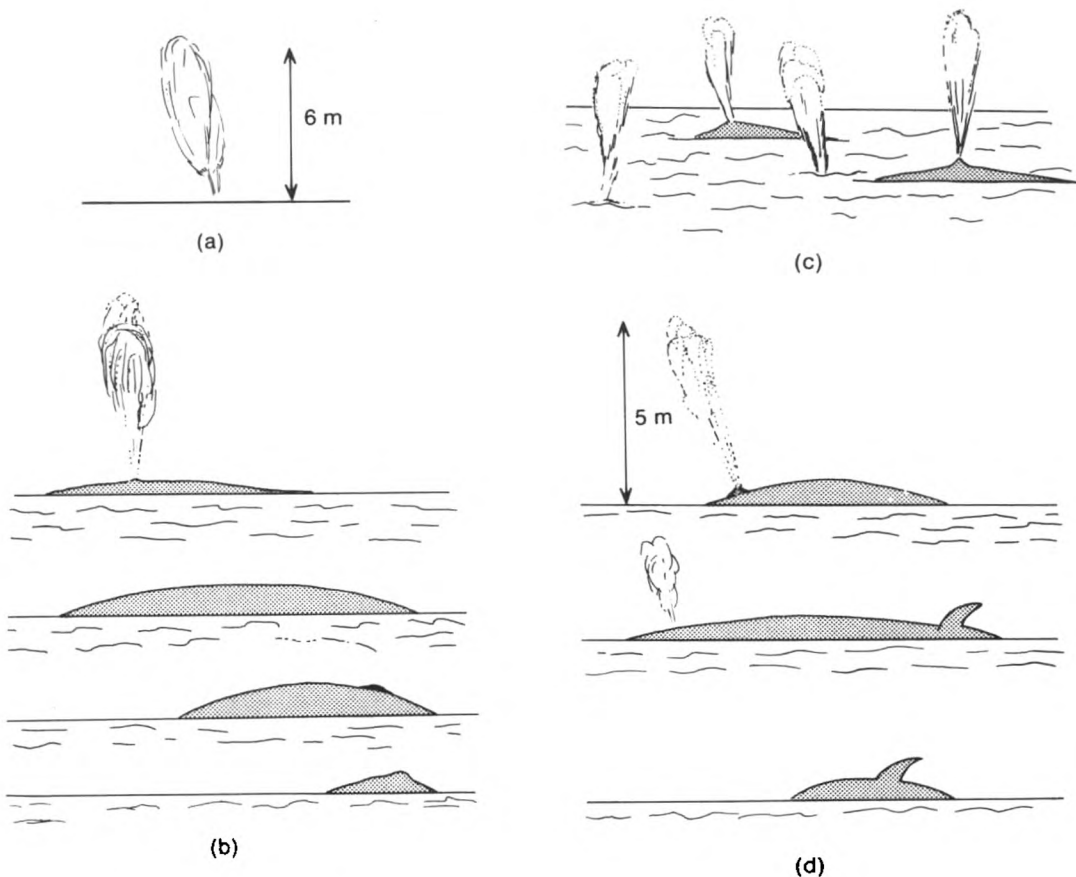
'This is another of those very interesting observations of a species seldom encountered at sea. Oh what I would give to have been there with a decent camera! It was, as I'm sure the observers realized with their reference to Sowerby's Whale, almost certainly one of the beaked whales. All mesoplodonts are notoriously difficult to identify at sea, the observer has to know exactly what to look for and what possible options are open to him in that particular sea area. Often, the different members of the genus cannot be identified with certainty without being very fully examined. No teeth were apparent in this specimen which could mean either that this was an immature, or perhaps a female in which the teeth are not quite so obvious. True's Beaked Whale (*Mesoplodon mirus*) is one in which the adult male has teeth at the front of the lower jaw visible in the swimming specimen, much the same as the larger Cuvier's Whale (*Ziphius cavirostris*) which in many ways it resembles. If first impressions were of Sowerby's Whale, the observers would be looking for teeth half way down the jaw and may not have noticed anything at the tip.

'Gervais's Beaked Whale (*M. europaeus*) is a known frequenter of tropical and sub-tropical Atlantic waters, and is therefore another one to consider. Apart from the aforesaid Cuvier's Whale, Blainville's can be identified by a peculiar raised mid-lower jawline that I'm sure the observers would have mentioned had they seen it. Similar characteristics to those mentioned of patchy colouring, a small head and long beak could possibly indicate Gray's Beaked Whale (*M. grayi*) which, although observed mostly in the Southern Hemisphere and especially off New Zealand where the majority of stranding records have come from, has also once been recorded as a stranding on the coast of the Netherlands.'

Western South Atlantic

m.v. *Tolaga Bay*. Captain G. C. Barrett. Auckland to Flushing. Observers: the Master, Mr M. Armitage, 2nd Officer, Mr D. A. Kelsall, Radio Officer and ship's company.

14 November 1985. At 1830 GMT the blow of a single whale was sighted at a distance of 1–2 n. mile on the port bow. As shown in sketch (a), it was tall (about 6 m), thin, and on at least one occasion, angled forward about 10–15° from the vertical. The average time between blows was 20 seconds. The ship passed 0.3 n. mile off the whales, and the dive sequence could be seen clearly, as in sketch (b). From the size of the whale, in excess of 20 m, and the shape of the fin, it was thought to be a Blue Whale. The exposure of the tail was obscured by the sea and swell.



About 30 minutes later, a group of whales was seen; these whales were somewhat smaller (about 15 m), as were the blows (about 5 m). At one stage, at least four blows could be seen simultaneously in close proximity, see sketches (c) and (d). The interval between blows was again 20 seconds. The dorsal fins were more pronounced than that of the first whale, but again, no flukes or head became visible. Their distance from the ship was 0.5 n. mile. These whales were thought to be either Sei, Fin or Tropical Whales (identified from the *Sea Guide to Whales of the World* by Lyall Watson).

In both observations, the colour appeared to be a dark grey with no discernible markings, the upper bodies being smooth. There did not appear to be a long dive sequence, the longest period between blows being no more than 3–4 minutes. The direction of travel in both cases was south-westerly, with estimated speeds of 3–4 knots, the passing of the ship having no effect upon their movements.

Approximately eight hours later, a small-sized ship was observed, the first since rounding the Horn, with a large number of working lights. Was it engaged in whaling, or was this merely a coincidence?

At the time of sighting the whales the air temperature was 16.6°C, sea 12.0, pressure 1018.2 mb, and the wind was NE'ly, force 3.

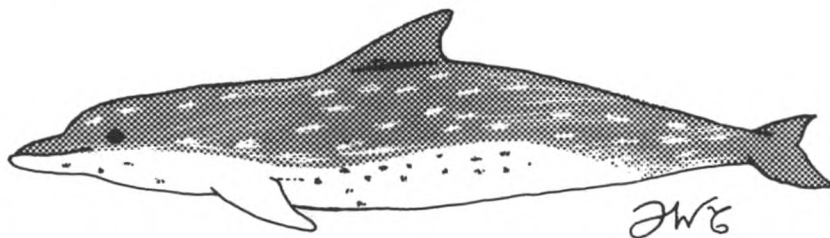
Position of ship: 43° 48's, 48° 18'w.

DOLPHINS

Eastern North Atlantic

m.v. *Appleby*. Captain T. Jones. Newcastle N. S. W. to Hunterston. Observers: Mr P. Hamlin, 2nd Officer and Mr D. H. Vickery, 3rd Officer.

12 November 1985. At 1500 GMT a school of approximately 40–50 dolphins were sighted off the starboard bow heading south-east at some considerable speed. The school turned and joined the ship heading north for about 15 minutes, playing at the bow. The mammals had dark grey backs and pinky-grey bellies, and as shown in the sketch, were covered in light grey spots on top, and dark grey, almost black spots on their undersides.



With the water being so clear, the dolphins were observed four deep as they swam with the vessel before accelerating ahead and jumping clear of the sea. They varied in size between 1.5 m and 2.0 m long.

Position of ship: 18° 56'N 17° 57'W.

Note. Mr D. A. McBrearty comments:

'These are very probably Spotted Dolphins (*Stenella* spp) as the drawing shows, and if so, they are one of the most difficult for me to identify as the taxonomy is still undetermined. There are four different names available for what could be just two species of Spotted Dolphin. Fortunately, only one is universally recognised in the Indo-Pacific, but the other three are in the Atlantic. There would also appear to be differing forms, one a robust inshore form, the other a slightly smaller, slimmer and elongated offshore form. The actual amount of spotting varies with widely separated geographical populations, it also varies with the age of the dolphin. Young dolphins are not spotted, and some can easily be mistaken for small Bottlenose Dolphins (*Tursiops* spp). Some *Tursiops* may have a few spots, but these are mainly on their chest and belly. To complicate matters even more, the Humpback Dolphins (*Sousa* spp) off the west African coast often have some degree of spotting, although they can usually be differentiated by the small hump faired into the front leading edge of the dorsal fin.'

MARINE LIFE

South Atlantic Ocean

m.v. *British Esk*. Captain G. K. Waite. At anchor, Ascension Island. Observers: the Master, Mr M. J. Aldred, 2nd Officer and ship's company.

22 December 1985. The ship arrived at the anchorage in Clarence Bay, 0.4 n. mile off Ascension Island in the early hours of the day. Throughout the vessel's stay which lasted for several weeks, a summary of the marine life seen was made.

During the hours of darkness, an abundance of life was noticed around the ship, in the forms of Dorado, Jack, Flying fish and Bottlenose Dolphins, along with occasional sightings of female Green Turtles on their way to the beach to lay their eggs in the sand. Sometimes, in the day, there were even sightings of them mating close to the ship. For this hazardous-looking operation, three turtles were required. Two males and one female apparently had to be present; one of each sex for the obvious reason, while the second male had the job of keeping the female's head above water so that she did not drown when the first male clambered on top at the other end.

Tuna, Wahoo and various species of shark were also observed; occasionally, one was caught, but they seemed to prefer the deeper water about half a mile farther out. The flying fish appeared to be a delicacy for the dolphins, as whenever one broke the surface, a dolphin was sure to be following close by. Seemingly unable to detect the vessel, the fish were usually stunned upon hitting the hull, whereupon the dolphins used this period of incapacity to make a quick snack of the unfortunate victim. This happened so frequently, that we were almost inclined to believe that the dolphins deliberately herded the flying fish towards the ship.

In the day, the inevitable Blackfish surrounded the vessel, ready to demolish within seconds, anything remotely edible that was thrown from it. They were quite fascinating fish, and it was their weight of numbers rather than their ferocity that enabled them to dispose of our waste food so rapidly. However, they did have a set of remarkably human-looking teeth which must have assisted them in taking bites from some of the tougher foodstuffs. We had been told that they would not attack humans unless somebody was bleeding copiously into the water, and we assumed that the Blackfish had also been told this, as we could swim quite safely amongst them.

Position of ship: 07° 54's, 14° 24'w.

Note. Mr D. A. McBrearty comments:

"This is an interesting account of dolphins feeding. Whether or not the dolphins were driving the flying fish, or simply being opportunistic, I really don't know. Dolphins learn very quickly, especially where food is concerned, and there are many similar accounts in correspondence I have received over several years. There are also in literature, a number of accounts of co-operative behaviour between different dolphins and between dolphins and men, which again, raise more questions than I would care to answer."

BIRDS

Red Sea

m.v. *Cardigan Bay*. Captain P. J. Clark. At Jeddah. Observers: the Master and Mr C. Mercer, LSM.

27–28 December 1985. The bird in the photograph opposite page 189 was first sighted around the ship's accommodation area. However, the following day, the same one was found perching on the poop deck as the ship travelled south down the Red Sea.

At first sight, the bird gave the appearance of being black, but, on closer inspection, it was found to be a dark, sooty-brown colour. Upon the head was a white patch, and there was also a white area beneath the eyes, the bird seemed

very tame and allowed a seaman to approach close enough to measure it, the length being 30 cm. From these characteristics, the bird was identified as a Lesser Noddy.

Although the Lesser Noddy is of Indian Ocean origin, we are certain of its identification.

Position of ship at 0000 GMT 28 December: 19° 18'N, 39° 36'E.

Note. Captain A. S. Young, of the Royal Naval Birdwatching Society, comments:

'From Mr Mercer's very good photograph, I would say this bird is an immature Brown or Common Noddy (*Anous stolidus*). Although the body length given of 30 cm is that of a Lesser Noddy (*A. tenuirostris*), the latter is usually of a lighter grey body and more extensive lighter head and nape, even the juveniles and immatures, than the Brown Noddy, which is much the more widespread of the three dark noddies. The Brown Noddy also breeds on islands in the lower Red Sea area, where the Lesser Noddy is recognised to be a rather infrequent visitor. Maybe the seaman who attempted to measure the subject "on the hoof" did not allow for parallax. Thanks for an interesting photograph and report.'

North Pacific Ocean

m.v. *Main Express*. Captain K. J. Owen. Long Beach to Hong Kong. Observers: the Master and ship's company.

19 October 1985. After nine days on passage, an owl was observed on the deck below the bridge at 2000 GMT. It seemed to be in very good condition, and was well satisfied after making a meal of an unidentified (and unlucky) seabird during the night, only a few grey feathers remaining.

Standing approximately 30 cm high, the owl had mottled brown/black colouring on its back, wings and head, whilst the breast was a lighter tan colour with black flecks. There were two small ear-like tufts on its head, and its legs were a plain tan colour. A photograph of the owl, taken by the Radio Officer, appears opposite page 189.

It was reported that the owl had been seen by the Chief Engineer Officer the previous evening on the after mooring deck, and he had been only about 3 m away from it. The bird had shown no real fear, although it had puffed up its feathers and given him a good looking over, before deciding that no further action was necessary, and then going back to sleep.

At no time since leaving Long Beach, had the vessel been closer than 600 n. mile to land, and that was while north of Midway Island the previous day. The predominant wind at that time had been E'ly, force 5.

Sometime during the night of the 19th/20th, the owl left the vessel. Presumably, it had mistaken the lights of a passing vessel for land, and had gone to investigate.

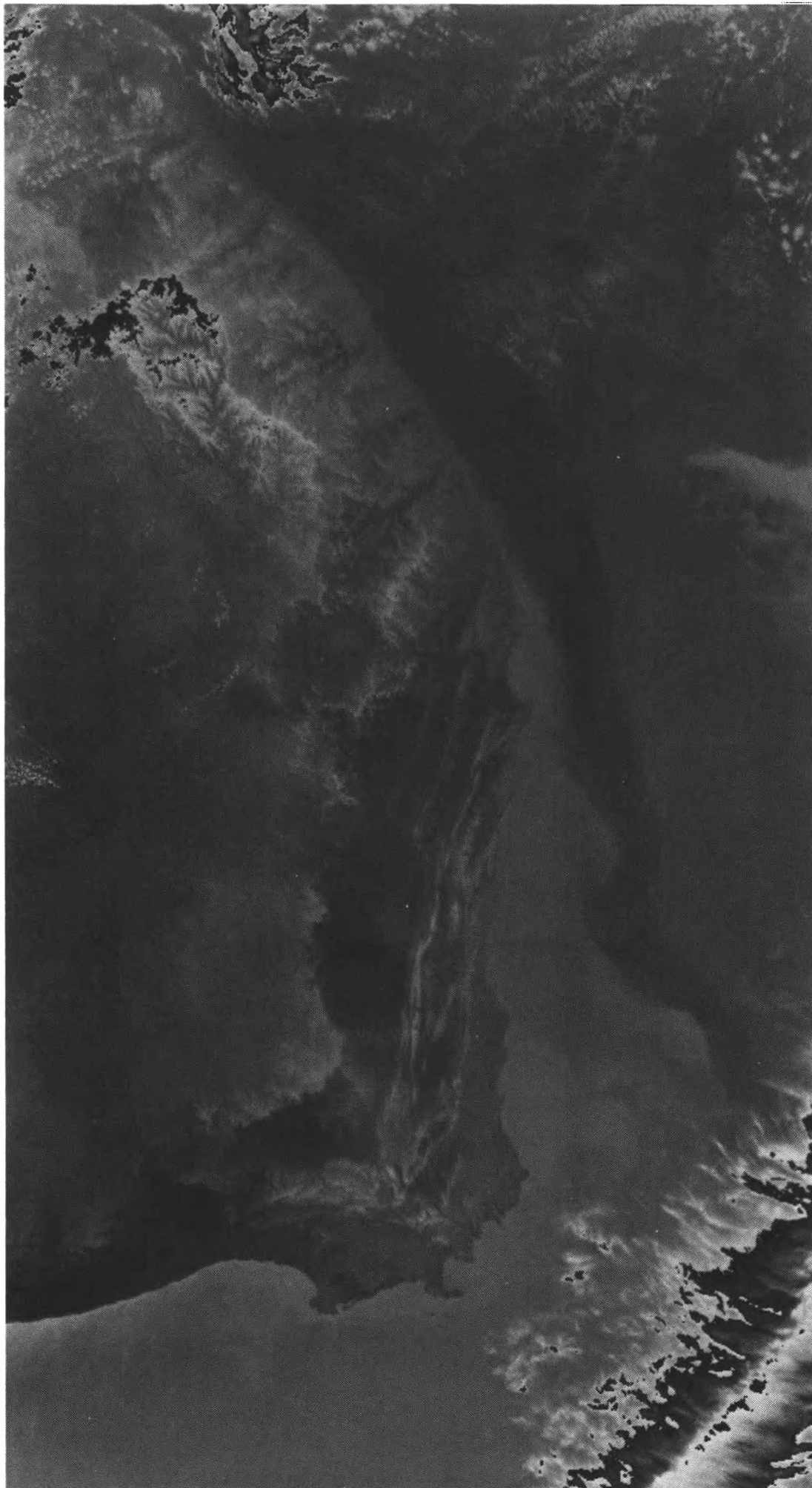
Position of ship: 35° 47'N, 168° 24'W.

Note. The *Main Express* is a Selected Ship of the Hong Kong Voluntary Observing Fleet.

Western Pacific

m.v. *Cardigan Bay*. Captain R. J. Bland. Nagoya to Suez. Observers: Mr B. A. Mullan, Radio Officer and Mr G. Davis, Cadet.

16 November 1985. At 0720 GMT, after a short pursuit along the maindeck, the bird shown in the photograph opposite page 189 was captured. It could not be identified from the ship's books, which, alas, cover only marine birds. The bird in question had parrot-like features; most noticeably its bright coloured parrot-like beak.



Photograph by courtesy of NOAA

NOAA-7 AVHRR IR satellite view of the Agulhas Current off southern Africa. (See page 181.)

Opposite page 189



Photo. by C. Mercer

Brown Noddy pictured on board m.v. *Cardigan Bay*. (See page 187.)



Photo. by T. Vaughan

Owl photographed on board m.v. *Main Express*. (See page 188.)



Photo. by B. A. Mullan

Grosbeak found on board m.v. *Cardigan Bay*. (See page 188.)

It was rested on board overnight and released the following day at 0800.
Weather conditions about one hour prior to the bird's capture were: dry bulb 16.8°C, pressure 1018.6 mb, wind w'ly, force 3.
Position of ship: 32° 14'N, 134° 52'E.

Note. Commander M. B. Casement, Chairman of the Royal Naval Birdwatching Society, comments:

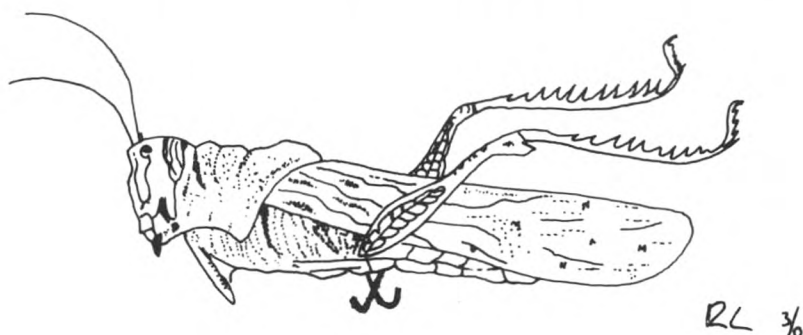
'An interesting record. This is a species of finch, a Japanese Grosbeak (*Eophona personata*). A common resident of forests in low mountains in Japan, it migrates south-west in the winter.'

LOCUST

Red Sea

m.v. *Encounter Bay*. Captain M. J. Heron. Fremantle to Jeddah. Observers: Mr A. Kirkham, 2nd Officer, Mr R. J. Curry, 3rd Officer and Mr S. Angove, Seaman 1.

24 November 1985. At 0900 GMT a live locust (shown below) was found on the starboard bridge wing of the vessel. The ship was approximately midway between Ethiopia and the Yemen having passed through the straits of Bab-el-Mandeb the previous night, thus the exact source of the locust could not be determined. From the time it was first observed until the time of capture, the locust remained in the same position and showed no sign of movement. After capture, it was placed in an old jar and an attempt was made to feed it lettuce, but this was left untouched.



About 8 cm long, the locust was sandy in colour, and after about four hours in the jar, it began jumping against the top so it was decided to release it back onto the hose where it was first found. The locust stayed with the ship until Jeddah, were presumably, it hopped off.

At the time of the first observation, the weather was as follows: air temperature 28.7°C, wet bulb 23.6, pressure 1013.3 mb, wind ssw'ly, force 4-5.

Position of ship: 16° 33'N, 41° 09'E.

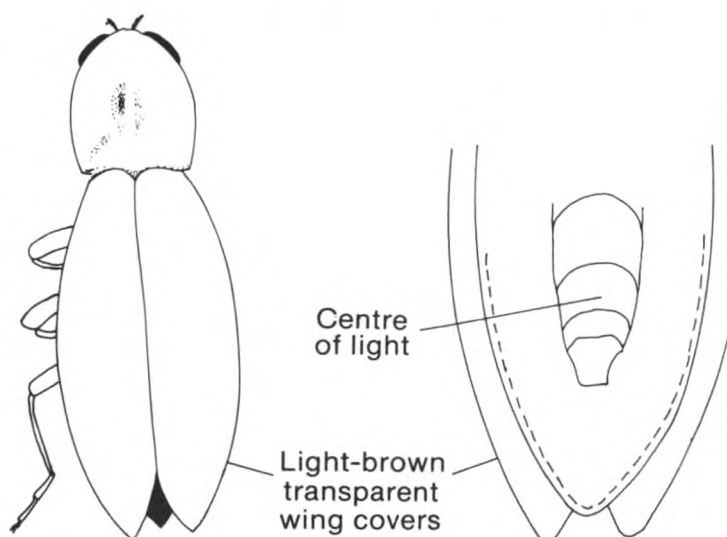
INSECTS

Eastern North Pacific

m.v. *Malayan Reefer*. Captain L. R. Bell. New Bedford to Corinto. Observers: Mr W. A. C. Gill, 2nd Officer, Mr I. D. Handford, 3rd Officer and Mr Z. G. Liang, AB.

7 December 1985. At 0700 GMT whilst drifting about 11 n. mile off the south

coast of Costa Rica, the Lookout reported seeing a flashing light on the maindeck to port. After a further 5–10 minutes' fruitless observation by the Second Officer, it recurred as a series of three short and intense flashes coming from aft of No. 2 hatch about 30 m away. The Aldis lamp was shone on the area, and binoculars used too, but nothing was seen, so the Lookout went to investigate, and after a search, found an insect which was producing the light. It was duly sketched by the Third Officer.



On inspection, the insect was found to flash four or five times per second when disturbed, emitting a bright, verdant green light (intense enough to be clearly seen through the white plastic of the specimen box) similar to a luminescent watch; the effect diminished in both frequency and intensity as the insect was left alone. It also had an unpleasant odour which seemed vaguely 'musty'.

Quite how the insect got on the ship is unknown, as for the previous day a moderate sw'ly breeze, force 3–4 (onshore) had been experienced, along with frequent showers. Most likely, the traveller arrived during our transit of the Panama Canal on December 5th and 6th, although this is also dubious as then there were very heavy, sometimes torrential rain showers.

Position of ship: 08° 20'N, 83° 41'W.

Note. Mrs E. R. Peacock of the Department of Entomology, British Museum (Natural History), comments:

'This is a firefly (family Lampyridae) of the genus *Photuris*. There are a very large number of species in this genus, all of which come from North, South or Central America.'

Caribbean Sea

m.v. *Snow Crystal*. Captain W. G. Lockie. At Almirante. Observer: Mr M. J. Pinder, 3rd Officer.

15 October 1985. During the vessel's time in Almirante, the beetle shown in the sketch (which is approximately half actual size) was found on the funnel deck.

Its body measured approximately 6 cm long from the head to the end of the wing case, and was about 2 cm wide. The antennae were extremely long and consisted of ten segments which became shorter and finer away from the body. All the legs were long too, and rather spindly.



On the back, the colouring was a light brown/black, patterned with a brownish green, and the texture of the wing case at the trailing ends was like velvet, whereas the part near the head bore hard, black knobs. Parasites were also found on the beetle.

Prior to the ship's arrival at Almirante, the wind had been variable, force 2, and there had been thundery showers.

Position of ship: 09° 17' N, 82° 23' W.

Note. Mr R. J. W. Aldridge, of the Department of Entomology, British Museum (Natural History), comments:

'This is a Longhorn Beetle, *Acrocinus longimanus* L. (Cerambycidae: Lamiinae), commonly called the Harlequin Beetle. This is a common neotropical species.'

LUNAR ECLIPSE AND BIOLUMINESCENCE

Arabian Sea

m.v. *Neptune Jasper*. Captain D. Khin Maung. Karachi to Bombay. Observers: Mr R. Kumar, 2nd Officer and Mr R. D. Drodio, Cadet.

28 October 1985. At 1548 GMT, the first stages of a total lunar eclipse began when slight shadows appeared near the lower limb of the bright full moon. By 1630, half of the moon was obscured by the Earth's shadow, although the edge of the hidden part could still be seen faintly. At 1710, the moon was almost covered except for the upper limb, and at this time, bioluminescence was observed in the ship's wake on either side of the bow.

Totality occurred at 1720. The moon was still visible with a reddish or brownish tint towards the lower limb and a slightly brighter shade towards the upper limb, whilst stars twinkled and were shining brightly.

By this point, the bioluminescence had increased in intensity to its maximum; the water passing the ship's hull was glowing as were the waves of the wake where they broke over the sea momentarily. The intensity was so great that nearby fishing vessels 3–4 n. mile away could not be distinguished visually between the wavelets. Diffuse milky patches were seen within a radius of 5 n. mile from the ship. These were about 5 m in width and 20 m long, and were 1–2 m apart. Since there were fishing vessels in the vicinity, the radar was not switched off. The echo sounder was not used.

At 1742, the patches slowly disappeared and the intensity of the bioluminescence was reduced gradually, fading within minutes. Nothing of the kind was seen again.

Totality ended at 1804 as the lower limb of the moon brightened again and the full moon was visible at 1929.

Weather conditions at 1720 were: air temperature 25.6°C, wet bulb 24.4, sea 27.0, pressure 1014.0 mb, wind w'ly, force 3, sky cloudless.

Position of ship at 1720 GMT: 23° 36'N, 67° 31'E.

Note. Dr P. J. Herring, of the Institute of Oceanographic Sciences, comments:

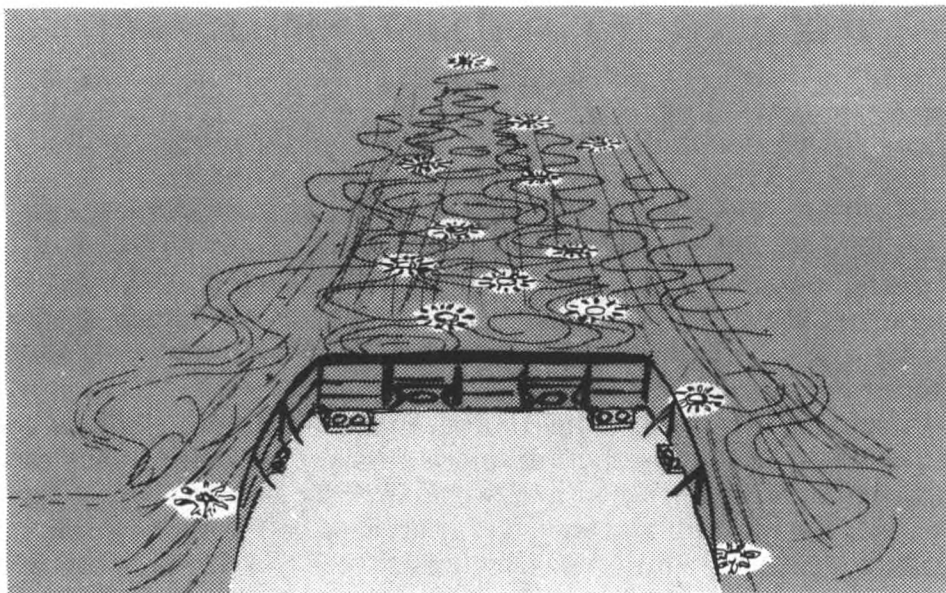
'The correlation between bioluminescence activity and the eclipse of the moon is very interesting and probably has two main components. One is the fact that as the eclipse proceeded, the observer would have been progressively better dark-adapted and a constant luminescence intensity would therefore appear brighter. This is clearly not the only factor involved here. A second one is that many animals undertake nightly migrations from deeper water to near surface (usually for feeding purposes). The extent of these migrations are probably light-limited and the reduction in overhead light from full moonlight to eclipse condition would encourage many species to move up to the surface. This might account for the many luminous patches, particularly as the presence of fishing boats suggests that there were large numbers of fish (and probably their prey) in the area at the time. During the day, eclipses of the sun similarly cause deep scattering layers (usually caused by fish) to rise briefly to shallower depths and descend again as the eclipse ends.'

BIOLUMINESCENCE

Eastern South Atlantic

m.v. *British Skill* Captain J. Y. MacAlpine. Singapore to Rio de Janeiro. Observers: Mr N. S. Rothney, 3rd Officer and Mr G. Jackson, Seaman 1.

28 November 1985. Between 2000 GMT and 2300 GMT, innumerable phosphorescent globules were noticed. Few were present in the breaking bow waves, yet too many to count or quantify appeared in the vessel's wake. The effect is shown in the sketch. These globules remained 'lit' until their distance away



became too great for them to be visible. Some were bright enough to illuminate the water surrounding each.

Could we suggest that those globules seen astern must have been at varying levels to have been made visible by the vessel passing over and disturbing them? Do these organisms glow by reflecting light or by producing their own?

The numbers present were at a maximum on first being sighted, dying out slowly to the last sighting. Visibility was good and illumination was from the ship's accommodation lighting aft.

Weather conditions at the time were: dry bulb 18.0°C, sea 18.5, wind SSE'ly, force 4.

Position of ship at first sighting: 31° 40'S, 04° 45'E.

Note. Dr P. J. Herring comments:

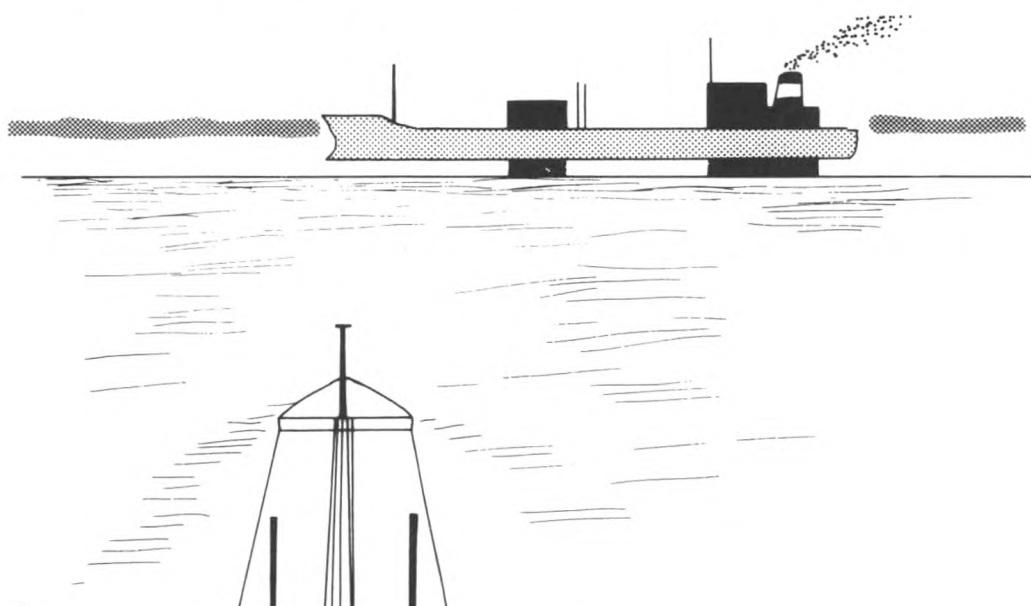
'This report is most probably referable to *Pyrosomas*, cylindrical colonies of organisms related to sea squirts. They are one of the few common animals that remain illuminated for long periods. The observer is quite right in assuming them to have been at different depths, often the deeper the animal, the larger it may look as a result of the increased diffusion of its light when seen from above the surface. The light is produced by a chemical reaction within specific cells and is entirely "cold"; no detectable heat is emitted. Increased depth is no hindrance as the system is relatively unaffected by changes in depth of the animals. Indeed, they often move much deeper in the water during the day, only to reappear nearer the surface the next night.'

ABNORMAL REFRACTION

Gulf of Mexico

m.v. *Atlantic Confidence*. Captain J. C. S. Yeo. Pointe Noire to New York. Observers: the Master and Mr J. A. C. Pearce, 3rd Officer.

6 November 1985. At 0855 LMT whilst steaming on a northerly course towards South Riding Point, Grand Bahama Island, another ship was sighted ahead and was crossing our bow from starboard to port. It was sighted at a distance of 16 n. mile. At 0904, the other vessel was seen to be 'floating' on its own accommodation and deckhouse, with the background land also 'floating' above the horizon. The effect is shown in the sketch. Slowly, this effect diminished until 0910, when at a



range of 12 n. mile, the ship's hull touched the horizon. She was approximately one point on the port bow at this time.

At 0917, the other ship was 9.8 n. mile abeam of us and slowly slipping below the horizon. No other abnormal refraction occurred except for the land, and this returned to normal at about 0920.

Weather conditions at the time were: air temperature 21.2°C , dew point 21.2 , sea 27.0 , wind WNW'y, force 3. There were 4 oktas of low cloud (small cumulus) and the sea state was slight, with no swell.

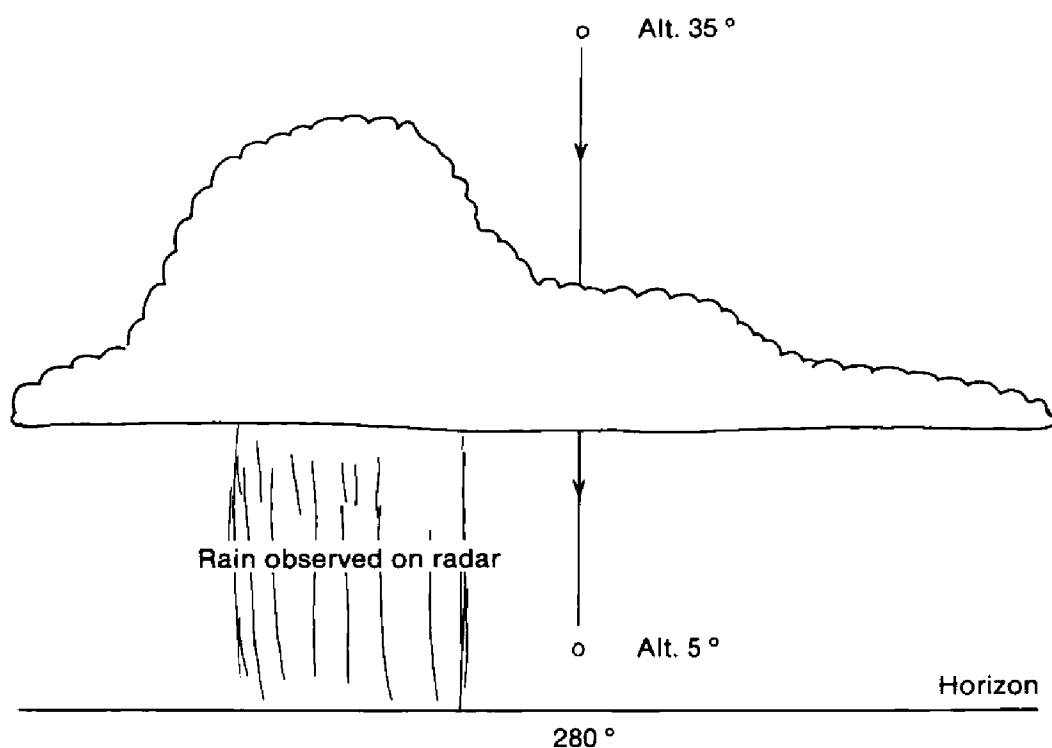
Position of ship: $26^{\circ} 26' \text{N}$, $78^{\circ} 14' \text{W}$.

METEOR

Indian Ocean

m.v. *Sir Alexander Glen*. Captain D. Willey. Singapore to the Gulf. Observer: Mr I. Fowlie, 3rd Officer.

16 October 1985. At 1635 a meteor the path of which is shown in the sketch, was observed ahead of the vessel at an altitude of 35° . At first, it appeared as an ordinary 'shooting star', but then moved behind part of a cumulonimbus cloud and disappeared from view temporarily.



On reappearing at the base of the cloud (estimated to be about 1500 feet), the meteor was very much brighter, resembling an ultra-violet blue-white light. Also during this period which lasted for no more than one second, the size of the meteor increased. After this 'flash', it reverted to its original size and brightness and was lost from sight at an altitude of 5° . On this evening, Jupiter had a magnitude of -2.0 , but the meteor in the middle of its course was much brighter.

There appeared to be no other part to the object but the nucleus, and there was no after-glow or trail throughout the whole event which lasted no longer than four seconds. Other meteors were observed during the night, but none with the bright middle stage previously described.

Weather conditions were: air temperature 28.0°C , wet bulb 25.0 , pressure 1011.0 mb, wind w'y, force 4. There were scattered cumulonimbus clouds with rain reaching the surface (as observed by radar).

Position of ship: $07^{\circ} 26' \text{N}$, $76^{\circ} 36' \text{E}$.

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

'This is a very good account of a fireball generated when a small piece of interplanetary material entered the atmosphere. The variation in brightness was due to variations in the ablation rate and irregular breaking up of the material; the colour was caused by ionisation of the air molecules which were dragged along with it.'

HALLEY'S COMET

Despite the poor showing of the comet during its latest apparition, we are grateful to all the observers in the ships listed below, who sent in notes of their sightings:

Encounter Bay (6 Dec. 1985 – 3 Jan. 1986); *Cable Venture* (12 Dec. 1985); *Jack Wharton* (Jan. – Mar. 1986); *Melampus* (4 Jan.); *City of Edinburgh* (1 Mar.); *Nosira Sharon* (2 Mar.); *Providence Bay* (2 Mar.); *Asian Thistle* (4 Mar., 11 Apr.); *John Biscoe* (5 – 23 Mar.); *Eburna* (10 Mar.); *Auckland Star* (11 Mar.); *Crestbank* (12 Mar.); *Encounter Bay* (13 Mar.); *Stolt Sceptre* (13 Mar.); *Atlantic Confidence* (15 Mar.); *Liverpool Bay* (19 Mar. – 9 Apr.); *Osaka Bay* (20 Mar.); *Gandara* (Mar. – Apr.); *Nosira Madeleine* (5 Apr.); *Valdivia* (6 Apr.); *Entalina* (15 Apr.); *Churchill* (16 Apr.) and *Montarik* (18 Apr.)

Our apologies go to those observers whose comet reports did not arrive in time for inclusion above, but at least you were lucky and managed to see it!

Erratum

On page 112 of the July issue, the Master of m.v. *Bibi* was named as Captain J. S. Marshall; this should have read Captain J. S. Pearsall, and our apologies go to Captain Pearsall for this oversight.

***Velella velella* (L.), the 'by-the-wind-sailor', in the North Pacific Ocean in 1985**

By Dr F. EVANS

(Dove Marine Laboratory, University of Newcastle upon Tyne, Cullercoats, North Shields)

Velella velella (L.) lives in the open ocean, and because it floats at the very surface of the sea, it has long been known to deep-water sailors. (See photograph opposite page 200.) Sailing ship men called it the 'by-the-wind-sailor' or 'Jack-by-the-wind'. The name was suggested by the sail (actually a part of the skeleton) which drives the animal before the wind on a broad reach. Nowadays, seamen correctly and more commonly use the generic title, *Velella*. The (L.) following the animal's name credits the great naturalist, Linnaeus, with first naming it; in 1758, he called it *Medusa velella*; he thought it was a mollusc. *Velella*, we now know, is a hydrozoan coelenterate, and is so very closely related to the sea-firs or polyps found on rocky shores; more distantly, it is related to corals and sea-anemones.

The genus is monotypic i.e., there is only one species of *Velella* worldwide, although Bieri (1977a) has suggested that there are genetically different stocks in different oceans. At one time, as many as thirty different species of *Velella* were thought to exist.

The marine biologist, Sir Alister Hardy (1956), referring to sailing ship records of *Velella* then wrote: 'Today I do not suppose the steamship men, travelling fast, ever notice them'. In this he was in error, for numerous reports of the creature continue to reach the Meteorological Office. Nevertheless, our knowledge of the biology and distribution of *Velella* remains poor. Partly, this is because of its patchiness. A research vessel may search fruitlessly and expensively for *Velella* over thousands of miles of ocean, and consequently such searches are hardly ever undertaken.

Velella occurs in the lower latitudes of the three major oceans. Published records from the western North Atlantic are few. Linnaeus mentioned above, recorded it from the Mediterranean, where it is still found. Reports of stranded *Velella* on British southern coasts appear from time to time. The creature is then at the polar limit of its range.

Bieri (1977b) states 'although *Velella* has been observed by naturalists for 150 years, records giving the three variables of date, location and size are scanty'. Further records are desirable, and the value of reports received from the Voluntary Observing Fleet is plain. While the many records to date are in the process of collation, a single remarkable explosion of the *Velella* population in the North Pacific Ocean in 1985 merits immediate notice. First, however, a short description of the life history of the species may be appropriate.

Like related sea-firs *Velella* undergoes an alternation of generations, first as an asexual or budding form, then as the sexual or egg-laying form, which in turn gives rise to the asexual form. The familiar blue-edged creature up to 15 cm long, with a chitinous sail, represents the asexual generation, called a polyp. In almost all other sea-firs, the polyp is attached to rocks, weed and so on, often in colonies, but in *Velella* it is single, buoyant and free-floating. In all sea-firs, the polyp generation is characteristically asexual.

From the polyp small medusae, or jellyfish are budded off. These represent the sexual generation and each medusa is either male or female. From the medusa, eggs and sperm are shed into the sea, where, after fertilisation, a new polyp grows from the egg. This is the general sequence in sea-firs.

Before reproducing, some kinds of sea-fir medusae feed and grow into quite large jellyfish. Not so in the case of *Velella* where the medusa remains small, initially no more than 1·5 mm long, and with only four tentacles. At this stage, the medusae make a remarkable descent from the sea surface down to a depth of 600–1000 m. Here, it is supposed that they release their sex products into the sea, the eggs are fertilised and the new polyp generation begins its development. Fertilisation at that depth has never, of course, been observed, but the medusae have been captured there.

The minute polyp secretes an oil droplet into its tissues whose buoyancy bears it back towards the surface and a new life.

Velella is a member of the pleuston, those animals living at the interface of air and sea. It is a predator, feeding on near-surface plankton and small fish which it captures by means of trailing tentacles bearing stinging cells. In its turn, it is preyed upon by other animals, in particular by the purple floating snail, *Janthina*. It may be noted that members of the near-surface community, *Velella* included, are commonly coloured blue or purple as a camouflage (a greener colour in colder waters).

Table 1 — *Velella* reports from Selected Ships

SHIP	DATE	POSITION	MAXIMUM DENSITY	SIZE
<i>British Spey</i>	21–22 Apr.	37·7°N, 168·0°W to 37·7°N, 162·1°W	'thousands'	5 cm
<i>Fort Providence</i>	22–25 Apr.	36·3°N, 147·3°W to 37·7°N, 164·7°W	20 m ⁻²	5 cm
<i>British Spey</i>	7 May	35·2°N, 179·4°W	'many millions'	—
<i>Pacific Crane</i>	7 – 11 May	42·3°N, 147·6°W to 34·0°N, 127·9°W	40–50 m ⁻²	—
<i>Mosel Express</i>	9 May	42·4°N, 135·5°W	'large clusters'	4 cm
<i>Albright Explorer</i>	9 – 18 May	38·0°N, 172·0°E to 34·3°N, 137·0°W	'varying'	—
<i>Main Express</i>	12 – 15 May	38·0°N, 180·0°– to 38·0°N, 175·0°W	'solid patches, millions upon millions'	4–5 cm
<i>Stolt Sceptre</i>	18 May	37·0°N, 179·8°W	'completely covered the sea in patches'	—
<i>Pacific Teal</i>	18 – 20 May	37·4°N, 166·8°W to 39·2°N, 179·9°W	'grouped into lines 5 m across, the lines stretching for miles'	—
<i>Fort Victoria</i>	19 – 22 May	42·1°N, 143·2°W to 37·2°N, 162·5°W	4–6 m ⁻²	10 – 15 cm
<i>Valdivia</i>	26 May	42·8°N, 151·6°W	'in clusters all day'	4 cm
<i>Galconda</i>	13 – 14 Jun.	42·0°N, 137·2°W to 44·3°N, 132·9°W	(present)	—
<i>Myrmidon</i>	6 – 10 Jul.	41·4°N, 162·7°E to 44·1°N, 157·2°W	'looked like oil tanker sludge'	10 – 12 cm

Manifestly, the fertilisation of eggs at 600 – 1000 m must be a co-ordinated event. From this may arise the patchiness and occasional abundance of the species.

From April to July 1985 there was a remarkable upsurge in numbers of *Velella* in the North Pacific Ocean. This upsurge was reported by twelve Selected Ships in the area from 21 April to 10 July (Table 1). Although the observations were made by seamen and not by specialists, ample evidence of correct identification was supplied in the form variously, of descriptions, drawings, photographs and skeletons included with the reports.

A map of the recorded locations is given in Figure 1. The 'box' enclosing the *Velella* patch during the period was approximately 2.1 million square miles in area. Total numbers cannot be estimated since they varied greatly between sightings. However, what is notable about the outburst apart from its vast extent, are the very high densities at times reported. More than one record spoke of an appearance resembling grease, or the sludge remains of an oil tanker. A remarkable photograph in *The Marine Observer*, April 1986 indicates this very high concentration.

Sizes of individuals varied both between reports and within individual sightings. In general they agreed with the published information, which suggests a general maximum length of 10 cm (Kirkpatrick and Pugh, 1984), but two reports give 6 inches (15 cm), which was larger than Bieri's (1977b) largest specimen. There is no clear size progression with the advance of the season, which is perhaps not surprising given the very wide area of occurrence.

The length of the tentacles is usually given in the literature as 'short', and illustrations commonly show a tentacular fringe with individual tendrils no longer than the width of the disc, perhaps 50 mm. However, one ship report speaks of tentacles mostly 0.5 m long, with some extending even to 2 m. This seems, by analogy with *Physalia*, the Portuguese man o' war, a much more probable length for tentacles extended in fishing. It is likely that drawings of *Velella* are commonly made from captured animals, with the tentacles contracted.

Several reports noted numbers of seals or sea-lions near the concentrations of *Velella*.

Published observations of sightings of *Velella* in recent years are to be found in issues of *The Marine Observer* for April of 1976, 1979, 1980, 1982 and 1986. Further unpublished reports from Selected Ships since 1976 have been consulted. In them, positions recorded in the Pacific extended, during these years, from the North American coast westwards to about 175°w, covering the same wide expanse as in the 1985 reports. In the North Atlantic Ocean, *Velella* was found from 30°N to 45°N, but no farther west than 20°w. The species thus appears to be concentrated towards the east side of both oceans. The months of sightings from both published and unpublished reports are summarized in Table 2. It is seen that in both the Atlantic and Pacific, those animals large enough to be

Table 2 — Monthly incidence of *Velella*. Summary of published and unpublished Selected Ship observations, 1976–1985, including the present records.

MONTH	PACIFIC OCEAN	ATLANTIC OCEAN
April	4	4
May	13	4
June	4	1
July	2	0
Total	23	9

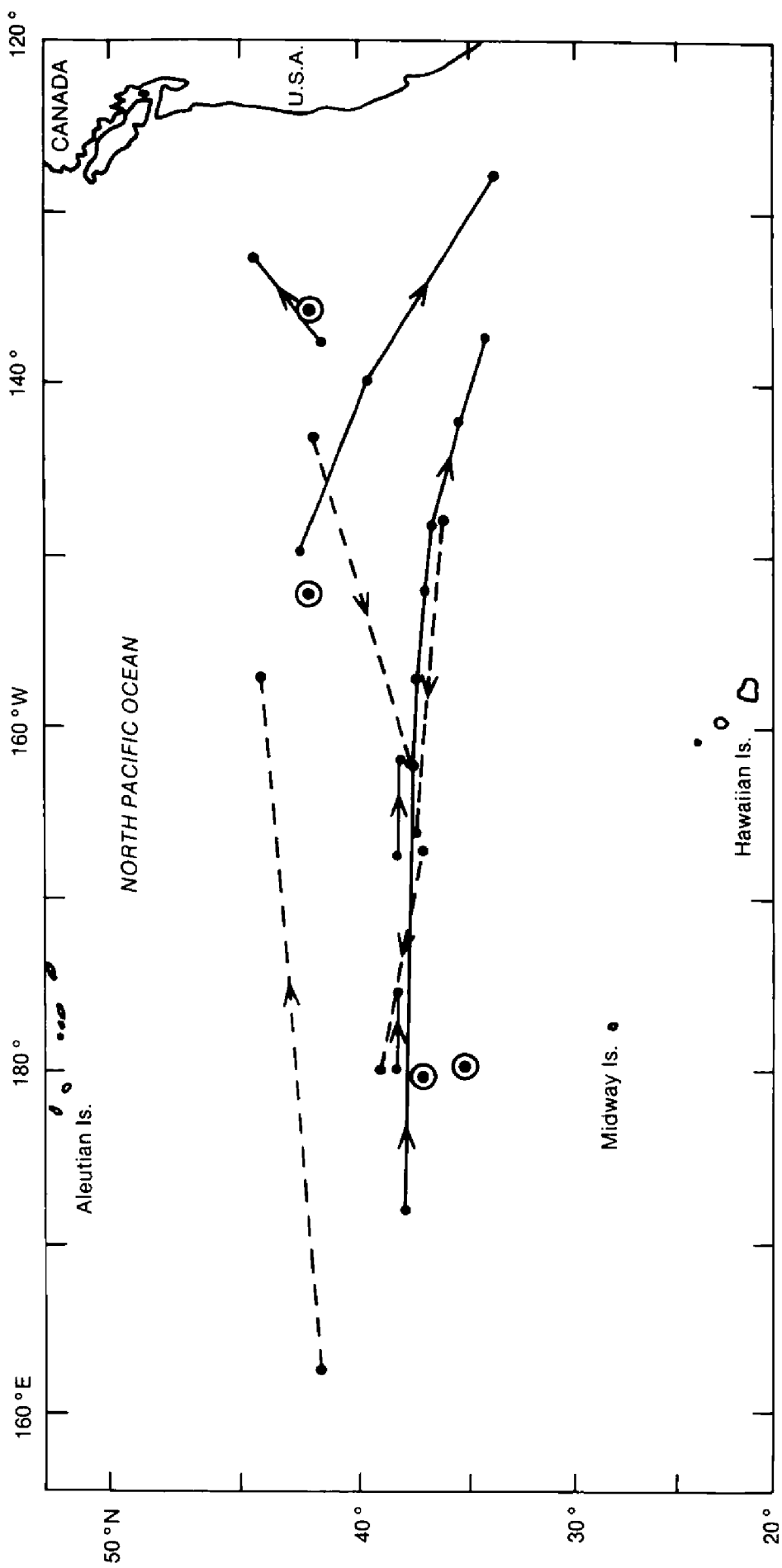


Figure 1. Tracks of Selected Ships through shoals of *Vefella* in 1985. The plotted routes are in some cases the tracks of more than one ship. Open circles represent single reports. (See Table 1.)

seen from the deck of a ship are to be found in late spring and early summer. Densities were similar to those reported in Table 1, i.e., high, and at times covering the whole sea surface. In no other year, however, was the majestic abundance of 1985 approached.

Bieri (1977b) collected together many records of *Velella* from research vessels and from strandings, including a total of 68 records in the Northern Hemisphere. He concluded that there are two full life-cycles (polyp and medusa) per year, with polyps at maximum size in April and October, when the medusae are released and sink. He believed the period spent at depth by the medusae to be between one and four months, during which time the polyps die off.

Against this, it is remarkable that no Selected Ship record since 1975 reports the species at the surface in the autumn. Since Bieri gives a typical September – October length for *Velella* of 70 mm, length well within the range of size reported from Selected Ships, there is a clear contradiction of evidence. The subject awaits further study and further reports.

These latter are unlikely to be supplied except by merchant ships.

Acknowledgement

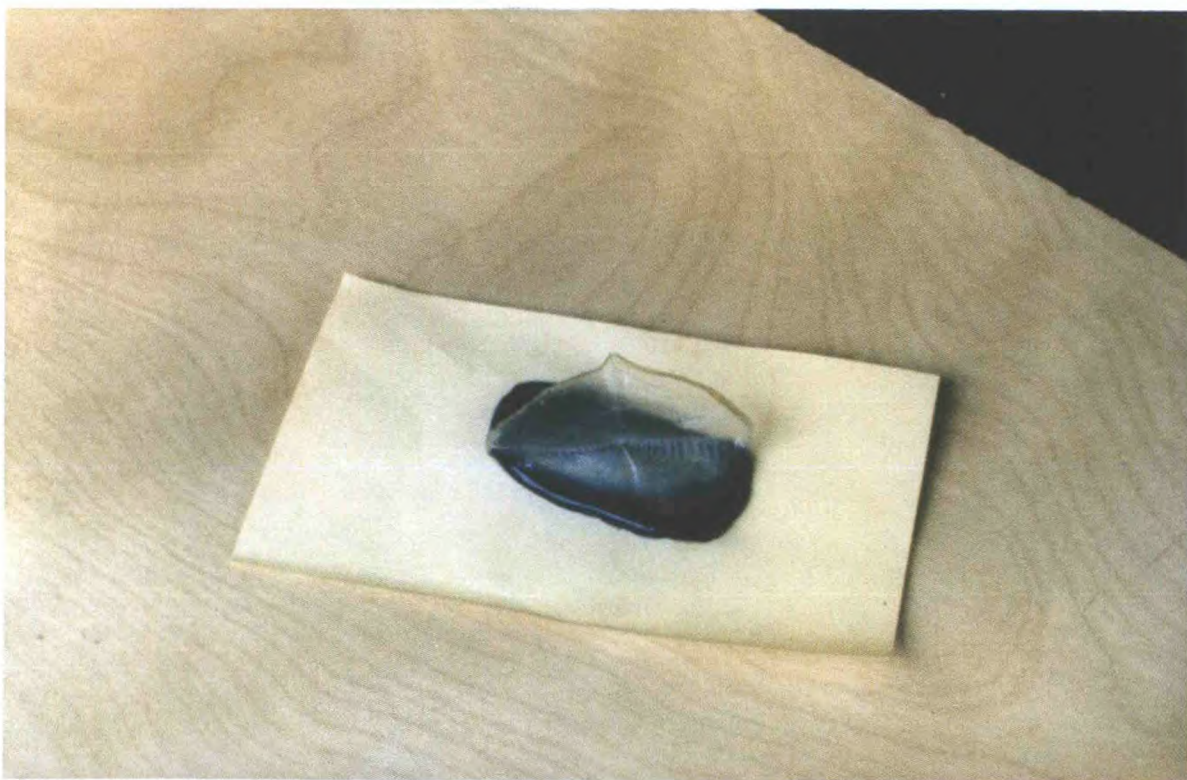
My thanks are due to Paul Hilgersom of S.B.N.O., Amsterdam, editor of *Plankton News-Letter*, for his help with the literature.

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Tide rip photographed from m.v. *City of Edinburgh*. (See page 182.)



Photograph of *Velella* taken aboard m.v. *Albright Explorer* in the North Pacific Ocean, May 1985.
Acknowledgements to the unknown photographer. (See page 196).



Presentation of barographs on 29 May 1986 at Met. Office Headquarters, Bracknell. Left to right, standing: Dr J. T. Houghton, Director-General, Met. Office; Captain A. Walker (Assistant Marine Superintendent, Furness Withy (Shipping) Ltd); Mr J. Bawden (Institute Secretary, British Antarctic Survey); Mr E. M. P. Salmon (Establishment Officer, British Antarctic Survey). Seated: Captain J. Parsloe; Mrs Parsloe; Mrs Cullen; Captain P. D. Cullen; Captain E. M. S. Phelps; Captain J. R. G. Hannah (Fleet Operations Manager, Overseas Containers Ltd). (See page 201.)

PRESENTATION OF BAROGRAPHS

Following the announcement on page 39 of the January issue, of the four shipmasters selected to receive special long-service awards, for their work in weather observing to December 1984, the presentation of inscribed barographs was made on 29 May 1986 at the headquarters of the Met. Office in Bracknell.

Before assembled guests and members of staff, the Director-General, Dr J. T. Houghton, CBE, FRS, D PHIL, made the presentations to Captain J. Parsloe (Bolton Maritime Ship Management Ltd), Captain E. M. S. Phelps (British Antarctic Survey) and Captain P. D. Cullen (Furness Withy (Shipping) Ltd). Unfortunately, the fourth recipient, Captain A. H. Aston (Overseas Containers Ltd) was unable to attend, and the award was received on his behalf by Captain J. R. G. Hannah, the Fleet Operations Manager of Overseas Containers Ltd. (See photograph opposite page 201.)

In a short speech before the presentations, the Director-General emphasised the importance of global observations, forming as they do, vital components for forecasting both in the U.K. and farther afield. Weather occurring in the South Pacific during one week can influence our weather in the next, he said, so it was necessary to know what was going on elsewhere. Observations at sea were also very important for the Met. Office forecasting model, particularly for forecasts at the lower levels. Dr Houghton said that in its efforts to maintain the numbers of observations received from the oceans, the Met. Office was exploring new ways of obtaining data, with projects such as MOSS (Meteorological Observing System for Ships) and ASAP (Automated Ship's Aerological Programme), both of which were helping to maintain and enhance the coverage of observations from the oceans. An occasion such as the presentation of barographs was, therefore, an important and also a pleasant one, marking the contributions made by merchant ships.

The award scheme has been implemented annually since 1948, which, as Dr Houghton remarked, was only 'two or three Directors-Generals ago', Directors-Generals seeming to have a particularly long life in the Met. Office, as he himself was only the ninth person to hold the position since the inception of the Met. Office in 1854.

The shipmasters, following the receipt of their awards, were able to look back at their early observing days, as their first logbooks were available for inspection, in addition to each man's record card giving his history of observing for the Met. Office, a period of 18 years or more.

MALAYSIAN EXCELLENT AWARDS

(From Dr Lim Joo Tick, Malaysian Meteorological Service)

The Malaysian Meteorological Service (MMS) started its VOS scheme in 1975 when the Port Meteorological Service was initiated at Port Kelang, and which was later extended to Port Kuching and Port Bintulu.

Up until 1984, the MMS had either recruited, or provided services to 82 ships, comprising 30 Selected Ships, 5 Supplementary and 21 Auxilliary Ships, 19 foreign recruits and 7 inactive vessels.

The Malaysian Meteorological Service was pleased to present Excellent Awards to Masters of the Voluntary Observing Ships for having meritoriously participated in the VOS scheme. The awards were presented on 25 March 1986 in conjunction with World Meteorological Day, by the Honourable Minister of

Science, Technology and Environment. This was the first time that the awards had been made by the MMS, and the basis of selection was on the quantity, regularity and quality of the weather observations reported in the year of assessment. The awards consisted of pewter beer tankards and certificates of appreciation.

Masters who were selected to receive the award were:

CAPTAIN		SHIP		COMPANY
G. M. Dhar	..	<i>Bunga Melati</i>	..	Malaysian International Shipping Corp. Bhd
M. A. Haque	..	<i>Bunga Tanjong</i>	..	Malaysian International Shipping Corp. Bhd
T. M. D. Hunter	..	<i>Anchan</i>	..	United Thai Shipping Corp. Ltd
S. M. Huq	..	<i>Bunga Melati</i>	..	Malaysian International Shipping Corp. Bhd
P. J. Parrot	..	<i>Tenga Empat</i>	..	Malaysian International Shipping Corp. Bhd
A. Rauf	..	<i>Kota Bahagia</i>	..	Malaysia Shipping Corp. Sdn. Bhd
G. Tigar	..	<i>Tenga Empat</i>	..	Malaysian International Shipping Corp. Bhd
B. Welch	..	<i>Anchan</i>	..	United Thai Shipping Corp. Ltd
T. D. Willey	..	<i>Bunga Tanjong</i>	..	Malaysian International Shipping Corp. Bhd

AURORA NOTES OCTOBER TO DECEMBER 1985

By R. J. LIVESEY

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

In Table No. 1 are summarized the auroral observations received from mariners during the period. Details of land and marine reports are given in Table No. 2, omitting isolated and doubtful observations. The aurora in early October was of the 'coronal hole' type. A weak coronal hole on the sun caused the aurora of mid-November, but the major storm on 29/30 November was caused by the breakup on the sun of a filamental structure some 8 degrees of solar longitude in length. This explosive type aurora of a transient nature was well seen in Canada, Scotland and Norway, active rays and rayed arcs being much in evidence.

Table 1 — Marine Aurora Observations October to December 1985

DATE	SHIP	GEOGRAPHICAL POSITION	TIME (GMT)	FORMS IN SEQUENCE
11 Oct.	.. <i>Cumulus</i> ..	.. 57° 00'N, 20° 00'W	0010 – 0215	qmHR, N, am ₂ V
12 ..	.. <i>Cumulus</i> ..	.. 57° 00'N, 20° 00'W	0030	mHN
16 ..	.. <i>Cumulus</i> ..	.. 57° 00'N, 20° 00'W	0000 – 0200	qfHG
16 ..	.. <i>Stridiron</i> ..	.. 46° 24'S, 168° 24'E	0940 – 0955	RB
17 ..	.. <i>Cumulus</i> ..	.. 57° 00'N, 20° 00'W	0000 – 0400	qmG, pN, m ₂ P
18 ..	.. <i>Cumulus</i> ..	.. 57° 00'N, 20° 00'W	0100 – 0300	qfHN, qG, qV
26 ..	.. <i>Festival</i> ..	.. 36° 30'N, 145° 05'E	1230 – 1930	G, HA, RA
3 Nov.	.. <i>Drupa</i> ..	.. 61° 23'N, 02° 24'E	0250 – 0305	RA
10 Dec.	.. <i>Cumulus</i> ..	.. 57° 00'N, 20° 00'W	0120 – 0320	qG
13 ..	.. <i>Cumulus</i> ..	.. 57° 36'N, 01° 30'W	0130	qG
29 ..	.. <i>Europa Point</i> ..	.. 71° 10'N, 28° 30'E	1440 – 2055	aHA, HB, cR, aHA, HB

KEY: a = active, c = corona, m = multiple, m₂ = 2 forms, p = pulsating, q = quiet, A = arc, B = board, G = glow, H = homogeneous, N = aurora of unspecified form, P = Patch, R = rayed, V = veil.

The end of 1985 was the completion of the auroral observations made by our Dutch colleagues on the Ocean Weather Ship *Cumulus*, which has shared the weather station 'Lima' with the British Ocean Weather Ship *Starella* since 1982. From 1986 onwards, the watch at 'Lima' is being undertaken by the *Cumulus*, now under British ownership. On behalf of everybody concerned, we wish to record our very grateful thanks to the Master and crew of *Cumulus*, and to the Director of Operations of the Royal Dutch Weather Institute for the work involved in observing and recording the auroral activity, and for collecting and transmitting it direct to the Aurora Section of the British Astronomical Association to be included in the analysis and reports on the aurora. During this period, our Dutch friends made 48 auroral reports. There has been considerable value in having continuous observing at a fixed point in the ocean at geomagnetic latitude 63 degrees north, and to correlate this with continuous observing at land stations at Aviemore, Wick, Kirkwall and Sumburgh made by staff of the Meteorological Office, at geomagnetic latitudes 61 degrees and 62 degrees north. Cloud is the old enemy of aurora observers, and when one cannot see the sky, another night. This was particularly noted when the weathership *Starella* completed a voyage without having seen any auroral activity.

Apart from cloud, another problem for the aurora analyser is the arrival from time to time of an isolated observation which looks genuine enough, but cannot be tied down to magnetic disturbance or to other confirmatory observations. These

**Table 2 — Auroral Activity reported October to December 1985
(excluding isolated and doubtful events)**

DATE (NIGHT)	LOCATION AND NUMBER OF OBSERVERS	GEOMAGNETIC LATITUDE			MAXIMUM STORM ACTIVITY CODE*	TIME (GMT)
		LOWEST	HIGHEST	AT STORM PEAK		
5/6 Oct.	Norway (2)	60	60	60	5	1825–2255
10/11	'Lima', Wick, Norway (3)	60	63	63	5	2100–0215
11/12	'Lima', Scotland, Norway (3)	59	63	59	5	1950–0200
15/16	'Lima' (2)	60	63	60	2	0000–0200
16/17	Winnipeg, 'Lima', Australasia (3)	59	63	59	5	0000–1027
2/3 Nov.	Alberta, North Sea, Norway (3)	60	63	60	3	1950–0815
10/11	Alberta, Norway (2)	60	64	60	5	2100–0020
13/14	Scotland, Norway, Finland (7)	57	61	57	6	1915–0115
14/15	Alberta, Scotland (4)	60	64	60	2	2105–0700
29/30	Canada, Scotland, Norway (14)	56	64	62	7	1800–0400
9/10 Dec.	'Lima', Orkney (2)	61	63	61	1	1850–0320
11/12	Wick, Norway (2)	60	61	60	1	0000–0330
12/13	Alberta, 'Lima' (2)	60	64	64	5	0130–0400
29/30	Alberta, North Cape (2)	64	67	67	6	1440–0200

*Storm Activity Code: 1 = Glow or unspecified form, 2 = Homogeneous arc or band, 3 = Rayed arc or band, 4 = Ray bundles, 5 = Active, moving, flaming or flickering, 6 = Coronal structure, 7 = All-sky storm.

are usually land-based observations. Recently, there was an alert by no less than three observers to auroral light in southern England when the magnetometer tended to indicate that no major activity was present to push the aurora down to these latitudes. After careful investigation by one of the observers, including observations on subsequent nights, it was concluded that a high layer of ice crystals was scattering the lights of Milford Haven oil refinery forward for a distance of over 80 miles from a location below the observer's horizon. The result was an active glow with a slow rise and fall in intensity and with odd flickerings. Similar types of spurious auroral sightings are found from town lights and possibly from North Sea oil rig flares of which the latter may give a ray-like effect.

The aurora does not emit light at all wavelengths as do the sun and moon, but at specific wavelengths only. This is because the electrified particles entering the high atmosphere are reacting in ways permitted only by the particles with which they collide. Auroral observers use devices called interference filters which are tuned to pass only one emission wavelength, rather like tuning in a radio receiver. This enables the observer either visually or photographically, to identify that the light is coming from atomic or molecular auroral processes in the high

atmosphere. It is quite spectacular to use a filter tuned to the auroral green line. In full moon conditions for example, the sky is totally washed out with light, yet the filter will pick out auroral rays and arcs, blacking out the general background light, thereby enabling the aurora to be clearly identified.

The aurora is frequently green, but may be white, yellow or blue. Red is found in the high parts of activity and on the lower fringes of intense arcs and rays. White is caused by the mixing of other colours. The brightest aurora is actually in the red end of the spectrum, but because the eye is most sensitive to light in the yellow-green sector, it is the green aurora that appears to be the brightest to an observer, although the real brightnesses of the various colours are better determined by photographic and other means. Dr D. A. R. Simmons has demonstrated with a camera and interference filters how red aurora may well be present in the sky, even when the visual observer cannot detect its presence with his eye.

The observations of what appeared to be a rayed glow, submitted by m.v. *Festival* (Captain N. M. Whyte) and seen in position 36° 30'N, 145° 05'E, on 26 October is interesting in view of the very low magnetic latitude of the ship's position. Measurements of the magnetic field on that night indicated no disturbance that might have caused the aurora to expand southwards to that latitude. A light orange glare was first seen at 1230 GMT, and, in the space of two hours, it widened out to an arc of 100 degrees, reaching a height of 15 degrees. Rays developed, grey-white in colour, rising to a height of up to 30 degrees. This phenomenon persisted until 1930 GMT and faded with the dawn. Unfortunately, no drawing was submitted to confirm the verbal description of the event, and although it may appear that an aurora was present, the orange colour, taken together with the magnetic data, seems to confirm that this was not an aurora.

Referring back to the Aurora Notes for October to December 1984, readers may recall the observations by Dr Richardson on 25/26 December from Tank in Pakistan, of homogeneous arcs. Both the *Festival* and Dr Richardson were located at similar low magnetic latitudes. After examination of a variety of records, including a satellite photograph of the location of the aurora over the Soviet Union at the time of the observation, it was concluded that the phenomenon was not an aurora.

Thus, our readers will see that the receipt of the auroral mailbag can provide the analyst with some interesting detective work. No observation can be ignored, even if it turns out not to be an aurora.

Personalities

RETIREMENT—CAPTAIN J. BENTLEY retired on 30 May 1986 after spending the last 7 years representing the Marine Division of the Meteorological Office in Hull.

Jack Bentley was appointed as Port Meteorological Officer for East England on 17 April 1979, following his decision to leave the sea after almost 40 years afloat. He was indentured to the Evans and Reid Management Company of Cardiff in 1940 after attending 3 years of pre-sea training at the Boulevard Nautical School, Hull, and served the whole of his 3-year apprenticeship on one vessel, the *Nailsea Moor*, having two spells of leave lasting 9 days during that period.

On obtaining his Second Mates Certificate at the end of 1943, he sailed to the U.S.A. on 1 January 1944 aboard the R.M.S. *Queen Mary* to join a newbuilding Liberty ship, the *Samnethy*. He saw war service in the North Atlantic convoys and in other fields but was never sunk.

In 1949 he says he first obtained a wife and then a Master's Certificate, and the former suggested he put the latter to better use by joining a company that did not send him away on 2-year voyages. He accordingly changed to the Elder Dempster Company as Second Officer in December of 1949, was promoted to Chief Officer in 1951 and to Master in 1958, sailing various ships on the West African trade in 'the good years'. In 1960 he was seconded to the Nigerian National Line for 18 months to help that company establish itself on Nigeria's independence.

Upon the merging of Elders with Blue Funnel Line in 1970, Captain Bentley commanded his first Blue Funnel ship in that year as a member of the integrated organisation of Ocean Fleets. Upon the formation of Overseas Containers Ltd in early 1972, he transferred to the *Liverpool Bay* class of ship, and in the following year brought out the *Osaka Bay* on her maiden voyage to the Far East. For his final voyage in 1978, he was seconded to Straits Steamship Company to command the *Anro Asia*, a Ro-Ro vessel trading from Malaysia to Australia.

On 14 January 1973, when he was Master of the *Liverpool Bay*, Jack Bentley performed an outstanding rescue of 5 survivors from the French vessel *Mont Laurier* which was in distress in mid-Atlantic. For this feat of seamanship he received an inscribed rose bowl from the Secretary of State for Shipping, the Silver Medal from the Royal Society of Arts and the *Chevalier de l'Ordre du Merit Maritime* from the French Government.

Captain Bentley was not in a position to submit meteorological logs to the Met. Office in his early years at sea, and the first log on record from him was received in June 1963 from the *Obuasi*. However, between 1971 and the time when he came ashore in 1978 he submitted 16 logs, 11 of them Excellent, and he received Excellent Awards in 1973, 1976 and 1977.

He has many plans for retirement, in which we wish him all the best; he will continue to be kept busy as Chairman of the Civilian Committee of the Hull Sea Cadet Corps, but find time for golf and gardening. He and his wife hope to see more of their two daughters, both married, one living locally with 5 sons, the other living in Canberra with one son and one daughter.

RETIREMENT—CAPTAIN A. H. SKELLERN retired on 30 April 1986 after a lifetime at sea with the British Tanker Company, B.P.

Arthur Harold Skellern was born in February 1932 and educated at Chelford C. of E. Primary and Pownall Hall Private Schools; he trained as a Cadet on H.M.S. *Conway* 1947/48, and in February 1949 was indentured as an Apprentice to the British Tanker Company, joining the *British Fame*.

Captain Skellern obtained his Master's Certificate in December 1958 and 11 years later assumed command for the first time on board the *British Sailor*. He submitted a total of 30 meteorological logbooks to the Met. Office, the first one coming from the *British Sailor* in September 1954. Six of those logs were assessed as Excellent, and Captain Skellern received Excellent Awards in 1966 and 1980. In the year in which he celebrates his Silver Wedding anniversary as well as his retirement, we wish him many happy and successful years to come.

RETIREMENT—CAPTAIN D. M. MCPHAIL retired from the sea recently after serving his time as Officer and Master with Blue Star Line.

Donald McFadyen McPhail was born in June 1926 and educated at Hillhead High School, Glasgow; he subsequently undertook pre-sea training at the Glasgow School of Navigation in 1943. Between January 1944 when he joined his first ship, the s.s. *Baron Cawder*, and 1947, he served his apprenticeship with H. Hogarth & Sons of Glasgow.

We received the first of a total of 50 meteorological logbooks from Captain McPhail soon after he joined the Blue Star Line, from the *Brisbane Star* in May 1948. Throughout his career it is obvious that he has treated weather observing with due importance and this has resulted in the benefit to the Met. Office of 22 logs assessed as Excellent and the receipt of no less than 9 Excellent Awards by him.

He obtained his Master's Certificate in 1953 and was appointed to his first command, the *California Star*, in early 1960, serving the west coasts of the U.S.A. and Canada. During the Second World War he served in all the principal oceans.

Captain McPhail received his first Excellent Award in 1965 for work on the *Brasil Star* but it is his achievements whilst in command of his last ship for which we are especially grateful. He was awarded books for excellent weather logs submitted in each of the eight years between 1978 and 1985 inclusive from m.v. *ACT 7*, and he has also been nominated for his tenth such award for the log compiled on his final voyage completed in March 1986. He and his Officers of the *ACT 7* also achieved the previously unsurpassed feat of being one of the top observing ships for five, now possibly six, years in succession.

After leaving his latest command at the end of March and retiring officially on 17 June 1986, Captain McPhail had the following words to say:

I greatly enjoyed my 9 years on *ACT 7* and during this time we were fortunate in being able to send the Met. Office some interesting meteorological logbooks including bird reports and cetacean sightings. I would like to take this opportunity to thank all the various Principal Observing Officers, other Watchkeepers and Radio Officers who have conscientiously and enthusiastically compiled and transmitted the weather reports over the years. The letters acknowledging our reports with their comprehensive analysis of our efforts were read with great interest on board and proved to the ship's staff that their contributions were appreciated by the Met. Office and by the various experts. I know that many of these excellent young men will continue with their interest in matters meteorological for the remainder of their time at sea.

We echo Captain McPhail's sentiments, thank him for his kind remarks and reciprocate those thanks together with sincere wishes for many pleasurable and satisfying years of well-earned retirement.

RETIREMENT—CAPTAIN A. H. WHITE retired from the Blue Star Line in April last year serving almost 43 years at sea with that company.

Arthur Henry White was born in 1925, educated at Brentwood, Essex, Grammar School and received 3 months pre-sea training and Sir John Cass College. He joined his first Blue Star ship, the *Gaelic Star*, in Liverpool in September 1942, and had several narrow escapes during the Second World War. Once when in an Atlantic convoy, a torpedo passed deep under the *Gaelic Star* and sank the ship in the next column; on another occasion he was transferred from a ship, *Melbourne Star*, the day before she was due to sail from port in April 1943, and that ship was subsequently sunk by *U129* in mid-Atlantic. She was carrying aviation fuel and ammunition at the time and 75 crew, 11 gunners and 31 passengers were lost, only 4 crew surviving.

Captain White's first meteorological logbook came from the *Australia Star* very soon after the end of the war, in 1946, and that has been followed by a further 51 logs, 13 of which were assessed as Excellent.

He gained his Master's Certificate in January 1953 and was appointed to his first command, the *Norman Star*, in February 1960; he received an Excellent Award for voluntary observing in 1985.

Past memories for Captain White include the supply of the old canvas sea temperature bucket with its wooden covers and brass flap; and he recalls an incident in 1951, when, as a young Officer, he was reprimanded by an Assistant Marine Superintendent for cycling from home to join his ship in the Royal Docks in London. At that time, Deck Officers were not supposed to do that sort of thing.

Captain White retired on 12 April 1985, and we wish him success and happiness in his later years.

RETIREMENT—CAPTAIN W. A. MURISON retired officially on 1 October 1985 following an asthma attack suffered at sea the previous June whilst in command of m.v. *Falmouth Bay*. The attack necessitated his being lifted off by helicopter for hospital treatment when 300 miles off San Francisco.

William Alexander Murison was born in Bath in July 1933 and received his education at Bristol Grammar School. After 2 years cadet training on H.M.S. *Worcester* he joined Shaw Savill and Albion in December 1950 as Cadet. The first of 54 meteorological logbooks bearing his name was received in August 1953 from the *New Australia*.

'Sandy' Murison obtained his Master's Certificate in July 1960 and later was appointed to his first command, m.v. *Crusader*, in 1965; he went on to command several Shaw Savill ships, including the passenger liners *Arawa* and *Northern Star*. In 1977 he transferred to Overseas Containers Ltd and commanded various container ships, including the *Resolution Bay*.

Captain Murison has shown a diligent interest in weather observing during his sea career, to the benefit of the Met. Office in the form of 34 logs being assessed of the highest standard, i.e. Excellent. He received 10 Excellent Awards, most of them during the latter part of his career in OCL, but it was whilst he was still with Shaw Savill that he was presented with a barograph for long and valuable meteorological co-operation up to 1976.

We wish Captain Murison continuing good health and tranquility in retirement, as he continues to live in Saltford, Bristol, with his wife and 3 children, and teaches navigation and meteorology to Yacht Masters at Bath Technical College on a part-time basis.

Book Reviews

Weatherwise by John Paul Goldsack. 130 mm × 205 mm, 160 pp., *illus.* David and Charles (Publishers) plc, Brunel House, Newton Abbot, Devon. Price: £7.95.

The author claims to have been caught out by official Met. Office forecasts more times than he cares to remember, and he therefore decided to gather and test old adages pertaining to weather lore. Over the years he collected nearly 3000 of these sayings, and in this book he casts a critical eye over both the plausible and the outrageous climatological epigrams.

In 15 chapters he analyses in some depth the traditions associated with the sun, clouds, sky complexion, the winds, animals and birds, barometer signs and countryside lore. For most of the sayings he offers a 'reliability rating', either as a percentage or comparatively.

John Paul Goldsack took a great deal of trouble over a period of about 8 years to sample the old saws of the sea and the countryside. He set out to determine whether they made sense and if they were accurate omens of the weather. Out of 2793 adages actually tested on a minimum of fifty separate occasions each, only 231 of them proved to have any reliability as weather omens. Most of those scored 80 per cent, and a few were rated as 'very good', or even 'excellent' if they could be counted upon 100 per cent of the time, which, surprisingly, some apparently were.

To quote but a few of the better known and more acceptable adages: *Rain before seven, fine by eleven*; this, says the author, is one of the best known and most often quoted weather lores — and with good reason. After 54 recorded sunrise watches when it was raining between the hours of 5 and 9, the day turned out to be dry by midday on 42 occasions. *Cows and sheep lie down before rain*: although this was apparently one of the author's mother's favourites sayings, it has no foundation on fact. *A cold winter means a hot summer*: if only this one were true, we would have been experiencing a run of super summers; but the accuracy rating was only 25 per cent. *Swallows high, staying dry, swallows low, wet 'twill blow*: this is true on account of the birds following the insects which respond to changing pressure by altering their levels of flight, at least most of the time but not always. There is a lot in the book about sky colouration, meanings in the way rainbows and halos are seen and how to interpret the sights, sounds and sniffs in the air. At least there is an attempt to interpret the author's findings about their true values as weather warnings. A wide field is covered as shown in the index, and as a light-hearted way to look at the weather signs, and for browsing on a cold winter's night, this book will have a fair following.

J. F. T. H.

Voyage of the Iceberg by Richard Brown. 160 mm × 240 mm, 160 pp., illus. The Bodley Head, 30 Bedford Square, London WC1B 3RP. Price: £9.95.

This is a truly fascinating account in dramatic and romantic terms of two years in the life of the Iceberg that sank the *Titanic*. It is easy to read and more like a fairy story than a history of a massive disaster that still has an influence over us to this day.

This is a natural history of the Iceberg and of the barren wastes and bergy shores which it passes on its journey from Greenland's west coast down to the Grand Banks of Newfoundland, a journey taking two years or more. Chapters about the Iceberg's rentless progress are alternated with shorter chapters outlining progress on *Titanic's* building at Harland and Wolff's shipyard at Belfast, culminating in her steaming out on that fateful maiden voyage.

The Iceberg's progress begins in 1910, 1 million tons of coal-dust-impregnated ice, spawned in the Jakobshavn Ice Fjord, whose journey impinges on so much drama in the natural world and touches man's adventures too. The tale is of whaling, of Eskimo tribes, the changing seasons and of the birds and polar bears that inhabit the icy wastes. There is a particularly painstaking account of an old female bowhead whale, running as a thread throughout the book; she is possibly the last surviving member of her persecuted species and she has survived because she is too wary to be caught again as she nearly was 30 years before when the whaling boat killed her mate. She is now 50 years old and is cunning enough to know the signs of danger and dives instantly on sensing the sounds of the engine when the boat is still several miles distant.

The chapters are attractively interspersed by verses of romantic poetry from such works as *Rime of the Ancient Mariner*, *Ode to the 1981 Seal Hunt* and a Newfoundland children's song, linking the different episodes in the book.

The Iceberg's slow journey takes it north-west into Baffin Bay, then west and south, in 1911, to start its progress through the pack ice around Baffin Island, past Labrador and Newfoundland and onwards to that fateful encounter with the *Titanic* on 14 April in 1912. We are shown faded old photographs of the great ship as she was towed from the builder's yard, of Captain Edward J. Smith who finally went down with his ship, calm to the last, and even of explorers on the ice on sealing expeditions.

The collection of monochrome illustrations spread right through the book seem entirely appropriate to the story and the period, giving the whole an air of vanished elegance and veracity, as though one were reading a contemporary report from a journal of the day. Some of John James Audubon's bird prints are well reproduced, as well as drawings of whaling activities, other animal life, ships on exploration and the eskimo community. They are well chosen and enhance the interest in this well-written tale.

Storms help to push the Iceberg ever further southward on the Labrador Current, as the 'unsinkable', *Titanic* sails out of Belfast to her home port of Southampton and on her maiden voyage amid a flurry of favourable publicity.

It is a rare berg that drifts as far south as the Grand Banks in most years, and often there are none at all; but there are over a thousand of them in April 1912. The author, a marine biologist with the Canadian Wildlife Service in Halifax, builds his narrative up to an exciting and tragic climax, as the biggest moving thing ever made by man steams through the dangerous waters at 22½ knots, 24 of her 29 boilers fired up to push her faster than she has steamed so far, and ever will. After a graphic summary of the sinking of the *Titanic* and the rescue of survivors from the icy North Atlantic waters, Dr Brown has the Iceberg soon disappearing within the warmer waters of the Gulf Stream; but new icebergs keep calving into Jakobshavn Ice Fjord.

J. F. T. H.

Heaven's Breath – A Natural History of the Wind by Lyall Watson. 110 mm × 160 mm, paperback, 384 pp. including index. Coronet Books, Hodder and Stoughton, Mill Road, Dunton Green, Sevenoaks, Kent TN13 2XX. Price: £2.95.

To grasp the concept of the Earth, its atmosphere, seas, fauna (including man) and flora, as being one huge, living organism, is halfway to appreciating the contents of this book.

The five parts and ten chapters serve to illustrate that there is hardly any aspect of life on, or immediately above this planet which is not influenced in some way by the invisible force of air in motion. Beginning with an exploration of the Earth and its atmosphere, the author goes on to examine the composition of the atmosphere, and considers the results of any tiny imbalance of the component gases. The conclusion reached is that our 'blanket' of air did not just 'happen' but has been created, and then 'maintained by living things for their own ends' — food for thought indeed, and this theory should be borne in mind while progressing through the book.

Atmospheric structure and global circulation are described, together with basic techniques of how to locate fronts some distance away by noting the movement of cloud types on the wind; also discussed are the effects of topography, producing local winds. Included in the book is a dictionary of some 400 winds, containing entries relative to meteorology, mythology and anthropology.

Lyall Watson explains in a very readable way, in a text packed with extraordinary facts and figures, the part played by the wind throughout history in

the fields of meteorology and climatology, ranging from monsoons to the effects of wind-borne volcanic dust; forecasting in days of yore, and weather lore; human, animal and plant migrations around the Earth, whether on, or above the surface; trading and boat designs; wars and naval battles.

Human interference features in chapter four, where the theory is put forward that man helped create local winds such as the mistral, by clearing thick forests, thus altering the local climate, and asks whether we are about to interfere with nature again by completing the deforestation of the Amazon Basin, estimated at current rates to be cleared by the year 2000.

There are also chapters which cover, among other things, the harnessing of wind power through the ages; seeding the eyes of hurricanes to reduce the strength of the storms; boomerangs, kites and other aspects of using the wind to get airborne one way or another; the many forms of life, 'aeroplankton', present in the air, including viruses and bacteria, in addition to the spores of fungi, pollen and algae; the effects of wind upon human psychology too, there really are 'ill winds' as feature in the old sayings, it seems.

The scope of subjects covered by this book is too wide to be accommodated in one review, the points mentioned so far merely scratch the surface. Suffice is to say, that once started, Lyall Watson's book is hard to put down, and, with a bibliography comprising 539 titles, there is ample further reading for those wishing to follow up on any references.

A fascinating and thought-provoking work.

J.M.

Notice to Marine Observers

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