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January 1958

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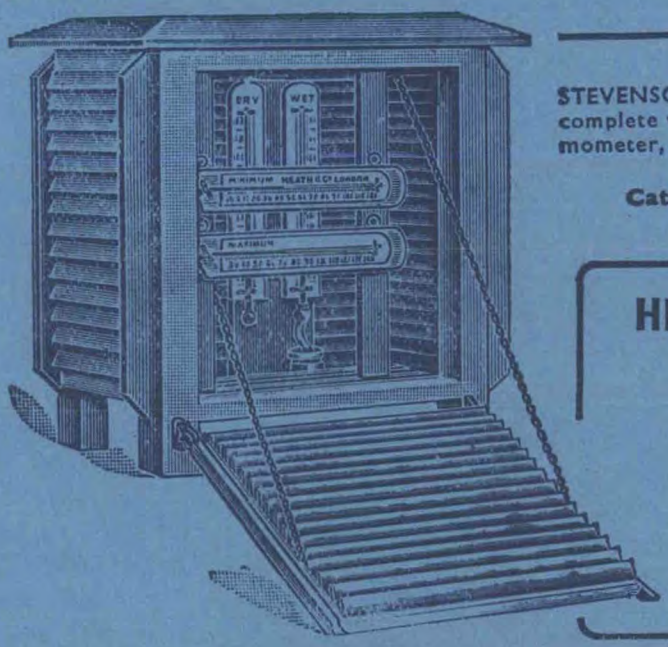

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THE MARINE OBSERVER

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

VOL. XXVIII No. 179 JANUARY 1958

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Letters to the Editor, and books for review, should be sent to the Editor, "The Marine Observer," Meteorological Office, Headstone Drive, Harrow, Middlesex

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Editorial

It seems inevitable that the weather should always figure prominently in the news, and when one considers how meteorology affects the lives of everybody this is not very surprising. On the radio programme in any country, for example, there is no feature so regular as the weather bulletin, and despite the inevitable jokes about the inaccuracy of forecasts, there is little doubt that this service will continue and extend as our knowledge of meteorology increases. The inclusion of a " weather map " with a " live " commentary by a meteorologist on the B.B.C. Television programme has done much to interest and indeed to educate the man in the street in the subject of meteorology generally, and many countries nowadays, as well as the United Kingdom, have an automatic telephone service for the provision of short local weather forecasts.

In the shipping papers too the weather almost invariably plays a prominent part in the news, usually in the guise of the villain and notably in the casualty and legal section.

The tragic loss of the German sailing training ship *Pamir* and 80 of her crew during the forenoon of 21st September about 500 miles south-west of the Azores (in approximately 36°N., 40°W.), provided a rather spectacular example of the weather in the role of the villain. SOS messages were sent but only five survivors were picked up, after about 60 hours in one of the ship's boats. The synoptic map on that date shows that there was an intense depression in the area at the time (see the track chart and note about Hurricane " Carrie " on page 22) and survivors referred to hurricane force winds and high seas. Newspaper reports quoted one of the survivors as saying: " When the storm hit us, it was blowing so strongly that it was impossible to get the sails in. They were being blown too tightly against the shrouds. We had to cut the sails away, and then the ship listed more and more. This made it impossible to let down the boats. One lifeboat was loose and the other was torn away. All the crew were hanging on to the starboard rail. The port side was under water and it was impossible to stand. As she heeled over we all fell on top of one another into the water. Undoubtedly some drowned at that moment. It happened faster than I can describe it." It would be inappropriate to comment further, as the official inquiry has not yet been held.

The *Pamir* carried a crew of 34 and 52 cadets. A four-masted barque of 3,100 tons gross, fitted with an auxiliary engine aft, she was built at Kiel in 1905. Her sister ship, the *Passat*, which was built at Hamburg in 1911, is still in service.

Two interesting and unusual legal cases in which the weather was the villain were settled recently. The first involved a motor-ship which grounded at Mogador, Morocco, in December 1949. The plaintiffs alleged that the defendants, who chartered the vessel to carry a cargo of barley from Morocco to Japan, were in default by ordering the ship to an " unsafe " port such as Mogador and that the damage resulted from it. The charter party specified one or two " safe ports " in Morocco for loading. Defendants denied that they were in breach of contract or that Mogador was an unsafe port. They also claimed that the plaintiffs, by their conduct, consented to the vessel going to Mogador and that the grounding was caused by negligence of the plaintiffs' servants on board.

The evidence showed that on the date in question the weather deteriorated late in the evening and the master of the ship found his anchor was dragging. He attempted to take the ship out to sea but soon after he weighed anchor a squall drove the vessel aground on rocks or shoals which were close to the anchorage. The judge stated: " It is clear from the evidence and is not disputed that in certain weather conditions which may occur in winter, a ship as large as the *Eastern City* cannot safely remain in the port or roadstead at Mogador." Evidence was given that the master wrote to the owner's agents: " I am not impressed with the port and should bad weather conditions occur the vessel will have to put to sea."

Judgement was given for the plaintiffs and the judge concluded that there was no negligence, bad seamanship or unreasonable behaviour on the part of the master.

The second case involved a claim for limitation of liability for damages arising out of the capsizing of a trawler at sea, due to her trawl being caught on the seabed, as a result of which six lives were lost. Owing to certain circumstances associated with the trawl winch, it was found impracticable to slip the trawl, and consequently the vessel came broadside on to the wind and sea and capsized, although there appears to have been only a moderate breeze at the time, associated with a heavy swell.

The weather does not often figure in parliamentary reports, but it rightly did so in the report of the Committee of Inquiry into the export of live cattle to the Continent for slaughter. Anybody who has been associated with the cattle trade knows how animals can suffer aboard ship in heavy weather and presumably this is particularly so in a smaller type of vessel on the continental trade. The recommendation says: " Consideration should be given to imposing some statutory requirements as to the tonnage and suitability of vessels to be used for conveying cattle from Great Britain, bearing in mind the nature of the sea passages. In rough weather, particularly in small ships, adequate watering of the animals seems impracticable. We recommend that vessels should not be allowed to sail if winds of force 6 or over are forecast." This seems to be the first time that a limitation concerning the carriage of a certain type of cargo has been imposed due to weather conditions. The report goes on to refer to an existing requirement that cattle being carried by sea be securely tied by the head or neck and points out that this might cause unnecessary suffering to animals which have not been used to being tied. The Committee therefore recommends that the decision as to whether to tie such animals should be left to the master's discretion. There seems no limit to a master's responsibilities—and maybe it is right that it should be so.

As we set sail into the unknown sea of 1958, six months of the International Geophysical Year programme have been completed and we have seen some spectacular evidence of the efforts which scientists of various nations have made to learn a bit more about this earth of ours and the atmosphere which surrounds it. Logbooks received in this Office show that British voluntary observing ships have been loyally playing their part in providing information from the ocean for this programme. At the time of going to press, 47 British " auxiliary " ships have been recruited to help provide information from oceanic areas where shipping is sparse, in addition to that provided by our selected and supplementary ships. The whole of 1958 will be devoted to the I.G.Y. programme and there is no doubt that during that year voluntary observers aboard numerous British ships will continue to provide valuable information from the oceans for this unique international investigation. Active steps are being taken by the World Meteorological Organisation to ensure that such information is readily made available to the scientists of the world so as to derive the greatest possible benefit from this " global network " of observations.

We take this opportunity of wishing all our readers health and happiness throughout the coming year.

MARINE SUPERINTENDENT.

THE MARINE OBSERVERS' LOG

January, February, March

The Marine Observers' Log is a quarterly record of the most unusual and significant observations made by mariners.

The observations are derived from the logbooks of marine observers and from individual manuscripts. Photographs or sketches are particularly desirable.

Responsibility for each observation rests with the contributor.

TURTLE

North Atlantic Ocean

S.S. *Papanui*. Captain D. A. G. Dickens. Curaçao to London. Observers, Mr. R. Anderson, 3rd Officer, and Mr. P. Leigh, Chief Radio Officer.

18th January, 1957, 1345 G.M.T. A turtle 3–4 ft long was sighted close to the ship, swimming in a SW'ly direction. It appeared smaller, and had a more definite ridge down the centre of its back, than those found on Astove Island and in the Seychelles Islands. The sea was rippled with a long, moderate N'ly swell.

Position of ship: 35° 37'N., 43° 35'W.

Note. Dr. H. W. Parker, of the Natural History Museum, comments as follows:

"The character mentioned by Captain Dickens and the comparison with the turtles on Astove do not help us very much. The ridge down the centre of the back is rather a growth character, being more pronounced in young than in adults.

"The turtle records from the central North Atlantic are piling up and this I suppose is to be expected. From the scientific point of view it is very unfortunate that the routes from Curaçao and the Panama Canal to the Channel are so relatively narrow and well defined. It is an old problem which many years ago caused me to remark that many of the maps purporting to show the distribution of animals were all phoney; they were in fact maps showing the distribution of collectors and observers."

EARTH TREMOR

Kingston, Jamaica

M.V. *Interpreter*. Captain W. Weatherall.

2nd March, 1957. At approximately 0030 G.M.T. an earth tremor occurred, causing the ship to shake violently. The whole structure of the timber wharf could be seen vibrating, causing the moorings to slacken and then stretch to their limit. In the town, street lighting was cut off and water from a burst main pipe near the ship flowed into the harbour. Members of the crew ashore described how water was thrown out of the swimming pool. The duration of the tremor was approximately 2¼ min.

CURRENT RIPS

North Atlantic Ocean

M.V. *British Marquis*. Captain S. Butler. Tenerife to Mena al Ahmadi. Observers, Mr. P. Sweetman, 3rd Officer, and Quartermasters.

26th March, 1957. From 2100 G.M.T., in position 3° 55'N., 12° 11'W., until

2400 in position 03° 29′N., 11° 50′W., while steering a course of 121°, strong current rips were observed which repeatedly swung the ship's head to starboard for the first 2 hours, and to port and starboard for the last hour.

The mean current experienced from noon on 26th March to noon on 27th March was E'S, 11 miles. The sea temperature taken at hourly intervals remained constant at 83·5°F.

Gulf of Panama

S.S. *Tongariro*. Captain F. M. Williamson. Lyttleton to Balboa. Observer, Mr. G. D. Hudson, 2nd Officer.

19th February, 1957, 1920 G.M.T. A marked current rip was observed, running NW.–SE., as the vessel passed from a comparatively " long sea " into an area of marked ruffled appearance. The sea temperature fell from 84° to 74°F.

Position of ship: 6° 52′N., 80° 22′W.

North Indian Ocean

M.V. *Eumaeus*. Captain H. C. Large. Penang to Colombo.

20th January, 1957. At 0345 G.M.T. a surface disturbance was seen, consisting of very confused moderate seas, in a line lying 330°–150°. There were frequent " white horses " in the disturbed area, which was approx. 1 mile wide. The northern limit appeared to be about 2–3 miles N. of our position, whilst no southern limit could be discerned.

Before we entered the area the wind was ENE., force 4, the sea moderate from ENE. and the sea temperature, taken by bucket, 81·5°F. In the disturbed area, the wind was ENE., force 4, and backing gradually; the sea moderate and confused with a temperature of 81°. After clearing the area, the wind was NNE., force 4, and the sea NNE., moderate, but with increasing swell. The sea temperature remained 81°.

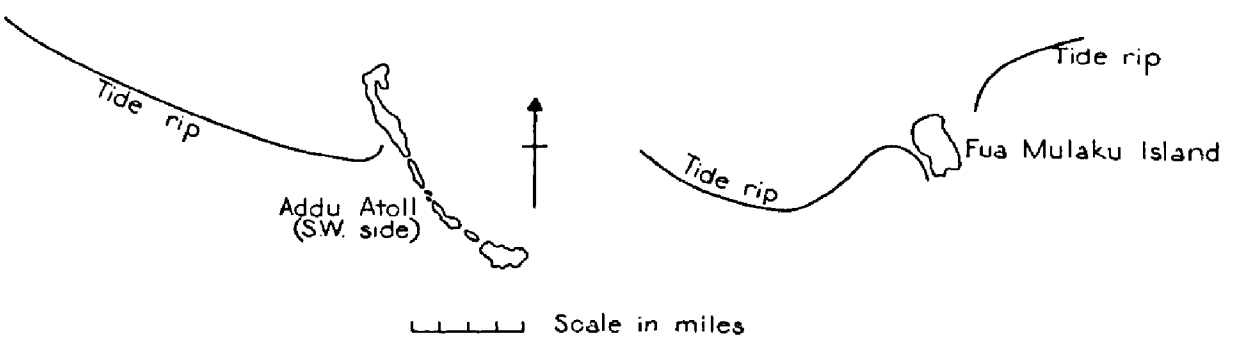
Position of ship: 5° 56′N., 89° 44′E.

TIDE RIPS

Maldive Islands

S.S. *Oronsay*. Captain N. W. Smith. Colombo to Durban. Observers, the Master, Mr. E. Pickles, Senior 2nd Officer, and Mr. J. M. Boyde, Junior 3rd Officer.

7th February, 1957. At 0845 G.M.T., with Fua Mulaku Island (00° 17½′S., 73° 25½′E.), bearing 202° at 3·6 miles distance, a most marked tide rip was observed,



in an arc lying roughly 245°–065°. *Oronsay* passed within 1 mile of the tide rip to plot its position, but even at 5 miles it showed up clearly on the radar screen. On passing the island a second tide rip, equally as strong, appeared. Both were plotted upon the chart (see diagram).

One and a half hours later, after passing Addu Atoll, a further tide rip was observed running in an almost straight line, in a direction 290°–110°. This is also shown on the diagram. The current (or tide) was computed to be setting 041° at 3.0 kt between noon and 1500.

DISTURBED WATER

Gulf of Panama

M.V. *Cambridge*. Captain P. P. O. Harrison. Balboa to Auckland. Observers, the Master and Mr. R. Jordan, 3rd Officer.

9th March, 1957. At 1910 G.M.T. the vessel passed through alternate patches of calm and disturbed water, causing it to swing violently in both directions.

Position of ship: 7° 40′N., 79° 47′W.

South Indian Ocean

S.S. *Clan Forbes*. Captain L. Pogson. Mangalore to Durban. Observer, Mr. G. W. A. Smith, 2nd Officer.

18th February, 1957. From 1656 to 1745 G.M.T. the vessel passed through an area of disturbed water which ran in an ENE.–WSW. direction, and extended for about 10 miles. The waves in the vicinity all broke in a NW'ly direction, although at the time there was a flat calm and a smooth sea, both before entering and after leaving the area of disturbance. The sea temperature remained steady at 82·5°F.

A large number of dolphins and flying-fish were seen around the edges of the rough water, but none actually inside the disturbed area.

Position of ship: 7° 20′S., 47° 00′E.

South Pacific Ocean

M.V. *Cambridge*. Captain P. P. O. Harrison. Wellington to Balboa.

4th January, 1957. From 1300 to 1600 S.M.T. the ship passed through areas of disturbed water, presumably caused by the meeting of the Humboldt and Equatorial Currents. The disturbed water appeared to run in a 320°–140° line. Up to noon, the current experienced in the last 24 hours was 326° for 14·6 miles. The ship was difficult to steer and sheering as much as 10° to port and starboard. Air temp. 73°F, sea 73°. Wind SE., force 3.

Position of ship at noon S.M.T.: 3° 44′S., 91° 45′W.

LINE OF DEMARCATION

North Pacific Ocean

S.S. *Ramsay*. Captain W. A. Kyne, B.E.M. Panama to Noumea (New Caledonia). Observer, Mr. D. A. Kiddell, 2nd Officer.

17th January, 1957. At 0736 G.M.T. the vessel crossed a very distinct demarcation line lying NW.–SE., with the water on the E. side much lighter in colour than on the W. Temperatures to the E. were: air 72°F, sea 74°; to the W.: air 72°, sea 72°. There had been a light S'ly breeze during the previous 24 hours.

Position of ship: 01° 09′N., 93° 53′W.

DISCOLOURED WATER

Brazil waters

M.V. *English Star*. Captain L. Vernon. Buenos Aires to Santos.

7th January, 1957, 1830 G.M.T. A long straight band of sandy-brown discoloration about 16 ft wide was observed stretching from N. to S. as far as the eye could see, at a distance of about 25 miles off the coast. A sample of the water, obtained in the sea bucket, contained numerous greenish-brown particles, each about $\frac{1}{32}$ in. long. No smell was given off. There was no sign of luminosity in the water when tested in a completely dark room. The sample was bottled to bring home for examination.

Position of ship: 27° 30′S., 47° 53′W.

Note. Dr. T. J. Hart of the National Institute of Oceanography comments as follows:

" The sample was unpreserved and contained much flocculent detritus in consequence, among this several filaments of *trichodesmium thiebautii* were recognisable in surprisingly

good condition. I could not find anything else and think it safe to assume the *trichodesmium* was the cause of the discoloration observed."

South Atlantic Ocean

M.V. *Arabistan*. Captain R. B. Arthur, M.B.E. Las Palmas to Umm Said. Observer, Mr. J. E. Parker, 2nd Officer.

4th January, 1957. At 1130 G.M.T. it was noticed that the water had taken on a distinct yellowish-green colour; a clear line of demarcation was not seen, nor did the change appear to be gradual. At 1430 this colour was no longer apparent, and although a close watch had been kept for the change it was not seen. Previously the sky had been completely covered with Sc which was dispersing slowly, until by 1300 only 1/8 cloud remained. It is wondered whether this discoloration could be due to the light rays from the sun on minute particles in the water, rendering them visible only when the sun was high in the heavens. A sample of the water was taken but nothing could be seen with the naked eye to account for the discoloration. Sea temp. 73°F.

Position of ship: 17° 30'S., 03° 19'W.

Note 1. Dr. T. J. Hart, of the National Institute of Oceanography, comments:

"*Arabistan*'s observation contains a timely reminder that the sun's altitude undoubtedly affects the colour that certain micro-organisms impart to the water.

" She was a long way out from the land for the rich microplankton to have been derived directly from the rich coastal Benguela Current, although an offshore set would be reasonable in 17°S. A pity she did not send in the sample—I can often get enough down with the centrifuge to enable me to see what is dominant under the microscope, even though nothing can be seen with the naked eye. Perhaps she had no preservative."

Note 2. On request, Port Meteorological Officers will supply bottles and preservative for the collection of sea-water samples.

PHOSPHORESCENCE

Arabian Sea

M.V. *Arabistan*. Captain R. B. Arthur, M.B.E. Las Palmas to Umm Said. Observer, Mr. R. A. M. Tusler, 3rd Officer.

28th January, 1957. At about 1830 G.M.T. the phosphorescence in the wake, which had previously been slight, suddenly increased to a remarkable extent. The disturbed water in the immediate vicinity of the ship began to emit a delicate green glow while the broken water of the bow wave gave off a brilliant emerald green light. The bow wave of a vessel about 2 miles distant was plainly visible to the naked eye. At about 1930 the phosphorescence faded but continued intermittently for about an hour. Air temp. 71°F, calm and cloudless.

Position of ship: 19° 49'N., 59° 01'E.

North Atlantic Ocean

M.V. *Daleby*. Captain F. D. Lloyd. Takoradi (West Africa) to Rotterdam. Observer, Mr. K. B. Singer, 2nd Officer.

25th April, 1957. Between 0115 and 0130 G.M.T. bright phosphorescence, in the form of two large lenticular-shaped areas and four circular areas, was observed. Visibility at the time was moderate but on approaching the area of phosphorescence it steadily deteriorated. The lenticular areas, about 500 by 50 ft in size, were sighted first at approx. 1½ miles on either bow and were passed at about 3 cables distance on each side. They were followed by a circular area of about 4 ft radius, which, observed through binoculars, appeared to be "boiling" and spreading out in all directions. The next circular area, of about the same size, closely followed the first. Seen at a distance of about 10 ft it showed no movement at all. The remaining two areas, which were passed at about 2 cables, at 0130, were similar. Immediately afterwards the visibility closed in, but it improved again at 0100.

During the whole watch there was marked phosphorescence on the bow wave. Air temp. at midnight, 69°F. At 0140, 66·5°, sea 70°. Wind NW'N., force 4.

Position of ship: 14° 02'N., 17° 42'W.

M.V. *Trelyon.* Captain W. T. Evans. Las Palmas to Mombasa. Observers, Mr. J. O. Spence, 2nd Officer, and Mr. J. Bolt, 3rd Officer.

3rd January, 1957. At 0100 G.M.T. very many brilliant patches of phosphorescence were visible round the vessel. A shoal of fish was suspected, but although the Aldis lamp was trained on the water, only " red eyes " resembling cigarette ends were observed.

Position of ship at 0001: 3° 18'N., 12° 30'W.

South Atlantic Ocean

M.V. *Hauraki.* Captain R. G. Hollingdale. Las Palmas to Fremantle. Observers, the Master and Mr. J. F. Piner, 3rd Officer.

12th November, 1956, 2200 G.M.T. The sea showed no phosphorescence at all, either from the bow wave or where lights from the ship reached it. However, shining the Aldis lamp over the side produced flashes of reflected light, the effect being similar to that of a fast car's headlamps on " cats' eyes ". The Aldis was then trained forward and as the " cats' eyes " appeared in the beam, they were followed round. They seemed to be just under, or on, the surface and when sighted appeared pale red with a greenish tint at the edges. Often they would intensify to deep red. They were roughly circular in shape, the size varying from ½ in. to 1 in. in diameter. One or two usually appeared in the small circle of light, though at times as many as six or seven were seen. Observations were made from each side of the vessel for 20 min and an attempt was made to obtain some specimens in the sea bucket, but to no avail. At 2310 the Aldis produced negative results. Dry bulb 73°F, wet 69°, sea 74·3°. Wind 110°, force 2–3. Sea slight with low s'ly swell.

Position of ship: 6° 00'S., 4° 13'W.

Note. The explanation of the " cat's eyes " seen by M.V. *Hauraki* and the " red eyes " observed by M.V. *Trelyon,* above, is probably the same as that given by Dr. Parker for the observation of M.V. *Ajana,* on page 205 of the October 1957 number, in which the luminous spots were also likened to " cats' eyes ". It should be noted that the positions of the three vessels in the equatorial Atlantic were not very different.

S.S. *Ixion.* Captain R. Blakey. Dakar to Cape Town. Observer, Mr. J. R. Howel, 3rd Officer.

1st January, 1957. At 0005 G.M.T. the vessel crossed a band of phosphorescence approx. 20 ft wide and lying in a 280°–100° direction. About 2 miles away on the port beam, the band was observed to bend sharply, the new direction being 140°–320°. It continued in this direction for 5 miles, then faded out. During the 20 min that the band was seen, no phosphorescence was visible elsewhere. Air temp. 75·9°F, sea 77·5°. Wind 180°, force 3. Sea slight.

Position of ship: 00° 30'S., 9° 54'W.

S.S. *Umtata.* Captain D. L. Weston. Cape Town to Las Palmas. Observer, Mr. P. Austin, Junior 3rd Officer.

3rd January, 1957, 2040 G.M.T. Sighted a band of phosphorescence approx. 4–5 miles long and lying 060°–240°. At 2045 the vessel entered a band about 900 ft wide, the edges of which were clearly defined. The whole area was illuminated by numerous " balls " of phosphorescence, about 9–12 in. in diameter, each having a considerable glow around it of approx. 3 ft in diameter. Some of the " balls " floated on the sea surface, but most were submerged to a depth of 3–6 ft, and all were separated. The whole band appeared to be stationary. Wind SSE, force 3. Air temp. 76°F, sea 77°. Ship's speed 14·7 kt.

Position of ship: 01° 55'S., 07° 50'W.

S.S. *Clan Macrae.* Captain H. Lockyer. Dakar to Mombasa. Observers, Mr. G. A. Anderson, 3rd Officer, and Mr. G. R. Morrison, Radio Officer.

4th January, 1957, 2200 G.M.T. At frequent intervals, single globular shaped pieces of phosphorescence were observed, which as far as could be ascertained from the ship's bridge (height 45 ft) measured from about 2 to 3 ft in diameter. Judging from the fuzziness of outline of some and the relatively sharp outline of others, they were disposed at various depths. At 2215, extensive patches of phosphorescence, giving out a glow not unlike that of the moon shining on the sea surface, were seen at distances up to 300 yd from the ship. On passing through one of these areas it was found to consist of the globular-shaped pieces hitherto seen singly. In addition to the submerged pieces, the surface of the mass was flecked with numerous intensely bright floating pieces about 9 in. long, some of which were oval-shaped, while a few were quite distinctly crescent shaped. The masses of phosphorescence did not show any tendency to move on the approach of the vessel. During the period of the observations no suggestion of phosphorescence was visible in the ship's wash.

Position of ship: 2° 00′S., 7° 53′W.

M.V. *Glenartney.* Captain H. S. Word. Cape Town to Casablanca. Observers, Mr. M. J. Glover, 2nd Officer, and Mr. G. Templeton, 4th Officer.

On 8th January, 1957, scattered phosphorescence had been seen for over 2 hours, when at 0340 G.M.T. the numerous " blobs " were seen to take up a pattern. The display was in the form of straight lines about 15 ft wide and about 100 yd apart, running 355°–175°, as far as the eye could see. These lines were bent parallel to the ship on the port side, as the vessel passed through them. They had the appearance of something inert and were certainly not fish. The display faded considerably after about 10 min, but it persisted until almost daylight. Air temp. 77°F, wet 74°, sea 78·5°. Wind SSW., force 2.

Position of ship: 01° 00′S., 11° 30′W.

Madagascar waters

S.S. *Clan Davidson.* Captain T. A. Watkinson. East London to Mauritius. Observers, Mr. W. F. McCarthy, 3rd Officer, and Mr. J. R. Cunningham, Radio Officer.

21st January, 1957, 1845–1905 G.M.T. The phosphorescence took the form of patches ranging in size from 2 or 3 in. to 3 ft, and in no case did the luminosity persist for longer than 1 sec. All of the innumerable patches seen began as a dull glow and ended in a brilliant flash, thus giving the impression that they were rising to the surface from a depth of 2 or 3 ft. No phosphorescence was seen on the weather side of the ship. Wind SE., force 6.

Position of ship: 25° 34′S., 46° 42′E.

South Indian Ocean

S.S. *Cape Howe.* Captain A. M. Fraser. Adelaide to Cape Town. Observer, Mr. J. F. Morton, 2nd Officer.

24th February, 1957, 0030 A.T.S. Small lengths of phosphorescent material were observed around the vessel. On playing the Aldis lamp on them they appeared like long white sausages of between 6 in. and 1 ft in length. When the Aldis light was removed from them they still retained their phosphorescence. The weather was dark and overcast. Wind S'ly, force 3, moderate sea and swell.

Position of ship: 35° 24′S., 100° 06′E.

M.V. *Port Wellington.* Captain E. W. R. Young. Cape Town to River Tamar. Observer, Mr. M. S. Rose, 3rd Officer.

24th February, 1957, 1800 G.M.T. The vessel passed through a large patch of phosphorescent shapes, which appeared to be tubular, about 18 in. long and 3 in. in diameter. The shapes floated a little below the surface and were not distorted by the broken water of the bow wave, although they seemed to lend some phosphorescence to the surrounding foam. The Aldis lamp was directed on to pieces about 10 yd from the ship's side and the objects were clearly seen, though from the bridge no other details were discernible. The Aldis beam had no effect in producing or increasing phosphorescence. Air temp. 58°F, sea 58°.

Position of ship: 39° 47'S., 111° 40'E.

25th February, 1957, 1730 G.M.T. A bright patch of water was seen ahead about 2 miles away, somewhat similar to a patch of moonlit water, though at the time the moon had not risen. The vessel passed through this area of water which was found to be brilliantly phosphorescent and approximately 100 yd by 15 yd in size. It lay in a NNW.–SSE. direction. The surface of the water was liberally scattered with the phosphorescent shapes described in last night's report, but the main source of light appeared to come from large globular masses below the surface. These had no definite outline, but were approx. 3 ft in diameter. The light was very bright in the centre, but it gradually became dimmer towards the outside, until it finally merged with the general glow. Ten minutes earlier a patch had been seen about 2 or 3 miles to the southward, but it was not possible to see whether it showed the same phenomena as the one described. Air temp. 56°F, sea 59°.

Position of ship: 39° 45'S., 121° 10'E.

South Pacific Ocean

M.V. *Hurunui.* Captain F. Pover. Panama to New Zealand. Observer, Mr. T. H. Whyatt, 3rd Officer.

1st December, 1956. At 2300 A.T.S. the vessel passed through an area of " flashing-type " phosphorescence. Disturbed by the passage of the ship, the globules of phosphorescent matter were observed to brighten momentarily, sufficient to illuminate an area of the surface about 8 ft in diameter.

It was also observed that the breaking of 4 ft waves at some distance from the vessel was sufficient to cause the same reaction. Globules were also seen to brighten ahead of the vessel, as if in anticipation of the imminent disturbance, and it was observed that a particularly bright flash would precipitate neighbouring globules into a similar reaction. Air temp. 74°F, sea 79°.

Position of ship: 10° 48'S., 120° 00'W.

S.S. *Tongariro.* Captain F. M. Williamson. Lyttelton to Balboa. Observer, Mr. N. M. Parry, 3rd Officer.

30th January, 1957. Between 2000 and 2400 A.T.S. numerous phosphorescent objects were observed floating on the surface at varying distances from the ship. They had the appearance of large glow-worms (about 6 in. long). When illuminated by the Aldis lamp one of the objects proved to be white in colour and elliptical in shape. Other phosphorescent objects were seen below the surface but these appeared to be much bigger—about 2–3 ft across—and had no definite shape. Very little, if any, phosphorescence was present in the bow wave at the time. During the two following nights the same phenomena were seen on several occasions.

Position of ship at 2000 A.T.S.: 42° 33'S., 167° 02'W.

Note. It is probable that the smaller individual objects seen by S.S. *Tongariro*, also the smaller ones recorded by S.S. *Clan Macrae* and those seen by S.S. *Cape Howe* (page 9), were pyrosoma, for a description of which see Dr. Parker's note to the observation of S.S. *Avonmoor* on page 204 of the October 1957 number.

M.V. *Hertford.* Captain H. C. R. Dell. Lyttelton to Balboa. Observers, the Master, and Mr. W. E. Gale, 3rd Officer.

23rd March, 1957, 2230 S.M.T. Isolated patches of phosphorescence about 100–300 ft apart, were observed over the whole area. They varied in size from 3 to 8 in. diameter and were extremely bright. When caught in breakers or in the vessel's wash they remained luminous, but if they touched the side of the vessel they immediately lost luminosity. Air temp. 62°F, sea 62°. Sea rough, heavy NE'ly swell.

Position of ship: 41° 45'S., 159° 38'W.

PHOSPHORESCENT WHEELS

Gulf of Siam

S.S. *Choy Sang.* Captain J. H. Thomas. Bangkok to Singapore. Observers, the Master, Mr. I. Dixon-Patterson, 2nd Officer, and the 3rd Officer.

24th February, 1957. From 1730 to 1737 G.M.T. phosphorescence was seen, at first appearing as a flickering line, slightly on the port bow. On approaching closer, however, it was seen that the flickering was caused by a clearly-defined phosphorescent wheel, revolving in an anticlockwise direction at a relatively high speed. Numerous curved bands radiated outwards from a central disc of light, increasing in width with distance. A second similar wheel was sighted 3 min later, on the starboard bow. After a further 3 min two wheels with their central points close together were seen revolving in opposite directions, causing a bright flashing where the beams crossed. The overall diameter of the wheels was estimated to be about ½ mile and the width of the bands, at maximum distance from the centre, approximately 20 ft. The rapidity with which the bands passed was too great to be due to the vessel's own speed, and because of the speed of movement it was not possible to estimate the rate at which they revolved. Air temp. 80°F, sea 81°. Wind SE., force 2. Clear sky with no moon. Course 158°. Speed 11 kt.

Position of vessel: 11° 10'N., 101° 16'E.

Note. We have had reports of two wheels rotating in opposite directions on the same side of a ship, also the very interesting observation of M.V. *British Patrol* on page 80 of the April 1956 number of this journal, in which two wheels with the same centre rotated in opposite directions. The observation of S.S. *Choy Sang* is valuable and interesting because it shows an intermediate type, two superimposed wheels revolving in opposite directions with a distinct separation of the centres.

BALL LIGHTNING

North Atlantic Ocean

S.S. *Beaverlodge.* Captain L. H. Johnston, M.B.E. St. John, N.B., to Antwerp. Observer, Mr. P. O. T. Roberts, 4th Officer.

16th February, 1957. At 1205 G.M.T. a good example of ball lightning was observed. The ball of blue fire descended from a completely cloud-covered sky and shot horizontally across the bow, at sea level, about 2 miles ahead of the ship. In a few seconds it disappeared noiselessly. There had been a lot of sheet lightning in the vicinity since 2200 on 15th February. Wind SSE., force 5.

Position of ship: 42° 29'N., 56° 27'W.

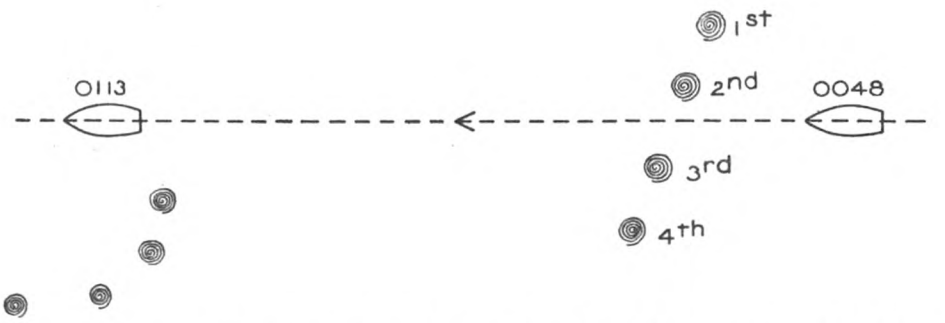
Note. Ball lightning is a well-known phenomenon but is not very common. We seldom get reports of it from the sea.

WATERSPOUTS

Sea of Japan

M.V. *Naticina.* Captain J. A. McGherrie. Nugata to Balikpapan. Observers, the Master and deck officers.

23rd January, 1957. At 0048 G.M.T., when the sky was covered by a large Cb cloud, the beginning of a waterspout was observed about ¼ mile away. At first it appeared to be a small patch of sea smoke, but as it came nearer it was seen to be



revolving in a clockwise direction at quite a considerable speed and lifting spray off the waves. Approx. 3 min later another incipient waterspout was seen about ¼ mile from the first, fine on the starboard bow. At almost the same time, a third and a fourth were observed on the port bow, all about the same distance apart. They were in a straight line running 020°–200°. At no time was there any complete waterspout connecting cloud and sea. Wind at the beginning of the observation was 190°, force 8, slowly veering to 300° (45 min later). Heavy snow fell just after the vessel crossed the line between the second and third disturbance. At 0113, four fully-developed waterspouts were seen on the beam.

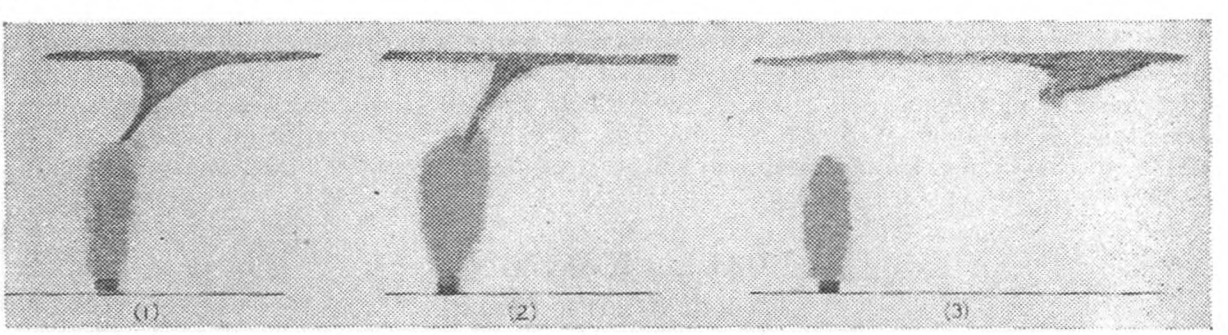
The air temp. was 37°F, rising to 40° at 0105 as the snow changed to rain. During the period, pressure fluctuated sharply.

Position of ship: 37° 59′N., 138° 57′E.

South Pacific Ocean

S.S. *Tasmania Star*. Captain G. C. Goudie. Lyttleton to Panama. Observers, Mr. P. G. Entwistle, 3rd Officer, and Mr. C. V. James, Senior Radio Officer.

19th January, 1957. A waterspout was observed beneath a heavy layer of C_L3 and C_M7, bearing N., at a distance of about 5 miles. It was first seen at 2240 G.M.T.



and lasted about 9½ min. Heavy rain was falling from the C_L3 about a mile from the spout, which first appeared as in Fig. 1, maintaining this shape for 8 min. After this, the upper part of the column changed in outline (Fig. 2) and finally dissolved 1½ min later, while the base moved in a W'ly direction for a further 30 sec (Fig. 3).

Position of ship: 42° 19′S., 178° 41′E.

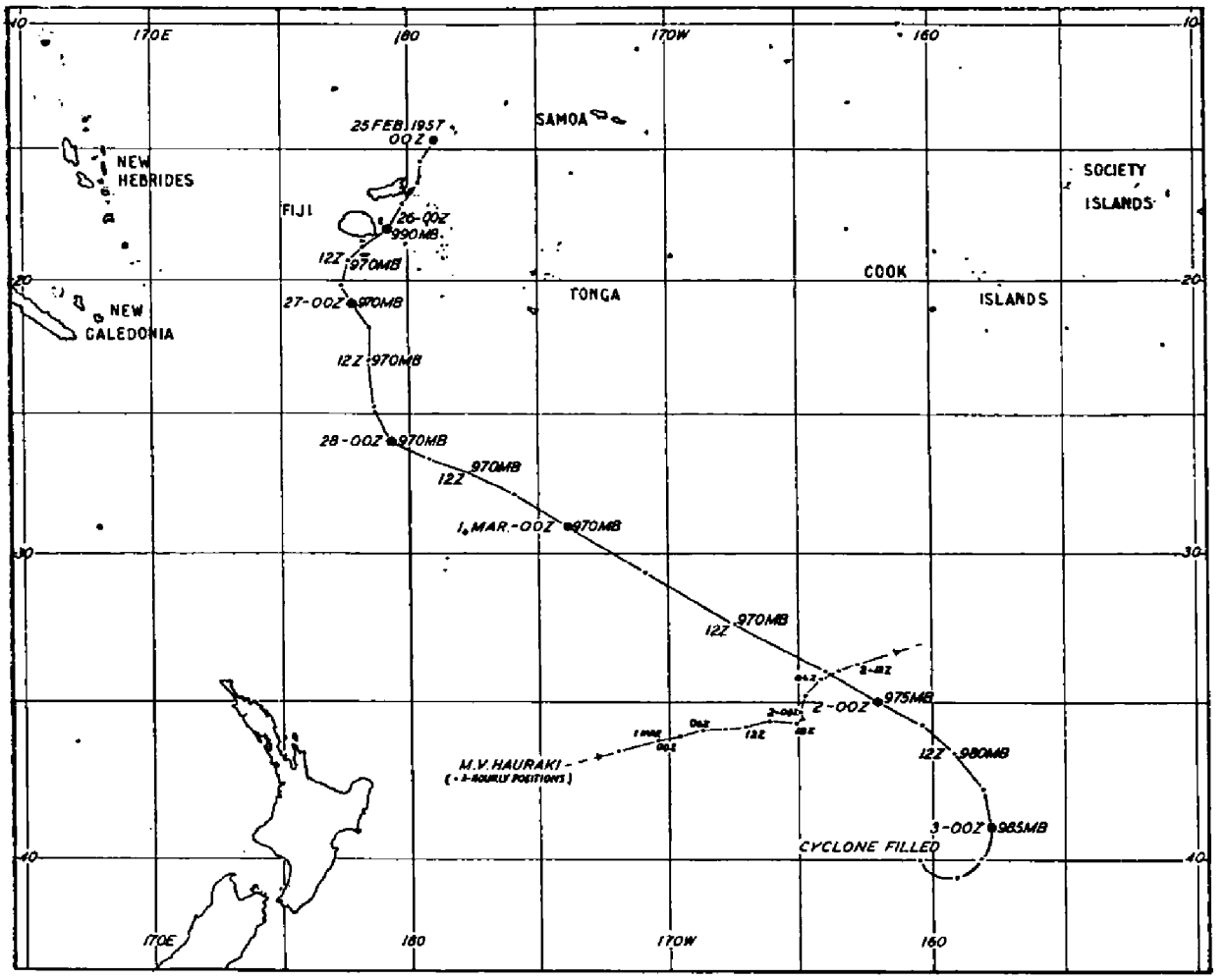
TROPICAL CYCLONE

South Pacific Ocean

M.V. *Hauraki*. Captain R. G. Hollingdale. Auckland to Panama.

27th February, 1957. At 0855 G.M.T. received warning from Wellington of tropical cyclone in approximate position 21° 30′S., 178°E., moving SW. at 10 kt, central pressure 985 mb.

At 2044 received warning, cyclone in position 24°S., 178° 42′E., moving SSE. at 10 kt, central pressure 970 mb. Ship's position at this time was 36° 24′S., 179°E., course 090°, speed 15·3 kt, wind S'E, force 5, bar. 1013 mb falling, rough sea with moderate short S'ly swell.



PATH OF TROPICAL CYCLONE – 25 FEB. TO 3 MAR., 1957

At 0800, 28th February, position of the storm given as 26° 30′S., 180°, moving SE. at 15 kt, probably accelerating. At 1200 received message from Wellington requesting observations and thereafter *Hauraki* continued three-hourly observations until 0900, 2nd March.

At 1800, 28th February, position of the storm given as 27°S., 176°W., moving E. at 25 kt, central pressure below 980 mb. Ship's position was then 36° 18′S., 172° 48′W., course 080°, speed 15 kt, wind SE., force 6, bar. 1008 mb falling, overcast and clear, rough sea and moderate s'ly swell.

At 0600, 1st March, position of storm given as 30°S., 171°W., moving ESE. at 20–25 kt, central pressure below 985 mb. Ship's position then 36°S., 168° 42′W., course 080°, speed 14·7 kt, wind SE'E, force 7, bar. 1000·5 mb falling. Very rough sea and confused swell, overcast with rain. By 0900 the wind had increased to force 8 and the barometer had fallen to 999.0 mb, the sea and swell had increased although the latter was still confused. By 1500 the wind had increased to force 10 from SSE., bar. 990·4 mb and steadying; the ship was hove-to with the wind and the sea on the starboard bow, ship's position now 35° 36′S., 166° 6′W.

At 1800, 1st March, storm was reported as near 33°S., 163°W., moving SE. about 30–35 kt. At 1905 speed was increased to 9 kt, and course altered to 102°. At 2005 in an attempt to get north of the storm, speed was reduced and course was altered to 032°. Very rough sea and swell were encountered. At 2320 course was altered further north to 025°. It was felt that the cyclone was further south and west of its reported position in the 1800 warning. During this period the wind was SE'S, force 10. The wind eased slightly from 0100 to 0230 when heavy squalls were experienced and the wind increased from due S. At 0430 the wind commenced to ease and back in easy stages. The vessel was slowly brought back to her E'ly course

and at 1000 on 2nd March resumed her normal course at full speed. The wind was SW., force 7, and the barometer had risen 6·6 mb in a few hours.

Note. This observation was sent to the Director, New Zealand Meteorological Service, who comments as follows:

" The tropical cyclone which passed across the route of M.V. *Hauraki* on 2nd March, 1957, in the vicinity of 35°S., 162°W., had its origin in the Rotuma area, north of Fiji, before 25th February; its movement through the Fiji group to the higher latitudes is shown in the accompanying map.

" The cyclone was probably directed from its southerly course towards Kermadec Islands by the extension of a ridge of high pressure E. and NE. of North Island, New Zealand, from a slow-moving anticyclone covering the Tasman Sea at the time, and during the period 0600, 28th February, to 0600, 1st March, the storm accelerated south-eastwards from a speed of 15 kt to 30–35 kt following a weakening of this ridge. At 1800, 1st March, the position and movement of the storm in the warning message was given as 33°S, 163°W., and 30–35 kt SE. respectively, and although subsequent analyses gave the same direction and speed of movement, the position of the centre was relocated at 34°S., 164°W. This new position agreed with the remark made in the ship's logbook at the time.

It is of interest to note that during the time of the south-eastward course of the cyclone, another strong ridge of high pressure passed across the area south of the Tasman Sea and by 1800, 1st March, extended from New Zealand far to the SE. into the area some 10–15° latitude south of the cyclone. Also at this time, ships' reports east of 135°W. indicated an intense anticyclone to be centred about 38°S., 115°W., and it is considered that the presence and orientation of these high-pressure systems led to the rapid retardation of the cyclone after 1800, 1st March, and re-analysis has shown that during the subsequent 48 hours, it recurved southward and westward into the vicinity of 40°S., 160°W., where it ultimately lost identity.

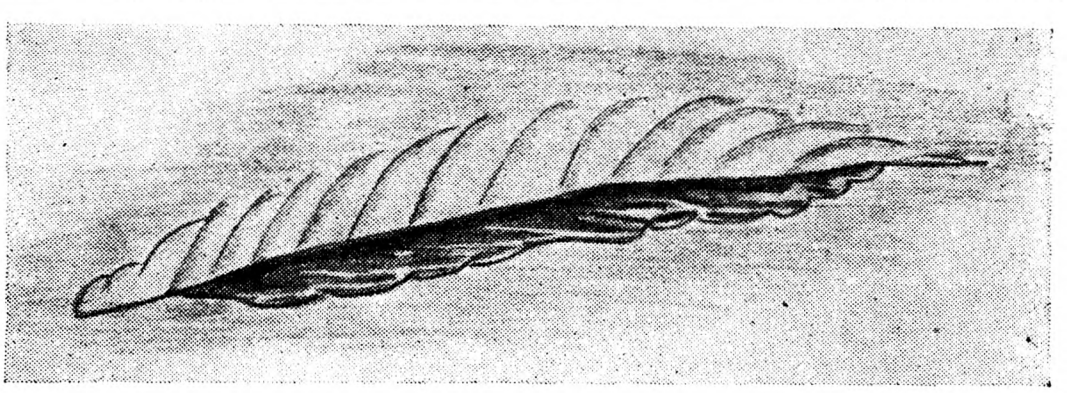
" The fact that the cyclone did slow down entailed the ship being within 150 miles of the actual centre from about 1500, 1st March, to about 0300, 2nd March, encountering SE. gales of 50 kt throughout the period."

UNUSUAL CLOUD FORMATION

North Atlantic Ocean

M.V. *Devonshire.* Captain H. Kerbyson. Hong Kong to Liverpool.

10th March, 1957. The unusual cloud formation illustrated, was seen in the



afternoon. The upper part of the cloud showed up light against a grey background of As and Ac while the lower part was almost black. The division between the two shades was very clearly defined, but the upper edges merged into the background. There were three clouds of this type, close together, side by side. The rest of the sky was in a completely chaotic state with clouds at every level.

Position of ship at noon: 31° 18′N., 14° 00′W.

CLOUD SHADOW

South Pacific Ocean

M.V. *Port Phillip.* Captain W. Craig. Balboa to Auckland. Observer, Mr. A. J. Starkey, 2nd Officer.

5th January, 1957, 0310 G.M.T. Just after sunset and with the sky still glowing

with a red haze, a narrow band of dark sky was observed extending from the point on the horizon where the sun had just set, almost to the horizon in the E. The edges of this dark band were sharply defined. The phenomenon persisted for 15–20 min, gradually receding towards the western horizon as the sun sank lower and the sky darkened.

Position of ship: 15° 14′S., 128° 00′W.

Note. This was probably the shadow thrown by a small well-defined cloud situated just below the horizon at sunset. The shadow would have been nearly horizontal when first seen, but as the sun descended further the shadow would slant upwards more and so appear shorter. It would also appear to shorten on account of reduced contrast with the darkening sky in the E. The same phenomenon has occasionally been observed when the shadow was produced by a mountain or hill below the horizon. In the present observation, however, the ship was far from land.

SEA SMOKE

Gulf of Mexico

M.V. *British Warrior.* Captain R. L. Dunn. Observer, Mr. R. Woodcock, Apprentice.

15th January, 1957. At 2130 G.M.T. soon after leaving Freeport, Texas, we ran into a choppy sea, and some 3 or 4 hours later when the sea had become rough, the ship passed through considerable amounts of sea smoke which persisted until at least 0200 on 16th January. It was again encountered in patches during the morning. Considering our position, this seems surprising. Air temp. 45°F, sea 68°. Depth of sea smoke 5–8 ft. Wind NE., force 3–4.

Note. During the occurrence of a norther in the Gulf of Mexico a fall of air temperature relative to sea temperature of 20° or more can build up, especially near the northern shore of the Gulf. Such conditions are favourable for the formation of sea smoke. While this is known to be possible, we are very glad to have an actual observation as we do not remember ever having received one from this region before.

GREEN FLASH

South Pacific Ocean

M.V. *Otaki.* Captain J. D. Bennett. Balboa to Auckland. Observers, Mr. W. F. Dan, Chief Officer, and Mr. A. E. Robinson, 4th Officer.

20th February, 1957. The sun was observed for 30 sec as it was setting and the green flash seen as shown in the sketch.

Position of ship: 35° 40′S., 177° 46′E.

RED FLASH

South Pacific Ocean

M.V. *Cambridge.* Captain P. P. O. Harrison. Balboa to Auckland. Observer, the Master.

17th March, 1957. As the sun rose from a clear horizon at 0537 S.M.T., it was orange in colour and seen to be pulsating. It moved upwards behind a large Cu whose base was about 1½° above the horizon, and due to the reduction in glare as the disc became covered, the last segment of the lower limb was observed to turn a bright red just before it totally disappeared behind the sharp edge of the cloud base.

Position of ship: 23° 05′S., 121° 07′W.

LUNAR GREEN FLASH

Eastern Pacific Ocean

S.S. *Pacific Reliance*. Captain P. F. Owens. Los Angeles to Panama Canal. Observer, Mr. F. Pearson, 4th Officer.

14th January, 1957. The moon appeared orange for about 10–15 min before setting at 1042 G.M.T. and the surrounding sky was bathed in orange light. On setting, the moon gave a green flash bright enough to be seen without binoculars.

Position of ship: 12° 36′N., 91° 33′W.

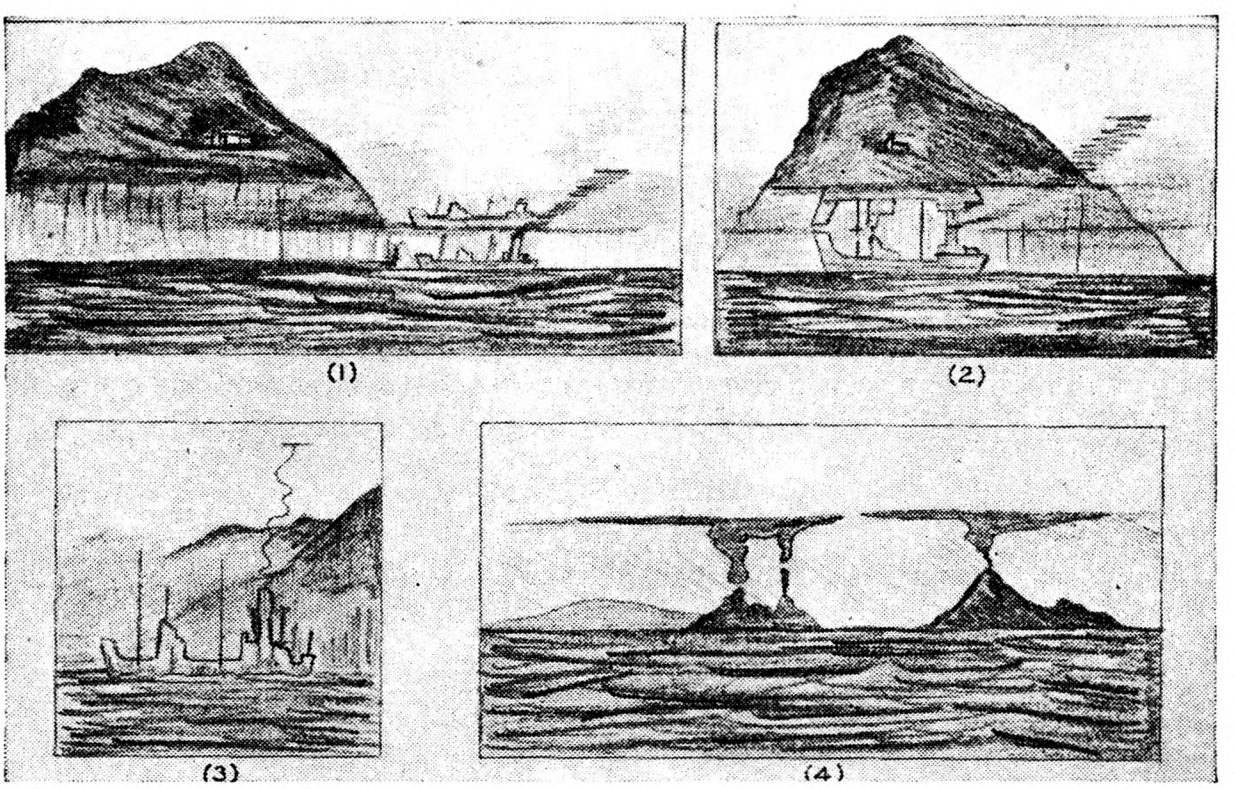
Note. This is interesting, as green flashes of such brilliance are not often given by the moon.

ABNORMAL REFRACTION

Cape Frio, Brazil

M.V. *English Star*. Captain L. Vernon. Santos to Lisbon.

9th January, 1957, 1100–1230 S.M.T. Vessel approaching Cape Frio, Brazil, which bore 047°, distance 15 miles from ship. A band of what looked like mist



reached from abaft the port beam, right round the base of the land and out across the horizon ahead of the vessel. Below the upper edge of this band the land was distorted and a ship rounding Cape Frio from the N. formed the mirage effects shown in the accompanying sketches. Later, after the vessel had passed Cape Frio, islands to the N. of it also showed mirage phenomena. The sun was not shining when the mirages were seen. Air temp. 76°F, sea 73°, bar. 29·77 in. Wind ENE., force 2, cloud 5/8 As and Cc.

South African waters

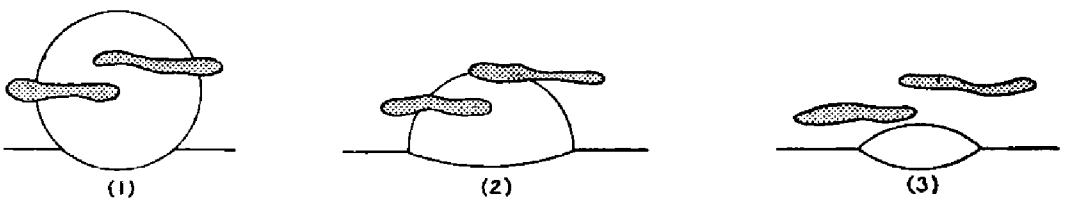
M.V. *Carnarvon Castle*. Captain W. S. Byles, R.D. Port Elizabeth to East London. Observers, the Master and Mr. A. P. Barnes, 3rd Officer.

3rd February, 1957, 1930 G.M.T. While approaching Bird Island and distant 18½ miles, the light on the island was seen to be subject to abnormal refraction. At first there appeared to be two separate lights of equal brilliance, one above the other, while a little later the light was broken up into about half a dozen pieces, still vertically above each other.

North Atlantic Ocean

S.S. *Matheran*. Captain H. Simpson. Cape Town to Wilmington, N.C.

24th March, 1957, 2200 G.M.T. The sun set in the short time of about 40 sec



from the time the lower limb first touched the horizon. Until the sun had completely set, it appeared to overlap the horizon as shown in the accompanying sketch.

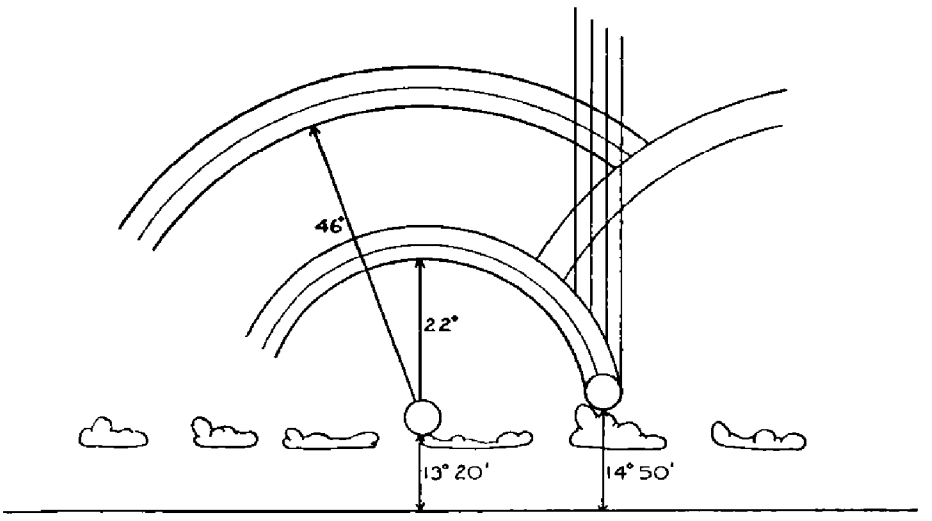
Position of ship: 16° 18′N., 51° 57′W.

HALO

South Atlantic Ocean

S.S. *Caltex London*. Captain C. M. Edward, O.B.E. Buenos Aires to Persian Gulf. Observer, Mr. J. R. Rushbrooke, Junior 1st Officer.

23rd February, 1957, 0710–0728 S.M.T. Halo phenomena were seen after sunrise. The radii of the two main halos were 22° and 46°. There was a brilliant



vertical ray of light from the mock sun, shown as vertical lines in the sketch, and an arc of a white halo crossing this. Both the main halos were coloured, the 46° one red and light green and the 22° one red and pale sea-green. There was Ci cloud above the 46° halo, Ac in bands between the two halos, and Ac or high Sc inside the 22° halo with a layer of separate Cu at lower altitude. There appeared to be a difference in altitude between the true sun and the mock sun and, on making careful measurement, the altitude of the lower limit of the true sun was found to be 13° 20′ and that of the lower limit of the mock sun 14° 50′, viz. 1° 30′ greater in altitude.

Position of ship: 35° 30′S., 32° 40′W.

Note. This is an interesting observation. It has been amplified by many details which were written on the coloured sketch sent. There must have been a general background of Cs, probably thin and barely visible, to produce the halos. The white arc is an abnormal phenomenon, not in the list of recognised halos or arcs of halos. It is very unusual to see such a bright sun pillar produced by a mock sun, especially when the true sun does not give one. As regards the difference of altitude of the true and mock suns, this is impossible by theory but there is quite a simple explanation of the observed difference. It is probable that the actual mock sun was hidden behind the Cu cloud and that what the observer assumed to be the mock sun was the lowest part of the sun pillar, which was unusually bright owing to a greater local concentration of ice crystals in the air in the line of sight. This might easily

appear as a bright round mass of light. It is even possible that this false mock sun would have appeared brighter than the mock sun itself, if the latter had been visible.

AURORA

Note. As stated in the last number of this journal, space does not permit the publication of all auroral observations received in the present state of solar activity, with its resulting high frequency of aurora. A still larger number of observations has been received for the months of January to March, 38 in all, a few of which refer to more than one date. Of these there are observations of the aurora of 21st–22nd January from 19 ships; all but one of these are from the North Atlantic, the exception being a Mediterranean observation. There are observations of the aurora of the 2nd–3rd March from nine ships, all from the Southern Hemisphere, with the exception of one from the North Atlantic. The remaining 10 observations refer to various other dates, from both hemispheres. In such a case the selection of the observations to be published is very difficult. All have been forwarded in full to Mr. Paton for inclusion in the Auroral Survey. The following are the names of ships from which observations, other than those published here, have been received.

21st–22nd January: S.S. *Alsatia*, S.S. *Antrim*, S.S. *Asturias*, S.S. *Explorer*, M.V. *Geelong Star*, M.V. *Highland Princess*, M.V. *Koyan*, S.S. *Manchester Merchant*, M.V. *Port Napier*, M.V. *Port Vindex*, M.V. *Tamele*, S.S. *Tempo*, M.V. *Woodford*.

2nd March: M.V. *Armagh*, M.V. *British Union*, M.V. *Geelong Star*, S.S. *New Australia*, S.S. *Orion*, M.V. *Otaki*.

Other dates: S.S. *Baron Glenconner*, S.S. *Brasil Star*, M.V. *Clan Maclaren*, M.V. *Dominion Monarch*, S.S. *Korringa*, M.V. *Orari*, M.V. *Sacramento*, M.V. *San Veronico*.

North Atlantic Ocean

M.V. *Patagonia Star*. Captain E. L. Jermyn. Curaçao to Liverpool. Observer, Mr. M. R. Hawes, 2nd Officer.

21st January, 1957, 2035 G.M.T. A red glow was seen in the sky about 35° in altitude and bearing about 010°. This glow appeared to be completely isolated from the horizon and it began to move W., reaching a position bearing about 305°. Whilst moving, the glow increased both in area and in brilliance. When at maximum size it extended down behind Cb cloud on the horizon and also increased its altitude by about 7°, the outer edges becoming fainter until they merged with the rest of the sky. At frequent intervals the glow was shot with white rays resembling searchlight beams. These appeared to travel parallel to each other. The red glow finally disappeared at about 0120.

Later, the glow was seen to travel back and forth between about 315° and 025°, becoming alternately weaker and stronger, and sometimes disappearing completely. Stars could be seen through the glow quite clearly throughout the display. Due to cloud it was not possible to observe whether the glow reached to the horizon but it appeared to originate at altitude 35° in a region clear of cloud.

Position of ship: 41° 35′N., 28° 10′W.

S.S. *Baron Elphinstone*. Captain C. R. Roy. San Pedro de Macoris to Rotterdam. Observers, the Master, Mr. G. Lindsay, Chief Officer, and Mr. P. R. R. Warburton, 3rd Officer.

21st January, 1957, 2100 G.M.T. Aurora was observed as a red glow above a cloud bank, the altitude of which was 20° with clear sky above. The red glow covered the sky between bearings 310° and 060° and to an altitude of 40°. At 2315 the red glow changed to a white glow. Radio reception on H/F was found to be very poor, while conditions on M/F were excellent.

Position of ship: 39° 05′N., 38° 12′W.

M.V. *Rowallan Castle*. Captain C. E. Lorains. Las Palmas to Hull. Observer, Mr. N. Curd, 3rd Officer.

21st January, 1957, 2145 G.M.T. Aurora was observed as a dull red circular glow

bearing 030° which became more intense with a tinge of pink, and extended until it covered about 60° of the horizon, 30° on either side of N. The red area was frequently covered by vertical streaks of light, which extended beyond the glow and varied in intensity and duration. The average life of a streak was about 1 min. The display continued for about 1 hour, decreasing in the E. of the sector until only a red glow remained in the W. The sky was clear apart from some very low cloud near the horizon. Stars were faintly visible through the aurora which on several occasions, reflected from the sea, illuminated the ship.

Position of ship: 43° 45′N., 9° 03′W.

S.S. *Alcantara*. Captain J. Smith. Observers, Mr. R. Sankey, Senior 2nd Officer, and Mr. R. Brook, 4th Officer.

22nd January, 1957. At 2000 A.T.S., between N. and WNW., a bright red glow was observed above a low bank of Sc, the tops of which were 3°–5° above the horizon. At 2030 shafts of bright white light similar to distant searchlights emerged from the red glow. The beams of light varied in intensity and often disappeared entirely. The periods of maximum intensity lasted only a few seconds and the degree of illumination was almost equivalent to bright moonlight. The display lasted until about 2230 with the light gradually fading.

Position of ship: 42° 54′N., 9° 24′W.

S.S. *Granford*. Captain H. J. Garrett. Hampton Roads to Venice. Observer, Mr. F. Tinsley, 3rd Officer.

22nd January, 1957. Between 0200 and 0300 G.M.T. an exceedingly bright display of aurora was observed. It was inactive except for a patch at an altitude of 40° and bearing 045°, which alternated between a deep and light red in colour and persisted for about 15 min. The rest of the sky to the N. remained very luminous until low cloud from the southward covered it at about 0300. The extent of the luminosity was approx. 120° in azimuth.

Position of ship: 39° 50′N., 61° 00′W.

S.S. *Amakura*. Captain S. Armitage. Georgetown to Liverpool. Observer, Mr. D. L. Andrew, 2nd Officer.

2nd March, 1957, 0230 S.M.T. A bright reddish glow appeared on the horizon and rose to approx. 20° altitude. Vertical beams of white light appeared above the glow, changing in brightness and width and moving lazily about at intervals from side to side. The display began to fade at 0400.

Position of ship: 40° 16′N., 24° 42′W.

Equatorial Atlantic

S.S. *Brasil Star*. Captain G. E. Barnard. Buenos Aires to London. Observer, Mr. E. W. S. Gill, 2nd Officer.

31st March, 1957. At 2200 G.M.T. the sky appeared to possess a luminous quality similar to that of an approaching dawn. Astronomical twilight had ended 42 min previously. Although clouds obscured part of the sky, the glow appeared uniform over the visible sky, with a possible increase of intensity to the N. Increasing cloud prevented full observation of this phenomenon and also its duration.

Position of ship: 00° 08′N., 30° 36′W.

Note. This appears to be definitely an observation of aurora. It is therefore of great interest, having been made from a position practically on the equator. Remarks on low latitude observations of aurora and their special importance will be found in the article "Aurora Observations during the International Geophysical Year" on page 36 of the January 1957 number.

Bay of Biscay

M.V. *English Star*. Captain L. Vernon. Lisbon to London.

21st January, 1957, 2000 G.M.T. Aurora was seen from approx. 325° to 035°. The display consisted of a bright red glow between altitudes 20° and 50°, which faded and brightened at short intervals; during its maximum activity several long yellow rays stabbed vertically from the main glow to an altitude of about 60°. This lasted until 2035. Between 2200 and 2300 aurora was again visible, with greater intensity than before and spreading from W. to NE. The upper part consisted of a similar bright red glow, but the lower part near the clouds was of a distinct blue-green colour with many vertical yellow rays projecting to an altitude of approx. 80°. The sky was 2/8 covered with low fair-weather Cu. At all times stars were visible through the glow.

Position of ship: 45° 03′N., 08° 08′W.

South Indian Ocean

M.V. *Nordic*. Captain F. S. Thornton, O.B.E. Cape Town to Adelaide. Observers, the Master and all officers.

2nd March, 1957. Aurora was first seen at 1112 G.M.T. in the form of a pinkish glow extending to an altitude of approx. 30° between the bearings of 160° and 200°. The display gradually increased in brilliance and turned a deeper colour. At 1113 the aurora changed into a shape similar to the segment of a circle, with apex at altitude 40° and meeting the horizon on bearings of 150° and 200°. The colour of the segment was deep orange at the circumference, brightest at the apex, and fading to white at the centre and along the horizon.

Shortly afterwards, several rays were seen between 100° and 250°, having colours varying from deep red to pink at the top but white at the horizon. These were 5°–10° in width and extended from altitude 40° to 45° to the horizon. At 1116 the aurora faded, leaving a dull glow in the southern sky and a few rays faintly visible. Two minutes later it reappeared with greater brilliance, the rays varying in width from 5° to 25°. The brightness, colour and size of the rays continually changed, the colour varying from deep red to white; they were between the bearings 100° and 230° at altitude 35°.

At 1125 the rays faded away but the white dawnlike glow persisted until 1230. The white glow which was present throughout the observation was comparable to moonlight and sufficiently bright to be reflected in the water. This was brightest on bearing 150°. A further display of coloured rays, together with a similar white glow, was seen at 1340, fading away at 1355, but leaving the white glow for a further 10 min before it faded. Sky 2/8 clouded with fair-weather Cu.

Position of ship: 36° 40′S., 125° 35′E.

M.V. *Fremantle Star*. Captain G. T. King. Fremantle to Tenerife. Observers, Mr. P. Dann, 3rd Officer, and Mr. W. L. Brown, Radio Officer.

2nd March, 1957. Aurora was observed between 1315 and 1330 G.M.T., over about six points of the compass, from SSE. to SW. It was brilliant red, with vertical white rays of light blending to orange, yellow and thence to a blue-white colour. When the rays were first seen they appeared to be coming from a dark red orb, resembling a false sun; the rays showed only on the eastern side of this orb, and the whole formed an almost perfect square in the sky.

Position of ship: 31° 33′S., 112° 42′E.

South Australian waters

S.S. *Dorset*. Captain K. Barnett. Melbourne to Adelaide. Observers, the Master and Mr. I. Slater, 3rd Officer.

9th March, 1957, 1100 G.M.T. Aurora was observed on the southern horizon

between the bearings of 140° and 245°, reaching altitude 40°. The SE. sector remained weak throughout, whilst the brightest sectors were 185°–195° and 230°–245°. The rays all pointed S. and were very distinct in the bright sectors. From altitude 15°–40° the sky was a very deep pink turning to purple, whilst nearer the horizon (0°–15°) it was a definite green. The phenomenon lasted about ½ hour and just before it faded the sky turned to white.

Position of ship: 36° 10′S., 138° 30′E.

S.S. *Dorset*. Captain K. Barnett. Melbourne to Adelaide. Observer, Mr. D. Cooper, 2nd Officer.

10th March, 1957. At 1540 G.M.T. aurora was observed over an arc of 110° from 140° to 250°. Commencing at 1520 as a lightening of the sky, not unlike sunrise, it developed into vertical white lines similar to searchlights, after which the sky turned to red, the white lines remaining. The phenomenon reached its most brilliant phase at 1540 on a bearing of 220°, the red glow reaching an altitude of 45°. Near the horizon the sky was a light-green colour. The phenomenon faded and returned several times, finally ceasing at 1620.

Position of ship: 33° 46′S., 137° 57′E.

South Pacific Ocean

M.V. *Port Napier*. Captain C. R. Townshend. Suva to Auckland. Observers, Mr. G. B. Rapp, 3rd Officer, and Mr. P. Muirhead.

24th February, 1957. From 0900 to 1100 G.M.T. a display of aurora was seen. At 0900 a large pale-blue patch was seen, extending up to about altitude 30°, covering 50° of azimuth and centred on bearing 180°. At the same time shafts of white light appeared up to about altitude 30°, which converged towards a point in about 70°. The shafts moved slowly westward between the bearings of 180° and 260° as if they were rotating about the point of convergence, the blue patch remaining stationary. At 2215 the shafts disappeared and were replaced by small sheets of white light. The aurora disappeared at 1100.

Position of ship: 44° 30′S., 172° 15′E.

METEOR

West African waters

M.V. *Trevelyan*. Captain H. Gravell. Cape Town to London. Observer, Mr. J. L. Hazell, 2nd Officer.

6th February, 1957, 0328 G.M.T. A white meteor was seen, bearing 291°, at an altitude of 8°. It was as brilliant as Sirius and moved, with a white trail, vertically downwards towards the horizon. During the fall the brilliance pulsated and equalled that of Venus. At the height of the second pulsation the meteor disintegrated at an altitude of 5°, like a bursting star shell. The flight lasted for only 1 sec and the white trail disappeared immediately.

Position of ship: 20° 05′N., 17° 43′W.

South Indian Ocean

S.S. *Otranto*. Captain R. W. Roberts, O.B.E., D.S.C. Fremantle to Durban. Observer, Mr. N. I. Collett, Senior 3rd Officer.

1st January, 1957, 2016 G.M.T. A very brilliant meteor was seen. It appeared at an altitude of approx. 65°, almost exactly halfway between Canopus and Rigel, and fell in a W'ly direction through an arc of about 20°, in about 1½–2 sec. The head gave a tremendous light which resembled a magnesium flare, and was as bright as the full moon. A brilliant trail was left behind which remained visible for 10 sec.

Position of ship: 29° 48′S., 69° 06′E.

S.S. *Salween*. Captain K. Marsh. Cape Town to Colombo. Observers, Mr. R. W. Cotter, 3rd Officer, and Cadet J. Brock.

3rd March, 1957. About 1835 G.M.T. a brilliant meteor was observed, bearing 100°. It appeared at an altitude of approx. 15°, directly below the star Spica, in a sudden pale-green flash of fluorescent quality, and fell rapidly in 2½–3 sec to the horizon, leaving a " molten-looking " trail of the same green colour. Until it was about 4° above the horizon, it appeared round, but at this altitude it became larger and lost shape. It disappeared at the horizon in an orange glow—almost as if it had exploded.

Position of ship: 18° 10′S., 55° 10′E.

North Pacific Ocean

S.S. *Loch Garth*. Captain G. S. Grant, R.D. Panama to Los Angeles. Observers, Mr. R. J. Brockbank, 2nd Officer, and Mr. I. J. Berry, 4th Officer.

2nd January, 1957, 0100 G.M.T. A meteor was observed bearing N. at an altitude of approx. 20°. During a flight of about 8 sec in a SW'ly direction, it moved through 30° of azimuth, while falling to an altitude of 10°. The meteor was white until it exploded with a vivid green flash, leaving innumerable pieces which disappeared 2 sec later.

Position of ship: 11° 18′N., 90° 30′W.

South Pacific Ocean

S.S. *Ceramic*. Captain F. A. Smith. Balboa to Auckland. Observers, Mr. D. R. Pochin, 3rd Officer, and Cadet J. Jackson.

3rd January, 1957. At 0730 G.M.T. a green meteor, judged to be about three times as bright as Venus, appeared midway between Mars and Aldebaran. It left a broken trail, of varying brilliance, as it fell in a N'ly direction, to disappear at an elevation of 5°.

Position of ship: 32° 48′S., 157° 43′W.

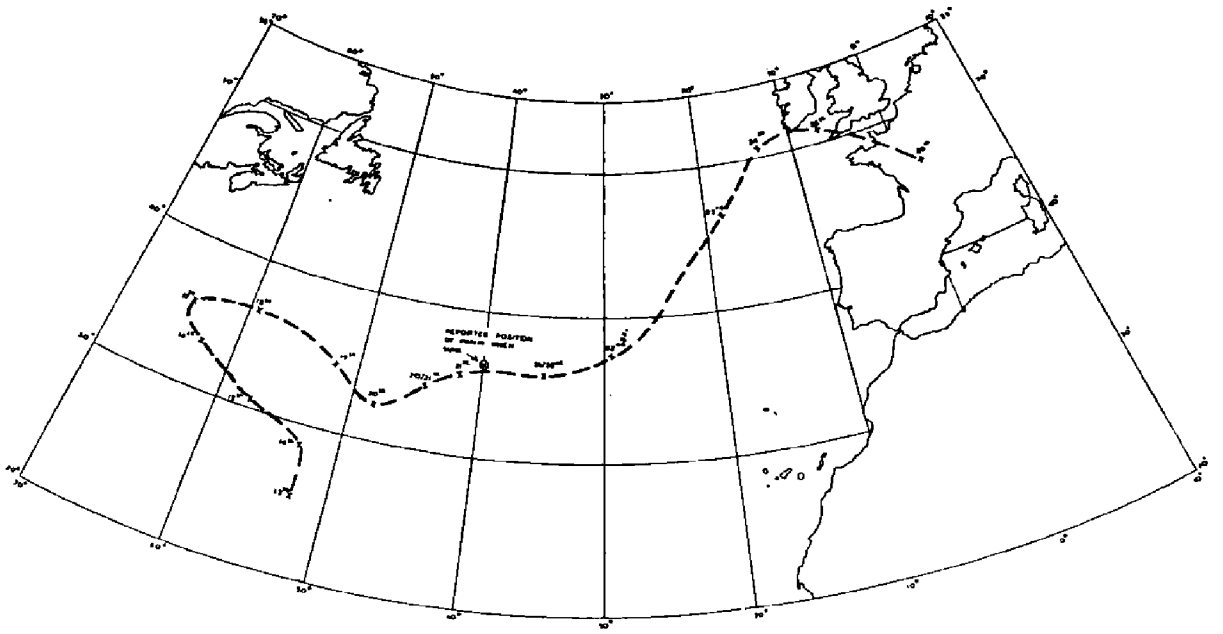
HURRICANE " CARRIE "

Hurricane " Carrie " first appeared in the area covered by British synoptic charts on 12th September, 1957, at 2200 G.M.T., its position then being 24°N., 52½°W. It was a fully-developed disturbance with a central pressure of about 958 mb, and moving N. at 8–10 knots. On 14th the northerly movement was arrested and the hurricane began to take a WNW'ly track, deepening to about 951 mb. The rate of movement, which had increased a little, decreased again as it moved to its most westerly position at 35°N., 64½°W. on 17th.

In this area recurvature began, the new direction taken being towards the E. or ENE. at a slightly accelerating rate. After midday on 18th the track of " Carrie " swung to ESE., and later to SE., until about noon on 20th the position of 32½°N., 48°W., was reached. Here the direction changed again and the hurricane followed a NE'ly track for a time, but by noon on 21st the direction tended towards the ENE. or E. At this time the centre of the disturbance was estimated to lie at 35½°N., 41½°W., about 100 miles west of the position where the *Pamir* is believed to have foundered.

Near the centre, wind speed was estimated to have attained about 100 knots at times. At 0001 G.M.T. on 21st, M.V. *San Veronico*, then at 35°N., 46½°W., and about 80 miles to the west of the estimated position of the centre, reported a NNE. wind of 70 knots. At this time the strongest winds occurred in the NW.–NE. sectors of the hurricane.

From 21st onwards, the hurricane, declining in intensity, followed an ENE. then NE. track, taking it near south-west Ireland by 24th–25th September. By this time



Noon positions of Hurricane " Carrie " on successive days in September 1957.

it had become an ordinary depression, filling rapidly. It moved SE. to central France where, on 26th September, it completely lost its identity, degenerating into a minor trough of low pressure. G. M. R.

The Exchange of Heat Across the Sea Surface

By D. W. PRIVETT, M.SC.
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It has been recognised for many years that the general circulations of the atmosphere and the oceans both depend on the exchange of energy across the sea surface, but until recently little attention has been paid to the quantitative approach. As early as 1871 Carpenter[1] considered the effect of evaporation on ocean circulation, and by 1896 Otto Pettersen[2] had observed that variations in the sea-surface temperature off the coast of Norway presaged some aspects of the future weather of the Scandinavian countries, but because of insufficient data and the absence of satisfactory techniques for the measurement of the exchange processes, no serious attempt was made to examine the seasonal and regional variations in these processes until about 15 years ago. Even the results of these recent investigations are viewed with some scepticism, for the data and the techniques are still imperfect, but at least the broad outlines of the distributions and the correct order of magnitude have been established and may contribute something to the solution of the meteorological and oceanographical problems dependent on this information.

As yet no basic theory has been formulated which will account for the observed pattern of the atmospheric circulation, and one of the problems which must first be answered is to locate the regions in the atmosphere where heating or cooling predominates. The atmosphere as a whole acquires heat by the absorption of solar and terrestial radiation and the realisation of latent heat by the condensation of water vapour. This last process is of particular importance, for the net outgoing radiation from the atmosphere exceeds that absorbed, and this deficit in the atmosphere's heat budget is balanced almost entirely by the realisation of latent heat; it is thought to represent probably 40 per cent of the total heat gained. This heat is only permanently acquired by the atmosphere when precipitation takes place, for cloud formation can be followed by dissipation, which requires the same amount of heat (supplied by the atmosphere) as that released when condensation took place. Areas of high precipitation therefore indicate important sources of heat for the atmosphere. The amount of heat liberated, however, as estimated from

rainfall figures would be suspect as the measurement of precipitation at sea is difficult. Since there is only a small quantity of water vapour present in the atmosphere at any time, compared with the amount passing through it, alternative estimates might be obtained by considering the supply of water vapour to the atmosphere from the sea. Regions of maximum precipitation and evaporation are situated in different localities and large-scale horizontal transports are necessary to effect a balance, so that changes in moisture content and rate of evaporation along known trajectories should give a useful indication of the rate at which latent heat is liberated in different regions. The basic problem here, however, is to determine the time and space variations in evaporation from the sea surface.

The study of evaporation is also important in oceanography for, firstly, it is an important factor in determining the density of the surface water, and secondly, it is the most important cooling mechanism for the oceans in low and middle latitudes. As in meteorology, no theory has yet been formulated to account for the observed pattern of the ocean currents. The problems posed are very similar to those of the atmosphere, but they have received little attention. The sea is generally supposed to be an inefficient heat engine since both heating and cooling take place at the same level (i.e. at the sea surface), and the stress of the wind is usually regarded as the chief mechanism for maintaining oceanic circulation. This argument is undoubtedly correct, but the presence of cold water from the Antarctic Ocean at the bottom of the tropical Atlantic Ocean, and the existence of a highly saline undercurrent flowing out of the Mediterranean Sea indicate that differential heating and cooling (e.g. evaporation) can cause deep water movements. Thus in formulating a basic theory for the circulation due consideration must be paid to the time and space variations in the components of the ocean's heat budget.

A better understanding of these physical processes would contribute to the solution of other problems which have a more practical application in man's activities. Since the study of energy exchange provides basic material for the application of thermodynamics to the general circulation, it may also be applied to the study of weather systems and thus to the problems of forecasting. In monsoon countries, for instance, it might facilitate the prediction of the onset of a monsoon and the amount of rain to be anticipated, and so do much to alleviate the distress which follows the disruption of the agricultural economy of these heavily populated regions in years of abnormal monsoon activity. The prospect of producing more food from the sea may depend partly on this information. The production of plankton (the basic organic matter in the ocean's food chain) takes place near the sea surface and is partly dependent on the supply of nutrient salts. These nutrients are consumed by the organisms in the surface layers and returned to the water at a lower level (e.g. by decomposition), so that the deep water is rich in nutrient salts. These are re-distributed through the ocean by horizontal water movements and their return to the surface layers is effected mainly by upwelling in regions of divergence. The distribution of plankton in such regions has been established, but little is known about the causes of the observed fluctuations in their rate of production. Much more could be learnt about these causes if the sub-surface movements of the oceans and their fluctuations were understood. Such information might also benefit the fishing industry. It is thought that as each species of fish flourishes in a particular environment which is partly determined by water movements, fluctuations in catches can sometimes be attributed to the presence of anomalous water over the fishing grounds. It is possible that when the general circulation of the oceans is fully understood the reasons for these variations from the normal will be apparent, and thus may lead to the successful prediction of water-mass movement and favourable fishing areas in abnormal years.

It is evident that the study of the exchange of energy across the sea surface is important, but as stated earlier the estimation of the amounts of heat involved in these processes is still difficult, because of unsatisfactory techniques and insufficient data. There are, for example, two indirect methods for estimating the rate of

evaporation. First, there is the heat budget equation in which each term represents one of the processes by which a body of water may be heated or cooled. The evaluation of two of these terms is usually impossible, however, for over most of the oceans there are no data on the annual variation of sub-surface temperatures and water movements. Thus it is impossible to estimate the heat advected into or out of the body of water by currents and mixing processes and the change in heat content of the water during a given period of time. Values for the absorption and emission of radiation at the sea surface obtained by using empirical formulae must also be treated with reserve, for frequently there are insufficient data available on the moisture content of the atmosphere and the extent and thickness of cloud cover. Because of the shortage of oceanographic data in particular, this method can be used only in regions where the net amount of advected heat is zero and a time interval of one year is employed; the change in heat content over a year is assumed to be zero.

The second method of estimating evaporation is to use an aerodynamic equation, which measures the vertical flux of water vapour from the sea surface in terms of turbulence theory and observed humidities and wind speeds. This equation has the general form: $E = k\,(e_s - e_a)\,w$, where E is the rate of evaporation, $e_s - e_a$ is the vapour pressure gradient, w is the wind speed and k is a constant whose value depends upon the nature of the turbulence near the surface. This method has attracted considerable attention in recent years because it involves only the use of meteorological data. Its application has been handicapped, however, as there is as yet no agreement on certain aspects of turbulence and it has not been possible to assign an acceptable value to the constant k. But even when a value is found there will still remain the problem of insufficient data. Due to the use of selected ships for many years the number of meteorological observations over the oceans is considerably greater than for oceanographic data, but there are large areas where the data are still insufficient to warrant statistical treatment, for these ships operate principally in the world's shipping lanes, which form only a small percentage of the oceans' area. While the number of observations of air and sea-surface temperatures and wind speeds is adequate over most of the oceans, there is a serious shortage of humidity observations, for wet-bulb temperatures have been recorded only since 1921 on British ships.

Despite these handicaps, however, some progress has been made and charts have been published showing the broad pattern of the seasonal and regional variations in the energy exchanged [3, 4, 5]. An investigation has also been completed recently at the National Institute of Oceanography on the exchange of energy over the oceans of the Southern Hemisphere, full details of which will be published in due course. This survey has involved the use of nearly all the meteorological observations recorded aboard selected ships operating in these oceans during the period 1921–50, and now held by the Marine Division of the Meteorological Office. The difficulty of applying one or other of the methods for estimating evaporation in this investigation was overcome by using an empirical equation, derived by Jacobs (1952), which is a combination of both. By applying the heat budget equation to four areas in the North Atlantic and North Pacific Oceans in which the value of the advection term was assumed to be negligible, Jacobs obtained a value for the annual rate of evaporation for each area. These values were then inserted with the relevant climatic data in the aerodynamic equation to obtain four values for the constant k. The mean of these four values, which was of the same order as one derived from theory, was then used by Jacobs in the aerodynamic equation to compute the seasonal rate of evaporation from each 5° square of the North Atlantic and North Pacific Oceans. This equation was also used in the Southern Hemisphere investigation, but it was found that the rate of evaporation was considerably higher than that Jacobs had obtained. It was found, however, that when British data were substituted for Jacobs' American data in the calculation of a value for k, using the same four areas and methods employed by Jacobs, the value of the constant was reduced by 20 per cent; this gave better agreement between the results for

evaporation from the oceans of the two hemispheres. It is significant that in addition to divergent views on turbulence the use of different climatic records can lead to different results.

The results obtained for the seasonal rate of evaporation from each 5° square of the oceans of the Southern Hemisphere, for which there are adequate humidity data, show that evaporation is nearly everywhere greatest in winter, least in summer, higher in autumn than in spring, and that the annual variation is greatest in middle latitudes. The distribution of the mean annual values shown in Fig. 1 indicates

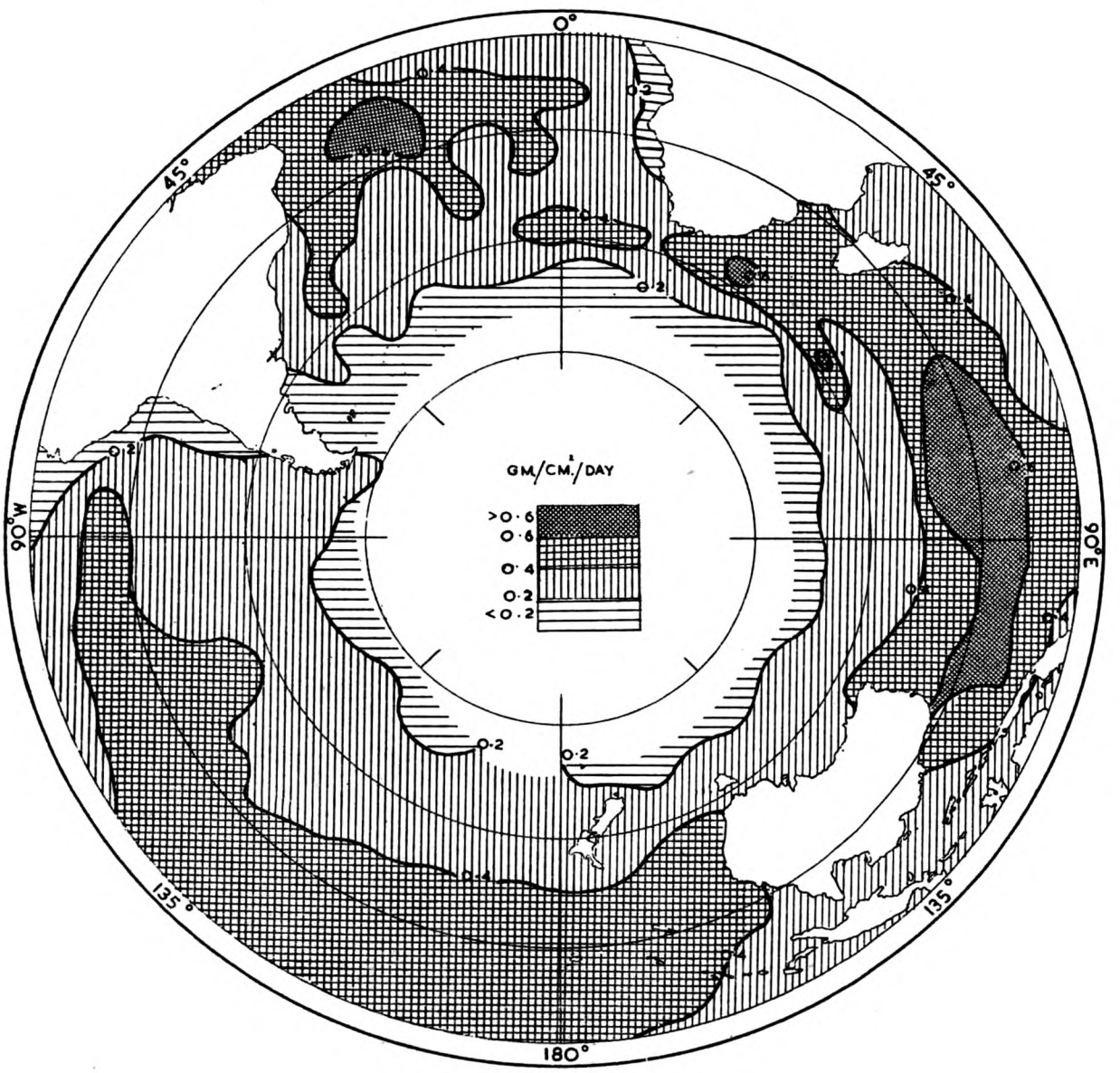

Fig.1. ANNUAL EVAPORATION

that evaporation is high in the tropical trade-wind belts and over the warm ocean currents of middle latitudes (e.g. the Brazil, Agulhas and East Australian Currents), and is low over the cold currents (e.g. the Benguela and Peru Currents) and in the Antarctic Ocean. The high rate of evaporation from the terminal areas of the warm ocean currents is due mainly to the large difference between the air and sea-surface temperatures, which results from the transfer of warm water from low to high latitudes and the frequent presence of modified polar air moving equatorward. There is some evidence that these areas of high evaporation correspond in position to areas of storm generation, although the relationship is not so clearly defined as in the Northern Hemisphere. In the North Atlantic Ocean, for instance, the polar front lies along the eastern edge of the area of high evaporation found over the Gulf

Stream. In the tropical trade wind belts excessive evaporation is associated with the dry descending air currents of these regions. Much of the water vapour acquired here by the atmosphere is transported for a considerable distance before the realisation of the latent heat by condensation takes place. In the Indian Ocean, for example, water vapour acquired in the southern tropics during the south-west monsoon is transported north across the equator and is not precipitated until the coastline of India is crossed. It is interesting to note that in one theory of the turbulent transfer of water vapour from the sea surface the value of the constant k in the aerodynamic equation is doubled as the sea surface changes from the smooth to the rough state (i.e. when white caps appear), which is thought to occur when the wind speed exceeds 13 knots. It seems very unlikely that this theory is correct, but if it is then the rate of evaporation would fluctuate considerably in regions having an average wind speed of 13 knots. This wind strength is found over much of the trade-wind belts, and since these regions are important sources of water vapour this fluctuation would be, if the theory is correct, an important factor in causing variations in the atmospheric circulation pattern.

An attempt was also made to evaluate the radiation components of the heat exchange, for together with evaporation and the exchange of sensible heat, they are the principal means of heating and cooling the sea. Seasonal values for each 5° square of the radiation absorbed and emitted at the sea surface were obtained by using empirical formulae and cloud data interpolated from the Meteorological Office atlases. The results indicate that the net radiation received by the sea is nearly everywhere greatest in summer, least in winter and greater in spring than in autumn; in winter outgoing radiation exceeds incoming radiation to the south of 50°s. The areal distribution of the net radiation received is primarily a function of latitude, deviations from this alignment being due mainly to variations in the extent of cloud cover. It was not possible to estimate seasonal values for the advection and storage terms of the heat budget, for there is insufficient oceanographic data, but by assuming that the total change in heat content of a body of water during one year is zero, estimates were made of the annual value of the advection term; this is the algebraic sum of the annual values of the net radiation received, the heat lost through evaporation and the sensible heat exchanged. The distribution of the annual values of the advection term is shown in Fig. 2; positive and negative values indicate a surplus and deficiency respectively in the heat budget of the water. The chart shows that the greatest surplus is found in low latitudes and that between 15–45°s. areas of surplus heat alternate with areas showing a deficit of heat. This distribution illustrates the important role played by ocean currents, for they concentrate the surplus of radiative heat acquired by the oceans into regions where the heat is returned to the atmosphere, e.g. through evaporation in the trade-wind belts and from the warm ocean currents in higher latitudes.

The results of this and other investigations have shown the broad pattern of the time and space distributions of the major components of the energy transfer at the sea surface, but whether the results can be applied yet to specific problems is uncertain as little reliance can be placed on them. At the National Institute of Oceanography and elsewhere attempts are being made to improve the methods for estimating the exchange of energy. In the Institute, for instance, measurements are being made of temperature, humidity and wind profiles above a water surface in order to improve our knowledge of the mechanism of the vertical flux of water vapour, and a detailed study is being made of the heat budget of the Red Sea with a view to establishing a satisfactory relation between the aerodynamic and heat budget methods for estimating evaporation. Acceptable empirical formulae will be, however, of little use unless there are adequate data to insert in them, and it is difficult to foresee how some information can be obtained. In the case of data on sub-surface temperatures and water movements and on the distribution of moisture in the upper atmosphere, which are necessary for improved radiation estimates, it is possible that adequate information may be obtained in a relatively short period

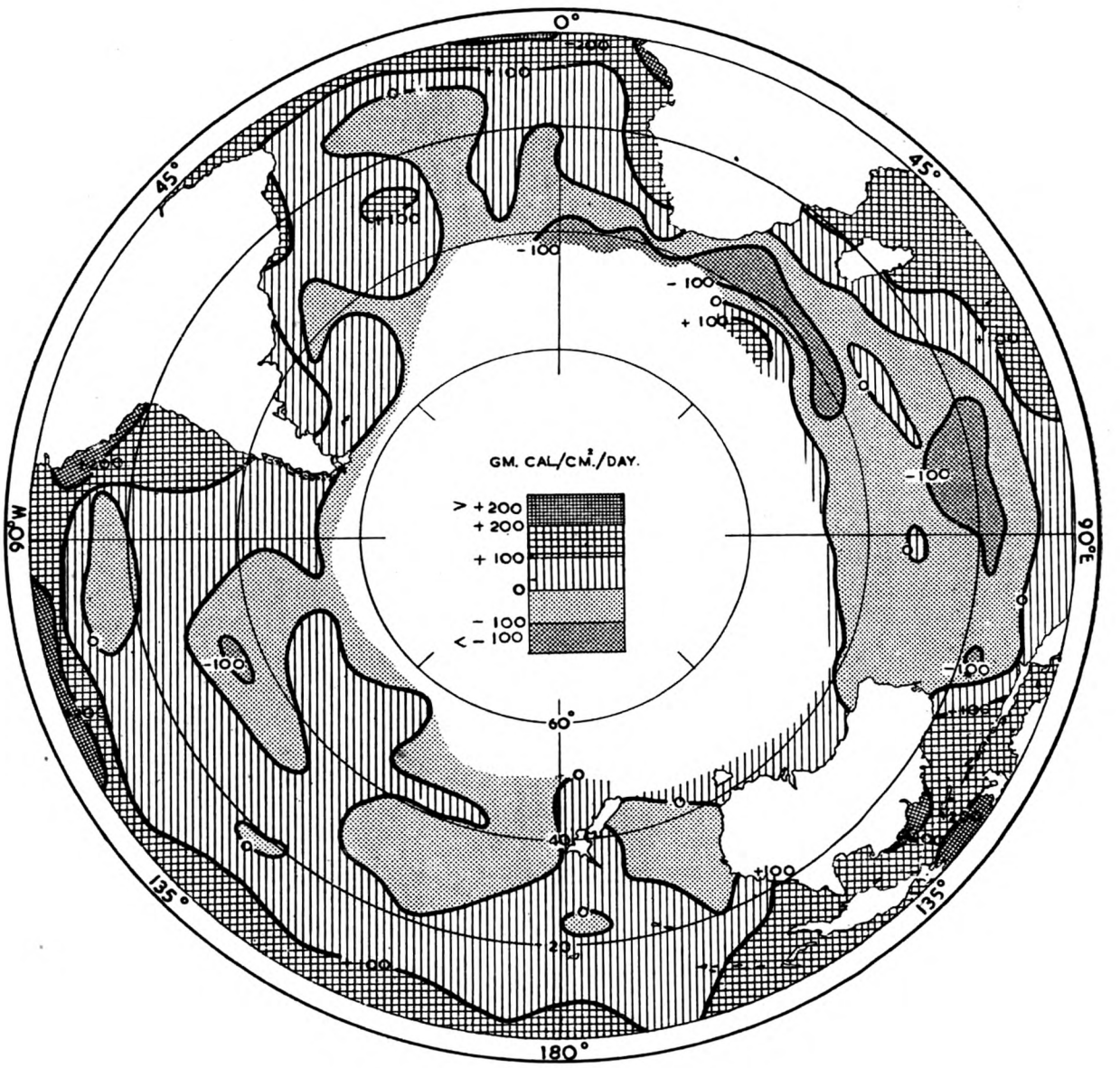

Fig. 2. ANNUAL HEAT BALANCE

(e.g. in the International Geophysical Year), for these elements are not subject to the rapid fluctuations found at or near the sea surface. Some areas of the oceans, however, are rarely traversed by any vessel, much less by selected ships, and thus many years will pass before sufficient surface meteorological data, particularly humidity observations, are available for these regions.

Acknowledgments

The author is indebted to the Director-General of the Meteorological Office for the data used in the investigation into energy exchange in the Southern Hemisphere, and to the Superintendent and staff of the Marine Division for their advice and co-operation, without which this investigation could not have been undertaken.

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RECORDS

The visit of one of our voluntary marine observers to us at Harrow is not complete until we have shown him the card whereon we have entered the details of all the meteorological records which he has sent us and the classification awarded to each. If he has given us a little notice of his visit we will produce also for him his first or any subsequent meteorological logbook which he likes to mention. We can also show him a series of books going right back to 1854, containing a chronological list of all the meteorological returns received from ships since the Meteorological Office (which originally dealt only with marine observations) was formed. These books contain the name of the ship, her captain and officers, together with the description of the voyage, the period of the observations, and the assessment given to each record.

The manner in which we keep these records has often surprised our observers. One well-known shipmaster who recently retired, wrote:

> At the clewing up of one's active seagoing life it is very satisfactory to find that one's efforts have been so carefully noted and appreciated. When I had the honour of receiving my barograph . . . it quite shook me to find that the Meteorological Office not only could but did produce the first fair copy log that I had written up in 1915.
>
> That incident very naturally both surprised and pleased me, and since then I have recounted it many times to junior officers to make them realize the close interest that is taken in their careers by the Meteorological Office from the time they commence observing.

A recent letter from another shipmaster contained the following passage:

> I had no idea that you kept tabs on us so correctly and I am really shaken. It would appear that I will really have to be on my toes. . . .

It is remarks like the above which brighten up the somewhat monotonous task of keeping records. It is a task which cannot be lightly undertaken, and, like most of the work of the Marine Division, it requires the willing co-operation of our voluntary marine observers.

Information as to the identity of observing officers is only available to us on the first page of the meteorological logbook. On that page there are spaces for the names of all who have contributed to that particular logbook and credit for a set of observations cannot be given to any officer who is not named on the first page.

One of the major problems in ensuring the accuracy of the officers' personal cards is to identify officers bearing the same name. Amongst those who have observed for us since the war there are no fewer than 24 captains, 99 deck officers and 36 radio officers with the name Williams, to quote our most frequent surname. Positive identification is usually arrived at by noting the particular company in which an officer is serving, but a number of officers have changed companies with the result that we have sometimes started an entirely new card for an officer who already has one. A further complication can occur where there are two or more officers of the same name in one company. The case of two brothers is frequent, there may also be officers of the same name and initials, whilst officers whose writing is illegible are by no means unknown.

In the last few years, in an effort to keep our records straight and abreast of the large number of officers coming forward, many a letter has been written to an officer asking if he can be identified with an officer of the same name and initials from whom we had already received meteorological records. This type of letter has been particularly necessary when an officer has turned up again after an absence of some years, frequently in a different company.

Many of these difficulties could be resolved if officers would please adopt the following simple rules when writing up the first page of the meteorological logbook.

1. All names to be in block letters and accompanied by full initials, together with decorations and R.N.R. rank, where held, and whether active or retired.

2. If an officer has a surname which occurs frequently, e.g. Smith, Williams, etc., it would be a great help if a Christian name (not for publication) could also be given, as in these cases very often initials are no help in the identification.

3. If this is his first meteorological logbook in a ship of a company different from that in which he has hitherto served, it would help if this fact could be stated, e.g. JOHN KELLY SMITH, late of BROCKLEBANK'S.

4. The dates when an officer joins or leaves a ship should always be stated if either of these dates falls within the period of the observations. When new officers take over they should not black out the names of their predecessors but merely write in the dates of their relief. This is a very important point as, although credit for the logbook goes to all the officers who are named on the front page, if the book reaches the standard required for an Excellent Award the award will go to the principal observing officer who is responsible for the largest number of observations.

5. To secure the better identification of radio officers it would help if, in addition to his own name and initials, the name of his employer could be stated if this is not the shipowner. This point becomes most important when it comes to the question of chasing a radio officer with an Excellent Award, for in many cases the ship in which he gained the award has lost touch with him, leaving us with the prospect of writing in turn to each radio company to find out what has become of him.

We can only rely on the information given on the front page of the book for the compilation of the Fleet List which is published in the January and July numbers of *The Marine Observer*. The number of letters and comments which we receive about this section shows how widely read it still is; personally, it was always the first thing to which we turned on receiving the journal in our time at sea, and from the experience of seeing one's own name often mis-spelt, we are anxious that the list shall always be correct. Considerations of space have obliged us to omit from this list the R.N.R. ranks and decorations of all except the captains of ships, but these will always be put on the personal cards when known. In the last few years much time has been spent checking the spelling of a name in a logbook against that in a previous logbook from the same, or thought to be the same, officer and against his card. We have not always arrived at the right answer, to the ultimate disappointment of the officer himself.

Most of our observing officers will be aware that each year the Director-General of the Meteorological Office awards barographs to four shipmasters with long and zealous service for the Meteorological Office. Many no doubt will have themselves aspired to such an award, and to all we would mention that in compiling the list of captains their records are taken solely from their personal cards, thus the accuracy with which these cards are compiled today may be appreciated 30 or more years ahead.

L. B. P.

ASSOCIATION OF NAVIGATION SCHOOLS

The Association of Navigation Schools held its Annual Meeting at the Dundee Nautical College in July 1957. The guest speaker at the "open" meeting was Mr. J. Liddle, a Director of the Caledonian Shipbuilding and Engineering Company, who is an exceptionally able lecturer and who gave a very entertaining and knowledgeable account of modern trends in the shipbuilding industry.

Among the items he discussed were the extended use of photographic projection as practised on the Continent to take the place of templates; the use of cathodic protection for prevention of corrosion to ship's hulls; modern trends in the design of ships, including streamlining and the tendency to site the bridge aft; and the possibility of using atomic power in merchant ships. It is hoped that some of the information and advice which he gave will eventually find its way into lectures at navigation schools.

Captain Topley, Principal Examiner of Masters and Mates, gave his customary report to the Conference concerning the year's work in the examination rooms.

The statistics he provided for the year 1956—with the 1955 figures in brackets—are shown in the table below:

Grade	Number of Candidates	Number of Certificates issued	Percentage Pass
Master	953 (873)	690 (599)	72·4 (68·6)
First Mate ..	1,223 (1,224)	848 (873)	69·3 (71·3)
Second Mate ..	1,611 (1,678)	946 (1,003)	58·7 (59·8)
Master (H.T.) ..	87 (93)	64 (68)	73·6 (73·1)
Mate (H.T.) ..	118 (129)	68 (74)	57·6 (57·4)
Total ..	3,992 (3,997)	2,616 (2,617)	65·5 (65·5)

He mentioned that 65 of the Second Mate's certificates were obtained by men who had formerly served in the fo'c'sle. Captain Topley drew attention to general weakness in signalling and in making sketches, and in this connection he said: "A large number of the sketches submitted indicate a lack of even the basic principles of mechanical drawing."

During the course of the meeting an open forum was held on the use of inflatable dinghies, and a suggestion was made that the use of these should be included in seamanship instruction.

The Conference was entertained to luncheon by the Lord Provost of Dundee.

C. E. N. F.

VALETE

In the April 1957 issue of *The Marine Observer* we published a valedictory article on the former rough logbook. The following poem, extracted from the meteorological logbook of M.V. *Geelong Star*, makes an appropriate postscript.

Rain and Hail and Snow and Fog
Have all transferred to the old " fair log ".
Hereafter green succumbs to red
So less work now for P.O.O.'s head.
Before observing, stop and think . . .
From now you'll all be using INK!

INDIAN EXCELLENT AWARDS, 1954-56

We have been informed by the India Meteorological Department that Excellent Awards have been presented to certain ships of their voluntary observing fleet for outstanding meteorological work during the years 1954–55 and 1955–56.

The awards, which were in the form of books, were sent to captains, observing officers and radio officers who had served for more than six months on the ships concerned during the award year. These officers are named in the list below.

Name of Vessel	Captain	Observing Officer(s)	Radio Officer	Company
1954–55				
Rajula	F. A. Spenceley	R. I. Higgins G. B. Thompson D. A. Harvey	Z. A. Faure	British India Steam Navigation Co., Ltd.
State of Saurashtra	W. L. Atkinson	V. B. Apte R. D. Kohli B. S. Patwardhan	C. T. George	Scindia Steam Navigation Co., Ltd.
1955–56				
Rajula	F. Mears	R. M. Taylor K. H. Nettleship A. Dennison	A. S. Higginbottom P. M. Treharne	British India Steam Navigation Co., Ltd.
Shahjehan	J. Thompson	W. Dyson N. N. Gibbs T. E. Desmond	J. S. Foote	Asiatic Steam Navigation Co., Ltd.
Indian Trader ..	R. L. Cladingbowl	G. M. Ratcliffe P. K. Rajagopalan P. K. Karkaria	K. K. Sarkar	India Steamship Co., Ltd.

CANADIAN EXCELLENT AWARDS, 1956

A list of officers who received Excellent Awards for the year 1956 is printed below. Mr. Andrew Thomson, Director of the Canadian Meteorological Branch, states that a total of 48 ships co-operated with the Branch during 1956, and made approximately 14,000 observations while at sea. The winning officers and ships were selected according to the accuracy and completeness of their meteorological logbooks.

Recipients of awards:

Name of Vessel	Observing Officer(s)	Radio Officer(s)	Company
Bluenose ..		D. Rush ..	Canadian National Railways
Esso Knoxville ..	E. J. Samson ..	F. A. Domina ..	Imperial Oil Shipping Co.
Esso San Juan ..	C. H. L. Ritcey ..	F. A. Domina ..	Imperial Oil Shipping Co.
		M. N. Kelly	
		S. M. Parks	
Imperial Edmonton ..	E. J. Samson ..	M. N. Kelly ..	Imperial Oil Shipping Co.
		R. E. Phillips	
Irvingbrook ..			Irving Oil Co., Ltd.
Lakonia ..		G. Foster ..	Donaldson Line, Ltd.
Cyrus Field ..	F. W. Mauger ..	C. Jackson ..	Western Union Telegraph Co.
Lord Kelvin ..	G. H. Warren ..	W. Martell ..	Western Union Telegraph Co.
Paloma Hills ..	J. E. Richard ..	A. W. Horwill ..	Shell Canadian Tankers, Ltd.
		J. Weir	
Pinnacles ..	J. Cauchy ..	A. W. Horwill ..	Shell Canadian Tankers, Ltd.
		J. Weir	
Rincon Hills ..	C. A. Bradshaw ..	D. A. Brady ..	Shell Canadian Tankers, Ltd.
	M. C. Lever		
	J. E. Richard		
Suva			Pacific Shipowners, Ltd.
Waihemo ..		C. Ward ..	Union Steamship Co. of New Zealand
Waikawa ..			Union Steamship Co. of New Zealand
Wairuna ..	D. M. J. Steel ..	G. R. Hanson ..	Union Steamship Co. of New Zealand

Dictionaries are being presented to each of the ships mentioned in the above list, to be placed in the ship's library for the benefit of all members of the crew. In addition, individual awards will be made to each of the officers named.

PRONÓSTICO DEL TIEMPO PARA PESCADORES

We publish below, by kind permission of the editor of *Aerial*, the British Broadcasting Corporation's house magazine, an extract which underlines the international value of weather forecasts for shipping which so largely depend for their efficiency on the work of the voluntary observing fleet.

"A little over a year ago the B.B.C.'s Spanish Programme Organiser, on a visit to Spain, was told by a Spanish shipbuilder that the B.B.C.s daily shipping forecasts and general weather reports in English had an avid audience among the masters of the Spanish fishing fleet. On hearing how difficult Spanish fishermen found it to understand these forecasts but how much they relied upon them, the Spanish Programme Organiser arranged for the inclusion of a daily shipping forecast in the B.B.C.'s Spanish programmes.

" This new service recently found grateful recognition in *Industrias Pesqueras*, the Spanish fishing industry's fortnightly publication. Stating that this weather forecast was intended specially for the Spanish fishing vessels which operate in

large numbers to the south and west of the British Isles, the article went on:

> . . . The information which is broadcast is that provided by the Meteorological Office in London coupled with the International Meteorological Organisation, and its forecasts are without doubt the most accurate. . . . Over the last 20 years the B.B.C. has earned our applause and we wish it well in its intelligent, open-hearted and humanitarian work.

"Similar weather forecasts are broadcast by the B.B.C. daily in Danish, with particular reference to the North Sea area, and in French covering the Channel and the whole of France and the Low Countries. The B.B.C.'s European English Service broadcasts a daily weather report compiled from information received from all parts of Europe."

Book Reviews

U.S. Navy Marine Climatic Atlas of the World. Vol. I: North Atlantic Ocean (NAVAER 50-IC-528) *and Vol. II: North Pacific Ocean* (NAVAER 50-IC-529). 20 in. × 13½ in. pp. xvii + 275 charts (Vol. I), xviii + 275 charts (Vol. II). Published by direction of the Chief of Naval Operations, Washington, 1955 (Vol. I), and 1956 (Vol. II). $8 each.

These two atlases are the first of eight that will cover the oceans of the world. The largest project of preparing atlases of marine climatological charts, previous to the one now being undertaken by the United States, was that of producing the four British marine meteorological atlases for the Atlantic, Indian, Western Pacific and Eastern Pacific Oceans during World War II. Although a staff of 50 was available, preparation of these British atlases in their ultimate form in four years was only possible with the aid of a punched-card installation which would be regarded as relatively simple by present-day standards of automatic computation. In the preparation of the new American atlases good use was undoubtedly made of the flexible and comprehensive punched-card organisation which is now available at the United States National Weather Records Centre.

Hitherto marine meteorological atlases have confined themselves mainly to surface data but these new atlases include upper-air charts as well. No charts of sea or swell waves or ocean currents are included. Such charts are presumably considered more oceanographical than meteorological; as the United States include some in separate publications it is perhaps logical to omit them from the present atlases, especially as the latter are already bulky. Seasonal charts of air-sea temperature difference are given, as are monthly mean values of sea-surface temperature for ocean weather stations and certain limited Ocean Areas which are described later in this review. As charts of sea-surface temperature are often required in conjunction with other marine meteorological charts, it might seem a pity that monthly isotherms of this element are not included.

It is never possible to suit all the detailed needs of the varied types of users of marine meteorological charts and there will inevitably be minor criticisms of these atlases and the data used; however, this is probably the largest single project of the computation of climatological data ever undertaken and the great amount of work involved in the planning and execution deserves the highest praise. The value of having available at a glance so great a number of marine meteorological statistics far outweighs the minor disadvantages of certain elements not being represented in the most suitable form for some requirements.

The information used in the preparation of these atlases includes surface observations from ocean weather stations, merchant and naval vessels, and a few island and coastal stations, and upper-air data from ocean weather stations and some island and coastal stations. Surface marine observations on cards punched in Great Britain, Netherlands and Germany were used in addition to those punched in the United States*. The German cards include observations of ships belonging to

*The introduction to these atlases shows that 14·9% of the observations in the North Atlantic and 17·8% in the North Pacific Ocean were from British voluntary observing ships.

Denmark, Norway, Holland and France. For the North Atlantic only 15·6 per cent of the cards used for merchant and naval ships were of American origin and even some of these were for observations made by ships of other nationalities.

The surface and upper-air sections of the atlases are kept separate. The representation of the processed data is by graphs, histograms, tables, roses and isopleths. The frequency distributions for many meteorological elements are shown by cumulative percentage frequency curves, known as ogives. Several combinations of two or three of the basic elements are given in various graphs and tables. In the surface section the graphs, roses, tables, etc., are computed for ocean weather stations and, for most elements, they are also computed from reports from merchant and naval vessels for specified Ocean Areas. These areas, although made as small as possible consistent with obtaining a reasonable number of observations, range from about 10,000 to 14,000 square miles in size and are necessarily chosen along established trade routes. Sometimes graphs, etc., are also computed for certain island and coastal stations, but only in areas where few ships' observations are available. In the upper-air section most of the data relate to ocean weather stations and island and coastal stations, but for some elements synoptic charts were also used.

The atlases are in loose-leaf form so that additions and amendments can easily be made. The paper is thin, probably to enable the incorporation of a large number of charts. These atlases are fairly large and as a consequence some of the North Atlantic charts are easily creased, but this defect seems to have been largely remedied in the case of the North Pacific. There is inevitably a number of errors in a work of this size but the number noted is very small.

The atlas would seem to be designed primarily to meet operational requirements but it will also meet many of the needs of the scientist. Although most mariners would normally only require a small selection of the charts it should be easy, owing to the loose-leaf form of the atlas, to publish such a selection if the demand was large enough.

Shortage of space prevents the reviewer from commenting as thoroughly as he would like, and the best use of the remaining space from the mariner's point of view can be made by describing some of the more important information given on each chart.

1. Surface Section.

1.1. Charts for each month.

1.1.1. Surface winds.

Isopleths of percentage frequency of Beaufort force 3 or less.

For ocean weather stations, Ocean Areas and island and coastal stations —Roses and circular contingency tables giving frequency of wind direction and speed. Frequencies of each Beaufort force from 2 to 9 irrespective of direction.

1.1.2. Gales.

Isopleths of percentage frequency.

For ocean weather stations only—Ogives of duration frequency (or persistence) of gales and of intervals between gales.

1.1.3. Visibility.

Isopleths of percentage frequency of visibility less than 5 nautical miles.

For ocean weather stations, Ocean Areas and island and coastal stations —Ogives of visibility. Histograms of percentage frequency of visibility less than 2 miles for each of 8 wind directions and for calms.

1.1.4. Low visibility.

For ocean weather stations only—Ogives of duration of spells with visibility less than 2 miles and duration of intervals between such spells.

1.1.5. Precipitation.

Separate isopleths of percentage frequency of observations reporting precipitation of all types and of snow alone.

For ocean weather stations, Ocean Areas and island and coastal stations —Roses showing percentage proportions of winds from each direction that were accompanied by precipitation, subdivided according to relative frequency of liquid and frozen types.

1.1.6. Cloudiness.

Separate isopleths of percentage frequency of low cloud amount 6/10 or more and of total cloud amount of 2/10 or less.

For ocean weather stations, Ocean Areas and island and coastal stations —Ogives of total cloud amount. Histograms showing percentage frequency of low cloud amount greater than 5/8 and greater than 7/8 for each wind direction.

The use of both tenths and eighths for cloud amount was dictated by the source of the information.

1.1.7. Wind—visibility—cloudiness.

For most ocean weather stations and Ocean Areas—Tables of percentage frequencies of the simultaneous occurrences of specified wind, visibility and cloud conditions.

1.1.8. Ceiling-visibility.

For ocean weather stations only—Tables of the percentage frequencies of the simultaneous occurrences of specified ceiling (cloud base) and visibility.

1.1.9. Temperature.

Isopleths of mean air temperature.

For ocean weather stations, Ocean Areas and island and coastal stations —Ogives of air temperature. Graphical representation of the distribution of air temperature for each wind direction.

For most ocean weather stations and Ocean Areas—Mean water temperature (presumably sea-surface temperature).

1.1.10. Wet bulb.

For most ocean weather stations and Ocean Areas—Ogives of wet-bulb temperature.

1.1.11. Low temperature.

Isopleths of percentage frequency of air temperature less than 32°F.

For ocean weather stations and Ocean Areas where appropriate—Histograms showing percentage proportions of observations when the air temperature was less than 32°F, in which temperature in each specified interval occurred simultaneous with winds of:

(*a*) Beaufort force 6 or more;

(*b*) Beaufort force 8 or more; and

(*c*) Beaufort force 9 or more.

1.1.12. Sea-level pressure.

Isopleths of mean sea-level pressure.

For as many ocean weather stations, Ocean Areas and island and coastal stations as possible—Ogives of pressure.

Main and secondary storm tracks.

.2. Charts for each season.

1.2.1. Air-sea temperature difference.

Isopleths of the difference between mean air temperature and mean sea-surface temperature.

1.2.2. Low-pressure centres.

For each 10° square—Roses showing the numbers of low-pressure centres in that square, the frequency of each of eight directions and mean speed of these centres for each of the eight directions of movement: the roses include an index number of the mean " storm intensity ".

Principle areas of cyclogenesis and areas of more concentrated cyclogenesis.

2. Although perhaps of little practical interest to mariners, the following is a brief résumé of the upper-air charts.

2.1. Charts for each season for 850, 700, 500, 300 and 200 mb.

2.1.1. Wind aid. }
2.1.2. Wind retard. }

Circular contingency tables giving the percentage frequency of certain ranges of aiding and retarding effects on aircraft (equivalent winds) for each of eight directions.

2.1.3. Wind roses.

Wind roses and circular contingency tables showing percentage frequencies of direction and speed.

2.1.4. Height of pressure surface.

Isopleths of mean height. Ogives of height.

2.1.5. Temperature and humidity.

Separate ogives of temperature and relative humidity (above 30 per cent). Curves indicating the relative humidities observed with a given temperature which were recorded on 25, 50, 75 and 100 per cent of occasions.

2.2. One chart for each season.

2.2.1. Modified refractive index.

Histograms showing 25, 50 and 75 percentile values of the modified refractive (or " B ") index at 800, 850, 900 and 950 mb and the surface.

2.2.2. Inversions.

Histograms showing percentage frequency of three intensities of temperature inversions within each of five layers from the surface to 800 mb as determined by the 0300 G.M.T. ascent.

2.2.3. Height of tropopause.

Ogives of the height of the lowest tropopause as determined from the 0300 G.M.T. ascent.

2.2.4. Height of freezing level.

Ogives of the height of the freezing level as determined from the 0300 G.M.T. ascent.

2.2.5. Potential aircraft icing.

Percentage frequencies of three degrees of potential aircraft icing conditions at 950, 850, 700 and 500 mb. P. R. B.

Sturmwetterlagen bei Island (*Storm Situations off Iceland*), 1950–1954, by Dr. H. O. Mertins. 11½ in. × 8 in. pp.: first part (synoptic), 54 + 38 maps, 22 diagrams, 1 table; second part (statistics), 26 + 13 diagrams, 2 tables. Deutscher Wetterdienst: Seewetteramt, Einzelveröffentlichungen No. 12, Hamburg, 1957. Price 3.50 DM.

(Dr. Mertins served as forecaster aboard *Meerkatze* from 1950–55, and since January 1956 he has been performing similar duties with *Anton Dohrn*.)

The marine department (Seewetteramt Hamburg) of the German weather service has, with the support of the Federal Government's Ministry of Food, Agriculture and Forests, been able to set up well-equipped weather forecasting offices aboard the fishery protection vessel *Meerkatze* and the fishery research vessel *Anton Dohrn*, accompanying the trawlers on the Arctic fishery between south-west Greenland waters and Spitzbergen. It is reported[1] that weather maps are drawn at three-hourly intervals on the fishing grounds and that synoptic analyses are received by radio picture from Germany: the latter operation has proved reliable even as far away as Bear Island.

This venture has enabled the meteorologists, who have been devoted to this work for five seasons or more, to develop a peculiarly intimate understanding of the possible methods and scope of weather protection on the fishing grounds, and the weather bulletins and forecasts issued by these two vessels, when either of

them is on duty in the areas concerned, are a valuable addition to the radio bulletins issued by the relevant meteorological authorities ashore. Weather information is of such practical value to trawlermen—making it possible to prolong the hours of gainful fishing and on occasions saving lives and vessels from disaster—that a service of this kind is very welcome. The trawlers of many nations join in the exchange of information with the German fishery protection ships, and it is noteworthy that as many forecasts were supplied by the *Anton Dohrn* on her 1955 voyages to British fishing vessels (in English) as to German.

The publication here under review is designed to present the experience of the first five years in regard to storms in Iceland waters in the form of a guide to other meteorologists who may in the future be concerned with the same problem. Much local knowledge and interpretation is incorporated which could be of direct use to trawler skippers. Indeed an English translation might well prove popular aboard British distant-water trawlers.

The weather maps on which the work is based are of course unique in having a good network of observation reports from fishing vessels plotted over these remote waters. Thirteen thousand of these charts were studied to produce the statistics in the latter part of the work.

Storm situations near Iceland (defined by the observed occurrence at sea of Beaufort force 8 or more for at least three hours, and commonly very much longer) are divided into the following classes:

I. Depressions approaching Iceland from the south, slowing abruptly near Iceland and rounding the west coast, either to escape through Denmark Strait to the north-east or to re-curve to the south-west of Iceland.

II. Depressions from the south-west, some of which pass directly through Denmark Strait, others turn up Davis Strait west of Greenland but after some slight delay send an offshoot (or " calf ") low through Denmark Strait, whereas others again become nearly stationary off south-east Greenland.

III. Depressions from the west and north-west, steered by a westerly jet stream aloft right over south Greenland and Iceland.

IV. Cases where the surface weather map is rather similar to III, but involving deep cold lows which intensify either due to incursion of dynamical developments from the west or upon coming over the warm Irminger Current waters in the Denmark Strait area.

V. General north-easterly storms associated either with (*a*) depressions passing east off the southern coasts of Iceland, or (*b*) thrusts towards Iceland of anticyclones centred over northern Greenland.

Category V, especially V(*a*), is seen in the statistical summary to be by far the most frequent gale situation in these waters.

Presentation is simple and follows a uniform plan, in the case of each of the types enumerated, of describing first an actual case with surface and upper-air maps; then the essential meteorology of the type is defined with the aid of schematic diagrams pin-pointing important successive phases of the development; finally, the characteristic weather sequence and hazards to shipping on the various Icelandic fishing grounds are described and possibilities of shelter in various localities given in some detail.

There are several points of general interest to meteorology. For instance, it is noted that the most vigorous depressions in Icelandic waters are those whose main circulation passes clear of Greenland and suffers no loss of energy from this cause before reaching Iceland. By contrast, those depressions in category III carried by the jet-stream over the successive land barriers, without apparent possibility of skirting round them over the sea, are not of such extreme depth or vigour. In north-easterly storms the waters off the leeward coasts present a complicated mosaic of little lee depressions with light variable winds while areas in between these depressions experience the north-easter with full, or added, fury.

North-easterly storms preponderate over gales from other directions on most of the Iceland fishing grounds, particularly near the north-west and south-east coasts, where they are strengthened by convergence effects and not uncommonly exceed Beaufort force 12. The following figures are given for the percentage of gales which blow from various directions in different areas off the coast of Iceland:

Sea areas	Direction from which gale blows			
	NE. and E.	SE. and S.	SW. and W.	NW. and N.
	%	%	%	%
NW. of Iceland (fishing grounds Djupall or Gammelloch and Vikurall)	85	4½	4	6½
W. of Iceland (fishing grounds off Snaefell or Schneemann aussen)	60	12	16	12
SW. of Iceland (fishing grounds Faxa Flöi Deep or Mehlsack)	33	23	31	13
S. of Iceland (fishing grounds Selvogr Deep or Selvogsbank and Westman Islands) ..	36	24	27	13
SE. of Iceland (fishing grounds between Skapta Deep and Berufjord Deep)	36	23	22	19

The fjords of north-west Iceland seem to afford the best general shelter, especially in their inner parts, but squalls are severe with northerly winds. In south-west Iceland, Keflavik affords shelter against westerly gales but is exposed to the east and north-east.

The turbulence of the cold north-easterly outbreaks causes them to raise the highest seas, wave heights reaching 50 feet and more. Vessels steaming even slowly against such seas ship a lot of water and in sub-freezing temperatures ice may rapidly form great loads on the upper works. The British trawlers *Roderigo* and *Lorella* were lost in this way on 26th January, 1955.

The meteorological work on these fishery protection vessels has points of similarity with the reviewer's experience in 1946–47 in operating a weather forecasting service aboard a floating whaling factory in Antarctic waters. Indeed this is probably still the nearest parallel so far undertaken on a British ship. It is a pleasure to bring to notice a further example of this type of very practical application of meteorology, in a field where trawlers and gear costing hundreds of thousands of pounds and valuable lives can be saved.

H. H. L.

REFERENCE

[1]MERTINS, H. O. Mit Anton Dohrn nach Spitsbergen. *Wetterlotse, Hamburg*, No. 106, 1956, pp. 183–190.

The Voyage of the "Petula", by Frank Evans. 8¾ in. × 5¾ in. pp. 189. *Illus.* Robert Hale, Ltd., London, 1957. 16s.

In the October 1956 number of *The Marine Observer* a brief account was given of the meteorological observations made during this voyage of the 12-ton yawl *Petula*, towing a 16-foot raft and drifting under staysail alone from Dakar to Barbados (November 1953 to February 1954).

In this book Frank Evans, who was the leader of the expedition, gives a general narrative of the voyage and describes in some detail the various scientific work which was done, namely marine biology and meteorology. He has a graphic style of writing and brings the story to life by introducing a realistic dialogue into each chapter. The object of drifting at slow speed and towing the raft was " to make a deliberate and continuous study of the surface waters, recording numbers and activities of different types of fish, watching the weather and the waves, keeping an accurate log of air and sea temperature, doing in fact all the things that cannot be done well from a big ship, while leaving alone all that a big ship could do better than we ". A study of the book seems to indicate that the voyage was entirely successful and that the object of the expedition was well satisfied.

The author explains how, with the use of a rubber dinghy, a regular " ferry " service was organised betwen yacht and raft so that the necessary observations could regularly be made aboard the raft. He describes how, with the aid of an under-water camera, numerous photographs were taken of fishes and other marine life and he tells us that their work was not unaccompanied by danger, as, for example, when sharks were around. As in the case of Dr. Bombard's drift in a rubber dinghy on a similar route (August-December 1952),[1] he shows the reader that they were always accompanied by a fish population. The number of ships which they sighted during the voyage seems to have been small.

The meteorologist on board was an enthusiastic photographer and not only made a cinematograph record of the voyage but also took numerous " still " photographs with which the book is profusely illustrated.

Altogether it is a book which is well worth reading. C. E. N. F.

REFERENCE

[1]BOMBARD, A. Across the Atlantic by raft. *Mar. Obs., London*, **24**, 1954, p. 93.

Old Time Marine Observers' Log

Few of the meteorological logbooks received in the Marine Division in the past 100 years can have had a stranger story to tell than that of the barque *Hermine*, commanded by Captain S. Griff Jones, on a voyage from Liverpool towards Esquimault in 1885. Few logbooks, moreover, can ever have been compiled with such meticulous attention to detail in such adverse circumstances.

Extracts from the logbook are given below.

March 5th, 1885, noon position 16° 32′s., 35° 1′w. At 8 p.m. the crew having evidently broached the cargo, and under the influence of drink, attempted a revolt or mutiny, threatening and declaring that they will throw the First Officer overboard and confine the Master in the coal locker. John Hope was in the act of attempting to stab the Master with a sheath knife when the Master's wife saw it and warned him of his danger. The man finding himself unable to accomplish his purpose swore that the Master will not see the morning light unless he will give him what he wants. On examining the strength of those remaining faithful, I find them too weak to put the mutineers in irons.

March 6th, at 6 a.m. Crew drunk.

March 7th, noon position 18° 32′s., 34° 7′w. At 8 a.m. this morning the mutineers have turned to work.

March 9th, noon position 22° 38′s., 39° 27′w. Several of the sailors drunk and mutinous. During a.m. have thrown the log reel and other things overboard.

March 12th, noon position 26° 13′s., 41° 28′w. Clark, A.B., and the ringleader of the mutineers, doing all he can to frustrate all work done.

March 19th, noon position 35° 5′s., 48° 33′w. (Longitude by D.R.) P.m. mutineers again drunk, ship steered badly.

March 21st, noon position 37° 10′s., 53° 16′w. Crew drunk, notwithstanding that the hatches have been secured from the inside.

March 22nd, noon position 37° 36′s., 53° 53′w. It would be my great pleasure to take four-hourly specific gravity of the sea to find the extent of the fresh water from the Rio de la Plata, but the insubordinate conduct of our mutineers keeps me in constant watch.

March 28th, noon position 42° 5′s., 59° 5′w. A.m. passed a barque bound north. If she was near enough would ask his assistance to put the mutineers in irons.

March 29th, noon position 43° 50′s., 60° 46′w. At 11.40 a.m. ship pitched very heavily, carrying away dead eye straps of foretopmast backstays, wore ship at once on port tack. The mutineers were 18 minutes before they came on deck and then tried to retard the work as much as they could.

March 30th, noon position 42° 26′s., 62° 13′w. At 2 a.m. port backstay gave way, had the appearance of having been cut.

One of the mutineers, I. Hope, refused to furl sails.

Considering the conduct of the mutineers, Clark, Hope, Hargreaves and Panore, who showed by their movements and certain conversation overheard that they want to get the ship disabled, then leave in the boats, we have determined to send royal yards down and get the vessel in as handy a condition that we can work her without the aid of the mutineers.

March 31st, noon position 42° 46′s., 62° 53′w. Mutineers under the influence of liquor and trying to quarrel without any cause.

Saw I.H. tearing the fore topgallant sail which he was bending. We find that the mutineers have got possession of one of the ship's pistols and have broken open an iron tank (cargo) thinking it to contain powder.

April 1st, noon position 45° 21′s., 63° 30′w. I. Hope maliciously tore the fore topgallant sail. Someone threw the draw bucket overboard during the night. Gaskets and reef earrings are continually missed. Clark and Hope came to the cabin and demanded some clothes.

April 7th, noon position 49° 13′s., 63° 27′w. Some of the crew drunk, others more sober, but tried to start a serious quarrel.

April 8th, noon position 50° 2′s., 62° 58′w. Mutineers seldom seen, work done by officers and apprentices.

April 9th, noon position 51° 29′s., 62° 9′w. Mutineers drunk, Clark and Hope seldom on deck.

April 10th, noon position 51° 2′s., 64° 7′w. (Longitude by D.R.) A.m. this morning we find that our two remaining fowls were taken and eaten in the fo'c'sle. Puddings were made from raisins, currants and brandy taken from the cargo.

April 11th, noon position 51° 24′s., 66° 20′w. (Longitude by D.R.) A.m. squalls force 9 from SSE., lasting 30 minutes. The mutineers drove the old man Dalton out of the fo'c'sle, evidently for the better discussion of their piratical intentions. Considering the condition of the crew and our weakness in not being able to suppress their revolting, and insubordinate conduct, we have determined to bear up for the Falkland Islands.

At 5 p.m. we were warned by Hodson, a faithful A.B., that the mutineers were drinking and preparing for an immediate assault and that we better be prepared.

6.30 p.m. the A.B., Clark, Hope and Hargreaves came stealthily on the poop surrounding the Master and demanded what they knew we did not have. Clark grabbed the Master and searched for his revolver. At the same time Hope did the same to the Mate. The Master got loose and got inside of the companion door, then fired a shot to warn the mutineers to keep off. Clark at first retreated; but made another charge at the Master, when the latter fired and shot him.

April 12th, noon position by D.R. 53° 27′s., 64° 54′w. At 6 a.m. Clark died from the wound; directly afterwards Hope and Hargreaves threw overboard a bag of burglars tools, a secret book and a quantity of stolen articles belonging to the above.

April 15th, at 3 a.m. Finding the sea getting smoother, sounded and found in 25 fathoms.

3.50. Land and breakers seen. Wore ship and stood out to sea to wait for daylight. The above proving to be the south coast of Lively Island.

1 p.m. Passed inside the Wolf and Seal Rocks and entered Port William (Falkland Islands).

In 1885, meteorological observations were made six times daily at the end of each watch. It is interesting to note that during the above period, despite all the incredible happenings, not one observation was missed, the wind was entered every two hours and the remarks column is full of interesting information, both meteorological and non-meteorological. For instance, there are many observations of birds

and fish, a sample from 60 fathoms when a sounding was taken on 26th March, moths and dragonflies observed on 28th March, penguins and patches of kelp on 7th April, in 49°s.

The logbook was, not surprisingly, assessed excellent.

The next entry is for 14th May, 1885, when the *Hermine* left Port William. During the intervening month she had no doubt landed her mutineers, but the book is silent on this point.

A month later, on 15th June, Captain Jones hove-to off Masafuera Island, 33° 45′s., 80° 43′w., and went ashore in search of water. He found none, but entered a very good description of the island in the book for the benefit of the Hydrographer, to whom it was sent.

Letter to the Editor

SHIP STRUCK BY LIGHTNING

SIR,—Recently I was reading a back number of *The Marine Observer* and noticed remarks made on the number of times ships have been struck by lightning.

This reminded me of an occasion when a vessel of which I was 3rd Officer was also struck by lightning. I am unable to give the exact date, but it occurred in September 1956, whilst the vessel was on passage from Montreal towards Port Esquivel, Jamaica. The ship, the S.S. *Sunrip*, owners Saguenay Terminals, has three bipod masts, two for'ard and one aft, with topmasts on numbers 2 and 3.

The lightning struck the for'ard topmast and then split and went down both sides of the bipod. It is this splitting of the charge which I thought might be of interest to you. The master, Captain Carl Sabinsky, also witnessed the incident from his cabin below. I remember checking the standard compass immediately after and finding no alteration in the error. An interesting factor in this might be that the vessel has an all-welded aluminium superstructure.

P. STOCKER,
3rd Officer.

Canadian Ocean Weather Ship *St. Catharines*.
2nd November, 1957.

Note. Mr. Stocker's observation is the sixteenth which we have received in the last 35 years of a ship at sea being struck by lightning. In 15 of these cases the vessel was struck on the foremast.

The fact that this ship had an aluminium superstructure, and the consequent siting of the compass remote from any magnetic structure would probably account for there being no change of compass error after the incident.

Personalities

RETIREMENT.—CAPTAIN SIR DAVID AITCHISON, K.C.V.O., retired recently after 48 years at sea.

David Aitchison was born in Sunderland in 1892 and went to sea in 1909 with a local firm of shipowners. On passing for Second Mate in 1913 he joined Andrew Weir's as Third Officer. At the outbreak of war in 1914, he was in Hamburg and was interned in the Merchant Navy prisoners-of-war camp at Ruhleben. He joined the Shaw Savill Line in 1919 and passed for Master in 1922 and Extra-Master in 1923. In 1931 he came ashore to the Leith Salvage and Towage Company, but re-joined the Shaw Savill Line in 1933 as Chief Officer. In August 1938 he was appointed Staff Captain of the *Dominion Monarch* and served as Master of various of the Company's ships during the Second World War. Since the war he commanded the *Wairangi*, *Athenic*, *New Australia*, *Dominion Monarch*, *Gothic* and *Southern Cross*, all of which were selected ships. He commanded the *Gothic* during the 1954 world tour of Her Majesty the Queen and Prince Philip, and was invested with the K.C.V.O. before the Queen disembarked at Aden on the homeward passage.

Captain Sir David Aitchison's association with the Meteorological Office goes back to 1927 when he was an officer in *Arawa*, and he subsequently observed for us in 13 separate years. He received Excellent Awards in 1950, 1951, 1953, 1954, 1955, 1956 and 1957.

We wish him health and happiness in his retirement. L. B. P.

OBITUARY.—We regret to record the sudden death of CAPTAIN T. POWELL, Master of the *Asturias*, Royal Mail Lines, which was engaged in trooping at the time. He was buried at sea on 30th July, 1957, in Far Eastern waters.

Trevor Powell was born in 1900, the son of a one-time Marine Superintendent of the Royal Mail Lines. He received his early training in H.M.S. *Worcester* and joined the Royal Mail Lines as a cadet in their *Carmarthenshire* in May 1917. Having served continuously in the ships of that Company he was appointed to his first command, the lease-lend cargo ship *Empire Bitterne*, in March 1944.

Early in the Second World War he was Chief Officer of the *Empire Confidence*, formerly the German liner *Dusseldorf*. She was one of the first ships to be taken in prize during the war, and was then operated by the Royal Mail Lines for the Ministry of War Transport.

In July 1944 he took the *Empire Bitterne* to the Normandy beaches where she was sunk to fill a gap in the Mulberry Harbour caused by the shifting of two of the original blockships during the memorable gale of that month.

He was elected a Younger Brother of Trinity House in August 1944 and after the war commanded 10 different Royal Mail liners, six of which were at the time observing ships.

Captain Powell was one of our senior observers, having sent us his first meteorological logbook in 1923 when he was an officer in the *Deseado*. Since then he had in 13 years sent us 26 meteorological logbooks, 17 of which had been classed " Excellent ". He always took a keen personal interest in the work and for many years had written up the fair copy himself. He received Excellent Awards in 1953, 1954, 1955 and 1956.

Notices to Marine Observers

NEW CLIMATOLOGICAL CHARTS

In the July 1957 number of *The Marine Observer*, details were given of the new series of Climatological and Sea-Surface Current Charts of Ocean Areas which are being prepared in the Meteorological Office, beginning with the North Atlantic Ocean. North Atlantic charts in this series for the months of May to October inclusive have been published and those for the remaining months are being published at approximately monthly intervals.

Monthly charts in this series are also being prepared for the South Atlantic, Indian Ocean, North Pacific and South Pacific Oceans, in that order.

When these charts were first contemplated, in late 1952, many captains of voluntary observing ships co-operated with the Meteorological Office by filling in questionnaires concerning the information they would like to see incorporated in the charts. These opinions proved very helpful in connection with the preparation of the charts.

Copies of the charts may be inspected at Port Meteorological Offices.

The charts cost 3s. each, plus 2d. postage. They may be obtained from Her Majesty's Stationery Office, at any of the addresses given on the title page of this journal, or through nautical opticians and booksellers.

B.B.C. GALE WARNINGS

Since 27th October, 1957, when the B.B.C. reorganisation of programmes took place, some gale warnings have been broadcast on the Home Service as well as on the Light Programme.

We have been asked by the B.B.C. to warn our readers that gale warnings are only issued on the Home Service when both services are broadcasting the same programme. The greater proportion of gale warnings will still be given on the Light Programme only.

The Light Programme broadcasts all gale warnings as soon as possible after receiving them from the Meteorological Office; programmes are interrupted if necessary.

State of Sea—Photographs Required

All mariners are familiar with the Beaufort scale of wind force. This scale originally defined the wind force in terms of the canvas carried by a full rigged frigate and was devised by Admiral Beaufort in 1808 for use on board ships of the Royal Navy. In 1874 it was adapted to the full rigged ship with double topsails of that period. With the passing of sail, this specification came to mean very little and the practice arose of judging wind force from the state of the sea surface. In 1939 a sea criterion was introduced to assist in this judgment. This came into use on the 1st January, 1941.

It is now desired to prepare a card, somewhat on the lines of the cloud plate, which shall show photographs of various states of sea caused by winds of varying strength, in order to help mariners interpret the 1939 scale.

There can be no more competent person to take these photographs than a seaman.

In the past we have received many excellent photographs of clouds and other meteorological phenomena some of which we have been able to publish in *The Marine Observer*. We would now invite masters and officers who are interested in photography to send us photographs of the sea in the various states shown in the sea criterion (*Marine Observer's Handbook*, pages 35 and 36, or Table V on the code card).

The photographs should be taken in the open ocean after the wind has been blowing long enough to raise the appropriate sea. We would appreciate the negatives of such photographs on loan in order that we may make the necessary enlargements. It is essential that all photographs shall be accompanied by the following details:—

Name of ship; date and time of photograph; latitude and longitude direction and force of wind; direction in which the photograph is taken and the name of the photographer.

We intend to publish initially in *The Marine Observer* a selection from these photographs and eventually we hope that the best of them will be printed on the card. The copyright of the photograph will remain the property of the photographer and acknowledgment will of course be made to him both in *The Marine Observer* and on the card.

ERRATUM

The Marine Observer, October 1957, page 240. Address of Port Meteorological Officer for Southampton. *For* 59 Berth *read* 50 Berth.

Fleet Lists

GREAT BRITAIN

The following is a list of British ships voluntarily co-operating with the Marine Division of the Meteorological Office.

The names of the Captains, Observing Officers and Senior Radio Officers are given as ascertained from the last written returns received. The date of receipt of the last return received is given in the second column.

All returns received from observing ships will be acknowledged, direct to the ship, by the Marine Superintendent.

The Port Meteorological Officers and Merchant Navy Agents at the ports will make personal calls on the Captains and Observing Officers as opportunity offers, or on notification from the ship at any time when their services are desired.

Excellent awards are made at the end of each financial year. The names of the Captains, Principal Observing Officers and Senior Radio Officers gaining these awards are published in a special list in *The Marine Observer*.

It is requested that prior notification of changes of service, probable periods of lay-up, transfer of Captain, or other circumstances which may prevent the continuance of voluntary meteorological service at sea, may be made to the appropriate Port Meteorological Officer or Merchant Navy Agent.

Captains are requested to point out any errors or omissions which may occur in the list.

Selected Ships

Name of Vessel	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owner/Manager
Accra	5.9.57	C. H. Sweeney	J. H. Tachnic, —. Menson, A. J. T. Bryant, M. Murphy	J. Stuart	Elder Dempster Lines, Ltd.
Adelaide Star	15.3.57	O. C. Roberts, O.B.E.	N. McMillan, M. Foster		Blue Star Line, Ltd.
Aden	24.4.57	W. T. Banks	C. R. Bishop, N. Bushby, P. B. Jackson	P. Stevens	P. & O. Steam Navigation Co.
Afghanistan	25.9.57	A. N. Henderson	R. G. Roberts, J. Cummins, G. B. Bagnall	R. Dunscombe	F. C. Strick & Co., Ltd.
Afric		A. E. Smith	J. D. Haberfield, D. E. Hammerton, J. Clyde, J. M. Brew	J. Taylor	Shaw Savill & Albion Co., Ltd.
Ajana	11.6.57	F. W. Mould	J. M. Hunter, D. J. Hider, H. R. Coats	D. Henderson	Trinder, Anderson & Co.
Ajax	22 8 57	G. Carney	M. Nall, M. Wilks, R. Rumney	B. Mendham	A. Holt & Co.
Alcantara	15.5.57	C. E. Mason	R. Brook, D. Dunbar, —. Henderson	R. E. Hammond	Royal Mail Lines, Ltd.
Alsatia	26.4 57	T. T. Sheehan, R.D., Cdr. R.N.R.	J. Board, J. Stewart, J. Grindrod, B. Edwards	J. Bishop	Cunard Steamship Co., Ltd.
Amakura	9.5.57	S. Armitage	D. Andrew, T. Jones	R. Bankes	Booker Bros. McConnell & Co.,Ltd.
Andes	15.5.57	D. R. Miller	J. Hunt, I. Farquharson, C. Sturke	—. Quinton	Royal Mail Lines, Ltd.
Andria	5.9.57	W. E. Warwick, R.D., Cdr. R.N.R.	J. W. Dunn, F. Sergeant, D. Nurse, P. Binns	D. Byrne	Cunard Steamship Co., Ltd
Apapa	19.12.56	C. H. Sweeney	F. Grayson, A. G. Maxwell	G. I. Gilling	Elder, Dempster Lines, Ltd.
Arabia	26.2.57	W. Law, R.D., Capt. R.N.R.	P. Binns, J. W. Smith, A. P. Tarbuck, R. A. Woodall	T. Sandham	Cunard Steamship Co., Ltd.
Arabistan	15.5.57	R. B. Arthur, M.B.E.	J. E. Parker, F. W. Bush, J. S. Catlow	F. O. Flynn	F. C. Strick & Co., Ltd.
Araby	23.5.57	W. B. Avison	A. F. Hawkins, R. J. Howlett, R. M. Greenall	P. Stanton	Royal Mail Lines, Ltd.
Arakaka	21.6.57	J. A. Carter	R. A. Hammond, J. C. Williams, F. Sanchez	T. Murdoch	Booker Bros. McConnell & Co., Ltd.
Argentina Star	26.9.57	E. R. Pearce, O.B.E.	B. Temperton, B. Abbott, T. Milne, D. Brewster	R. Penn	Blue Star Line, Ltd.
Ariel	19.2.57	C. M. G. Evans, M.B.E.	E. J. Evans, D. C. Chisholm, A. C. H. Childs	C. Reed	H.M. Postmaster-General
Armagh	28.5.57	T. Hastings	R. S. Grubb, H. McGill	G. Cockburn	Avenue Shipping Co.
Arundel Castle	16.8 57	D. D. McKenzie	—. Roberts, —. Davies, —. Fry	G. Kilminster	Union Castle Mail S.S. Co., Ltd.
Ashburton	22.8 57	C. Parry	L. T. Cooper, H. Jones, R. Hutchens	V. H. Ottley	Trinder, Anderson & Co.
Asia	14.5.57	F. E. Patchett	M. V. P. Doyle, J. Jones, A. W. Leyland, V. Mercer	J. S. Marshall	Cunard Steamship Co., Ltd.
Assyria	12.6.57	J. G. Bradley, R.D., Capt. R.N.R.	G. H. N. Keyzer, M. J. Bland, P. J. Kendall, W. L McDougall	B. A. Long	Cunard Steamship Co., Ltd.

Asturias	14.9.57	T. Powell	R. Box, L. Frain, R. J. Harding, I. Park	R. Farrell — Royal Mail Lines, Ltd.
Athelfoam	19.8.57	J. P. Coffee	J. Marshall, D. Carstairs, M. Phelano, D. F. Steers	W. Read — Athel Line, Ltd.
Athenic	18.7.57	L. H. Edmeads	B. V. Smith, T. R. Barton, B. H. Agnew	H. S. Knight — Shaw Savill & Albion Co., Ltd.
Athlone Castle	5.11.56	A. G. V. Patey	C. Ennis, F. O'Grady, J. Dilly	J. Summers — Union Castle Mail S.S. Co., Ltd.
Aureol	14.8.57	W. Munt	H. Ross, A. Monro, —. Watney-Evans, W. E. Christie, P. Tehan	F. W. J. Broomfield — Elder Dempster Lines, Ltd.
Australia Star	11.4.57	J. A. Hoppé	D. Newlin, D. Grinland, K. Mackenzie	L. Cooper — Blue Star Line, Ltd.
Australind	16.10.56	J. F. Wood	B. D. Diggle, H. Gill, D. N. Brooks, A. L. White	T. M. Sherriff — Trinder, Anderson & Co.
Avistone	12.9.57	G. J. Penston	T. J. Edwards, M. J. Dobson, E. G. Mylrea, S. O. Nazar	L. R. Bradley — Purvis Shipping Co., Ltd.
Avonmoor	30.5.57	A. Coaster	D. Nicholas, J. Reay, T. E. Wilson	J. Hand — Walter Runciman & Co., Ltd.
Balaena	*	P. Virik	A. Jensen	J. Dahl — Hector Whaling, Ltd.
Balantia	1.4.57	J. L. Perkins	—. Ogilvie, N. C. Kerr, G. B. Panes	J. L. Perkins — Royal Mail Lines, Ltd.
Baron Elphinstone	11.7.57	C. R. Roy	G. R. Davidson, G. Lindsay, J. Rennie	P. G. Prestidge — H. Hogarth & Sons
Baron Glenconner	28.8.57	T. R. Reid	I. S. Graham, T. Walker, H. Bryson	T. R. Collins — H. Hogarth & Sons
Baron Murray	29.1.57	J. Pearson	A. E. Stainthrope, E. Jones, J. Harrington	J. M. Parlin — H. Hogarth & Sons
Barrister	26.11.56	D. Wolstenholm	G. McDonald, W. Achton, N. White	T. O'Looney — T. & J. Harrison, Ltd.
Baskerville	21.2.57	J. G. Wilson	J. I. Aitkin, P. Reeves, N. L. Smith	G. A. Stacey — Runciman (London), Ltd.
Bassano	17.4.57	C. H. Tutty	J. H. Robinson, A. K. Blake, A. M. Robertson	A. Leary — Ellerman's Wilson Line, Ltd.
Beaverburn	19.2.57	W. J. P. Roberts	G. Cotton-Bardener, —. Roberts	G. Adamson — Canadian Pacific S.S., Ltd.
Beavercove	8.2.57	N. W. Duck, D.S.C., R.D., Capt. R.N.R.	J. Palmer, P. C. Lovell, —. Smith	J. Franklin — Canadian Pacific S.S., Ltd.
Beaverdell	20.11.57	J. Soame	D. Pyatt, J. Bryan, D. J. Roberts	W. Cumming — Canadian Pacific S.S., Ltd.
Beaverford	30.1.57	F. W. S. Roberts	R. J. Baddock, M. Organ, C. R. Worthington, D. Roberts	B. Johnson — Canadian Pacific S.S., Ltd.
Beaverglen	8 8.57	G. C. Geddes	L. Brockbank, M. Myers, P. Embleton	H. G. Percival — Canadian Pacific S.S., Ltd.
Beaverlake	19.8.57	G. C. Geddes	A. C. Matthews, E. Brewer, P. Embleton	A. McCartney — Canadian Pacific S.S., Ltd.
Beaverlodge	28.2 57	L. H. Johnstone, M.B.E.	P. D. Roberts, T. Hughes, J. Bryan	F. Howard — Canadian Pacific S.S., Ltd.
Bellerophon	16.5.57	H. H. Sanderson	T. J. Cortis, —. Wedster, —. Morris	G. R. Corless — A. Holt & Co., Ltd.
Bennevis	12.8.57	J. R. Morrison	T. Fyfe, G. R. Bannerman, J. S. Burnett	W. Paterson — W. Thomson & Co.
Benvannoch	28.5.57	A. Sinclair	I. A. Hamilton, A. Syme, N. J. Large	P. Fitzgerald — Ben Line Steamers, Ltd.
Birmingham City	6.5.57	J. N. Ramsay	C. F. Harfoot, E. Mace, S. Dicken	A. Pilkington — Bristol City Line, Ltd.
Biscoe	17.7.57	S. K. Williams	A. J. Gibbs, R. O. Jones, R. Smith	M. Shereef — Hector Whaling, Ltd.
Bransfield	4.5.54	M. Paulson	A. G. Giblin	T. Salvesen — Hector Whaling, Ltd.
Brasil Star	27.8.57	G. E. Barnard	J. R. Massey, E. W. S. Gill, A. Hepburn	J. Cragg — Blue Star Line, Ltd.
Bravo	26.2.57	F. Firth	F. M. Martin, D. W. Cawkwell, J. P. Moller	K. Webster — Ellerman's Wilson Line, Ltd.
Britannic	21.7.57	J. W. Caunce, R.D., Cdr. R.N.R. (Retd.)	G. Cowley, P. M. R. Bingham, J. Y. Johnson, W. Smith	J. Kiddson — Cunard Steamship Co., Ltd.
British Consul	29.8.57	R. Flamsteed	R. O. Swanson, J. M. Borrell, W. Hilman	M. C. Walker — British Tanker Co., Ltd.
British Endeavour	19.8.57	G. P. Barton	S. Pollock, K. V. Meacock, D. C. Burns	R. Whenn — British Tanker Co., Ltd.
British Escort	12.6.57	G. M. Appleby	N. Gunter-Smith, R. J. Young, W. R. Knight	A. E. Leeder — British Tanker Co., Ltd.
British General	10 5.56	G. C. Dobson	M. Burrows, D. Lister, T. N. Griffiths	B. Lawton — British Tanker Co., Ltd.
British Marquis	13.8.57	S. Butler	R. Screech, P. Sweetman, A. Martin-Pit	S. Leece — British Tanker Co., Ltd.
British Patience	15.4.57	W. O. Armstrong	A. Duff, J. W. Ward, R. J. Higgins	S. Hall — British Tanker Co., Ltd.
British Piper	8.8.57	D. Hurst	G. Lambert, C. G. Jones, P. Pollard	D. Wardley — British Tanker Co., Ltd.
British Resource	2.7.57	J. H. Digby	F. Darby, A. B. Durham, N. D. C. Michaels	M. McNeil — British Tanker Co., Ltd.
British Sailor	23.8.57	L. Atthill, O.B.E.	I. Black, R. Payne, D. Harris	C. A. McGill — British Tanker Co., Ltd.
British Splendour	21.7.57	J. Dryden	J. Anderson, S. H. Falconer, C. Crawford	T. Kenney — British Tanker Co., Ltd.
British Union	15.7.57	S. W. Masters	B. J. Grandfield, J. A. Lea, I. D. McCraig	J. M. Mahon — British Tanker Co., Ltd.
Brittany	18 9.56	C. C. Dingle	T. B. Casey, J. A. Martin, R. W. Clarke	P. Mahony — Royal Mail Lines, Ltd.
Brockleymoor	3.10.56	W. A. Watson	T. J. Graham, A. H. Brown, W. Shepherd	P. Copeham — Walter Runciman & Co., Ltd.
Cairnavon	14.1.57	G. H. Percy	G. Holland, K. A. Murray, K. Rainforth	D. Cook — Cairns, Noble & Co.
Cairndhu	6.6.57	H. J. Pinnell	R. L. Andrews, B. L. Douglass, D. A. Aitchison	W. P. Grieves — Cairns, Noble & Co.
Cairngowan	6.9.57	I. G. Foster	H. Thomson, D. McLoughlyn, J. Lobban	E. Johnston — Cairns, Noble & Co.

* Radio messages only have been received: no written records.

Name of Vessel	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owner/Manager
Calabar	26.8.57	R. Harber	J. H. Szablowski, N. J. Parker, R. F. Paterson	J. Molloy	Elder Dempster Line, Ltd.
Calchas	27.3.57	F. N. Fisher	R. Montgomery, R. MacDonald, M. L. Morgan	M. Rigby	A. Holt & Co.,
Caledonia	24.4.57	D. Blair	D. Barclay, A. McKelvie, G. McComick	J. McConnel	Anchor Line, Ltd.
Calgaria	17.5.57	J. L. Downie	F. K. Davies, D. A. Campbell, P. J. Telford	J. Moody	Donaldson Line, Ltd.
Caltex Canberra	20.5.57	J. Bowman	D. Smith, C. Thomas, L. D. Shephard	M. Beirne	Overseas Tankship (U.K.), Ltd.
Caltex Edinburgh	12.8.57	M. G. Oliver	B. Morris, J. B. Blackburn, J. M. Nicar	J. Delahunt	Overseas Tankship (U.K.), Ltd.
Caltex London	8.8.57	J. Metcalfe	P. H. Jones, W. Smith, R. Ruckards	W. E. Richards	Overseas Tankship (U.K.), Ltd.
Cambridge	24.6.57	P. P. O. Harrison	P. Bower, J. Newsham, L. Money, R. N. Jordan	K. Ormeroid	Federal Steam Navigation Co., Ltd.
Canopic		J. L. Stobbs, R.D., Lt.-Cdr. R.N.R. (Retd.)	F. Hart, K. Wallace, D. A. Smith	P. Carney	Shaw Savill & Albion Co., Ltd.
Canton	10.7.57	G. A. Wild	A. M. Woolford, R. S. Maclean, P. J. Clark	F. H. Portess	P. & O. Steam Navigation Co.
Cape Clear	28.8.57	J. Barnetson	R. L. Wright, J. McMillar	D. Kay	Lyle Shipping Co., Ltd.
Cape Grafton	17.4.57	C. A. Jones	F. Saunders, A. Hunter, G. Mackie	M. N. Hymes	Lyle Shipping Co., Ltd.
Capetown Castle	23.5.57	J. Trayner	—. Whitchurch, —. Acutt, J. Gamble	R. Brew	Union Castle Mail S.S. Co., Ltd.
Captain Cook	19.8.57	A. Bankier	D. Hall, I. F. Mackay, C. Sheppard	L. W. Hooper	Donaldson Bros. & Black, Ltd.
Captain Hobson		A. Rowlands	J. S. Murchison, J. Gaffney, J. A. Reid	H. Duncan	Ministry of Transport
Carinthia	13.8.57	E. A. Divers, R.D., Cdre. R.N.R.	J. B. Cleminson, J. G. Parry, K. T. Jones	W. Steward	Cunard Steamship Co., Ltd.
Carnarvon Castle	15.3.57	W. S. Byles, R.D., Capt. R.N.R.	F. W. O'Grady, B. Bradley, R. N. Toye	H. G. Liggins	Union Castle Mail S.S. Co., Ltd.
Caronia	14.6.57	A. B. Fasting, R.D., Capt. R.N.R. (Retd.)	D. A. Davies, H. Hurtley, I. McGregor, P. Bingley	I. McDonald	Cunard Steamship Co., Ltd.
Carthage	18.6.57	J. Paice	M. C. Thomas de Merune, M. Hardy, R. Lyon	—. Arthurs	P. & O. Steam Navigation Co.
Caslon	22.3.56	J. M. Cherry	D. J. Powell, R. G. Goodfellow, T. Robinson	T. Crowther	Runciman (London), Ltd.
Ceramic	19.8.57	F. A. Smith	D. R. Pochin, R. L. Reid, B. L. Jeffries, A. Temperley, J. Jackson	R. O'Shaughnessy	Shaw Savill & Albion Co., Ltd.
Chantala	21.8.57	H. R. Smith	A. D. Methuen, M. Warren, T. E. Kelso	R. D. Dingley	British India Steam Nav. Co., Ltd.
Chindwara	23.2.57	B. A. Rogers, D.S.C., R.D., Cdr. R.N.R. (Retd.)	J. A. Stanton, D. J. Whitehouse, R. J. Ralph	J. Downey	British India Steam Nav. Co., Ltd.
Cilicia	26.2.57	R. Blake	A. T. Kendrick, T. G. Cutcheon, R. Langmuir		Anchor Line, Ltd.
Cingalese Prince	1.7.57	R. C. Proctor, O.B.E.	M. J. Graham, A. G. Clark, J. F. Newton	K. A. Brooks	Prince Line, Ltd.
City of Barcelona	15.5.57	A. H. G. Jones	R. F. Jones, K. Dinsdale, J. Schofield	—. Barlow	Ellerman Lines, Ltd.
City of Birmingham	25.6.57	C. B. P. Bradbury	D. R. Cumming, W. Paton, G. Taylor	J. D. Clutton	Ellerman Lines, Ltd.
City of Brisbane	23.5.57	E. G. Chapman	C. A. Fawcett, A. K. Comrie, J. D. Robinson, D. B. Williams	F. E. L. Hall	Ellerman Lines, Ltd.
City of Bristol	4.1.57	T. L. Vaughan	M. Hurley, J. Knight, L. Roberts, J. Lyons	D. Meigham	Ellerman Lines, Ltd.
City of Cape Town	11.6.57	E. Bonfield	R. Bailey, J. Gray, A. J. Evans	J. Farley	Ellerman Lines, Ltd.
City of Carlisle	5.6.57	T. M. Williams	W. Locker, T. Innes, W. A. Browne, R. C. Shanahan		Ellerman Lines, Ltd.
City of Chester	9.8.57	A. L. Beckett	J. S. Nuttall, J. G. Hill, J. Knight, G. Stewart	C. K. Cotching	Ellerman Lines, Ltd.
City of Durham	4.2.57	D. Hamilton	D. S. Taylor, F. C. O'Neill, I. L. Melville	D. E. Gudgson	Ellerman Lines, Ltd.
City of Edinburgh	23.5.57	P. Byrhes	C. G. Cocksedge, J. R. Lowe, R. Frame	R. Jack	Ellerman Lines, Ltd.
City of Evansville	30.5.57	R. S. Steel	G. H. Salter, T. G. Mathews, W. S. Coutts	V. Irving	Ellerman Lines, Ltd.
City of Johannesburg	9.7.57	J. B. McLaren	J. Knight, J. Parsons, B. Eaton	H. McGowan	Ellerman Lines, Ltd.
City of Khartoum	18.2.57	W. Howel	J. Petter, N. Airey, O. Roberts, C. Bell	E. Ramsey	Ellerman Lines, Ltd.
City of Lichfield	11.1.57	G. R. Jackson	P. M. Field, R. P. M. Cook, I. Caunce	J. Roberts	Ellerman Lines, Ltd.
City of Liverpool	2.9.57	J. L. Robertson	K. C. Powell, K. R. Street, P. Petts	J. Boner	Ellerman Lines, Ltd.
City of Lyons	25.6.56	W. Howel	T. R. H. Lane, D. W. Asquith, J. Kinley	E. D. McMahon	Ellerman Lines, Ltd.
City of Manchester	19.7.57	E. Scrymgeour	J. Peddie, A. D. B. Harris, S. G. Hider	R. Kerr	Ellerman Lines, Ltd.
City of New York	26.8.57	A. L. Beckett	D. B. Gibbs, L. Cullen, M. P. Lamble	D. Sturdy	Hall Line, Ltd.
City of Pretoria	20.5.57	A. G. Freeman	F. W. Brand, I. McBeath, K. W. Horton	K. G. Arthur	Ellerman & Bucknall S.S. Co., Ltd.
City of Swansea	30.7.57	J. Vizer	D. G. Howe, K. Murray, A. Fry	C. Bristow	Ellerman Lines, Ltd.

City of Sydney	12.9.57	B. T. Wortley	G. Stogdale, J. P. Airey, G. P. Rainier	W. R. Organ	Ellerman Lines, Ltd.
Clan Brodie	30.8.57	A. V. Gordon	M. Jackson, E. C. Harvey, G. Emmet	R. Elliott	Cayzer Irvine & Co., Ltd.
Clan Buchanan	26.8.57	H. T. Booth	B. W. Hollman, T. H. Gragham, E. G. Surgey	A. Francis	Cayzer Irvine & Co., Ltd.
Clan Campbell	8.4.57	H. C. Simpson, O.B.E.	M. R. Pearson, I. W. James, P. Kent	R. F. Cole, M.B.E.	Cayzer Irvine & Co., Ltd.
Clan Chattan	17.6.57	R. R. Baxter	M. J. McClean, B. Fairweather, S. Cresswell	E. Shillabeer	Cayzer Irvine & Co., Ltd.
Clan Chisholm	3.5.56	W. R. Woodriffe	G. A. Berry, R. C. Toogood, G. E. Mitchell	C. Crew	Cayzer Irvine & Co., Ltd.
Clan Davidson	1.5.57	T. A. Watkinson	W. F. McCarthy, J. Denyer, R. Escholme	J. R. Cunningham	Cayzer Irvine & Co., Ltd.
Clan Forbes	22.3.57	L. Pogson	G. W. A. Smith, G. G. Greenfield, A. J. Flenley	K. Katherall	Cayzer Irvine & Co., Ltd.
Clan Macaulay	2.7.57	A. G. McPherson	J. G. P. Davidson, F. King, E. Bass	H. J. Hagerty	Cayzer Irvine & Co., Ltd.
Clan MacDonald	5.6.57	J. McCrone	J. Crawshan, D. Doyne, T. Hunter, J. K. Currie	R. Fowlie	Cayzer Irvine & Co., Ltd.
Clan MacDougall	29.1.57	J. McCrone	T. Hunter, J. K. Currie, K. H. Dann, D. M. Henderson	R. Fowlie	Cayzer Irvine & Co., Ltd.
Clan MacKinnon	16.7.57	R. N. Mayo	O. T. Ross, J. Markie, K. Morton	G. Norton	Cayzer Irvine & Co., Ltd.
Clan MacLaren	24.7.57	V. Green, H. Whitehead	E. Burke, J. Brackenridge, G. Hughes	T. Martin	Cayzer Irvine & Co., Ltd.
Clan MacLay	11.7.57	S. S. Davidson	J. W. Hogg, I. Currie, J. D. Chapel	F. Fawcett	Cayzer Irvine & Co., Ltd.
Clan MacLean	15.1.57	H. Whitehead	J. G. P. Davidson, R. Richards, M. Brackenridge	T. Martin	Cayzer Irvine & Co., Ltd.
Clan Macrae	29.8.57	H. Lockyer	G. Anderson, R. K. Wilson, D. H. Macmillan	G. R. Morrison	Cayzer Irvine & Co., Ltd.
Clan MacTavish	6.6.57	F. H. Thorton, O.B.E., D.S.C.	J. A. Storkey, E. V. Inch, I. M. Shearer	W. Ellmers	Cayzer Irvine & Co., Ltd.
Clan Robertson	14.6.57	H. J. Anchor, O.B.E., R.D., Capt. R.N.R. (Retd.)	J. A. Brown, J. Patterson, J. L. Harris	P. Shaw	Cayzer Irvine & Co., Ltd.
Clan Shaw	18.3.57	L. C. Higgins, M.B.E.	R. B. Bullmore, J. C. Smith, J. G. Smith	G. H. Hudd	Cayzer Irvine & Co., Ltd.
Clan Sutherland	9.11.56	F. H. Turton	D. Stabbart, J. Gann, N. C. Von Wellingh	W. Gay	Cayzer Irvine & Co., Ltd.
Clan Urquhart	28.8.57	C. M. Powell, M.B.E.	H. Grant, K. S. Burton, T. R. Halliday	T. Jones	Cayzer Irvine & Co., Ltd.
Clydebank	14.5.57	B. Holland	W. D. Shankey, A. Rosie, N. T. W. Rutherford	N. Hutchins	Andrew Weir & Co., Ltd.
Condesa	23.11.56	E. J. Lougheed	Aide Couray-Ellis, V. Owen, S. Hagley	D. Clarke	Furness-Houlder Argentine Lines, Ltd.
Consuelo	11.6.57	G. Goodman	B. C. Blampey, J. Ledger, A. J. Callard	J. Taylor	Ellerman's Wilson Line, Ltd.
Corfu	9.8.57	G. K. Fox	J. Dymonke-White, I. C. Bayliss, M. W. Fisher	J. M. Powell	P. & O. Steam Navigation Co.
Corinaldo	6.8.57	R. McNie	B. Scott-Brown, A. J. Dougall, R. Dootson	A. Cox	Donaldson Line, Ltd.
Corinthic	17.7.57	A. C. Jones	W. A. Murison, M. H. Hope, A. Newman, J. G. Cousins	T. J. Lillis	Shaw Savill & Albion Co., Ltd.
Corrales	13.8.57	T. C. Crane	J. H. Crossley, D. Lawson, T. C. Mullings	A. Campbell	Elder & Fyffes, Ltd.
Cotopaxi	27.5.57	J. D. Richards	D. Pugh, J. Gurrier, D. Houghton	M. M. Garbett	Pacific Steam Navigation Co.
Cretic	15.8.57	V. H. Vizer	C. R. Downes, J. K. Mudd, W. A. Siddal, P. R. Johnson	H. Burson	Shaw Savill & Albion Co., Ltd.
Crofter	21.7.57	E. B. Stephens	B. W. Jones, A. K. Jones, J. Martin	J. Nicolson	T. & J. Harrison, Ltd.
Cumberland	11.9.57	L. W. Fulcher	G. S. Breen, W. McRae, D. Smith	R. Waters	Federal Steam Navigation Co., Ltd.
Cuzco	10.5.57	R. D. S. Eckford	J. J. Harley, C. Taylor, F. Gowland	V. Dalton	Pacific Steam Navigation Co., Ltd.
Daleby	23.8.57	H. W. S. Finn	K. B. Singer, A. Duncan, D. Miller	L. G. Broushe	Ropner Shipping Co., Ltd.
Darro	29.1.57	L. T. Peterson	J. G. Street, P. R. Brown, A. F. Hawkins	T. Lee	Royal Mail Lines, Ltd.
Deerpool	11.7.57	E. A. Snaith	S. H. Nicholson, G. Bowman, J. R. Day	D. Barker	Sir R. Ropner & Co., Ltd.
Debrett	6.5.57	C. E. Legg	J. M. Cowles, K. Kobynski, J. E. Jarvis	S. Batteny	Lamport & Holt Line, Ltd.
Delphic	28.5.57	C. L. Carroll, D.S.C., R.D., Lt.-Cdr. R.N.R. (Retd.)	R. P. Griffin, D. G. Model, P. Carden	J. Watt	Shaw Savill & Albion Co., Ltd.
Deseado	21.8.57	T. Fraser, D.S.C., Capt. R.N.R.	R. Q. Cammack, F. M. Dickenson, P. F. P. Hawkey, P. Towers	D. N. Todd	Royal Mail Lines, Ltd.
Devon	25.6.56	J. E. Bury	J. Thorpe, L. Bridges, P. Ireland	C. Francis	Federal Steam Navigation Co., Ltd.
Devonshire	20.8.57	M. Kerbyson	P. Maltby, —. Monteith, —. Odger	A. Jones	Bibby Bros. & Co.
Dilwara	6.2.57	M. O. Williams	P. Keith, R. S. Elston, I. K. Bowerman	S. J. Taylor, M.B.E.	British India Steam Nav. Co., Ltd
Diomed	4.6.57	D. R. Jones	P. J. Shorrock, A. J. Dyne, D. H. Stewart, B. Killham	D. M. Hughes	Ocean Steamship Co., Ltd.
Discovery II	13.5.57	S. S. F. Dalgleish, O.B.E.	J. Hayward, D. Paget-Clarke, M. Corner	L. A. Miller	National Institute of Oceanography
Dominion Monarch	16.9.57	K. G. Fisher, G.M.	A. R. Smith, T. B. Hicks McVittie, T. Hale, M. Jennings	F. Harford	Shaw Savill & Albion Co., Ltd.
Donegal	23.8.57	R. F. Hellings	G. Green, B. Telfer, D. King	T. Kaighin	Avenue Shipping Co., Ltd.
Dorset	30.11.56	K. Barnett	I. Slater, W. D. F. Cooper, R. J. Bayliss	T. Green	Federal Steam Navigation Co., Ltd.
Drina	20.6.57	C. C. Dingle	T. J. Morrison, J. Williams, N. Smith	J. Hinds	Royal Mail Lines, Ltd.

Name of Vessel	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owner/Manager
Duke of Athens	9.9.57	L. W. Loose	L. W. Tait, W. I. Taylor, C. E. Houghton	J. S. Richards	Trent Maritime Co., Ltd.
Dunedin Star	1.1.57	J. McInnes	G. Stubbings, J. Hutton, D. McKerrow	P. M. Geldart	Blue Star Line, Ltd.
Dunera	28.8.57	H. B. W. Cray, M.B.E.	B. Hatton, G. Hankin, F. Hill	T. Holden	British India Steam Nav. Co., Ltd.
Durango	12.8.57	T. W. F. Bolland	R. N. D. Hopson, J. Cox, D. G. Dunbar, W. M. Heatley, T. B. Casey	W. Hackworthy	Royal Mail Lines, Ltd.
Durban Castle	15.2.57	R. Cambridge, D.S.C., R.D., Cdr. R.N.R. (Retd.)	B. J. Bennett		Union Castle Mail S.S. Co., Ltd.
Durham	14.3.57	A. Hocken	H. C. Hynard, K. Field, D. Hannah, J. Needham	B. Nutt	Federal Steam Navigation Co., Ltd.
Edenfield	23.5.57	F. J. Finnigan	J. W. Chinnery, K. E. Johnson, G. S. Wake	A. H. Arthurs	Hunting & Son, Ltd.
Edinburgh Castle	26.8.57	H. A. Deller	M. Cooper, —. Daley, —. Kelly	L. Hodgson	Union Castle Mail S.S. Co., Ltd.
Egidia	9.10.57	W. MacVicar, M.B.E.	P. B. Young, N. M. McFarlane, I. C. Graham, R. Gilliland	F. Blyth	Anchor Line, Ltd.
Elysia	28.1.57	D. Barclay	W. Stockley, W. R. Miller, W. Rogerson	A. R. Prole	Anchor Line, Ltd.
Empire Clyde	14.6.57	A. C. Johnston	W. Yeamen, G. K. Murdock, W. McConie, W. Smith, H. Keenan	A. Johiston	Anchor Line, Ltd.
Empire Fowey	21.7.57	L. A. Hill	B. G. Medcalf, J. B. Latham, I. H. Craig, G. R. Yeatman	W. Dawson	P. & O. Steam Navigation Co.
Empire Ken	6.8.57	R. C. S. Woolley, R.D., Cdr. R.N.R. (Retd.)	A. Smith, G. Gulson, G. Chamberlain, J. Flood	E. T. Winslow	Royal Mail Lines, Ltd.
Empire Orwell	9.10.56	C. W. C. Pinckney, O.B.E., R.D., Cdr. R.N.R. (Retd.)	W. R. Burt, C. B. McGuffie, E. Le Vine	A. Shippam	Orient Steam Navigation Co., Ltd.
Empire Star	6.3.57	F. N. Johnson, M.B.E.	M. Sutcliffe, J. White, J. Bottwood	—. Percival	Blue Star Line, Ltd.
Empress of Britain	18.2.57	S. W. Keay	M. D.Watts, M. Lester, J. Richardson, D. Morrison	C. H. Roberts	Canadian Pacific S.S., Ltd.
Empress of England		C. L. de H. Bell, D.S.C., R.D., Cdr. R.N.R. (Retd.)	J. Hooley, W. Cannel, J. Teandle, —. Hignell	C. H. Roberts	Canadian Pacific S.S., Ltd.
Empress of France	8.1.57	J. P. Dobson	H. A. Jones, B. Brown, —. Watson, —. Quinan	—. Booth	Canadian Pacific S.S., Ltd.
Empress of Scotland	10.4.57	C. L. de H. Bell, D.S.C., R.D., Cdr. R.N.R. (Retd.)	M. Poincey, P. Roberts, P. Woodhead	B. Campbell	Canadian Pacific S.S., Ltd.
Endeavour	19.9.57	H. Kirkwood, O.B.E., D.S.C., R.N.	A. C. Couts, M. N. Waymouth, J. Doole	J. Spence	New Zealand Government
English Star	27.3.57	L. Vernon, M.B.E.	B. Peters, R. White, P. Saries	J. Barnie	Blue Star Line, Ltd.
Essequibo	6.3.57	A. J. G. Barff, R.D., Cdr. R.N.R. (Retd.)	D. H. McCree, E. J. O'Keefe, N. R. Slacke Benett, J. S. Barton	P. Snaith	Royal Mail Lines, Ltd.
Essex	17.6.57	S. Andrews	B. M. Leek, D. Moran, J. Rice	L. Sutton	Federal Steam Navigation Co., Ltd.
Essex Trader	29.4.57	R. E. Bennett	J. T. Robinson, I. de Baird, N. J. Bartlett	T. W. Elliott	Trader Navigation Co., Ltd.
Esso Cambridge	20.6.57	R. Drummond	K. Fullwood, M. Douglas, K. Goody, B. Cockram, R. Smith	D. Kiely	Esso Transportation Co., Ltd.
Esso Canterbury	16.7.57	R. M. Kerr	M. J. Tucker, J. Richardson, P. Saunders	M. T. Hale	Esso Transportation Co., Ltd.
Esso Exeter	8.1.57	R. M. Kerr	E. R. Gulwell, J. W. Borrowdale, A. G. Harber	J. Clarke	Esso Transportation Co., Ltd.
Esso Glasgow	13.2.57	T. Potts	J. L. Bugbee, T. Moor, J. A. Rushworth	I. Patric	Esso Transportation Co., Ltd.
Eucadia	21.3.57	J. L. Gibson, O.B.E.	J. Scrimgeour, D. Lockhart, W. S. Keed, S. Holloway	D. Sprout	Anchor Line,Ltd.
Eumaeus	1.7.57	H. C. Large	J. Henriksen, G. Downie, P. G. Tong	T. McDowell	A. Holt & Co.
Explorer	1.4.57	W. S. Eustance			T. & J. Harrison, Ltd.
Explorer	7.8.57	E. A. Bruce	F. C. Chisholm, J. Craig	D. Ross	Scottish Home Department
Factor	6.8.57	R. Williams	F. Robinson, G. T. Wade, J. Walker, —. Herbert, —. Noble	R. Greenhalgh	T. & J. Harrison, Ltd.
Fanad Head	10.4.57	J. Alexander	G. W. Houston, E. McIntosh, —. Bothwell	L. Harty	G. Heyn & Sons, Ltd.
Flamenco	9.8.57	T. H. McGill	A. G. Corbet, C. Taylor, E. J. Pepper	J. Sherwood	Pacific Steam Navigation Co.
Fremantle Star	16.4.57	G. King	P. Dann, W. Blumenfield, G. Stanley	W. L. Brown	Blue Star Line, Ltd.
Fresno City	4.7.57	J. M. Cox	A. G. Bateley, M. Williams	E. McGirr	Sir William Reardon Smith & Sons, Ltd.

Gallic	22.8.57	G. Anderson	D. C. Woodall, D. Trevett, L. Lewis, P. Arnold	F. Chan	Moller's Ltd.
Garvelpark	23.8.57	K. Turner	W. Taylor, J. Bruce, P. Miller	G. Taylor	Messrs. J. & J. Denholm, Ltd.
Geelong Star	14.5.57	J. S. Crowe	E. Bee, B. Sprigings, N. Eadie	N. Poundes	Blue Star Line, Ltd.
Glenartney	18.6.57	H. S. Wood	J. W. Cottier, R. A. Warren, —. Perry, R. Robson	B. I. Chamberlin	Glen Line, Ltd.
Glenbank	15.7.57	J. Kemp	R. Murray, R. D. Parry	J. Blayloch	Andrew Weir & Co., Ltd.
Glenorchy	6.5.57	R. A. Hanney	J. D. Williams, B. A. Hood	A. H. Hill	Glen Line, Ltd.
Gloucester	12.2.57	J. Budgell	G. Clarke, L. Bridges, W. Doodson	A. Wake	Federal Steam Navigation Co., Ltd.
Gloucester City	3.7.57	S. G. Smith, O.B.E.	V. Llewellyn, P. W. Doble, D. M. Wilton	N. Brett	Chas. Hill & Sons
Golfito	25.6.57	F. P. Inch	P. H. Conrathe, D. Boon, W. P. Thompson	P. J. Kelly	Elders & Fyffes, Ltd.
Graig	13.5.57	S. Glyn-Woods	C. Morrison, E. Fernandes, A. Dumas	R. K. Namara	Idwal Williams
Great City	9.4.57	D. Beynon	G. E. Ellerby, J. O. McIlroy, P. J. Boroughs	J. E. Broomhall	Sir William Reardon Smith & Sons, Ltd.
Grelmarion	15.8.57	W. J. Escudie	M. Grant, K. Dixon, P. Rashley, D. J. Young	A. Davy	Cardigan Shipping Co., Ltd.
Halindene		J. Tew			Dene Shipping Co,. Ltd.
Haparangi	6.5.57	D. Chadwick	C. J. Highfield, R. Michael, C. Milner	I. Roberts	New Zealand Shipping Co., Ltd.
Hartington	10.7.57	H. Small	L. W. Hagreen, R. Palmer, W. J. Redfern, G. Brown	W. J. Redfern	J. & C. Harrison, Ltd.
Hauraki	23.5.57	R. G. Hollingdale	J. F. Anker, G. Silver, P. Lay	R. Sadler	New Zealand Shipping Co., Ltd.
Hector	29.7.57	C. F. Loch	W. E. Roberts, L. Watson, I. W. Collester	E. H. Pavers	A. Holt & Co.
Helenus	3.7.57	E. M. Robb	I. W. Jones, R. H. Sidly, G. Owen	—. Holman	A. Holt & Co.
Helicina	5.9.56	D. E. Jones	J. R. Saunders, A. C. Watson, G. Stancroom, G. Brown	N. A. Gilchrist	Anglo-Saxon Petroleum Co., Ltd.
Hertford	24.4.57	H. C. Dell	J. S. Laidlaw, M. J. Lewens, F. Michael, W. E. Gale	F. Fowlers	Federal Steam Navigation Co., Ltd.
Highland Brigade	20.3.57	P. M. Burrell	R. New, R. Sutton, A. Striger	T. Desboro, M.B.E.	Royal Mail Lines, Ltd.
Highland Chieftain	8.7.57	P. M. Burrell	S. Phillips, I. Park, D. W. Henderson	W. Rollason	Royal Mail Lines, Ltd.
Highland Monarch	15.8.57	H. E. Sang	J. Clark, D. Salt, C. E. Earl, F. Chapman	R. Dunk	Royal Mail Lines, Ltd.
Highland Princess	28.1.57	E. W. Giller	G. J. Moat, F. G. Nickson, J. W. E. Thwaites	F. Goodall	Royal Mail Lines, Ltd.
Hilary	23.4.56	J. H. Stoker	G. Calvert, D. J. Taylor, J. B. Burke	A. Newcombe	Booth S.S. Co., Ltd.
Hildebrand	17.4.57	J. H. Stoker	H. Goulden, M. Gilbert, E. Lange	D. Douglas	Booth S.S. Co., Ltd.
Himalaya	9.8.57	R. G. Freeman	D. T. Neale, P. J. Carnie, A. R. Turner, D. J. Harrison, G. H. Hollobone, P. W. Foot	H. Jardine	P. & O. Steam Navigation Co.
Hinakura	29.7.57	N. L. Warren	P. J. Plaistowe, D. Le Cornu, P. B. Agott	D. W. Field	New Zealand Shipping Co., Ltd.
Hororata	28.6.57	D. A. G. Dickens, Lieut. R.N.R.	J. Thorpe, B. T. Pusey, E. Fawcett	D. J. James	New Zealand Shipping Co., Ltd.
Hubert	20.5.57	J. Whayman, D.S.C., R.D., Capt. R.N.R.	R. E. Collister, H. S. Redshaw, G. W. Walker	F. Fitzgerald	Booth S.S. Co., Ltd.
Huntingdon	27.12.56	P. S. Calcutt	F. R. Wilson, B. Baggot, P. Plumley	T. N. Green	Federal Steam Navigation Co., Ltd.
Hurunui	19.6.56	F. Pover	D. E. Smith, A. Smith, G. Silver, C. Masson	A. Sadler	New Zealand Shipping Co., Ltd.
Hyrcania	14.6.57	J. Robertson	H. D. Holburn, N. Parington, J. Seivert	N. Elliss	Baltic Trading Co., Ltd.
Imperial Star	15.5.57	L. Evans	R. J. Findale, H. K. Dyel, J. D. Nayon	D. Whitehead	Blue Star Line, Ltd.
Inishowen Head	1.4.57	H. N. Clarke	M. W. G. Walsh, J. Roberts, R. Grawford	A. E. Adams	G. Heyn & Sons, Ltd.
Interpreter	24.4.57	W. Weatherall	J. R. Willan, J. Embleton, R. Tasker	J. G. Jones	T. & J. Harrison, Ltd.
Inverbank	11.1.55	R. A. Lorrains	D. S. Hoskins, J. F. Campbell, C. Strachan	V. R. Rowe	Andrew Weir & Co., Ltd.
Ivernia	26.2.57	J. D. Armstrong, D.S.C., R.D., Lt.-Cdr. R.N.R. (Retd.)	—. Easton, —. Burn, L. Porter	F. Brown	Cunard Steamship Co., Ltd.
Ixion	8.4.57	R. Paterson	J. R. Howel, B. Perry, W. B. Bannerman	W. W. Beebee	A. Holt & Co.
Jamaica Producer	16.9.57	G. E. M. Jenkins	M. S. Middleton, T. Kidd, M. Belcher, J. A. Stringer	—. Sheen	Kaye, Son & Co., Ltd.
Jason	4.6.57	D. W. Stroud	R. F. J. Dixon, M. J. Glover, —. Boyes	I. T. Davies	A. Holt & Co.
John Holt	11.6.57	J. G. Jones	R. A. Willison, D. Edwards, J. H. Birch	R. H. Richards	Guinea Gulf Line, Ltd.
Journalist	27.5.57	T. G. Holden	R. Taylor, L. G. Bennett, J. Bean	P. Goulden	T. & J. Harrison, Ltd.
Kenilworth Castle	19.8.57	J. A. Aplin	R. A. Elbra, R. E. Bestel, J. M. Canner	G. Holvoake	Union Castle Mail S.S. Co., Ltd.
Kenuta	1.3.56	T. J. Naylor	A. Menzies, R. Dewsnap, —. Turner	I. W. Dick	Pacific Steam Navigation Co.
King Robert	21.5.57	W. H. Keith	B. Shepherd, J. Harcus, G. Hall	K. Gracock	King Line, Ltd.
King William	1.3.57	J. C. Davies	W. Burgess, W. Moss, R. Mulroney	V. Hatcher	King Line, Ltd.
Kohistan	8.4.57	T. Shields	—. Shelton, —. Ketcher, —. Ford	—. Chatfield	F. C. Strick & Co., Ltd.
Koyan	2.4.57	R. W. H. Aitken	S. Fox, J. Tamblyn, R. S. Brown	A. N. Gilbert	Henderson & Co.
Lalande	26.8.57	E. D. Spooner	H. M. Synnott, W. Williams, R. Willis	B. Thompson	Lamport & Holt Line, Ltd.

Name of Vessel	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owner/Manager
Lanarkshire	16.7.57	R. B. Linsley	P. J. Testemale, S. Shaw, J. A. Baxter	L. Cameron	Turnbull, Martin & Co.Ltd.,
Langton Grange	24.1.57	J. R. Faulkner	D. W. Luff, N. Foot, N. Roberts	T. O'Shea	Houlder Bros. & Co., Ltd.
Laurentia	9.9.57	T. S. Graham	W. G. Cullen, G. Shepherd, T. M. Logan, I. McLundie	D. Murray	Donaldson Bros. & Black, Ltd.
Leicestershire	28.5.57	E. D. Brand	I. J. Clarke, J. W. Waldie, H. Bonsor	F. W. Greaves	Bibby Line, Ltd.
Levernbank	19.12.56	R. A. Leach	R. W. Lorains, C. C. Andoe, N. R. Webster	J. M. Manford	Andrew Weir & Co., Ltd.
Limerick	10.7.57	R. Willcock	H. G. Chafer, H. L. Upton, J. F. Holder	H. S. Hennessey	Birt, Potter and Hughes
Linguist	1.7.57	C. S. Boam	J. Lundber, R. I. Ward, R. Bell	B. Crosby	T. & J. Harrison, Ltd.
Lismoria	3.9.57	J. L. McQueen	A. McLean, W. F. Joyce, T. Gorbett	J. Limpitlaw	Donaldson Line, Ltd.
Livorno	26.3.57	A. W. Johnstone	D. Martin, M. Robinson, H. Blagdon	T. Regan	Ellerman's Wilson Line, Ltd.
Lloydcrest	3.7.57	L. Barwell	—. Hughes, M. Waylen, L. Jamieson		Crest Shipping Co., Ltd.
Loch Avon	24.4.56	G. M. Fletcher	R. J. Luke, N. Wardle, M. G. Martin	J. Greenlagh	Royal Mail Lines, Ltd.
Loch Garth	28.6.57	G. S. Grant, R.D., Cdr. R.N.R. (Retd.)	D. T. Ancona, J. D. M. Wilson, R. Brockbank	F. Page	Royal Mail Lines, Ltd.
Loch Ryan	12.11.56	T. W. Stevens, R.D., Capt. R.N.R. (Retd.)	M. Keen, J. Barton, R. Holford, R. Harding	L. C. Francis	Royal Mail Lines, Ltd.
London Pride	8.8.57	G. Fox	G. A. Yates, M. Godfrey, P. Ellwood	R. Greeg	London Overseas Freighters, Ltd.
Lotorium	13.1.56	N. Clarke	A. Rossouw, B. Lloyd, D. H. White	B. I. D. Mellors	Shell Petroleum Co., Ltd.
Macharda	23.7.57	H. F. Scoins	J. J. H. Stephenson, J. J. Redden, M. J. C. Boyce, J. M. Gray	R. Goodson	T. & J. Brocklebank, Ltd.
Magdapur	4.7.57	J. P. Jackson	C. P. Lucas, J. G. Long, A. M. Warren, G. Jones	L. H. Mackenzie	T. & J. Brocklebank, Ltd.
Mahanada	8.7.57	J. B. Newman	P. F. Blackburn, B. Shawcross, W. G. M. Coles	T. Williams	T. & J. Brocklebank, Ltd.
Mahseer	6.3.57	A. Hill, O.B.E.	M. C. Tait, D. M. Woolfendon, J. S. Saxty	E. Smith	T. & J. Brocklebank, Ltd.
Makalla	1.5.57	H. Scurr	M. T. L. Woodcroft, E. L. Jackson, A. P. Briggs	E. T. Williams	T. & J. Brocklebank, Ltd.
Malancha	26.4.57	J. G. Nuttall	D. R. Bond, R. H. Wills, C. P. Margeson	A. Halstead	T. & J. Brocklebank, Ltd.
Malayan Prince	12.6.57	G. G. Rich, M.B.E.	D. C. Burgess, A. W. King, C. J. Redman	D. Briggs	Prince Line, Ltd.
Manchester City	3.9.57	W. Hine, R.D., Cdr. R.N.R.	N. D. Baker, B. Winchester, J. Froggatt	J. Kane	Manchester Liners, Ltd.
Manchester Explorer	3.9.57	J. E. Askew	J. Williamson, A. G. Rowlands, G. B. Hannford	D. Hodgson	Manchester Liners, Ltd.
Manchester Mariner	17.1.57	E. W. Raper	A. S. Bashford, K. W. Rourke, H. Lynn	M. Doran	Manchester Liners, Ltd.
Manchester Merchant	28.3.57	W. H. Downing	T. Hood, P. Fielding, J. M. Brook	A. J. S. Broadbent	Manchester Liners, Ltd.
Manchester Pioneer	28.1.57	A. Starmer	W. Boyle, P. Cullen, G. Harfood	J. Buchanan	Manchester Liners, Ltd.
Manchester Port	23.11.56	J. L. McLaren	T. M. Brook, D. Barlow, A. S. Rowlands	T. Berry	Manchester Liners, Ltd.
Manchester Progress	28.5.57	M. Bewley	D. R. Nutton, D. W. Hopkinson, J. D. Holdon, A. Swan	J. Buchanan	Manchester Liners, Ltd.
Manchester Prospector	6.6.56	G. R. Thompson	J. I. Illingworth, J. Low, N. T. Davies	W. B. McPherson	Manchester Liners, Ltd.
Manchester Regiment	6.2.57	F. Downing	L. A. Potts, A. Rowlands, B. Winchester	R. H. C. Dale	Manchester Liners, Ltd.
Manchester Shipper	22.10.56	H. Hanock	R. Sooton, P. Humphries, L. Taylor	W. Critchley	Manchester Liners, Ltd.
Manchester Spinner	14.5.57	F. L. Osborne	M. W. Kipling, H. Evans, P. Fielding	J. Reid	Manchester Liners, Ltd.
Manchester Trader	29.7.57	E. W. Espley	J. Rimmer, J. Baker, A. Cowell	R. Williams	Manchester Liners, Ltd.
Manchester Vanguard	8.2.57	W. E. Quirk, R.D., Cdr. R.N.R.	A. O. Copeland, —. Tester, N. W. Cockshoot	D. Spooner	Manchester Liners, Ltd.
Manchester Venture	13.5.57	J. E. Jones	M. McKay, N. Storr, J. M. Rushworth	B. Fitzgerald	Manchester Liners, Ltd.
Mandasor	7.8.57	S. E. Turner	D. F. Barratt, H. F. Newell, A. C. Sprigings	C. Carmichael	T. & J. Brocklebank, Ltd.
Manistee	3.6.57	F. T. Barber	A. Southcott, D. Ely, J. Nicholson	L. Varman	Elders & Fyffes, Ltd.
Marabank	2.9.57	C. G. Watterson	W. Mottram, W. R. Sullivan, —. Matthais	J. Fahy	Andrew Weir & Co., Ltd.
Marengo	30.5.57	A. T. Jardine	J. A. Deheer, J. Gulliatt, F. Smith	W. Saing	Ellerman's Wilson Line, Ltd.
Markhor	19.2.57	C. B. Thomas	—. Pears, J. T. Kirkham, P. Davie	—. McPherson	T. & J. Brocklebank, Ltd.
Martand	14.8.57	T. C. Eddy	P. W. Colville, D. L. des Landes, D. Wild	G. Hazell	T. & J. Brocklebank, Ltd.
Martita	23.10.56	W. H. Alexander	D. Clifford, L. Manser	G. J. Guy	Kaye, Son & Co., Ltd.
Matheran	20.5.57	H. Simpson	A. C. Stallard, P. R. Owen, A. M. Ward	J. J. Shepherd	T. & J. Brocklebank, Ltd.
Matina	14.5.57	W. G. Lock	W. A. Dunn, B. Hodges, W. Thomas, D. Ely	D. Oliver, D.S.M.	Elders & Fyffes, Ltd.

Mauretania	17.6.57	A. Mackellar, R.D., Cdre. R.N.R.	H. L. Ashcroft, R. Howard, H. Dove, M. Dormer, L. Porter	J. Connock	Cunard Steamship Co., Ltd.
Media	21.6.57	T. J. Jones	R. J. Ogilvy, P. A. Brush, D. H. Howells	A. F. Crosby	Cunard Steamship Co., Ltd.
Melbourne Star	6.9.57	A. Penrice	F. Coulson, R. Cameron, K. Mackenzie	E. Andrews	Blue Star Line, Ltd.
Middlesex	6.9.57	I. C. Davison	D. L. Turner, A. Jackson, C. P. Jones, A. Brittain	E. Barley	Federal Steam Navigation Co., Ltd.
Monarch	13.2.57	J. P. F. Betson, O.B.E.	I. J. L. Lang, D. Alford, P. V. Flynn	T. Tilly	H.M. Postmaster-General
Muristan	11.6.57	E. Dunn	M. S. Fleming, J. F. Ockleford, I. L. C. Thomas	K. J. McGuire	F. C. Strick & Co., Ltd.
Myrtlebank	12.8.57	A. C. Hough	S. Cutlack, D. McCaffery, J. Haig	A. Davies	Andrew Weir & Co., Ltd
Napier Star	11.6.57	R. H. Stark	D. R. McWhan, G. C. Williams, W. A. H. Robertson	J. S. Kinnaird	Blue Star Line, Ltd.
Naticina	14.8.57	A. McLean	I. Bole, W. Smith, J. Rendle	R. Ward	Shell Tankers, Ltd.
Nestor	23.5.57	E. W. Studley	M. J. Mahony, E. L. Stubbings, C. H. Hamilton, H. J. Moore	H. Roberts	A. Holt & Co.
New Australia	26.7.57	J. W. Hart	—. Hogg, —. Johnston, —. L'Estrange, —. Calder, —. Morgan, —. Wilkie	W. Miller	Shaw Savill & Albion Co., Ltd.
Newfoundland	20.8.57	C. H. Kenyon	K. Swinburn, C. Wales, B. Waters	J. Keegan	Furness, Withy & Co., Ltd.
New York City	15.4.57	A. L. Webb, O.B.E.	G. J. Harfoot, T. Chappell, D. A. Braid	A. J. Brookes	Charles Hill & Sons
New Zealand Star	23.5.57	E. N. Rhodes	E. C. Smith, R. G. Methren, I. W. Hay	T. Morrison	Blue Star Line, Ltd.
Nordic	12.6.57	F. S. Thornton, O.B.E.	B. H. White, E. Humphries, J. Lisk	R. Drake	Prince Lines, Ltd.
Norfolk	16.7.57	W. J. T. Stevens	E. G. Dixon, J. Hume, M. Field	J. Bilton	Federal Steam Navigation Co., Ltd.
Norseman	21.11.56	R. E. Small	A. W. Henderson, P. R. Shaw	J. Soper	Cable & Wireless, Ltd.
Nottingham	10.11.56	F. G. Bevis	D. I. Jamison, P. Egan, R. S. Hales, D. W. Noyes	A. Harris	Federal Steam Navigation Co., Ltd.
Nova Scotia	23.5.57	J. E. Wilson	E. W. Foxworthy, A. McNish, J. D. Ransome	W. C. Brock	Furness, Withy & Co., Ltd.
Novelist	26.7.57	R. F. Longster	B. C. Roberts, T. Baxendale, R. W. Eastaugh	J. Jackson	T. & J. Harrison, Ltd.
Obuasi	29.7.57	J. A. Brooke	D. B. Parnum, I. Bease, R. W. Gibson	G. Barlow	Elder Dempster Lines, Ltd.
Oilfield	25.6.57	W. H. Lawson	E. S. Robertson, B. Fletcher, J. Hayes	P. Shine	Hunting & Son, Ltd.
Orari	8.3.57	J. R. M. Ramsey, Lt.-Cdr. R.N. (Retd.)	W. G. Dick, R. S. Shannon, B. Foster, J. A. North	T. A. Batte	New Zealand Shipping Co., Ltd.
Orcades	23.7.57	C. K. Blake, O.B.E.	D. P. Postlethwaite, R.N.R., G. Whitehead	G. Munson	Orient Steam Navigation Co., Ltd.
Orion	13.6.57	A. E. Coles, R.D., Capt. R.N.R.	W. R. Burt, M. Champneys, D. Hughes	F. Harrop	Orient Steam Navigation Co., Ltd.
Oronsay	4.3.57	N. W. Smith	J. Boyde, R.N.R., D. Hays, E. Levin	D. McRae	Orient Steam Navigation Co., Ltd.
Orontes	9.7.57	C. W. C. Pinkney, O.B.E., R.D., Cdr. R.N.R. (Retd.)	M. D. Rushan, G. Wood, G. Calvert	K. Palmer	Orient Steam Navigation Co., Ltd.
Orsova	12.8.57	S. S. Burnnand, O.B.E.	G. B. Robinson, C. H. Goddard, J. L. Chapman	P. Parish	Orient Steam Navigation Co., Ltd.
Otaki	10.5.57	J. D. Bennett	E. Norman, W. F. Dan, R. T. Youngman, A. E. Robinson	A. McInnes	New Zealand Shipping Co., Ltd.
Oxfordshire	27.8.57	N. F. Fitch, M.B.E.	J. F. Code, R. Weir, R. B. Calvert	A. Rodger	Bibby Bros. & Co.
Pacific Fortune	15.1.57	H. A. Shaw	H. R. Howell, J. S. Jones, A. B. Smith	J. R. M. Thomas	Furness, Withy & Co., Ltd.
Pacific Northwest	24.4.57	H. A. Shaw	J. S. Jones, H. Howell, A. Bruce-Smith	J. R. M. Thomas	Furness, Withy & Co., Ltd.
Pacific Reliance	8.7.57	P. F. Owens	D. J. Bremner, A. Rex, R. J. Newling	J. Jennings	Furness, Withy & Co., Ltd.
Pacific Unity	12.7.57	A. H. Cooke	T. Canning, G. G. Lear, N. Zaros	E. O'Shea	Furness, Withy & Co., Ltd.
Pacuare	2.9.57	J. Nicholson	G. B. Saunders, A. Booth, J. Beatson	H. Roderick	Elders & Fyffes, Ltd.
Pampas	7.2.57	L. T. Petersen	P. J. Williams, R. J. Kistler, A. G. Arnott	W. Macarthy	Royal Mail Lines, Ltd.
Papanui	14.8.57	H. J. Heron	M. Wood, J. Hale, M. Hill	M. Guy	New Zealand Shipping Co., Ltd.
Paparoa	19.4.56	F. M. Williamson	I. M. Pears, J. Hannah, I. M. Charlesworth, D. Jackson	I. Morrison	New Zealand Shipping Co., Ltd.
Paraguay	4.6.57	W. J. Phillips	P. W. L. Ramage, T. Milner, E. Long	J. A. Bell	Royal Mail Lines, Ltd.
Paraguay Star	28.5.57	D. McFarlane, O.B.E., D.S.O.	B. D. C. Franklin, T. A. Ireland, C. A. Wood	J. Martin	Blue Star Line, Ltd.
Pardo	14.6.57	W. A. Kennedy	A. Hanily, P. T. Shephard, M. R. Griffiths	F. O'Callaghan	Royal Mail Lines, Ltd.
Parima	25.9.57	G. A. Gibbons	L. H. Hall, D. Hatton, R. L. Collins	J. N. Wright	Royal Mail Lines, Ltd.
Parthia	29.8.57	S. A. Jones, R.D., Cdr. R.N.R. (Retd.)	C. C. Walker, N. M. Douglass, R. Woodall	A. O'Sullivan	Cunard Steamship Co., Ltd.
Patagonia Star	24.6.57	M. R. Bremberg	A. M. Shearing, N. Luck, G. Kinnersley	P. Neve	Lamport & Holt Line, Ltd.
Perim	13.6.57	A. G. Stansfield	J. Cochrane, F. D. Simmons, H. S. Mackie	R. Carhill	P. & O. Steam Navigation Co.
Perthshire	19.9.57	D. L. Wilson	K. R. Hogg, J. A. Riach, A. G. Simmons	J. Pattie	Turnbull, Martin & Co., Ltd.
Pilcomayo	16.11.56	G. Medlycott	D. S. Guiness, C. Oxborrow, J. A. Philip	E. Fitzgerald	Royal Mail Lines, Ltd.
Pipiriki	25.5.57	S. R. Harding	J. Evans, A. Carver, T. Metcalf, J. Burn	G. M. Walker	New Zealand Shipping Co., Ltd.

Name of Vessel	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owner/Manager
Pizarro	14.8.57	P. L. Hockey	F. Nuttall, D. J. Houghton, C. Farnworth, —. Pearson	G. L. Jones	Pacific Steam Navigation Co.
Planter	14.5.57	W. Williams	K. Watson, F. J. Bowley, J. W. Chatfield	J. Larkin	T. & J. Harrison, Ltd.
Port Adelaide	11.4.57	V. G. Battle	D. M. Kerr, A. S. Macintyre, W. Duthie	P. J. Keily	Port Line, Ltd.
Port Dunedin	23.5.57	J. G. A. Dunn	R. C. Case-Green, D. J. Turner, W. J. North	T. A. Cameron	Port Line, Ltd.
Port Hardy	5.3.57	G. W. Dobson, R.D., Capt. R.N.R.	G. H. Draysey, A. Hudson, A. Moore	D. Alcock	Bibby Bros. & Co.
Port Hobart	30.5.57	F. J. Lavers	M. Box, L. K. Peggram, P. Kellway	D. McCartney	Port Line, Ltd.
Port Jackson	3.4.57	P. S. Ball	W. Petter, J. MacKinnon, J. Naylor	E. Loft	Port Line, Ltd.
Port Lincoln	9.8.57	C. J. H. Gorley	J. H. Lloyd-Davies, T. J. S. Whitehead, A. G. A. Collison	G. Clarke	Port Line, Ltd.
Port Macquarie	11.4.57	J. S. Moate	B. M. Le Leivre, A. E. Hoggarth, R. McMurray	B. Cousins	Port Line, Ltd.
Port Napier	23.5.57	C. R. Townshend	G. B. Rapp, G. A. Nott, J. M. Evans	T. Hargreave	Port Line, Ltd.
Port Phillip	3.9.57	W. Craig	G. Brandon, J. L. Foster, L. J. Brown	B. McHugh	Port Line, Ltd.
Port Pirie	24.4.57	G. G. Langford	M. J. Davis, J. R. Bell, D. E. Kemp	H. J. Roberts	Port Line, Ltd.
Port Townsville	28.5.57	L. J. Skailes	K. W. Jayne, C. W. Norris, M. R. Mortimore, J. P. McDermott	K. A. Makin	Port Line, Ltd.
Port Victor	29.4.57	J. A. Fairbairn	J. H. Cole, C. L. Baldam, D. J. Pull	J. McMillan	Port Line, Ltd.
Port Wellington	23.5.57	E. W. R. Young	M. S. Ross, J. Collier, D. M. Church	J. McPherson	Port Line, Ltd.
Port Wyndham	29.8.57	J. Stannard	F. J. Edwards, A. Snow, J. Whyte	D. Bray	Port Line, Ltd.
Potaro	14.6.57	C. Robertson	D. W. Pitt, M. G. M. Boyd, B. M. Rowley	G. Lovie	Royal Mail Lines, Ltd.
Potosi	15.7.57	D. I. Jones, D.S.C., R.D., Cdr. R.N.R. (Retd.)	J. S. Ross, J. K. Davies, P. Whittaker	C. H. Weeks	Pacific Steam Navigation Co.
Powell	14.8.57	L. Mitchell	—. Rousell, T. Allan, D. Griffin	D. Jenkins	Hector Whaling, Ltd.
Pretoria Castle	15.5.57	G. H. Mayhew	R. E. Bestel, B. Cram, M. Hooper	P. Williams	Union Castle Mail S.S. Co., Ltd.
Prospector	3.7.57	W. Lawton	R. L. Hammond, W. G. Johnston, J. S. Lloyd	T. O'Shea	T. & J. Harrison, Ltd.
Rakaia	15.4.57	C. P. Robinson	E. J. Carr, D. Watson, J. T. Varney	P. H. Broome	New Zealand Shipping Co., Ltd.
Ramore Head	27.3.57	W. A. Haddock, O.B.E.	R. Harris, —. Clint, A. J. Quail	J. Lyons	G. Heyn & Sons, Ltd.
Ramillies		W. J. Thomas	T. Palmer, G. Frieburgs Miller	R. Miller	John Corby & Sons
Ramsay	3.8.57	J. J. Crugan	D. A. Kiddel, P. R. Owen, J. Parsloe	P. Mullane	Bolton Steam Shipping Co., Ltd.
Rangitane	3.9.57	R. G. Rees	J. Withington, A. Dorkins, J. Thomas, D. Marris	L. Whittington	New Zealand Shipping Co., Ltd.
Rangitata	16.5.57	H. R. M. Smith	N. G. Niblock, K. Mayhew, P. Plumley, I. Rankin	W. Shepherd	New Zealand Shipping Co., Ltd.
Rangitiki	4.10.56	A. E. Lettington, O.B.E., D.F.C.	I. Excell, D. W. Handley, W. E. Gale, I. M. Pears	C. L. Lamb	New Zealand Shipping Co., Ltd.
Rangitoto	2.8.57	C. P. S. Calcutt	D. Standing, R. Barton, H. Hynard, J. McArthy	G. A. Parker	New Zealand Shipping Co., Ltd.
Rathlin Head	29.4.57	M. Kennedy	T. McHanill, C. E. Pringle, W. Teal	E. Heywood	G. Heyn & Sons, Ltd.
Regent Hawk	1.7.57	G. Hobson	R. Peters, P. Cresswell, J. A. Cresswell	R. W. Jones	Regent Petroleum Tankship Co., Ltd.
Regent Royal	18.9.57	R. Armstrong	J. S. Beard, E. Taylor, N. Baird	A. Sedman	Regent Petroleum Tankship Co., Ltd.
Reina del Mar	18.9.57	A. G. Litherland	J. S. Smith, P. Barry, G. Turner, D. J. Bishop	J. Butler	Pacific Steam Navigation Co.
Reina del Pacifico	8.8.57	E. C. Hicks	A. Corbett, B. Tyrer, J. Bruce, A. Gordon	T. Tynan	Pacific Steam Navigation Co.
Retriever	18.3.57	J. G. West	D. Silwood, P. Watts, M. Simmons	—. Fitzsimmons	Cable & Wireless Co., Ltd.
Reynolds	16.8.57	J. C. Pratt	D. Party, G. Leith, D. F. Cameron	M. J. Watkin	Bolton Steam Shipping Co., Ltd.
Rialto	13.6.57	H. Greenhill	A. Hodson, J. Bradley, D. Brackenbury	A. Gavin	Ellerman's Wilson Line, Ltd.
Richmond Castle	5.4.57	T. M. Lycell	R. H. Mason, T. L. White, R. B. Warn	G. W. Dunnett	Union Castle Mail S.S. Co., Ltd.
Rippingham Grange	10.5.57	A. McEwan	A. W. Millie, R. Kerr, M. Jenkins	W. Oliphant	Houlder Bros. & Co., Ltd.
River Afton		A. Harkness	D. Wilson, J. W. Armstrong, A. Frank	T. J. Ahern	Mungo Campbell & Co., Ltd.
Rochester Castle	15.5.57	G. D. Fowler, R.D., Lt.-Cdr. R.N.R.	—. Smith, —. Kelso, —. Daley	—. Thomlinson	Union Castle Mail S.S. Co., Ltd.
Romanby					Sir R. Ropner & Co.
Romanic		C. A. Phillips	J. Porter, G. Murray, J. Bremer	—. Twomay	Bolton Steam Shipping Co., Ltd.
Roonagh Head	4.9.57	E. W. Black, O.B.E.	F. R. N. Best, E. Seaton, G. Clint	I. W. Hart	G. Heyn & Sons, Ltd.

Roscommon	4.7.57	L. J. Ridout	M. L. Ingle, J. A. Cameron, T. M. Dene	G. W. Whitaker — Trinder, Anderson & Co.
Rowallan Castle	15.5.57	C. E. Lorains	M. Hanreck, T. N. Greesin, M. S. Rich, N. W. M. Curd	G. B. Holyoake — Union Castle Mail S.S. Co., Ltd.
Runa	28.3.57	R. McNinch	R. Parish, W. Taylor	A. Corless — Glen & Co., Ltd.
Roxburgh Castle	27.5.57	C. W. Armstrong, R.D., Cdr. R.N.R.	D. Joyce, D. Daley, F. Pigeon	I. Barber — Union Castle Mail S.S. Co., Ltd.
Ruahine	11.6.57	F. Lougheed	M. Piner, J. Stickler, A. Aston	J. Heath — New Zealand Shipping Co., Ltd.
Runic	24.7.57	C. W. Sendall	—. Jenkins, —. Borthwick, —. McLennan	A. McMurray — Shaw Savill & Albion Co., Ltd.
Runswick	11.6.57	J. S. Pinkney, O.B.E.	P. Palfreman, H. L. Weichardt	A. Marsden — Headlam & Son
Sacramento	23.7.57	H. Grunnill	T. Baker, C. B. Batty, H. Edwards	C. Child — Ellerman's Wilson Line, Ltd.
Saint John	31.7.57	C. Bradley, O.B.E.	J. G. Black, A. Phillips, K. Stanley, A. Ellis	J. Conway — South American Saint Line, Ltd.
Salacia	15.4.57	G. M. Clark	D. G. Hall, —. McFarean, S. McKellar	W. McKay — Donaldson Bros. & Black, Ltd.
Salamanca	27.12.56	A. Lyall	M. E. Jones, W. A. Johnston, D. B. Jones	T. Fitzgerald — Pacific Steam Navigation Co.
Salaverry	29.8.56	J. Evans	G. B. Swan, J. K. Spencer, C. Rowntree	W. Read — Pacific Steam Navigation Co.
Salinas	1.7.57	A. B. Powell	C. A. Hilton, H. Cunliffe, W. Bolitho	J. Power — Pacific Steam Navigation Co.
Salween	20.5.57	K. Marsh	D. McCallum, J. Nicol, S. A. McInnes	R. Cotter — P. Henderson & Co.
San Velino	30.5.57	R. R. Griffith	K. Bramley, D. A. Doyle, R. S. Rook	H. Playford — Eagle Oil & Shipping Co., Ltd.
San Veronico	14.8.57	R. Griffith	S. D. Mayl, L. P. Coutts, R. A. Johnston	K. Jenkins — Eagle Oil & Shipping Co., Ltd.
San Vulfrano	12.2.57	T. B. Wright	P. W. Hodges, J. F. B. Ridout, W. Atken	D. J. Brown — Eagle Oil & Shipping Co., Ltd.
Sansu	8.11.56	H. Welton	J. Morris, D. Turner	G. Ferrand — Elder Dempster Lines, Ltd.
Santander	20.2.57	F. T. Leicester	R. I. Hunter, J. T. Bruce, D. J. Good	J. Whitfield — Pacific Steam Navigation Co.
Sarmiento	17.6.57	P. B. Potts	M. Hetherington, J. Jenkins	F. Mathews — Pacific Steam Navigation Co.
Saxonia	22.8.57	E. Divers, O.B.E., R.D., Cdr. R.N.R.	L. W. Crump, F. E. Pollitt, R. J. F. McDonell	E. P. Bishop — Cunard Steamship Co., Ltd.
Saxon Star	14.2.57	C. A. Holleyoak	B. M. Mitchell, M. D. Squibbs, T. R. Cree	H. V. Littlecott — Blue Star Line, Ltd.
Scottish Eagle	26.8.57	D. T. Griffith	M. W. Scott, W. S. Wallace, T. M. Connolly	H. Arnold — Scottish Tanker Co., Ltd.
Scythia	6.11.56	F. G. Watts, R.D., Lt.-Cdr. R.N.R. (Retd.)	D. J. Atkinson, D. H. Howells, A. W. Hoyle	S. W. Brown, M.B.E. — Cunard Steamship Co., Ltd.
Seattle Star	26.3.57	M. R. Bremberg	M. S. Bradshaw, D. L. Dennison, J. G. King	P. McBride — Blue Star Line, Ltd.
Selector	27.6.57	C. C. Heaton	J. J. Dwyer, R. M. Benson, E. Sinott	D. J. Taylor — T. & J. Harrison, Ltd.
Settler	5.4.57	H. G. Skelly	R. L. Hammond, F. V. Scriven, P. Clements	R. Roy — T. & J. Harrison, Ltd.
Shackleton	1.6.56	W. Johnston	T. Woodfield, A. Kerr, T. Flack	R. E. Molland — Falkland Islands Dependency Survey
Sir William Hardy		J. Munro	S. Ribee, M. Slater	S. Ribee — Torry Research Station
Socotra	20.8.57	W. H. Waghorn	C. S. Bradley, C. F. Durham, H. O. Cribb	H. Williams — P. & O. Steam Navigation Co.
South Africa Star	16.8.57	R. M. T. Jones	—. Rawlinson, —. Cooper, —. Squibbs, —. Edwards	R. R. Mills — Blue Star Line, Ltd.
Southern Cross	15.8.57	Sir David Aitchison, K.C.V.O.	R. Fulfeild-Dobson, W. Newport, T. P. Cameron-Alty, S. T. Green-Reed	H. Mathews — Shaw Savill & Albion Co., Ltd.
Southern Harvester	11.5.57	L. Bartho	W. Holbu, W. Sinclair, J. B. Kerr	A. Turnbull — Chr. Salvesen & Co.
Southern Opal	18.5.57	A. F. Baikie	H. Thomson, D. I. Polson, G. A. Walterson	T. Johnson — Chr. Salvesen & Co.
Southern Satellite	21.3.57	W. Swanson	D. Watt, N. McLean, J. G. Wilson	P. Curson — Chr. Salvesen & Co.
Southern Venturer	1.5.57	H. Myhre	K. Snekkestad, D. Jensen, G. Vikklander	J. MacMorran — Chr. Salvesen & Co.
Specialist	29.3.56	L. J. Sharman, R.D., Capt. R.N.R.	T. F. Maddox, J. B. Mitchell, A. Dunn	P. Goulden — T. & J. Harrison, Ltd.
Stirling Castle	10.4.57	J. F. Oakley	W. E. Dodds, A. R. Clarke	J. Summers — Union Castle Mail S.S. Co., Ltd.
Stirlingshire	22.8.57	S. W. Brown	D. Paterson, D. Geddes, B. Mockley, P. Ward	W. Latus — Turnbull, Martin & Co., Ltd.
Strathaird	30.4.57	—. Slinn	P. E. Hayward	J. F. Clark — P. & O. Steam Navigation Co.
Stratheden	13.6.57	K. A. H. Cummins	P. Beeley, P. J. Stock, D. V. Bates	P. Maloney — P. & O .Steam Navigation Co.
Strathmore	7.8.57	H. P. Mallet	J. H. Daniel, C. J. Jones, D. J. Perry	M. J. Murphy — P. & O. Steam Navigation Co.
Strathnaver	26.9.57	J. M. Peter	J. C. Vint, D. H. White, J. Crighton, W. Thompson, N. McLean	J. G. Clark — P. & O. Steam Navigation Co.
Struan	1.7.57	A. Swanson	N. McLean, R. Hare	W. Gillespie — Chr. Salvesen & Co.
Suffolk	8.7.57	J. E. Bury	M. Pennell, P. E. Robertson, P. O. Kean	P. D. Scott — Federal Steam Navigation Co., Ltd.
Surrey	3.7.57	H. J. D. Sladen	M. F. Henson, C. Hill, J. P. Crowder	A. Titley — Federal Steam Navigation Co., Ltd.
Sussex	19.6.57	N. A. Thomas	I. F. Smith, A. M. Watt, B. W. Anstex, A. B. Stalker	J. MacLeod — Federal Steam Navigation Co., Ltd.
Swiftpool		C. H. Churchill	P. Robinson, A. Dekonski, B. W. Hayward	P. J. Behan — Sir Robert Ropner & Co., Ltd.
Sydney Star	30.8.57	R. White, D.S.C.	C. J. Denny, P. Stevens, N. Roberts, J. Reeve	T. Winney — Blue Star Line, Ltd.

Name of Vessel	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owner/Manager
Sylvania		F. G. Watts, R.D., Lt.-Cdr. R.N.R. (Retd.)	R. P. Wakefield, R. Wadsworth, J. K. Cooper	A. H. Farman	Cunard Steamship Co., Ltd.
Tabaristan	11.9.57	E. C. Thompson	J. Beerman, R. J. Kane, G. Davies	W. McKenzie	F. C. Strick & Co., Ltd.
Tagelus	30.4.57	J. M. Davidson	D. Walker, J. A. Murray, G. Griffiths	D. M. Tarbet	Shell Tankers, Ltd.
Tamele	31.1.57	W. Rowlands	G. W. Barton, A. G. Maxwell, J. S. McKean	C. E. Jones	Elder Dempster Lines, Ltd.
Tantallon Castle	16.8.57	J. B. James	T. C. Ball, B. Mitton, J. McCarthy	I. Barber	Union Castle Mail S.S. Co., Ltd.
Tarkwa	19.9.57	R. W. Philip	D. Corner, I. Wilson	T. Ainsworth	Elder Dempster Lines, Ltd.
Tasmania Star	9.8.57	G. C. Goudie	P. G. Entwistle, D. Murrary, T. Rees	C. V. James	Blue Star Line, Ltd.
Tectus	10.9.57	T. W. Green	C. T. Fellowes, B. Jonsson, J. Screech	R. Rowse	Shell Tankers, Ltd.
Tekoa	1.7.57	F. C. Taylor	R. Williams, J. Forest, B. Smith, R. Donald	A. Palmer	New Zealand Shipping Co., Ltd.
Telemachus	27.5.57	H. S. Clark	A. Lane, M. Jones, B. Lloyd	B. May	A. Holt & Co.
Tenagodus	1.8.57	T. W. A. Webster	G. Brown, J. Y. Cox, D. Michell	D. Hall	Shell Tankers, Ltd.
Tetela	15.8.57	R. Lundy	D. Lloyd-Jones, D. Morris, P. A. Chubb	D. McHugh	Elders & Fyffes, Ltd.
Teviot	30.7.57	J. H. Napper	W. M. Carver, J. C. Cragie, P. W. Campbell	C. McGuire	Royal Mail Lines, Ltd.
Thaumastus	19.7.57	E. Prudhoe	G. Colclough, J. McRobinson, G. Anderson	C. E. Sutton	Shell Tankers, Ltd.
Theliconus	17.6.57	J. W. Barnsley	J. B. Morris, A. C. M. Clifford, R. S. Smith	A. G. Cope	Shell Tankers, Ltd.
Thule	10.5.55	F. Holst	R. E. Dovik, G. Abrahamsen, R. Pettersen	E. Bergan	Hector Whaling, Ltd.
Timaru Star	28.3.57	A. H. Dare	I. Tait, D. McKerrow, D. G. McNeil	W. G. Peddie	Blue Star Line, Ltd.
Tinto	31.7.57	H. Whitfield	T. Burge, G. Lawson, P. Ramsay	G. S. Dunn	Ellerman's Wilson Line, Ltd.
Tongariro	14.3.57	F. M. Williamson, Lieut. R.N.R.	N. M. Parry, J. H. Agnew, G. D. Hudson, D. J. Newman	N. M. Percy	New Zealand Shipping Co., Ltd.
Torr Head	7.3.57	S. J. Stark	R. A. Maxwell, J. D. Savage, T. A. F. Austin	J. McKinnon	G. Heyn & Sons, Ltd.
Tregenna	6.8.57	W. F. Denyer	R. Powell, G. Neilson, F. Boyd	T. Willis	Hain S.S. Co., Ltd.
Trelevan	31.7.57	D. A. Loud	P. H. Morgan, J. Cushion, A. M. Turner	P. A. Brown	Hain S.S. Co., Ltd.
Trelyon	15.11.56	W. T. Evans	J. O. Spencer, W. Dobson, J. Bolt	V. Duggan	Hain S.S. Co., Ltd.
Treworlas	8.2.57	W. H. Whitaker	R. Jean, J. Evans	K. Murray	Hain S.S. Co., Ltd.
Tribesman	30.4.57	J. F. W. Wallis	A. G. Nicholson, P. Owen, W. C. Johnson	E. Phillips	T. & J. Harrison, Ltd.
Tweed	27.9.57	G. Chatterly	W. McCarver, R. Sutton, G. Gulson	D. Meighan	Royal Mail Lines, Ltd.
Twickenham	12.8.57	A. Ferguson	J. Newly, R. Crosby, D. Wells	W. Dewhirst	Watts, Watts & Co., Ltd.
Tyrone	25.2.57	J. D. Blake	J. G. C. Campbell, P. T. Macpherson, M. Poskitt	L. A. E. Laval	Trinder, Anderson & Co.
Umtata	22.1.57	D. L. Weston	J. H. Szablowski, N. J. Parker, P. Austin	J. Molloy	Bullard, King & Co., Ltd.
Velletia	18.4.57	A. C. Short, O.B.E.	W. G. Todd, J. Russel, G. Bradley	J. Murray	Shell Tankers, Ltd.
Volo	5.9.56	L. R. Stilwell	H. Brelby, A. Robertson, G. Forward	G. Bart	Ellerman's Wilson Line, Ltd.
Volvula	29.8.57	J. Nettleship	D. B. Andrew, J. Thomson, D. Bootes, J. Brown	J. F. Cosgrove	Shell Tankers, Ltd.
Wairangi	5.4.57	G. M. Robertson, D.S.C.	B. A. Hills, S. G. Carr, F. W. Miller	G. Adamson	Shaw Savill & Albion Co., Ltd.
Waiwera	10.5.57	T. H. Davies	R. D. Hind, J. Tommy, A. H. Thompson, H. P. Lawrence	J. Downie	Shaw Savill & Albion Co., Ltd.
Wanstead	19.9.57	I. Jackson	D. J. Cunningham, W. Anderson, J. Coogans	K. Lax	Watts, Watts & Co., Ltd.
Warkworth	21.6.57	G. T. Dobson	J. Carson, G. B. Bell, W. J. Childerstone	F. D. Farthing	Watergate Steam Shipping Co., Ltd.
Wendover	11.10.56	W. Donald	J. L. Thompson, M. G. King, I. J. Branch	N. E. Fletcher	Watts, Watts & Co., Ltd.
Westmeath	23.8.57	T. G. Wilson	T. W. Day, J. McWilliams, J. O'Malley	P. M. Keville	New Zealand Shipping Co., Ltd.
Winchester Castle	8.7.57	G. W. B. Lloyd	P. C. Kaye, —. Rippon, —. Atkinson	E. H. Pitts, D.S.C.	Union Castle Mail S.S. Co., Ltd.
Windsor	9.9.57	F. W. Grist	J. Boyle, J. Macfarlane, J. Lang, D. Dickson	R. Filkins	Watts, Watts & Co., Ltd.
Woodford	18.3.57	J. Cormack	L. Lang, D. P. Marshall, J. Timms, A. Ferguson	M. Moore	Watts, Watts & Co., Ltd.
Woolwich	25.9.57	D. A. Forrester	D. P. Marshall, A. Cameron, J. Lewis	W. A. Sloane	Watts, Watts & Co., Ltd.
Worcestershire	5.4.57	F. C. Brooke	M. Odgers, G. W. Waugh	W. G. Fletcher	Bibby Bros. & Co.
Yoma	29.3.57	I. Laing	P. Wilkins, A. Gray, H. McCole	J. Brown	P. Henderson & Co.

Supplementary Ships

Name of Vessel	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owner/Manager
Albatross		J. Slikis	J. A. Twiselton, M. A. Smith, E. Harwood		General Steam Navigation Co.
Alert	17.9.57	R. H. J. Wallis	R. M. Turnbull, D. M. Curror, G. McLagan, G. Alfrid	A. Prest	H.M. Postmaster-General
Apollo	20.5.57	S. V. Barnes	H. G. Mowatt, W. Keys, J. Rich	W. Kays	Bristol Steam Navigation Co., Ltd.
Bellerby	13.6.57	E. Dunn	—. Meakin, B. Ryan, R. Jarwich	D. P. Hulme	Ropner Shipping Co., Ltd.
Blairclova	25.4.57	J. Macvean	J. E. Halliday, R. J. Pledge, H. Deshman	D. J. Cowhig	Geo. Nisbet & Co.
Borodino	7.8.57	E. Ford	S. Wilkenson, J. Deheer, W. Whittleton	E. Smith	Ellerman's Wilson Line, Ltd.
British Bugler	11.9.57	R. S. Hughes	G. F. T. Smith, H. W. G. Milligan, I. R. Butler	F. Kirk	British Tanker Co., Ltd.
British Drummer		N. W. Finnis	E. T. Powell, J. Peatie, R. MacCuish, N. D. King	T. Scott	British Tanker Co., Ltd.
Cape Breton					C. T. Bowring & Co., Ltd.
Cape Howe	24.4.57	A. M. Fraser	T. R. Baker, J. F. Morton, J. C. Carr	R. Mullins	Lyle Shipping Co., Ltd.
Cara		A. Mackay	I. Skinner, A. Livingstone, G. Cowan	I. Hart	Glen & Co., Ltd.
Carlo		H. Whitfield, M.B.E.	R. S. Neesham, D. Brackenbury, P. Ramsay	F. Michalls	Ellerman's Wilson Line, Ltd.
Circassia	2.8.57	J. McG. Brown	R. Watt, J. I. McGrindle, B. Walford	E. P. Bishop	Anchor Line, Ltd.
Clan Alpine	10.9.57	T. O. Marr	J. L. Daniel, L. A. Laing, J. Campbell	C. J. Ritchie	Cayzer Irvine & Co., Ltd.
Clan Lamont	27.12.56	J. E. Townrow	—. Lokeefe, A. J. Graham, J. N. Peace, M. Swift	R. G. Davies	Cayzer Irvine & Co., Ltd.
Clan MacBrayne	9.4.57	C. A. Thomas	J. MacNiven, D. M. Geddes, D. Grant	D. Munroe	Cayzer Irvine & Co., Ltd.
Dartmoor	1.5.57	L. G. Welch	G. C. Laing, R. Jordan, T. D. Underwood	M. Van Schalkwyck	Walter Runciman & Co., Ltd.
Devon City	21.8.57	A. Juston	J. Cuckour, C. Davidson, K. Lane	P. Richmond	Sir William Reardon Smith & Sons, Ltd.
Eastern City	1.3.57	I. Williams	T. J. Williams, —. Judd, D. S. Sapp	K. Pearson	Sir William Reardon Smith & Sons, Ltd.
Edward Wilshaw	1.4.57	C. C. Muckleston	A. Miller, W. T. Goodale, G. Proctor	J. M. Wade	Cable & Wireless, Ltd.
Gardenia		J. H. Gray	J. M. Oliver, D. E. Rees, W. Frazer	J. R. Mace	Stag Line, Ltd.
Greenbatt	21.7.57	R. Cook	I. Coulthard, W. Craig, D. Curry	I. Patrick	Newbiggin S.S. Co., Ltd.
Harpalion	23.9.57	J. F. Champion	A. Anson, W. R. Vickers, D. S. Christie	T. R. Barrow	J. & C. Harrison & Co., Ltd.
Hesione	26.10.56	L. W. Gibbins	H. Munro, R. Grieve, —. Wilson	N. Burnitt	Houston Line (London), Ltd.
Hudson Deep	26.8.57	J. Gibbins, D.S.C.	J. Cunningham, A. E. Ford, D. Lee	V. Smith	Hudson S.S. Co., Ltd.
Hudson Firth	8.7.57	A. Crosby	M. R. Uminski, M. A. Smith, G. Campbell	P. B. O'Shaughnessy	Hudson S.S. Co., Ltd.
Jura	20.8.56	L. J. Blanche	J. McTague, L. Richards, J. McLean	P. J. Mullans	Glen & Co., Ltd.
Kyloe		A. Hodgson	W. Tong, R. H. Hargreave, F. Beaumont	D. A. Birkenshaw	Sharp S.S. Co.
Letchworth	10.3.55	J. E. S. Newby	K. Brammer, D. V. Duncanson, S. Hardy	S. G. L. Rice	R. S. Dalgleish, Ltd.
Lingula	16.5.57	J. L. Williams	R. Shaw, F. R. Christian, M. J. Laws, K. Smith	H. Harrison	Shell Tankers, Ltd.
Loch Gowan	10.10.56	E. N. Giller	G. N. Rouse, P. Hawkey, M. H. Hobbs	P. Hemery	Royal Mail Lines, Ltd.
Malmo	9.9.57	A. Skelton	L. Gibson, B. Scarborough, P. Tate	F. Johnson	
Marie Louise Mackay	1.11.55	C. F. Hunter	L. P. Denny, H. Goodbody, W. Nimmo, L. Cook, S. Bailey	E. Mathias	Commercial Cable Co.
Markab	21.7.55	C. Christensen	J. Phillis, M. Rosic, J. Toet	D. A. Styles	Phocean Ship Agency, Ltd.
Marna	2.8.57	J. A. McConachie	J. Carnie, A. D. Harkness		Chr. Salvesen & Co.
Martagon		R. Paton	M. Choratewski, J. Lewis, B. Sanderson		Kaye, Son & Co., Ltd.
Menastone	9.4.56	S. F. Sheasby	W. Thomas, A. Todd, P. Sunsmore	J. Devitt	Messrs. Stone & Rolfe, Ltd.
Meta	26.10.56	A. D. McNab	W. Hett, W. Graham, J. Punton	J. S. Sams	Glen & Co., Ltd.
Milo	7.2.57	H. E. Lawson	P. J. Wright, B. Middleton		Bristol Steam Navigation Co., Ltd.
Mirror	2.5.57	T. A. Vickers, O.B.E., R.N.Z.N.R.	M. Bonds, C. C. S. Budgen, D. S. M. Tosa	C. Rolfe	Cable & Wireless, Ltd.
Moto		S. B. Judge, O.B.E.	—. Pulthorpe, P. N. C. Morris, A. H. Reed	R. A. Kissack	Pelton Shipping Co.
Mulberry Hill	10.7.57	J. Newton	L. Fraser, D. A. McBain, D. B. Smith	L. Mullen	Counties Ship Management Co., Ltd.
Narva	19.7.56	R. S. McLachlan	A. T. Clark, A. McIntyre, A. Tweddle	R. Rowe	Glen & Co., Ltd.

Supplementary Ships—Contd.

Name of Vessel	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owner/Manager
Nicania					Anglo-Saxon Petroleum Co., Ltd.
Northia	3.4.56	A. Mackay	M. A. Cooper, I. G. C. Wildish, J. Dagleas	T. M. Sherriff	Anglo-Saxon Petroleum Co., Ltd.
Port Fairy	15.7.57	E. J. Arnold	M. Foden, P. Beattie, T. Kynaston-Reeves	D. Sinclair	Port Line, Ltd.
Rockwood	26.5.57	J. Thompson	W. G. Dedwith, D. V. Duncanson, B. Taylor, H. Whiston	J. Kelleher	Wm. France, Fenwick & Co., Ltd.
Sandhoe		A. Pauling	A. H. Baines, T. Waugh, J. T. Wallis	W. Dobbie	Sharp S.S. Co.
Sandpiper		W. G. James	B. Tarr, W. H. Conway, A. Harr		General Steam Navigation Co.
Sheldrake	4.1.57	C. Reynolds	C. I. Greaves, J. Stowe, B. Murr	C. Norris	General Steam Navigation Co.
Shuna		J. Loose	K. Wilson, —. Ballantyne	—. Quin	Glen & Co., Ltd.
Tarantia	12.9.57	R. S. Paton	H. Cameron, G. Watson, W. Miller	A. McPherson	Anchor Line, Ltd.
Tempo	4.2.57	H. Greewar	R. Price, T. Sisterson	A. Tadd	Pelton S.S. Co., Ltd.
Thelma	12.4.57	T. A. W. Fairweather	J. McLean, J. A. G. McColl	L. J. Delany	Glen & Co., Ltd.
Tintern Abbey	29.7.57	C. S. Whitticombe	L. R. Chandler, J. Campbell, V. Mason	A. Davies	Frederick Jones & Co.
Trelissick	27.5.57	F. G. Bolton	J. Dabry, P. P. Sandercock, T. J. Murton	P. Murray	Hain S.S. Co., Ltd.
Trevelyan	3.9.57	H. Gravell	D. V. Tattoo, J. L. Hazell, G. Blight	J. Vaughan	Hain S.S. Co., Ltd.
Trevince	12.11.56	B. George	E. F. Boyd, D. J. Cornish, A. L. Warren	C. D. McCarthy	Hain S.S. Co., Ltd.
Tronda	15.10.51	R. J. Sinclair	R. Angus, K. Chow		Chr. Salvesen & Co.
Truro	20.5.57	J. Tognola	W. Young, G. Michell	E. Petch	Ellerman's Wilson Line, Ltd.
Tynemouth	29.4.57	W. L. Pattison	F. Wright, E. Kae, J. Ayre, E. Tepper	J. Woignan	Burnett S.S. Co., Ltd.
Uganda	16.7.57	D. W. Speirs, G.M., R.D., Cdr. R.N.R. (Retd.)	S. A. Turk, —. Crump, M. A. Ruddlesden, P. Horton	J. H. Soulsby	British India Steam Nav. Co., Ltd.
Warwick Castle	24.7.57	J. D. B. Fisher	R. Smith, D. Harker, R. Parkin, P. Pollard	P. Thomas	Union Castle Mail S.S. Co., Ltd.

Marid Ships

The following is a list of ships voluntarily observing and reporting sea temperatures from coastal waters of Great Britain. Captains are requested to point out any errors or omissions in the list.

Name of Vessel	Captain	Owners/Managers
Actuality	D. O'Leary	F. T. Everard & Sons, Ltd.
**Aire*	J. Collier	Associated Humber Lines
Amsterdam	C. R. Baxter, D.S.C.	British Transport Commission
**Angelo*	J. F. Tognola	Ellerman's Wilson Line, Ltd.
†Apollo	G. V. Barnes	Bristol Steam Navigation Co., Ltd.
**Ariosto*	W. C. Gill	Ellerman's Wilson Line, Ltd.
**Atlantic Coast*	J. T. Williams	Coast Lines, Ltd.
**Belvina*	P. Irvine	London & Edinburgh Shipping Co., Ltd.
**Blyth*	C. B. E. Eaton	Associated Humber Lines
British Coast	P. A. Johnson	Coast Lines, Ltd.
**Bury*	H. Aaron	Associated Humber Lines
**Bylands Abbey*	J. W. Westerdale	Associated Humber Lines
Caledonian Coast	F. Mara	Coast Lines, Ltd.
Cambria	R. H. Lord, R.D., Lt.-Cdr., R.N.R.	British Transport Commission
Cato	L. Jenkins	Bristol Steam Navigation Co., Ltd.
**Cicero*	A. T. Jardine	Ellerman's Wilson Line, Ltd.
Claymore	J. C. McKinnon	David MacBrayne
**Clupea*	J. Jappy	Fishery Board for Scotland
**Corfen*	A. Metcalf	Wm. Cory & Son, Ltd.
Corfleet	B. Cardy	Wm. Cory & Son, Ltd.
**Cormain*	J. T. Collin	Wm. Cory & Son, Ltd.
Cormead	E. Allen	Wm. Cory & Son, Ltd.
Cormist	R. J. Barrow	Wm. Cory & Son, Ltd.
Cormoat	R. B. Armstrong	Wm. Cory & Son, Ltd.
**Cormull*	R. V. O'Connell	Wm. Cory & Son, Ltd.
Corncrake	W. S. Dunlop	Moss Hutchison Line, Ltd.
Crane	H. G. Jones	Moss Hutchison Line, Ltd.
**Don*	F. Drury	Associated Humber Lines
**Drake*	D. Diggens	General Steam Navigation Co., Ltd.
**Dryburgh*	G. Simpson	George Gibson & Co., Ltd.
Duke of Argyll	W. N. Greenwood	British Transport Commission
Duke of Lancaster	V. Irwin, R.D., Cdr. R.N.R.	British Transport Commission
Duke of Rothesay	H. Thompson	British Transport Commission
**Edinburgh Merchant*	T. S. Robertson	London Scottish Line
Empire Cymric	R. Hockings	Atlantic Steam Navigation Co., Ltd.
Empire Gaelic	J. T. Morgan	Atlantic Steam Navigation Co., Ltd.
Fountains Abbey	H. Boydes	Associated Humber Lines
Fulham X	D. Battle	Central Electricity Authority
Golden Dawn	A. Andson	A. Adamson, M.B.E.
**Gothland*	H. Anderson	Currie Line, Ltd.
Great Western	H. H. Cooney	British Transport Commission
**Grebe*	G. C. Longfield	General Steam Navigation Co., Ltd.
Greyfriars	D. Hunt	E. R. Newbigin, Ltd.
Guernsey Coast	E. C. Lucas	Coast Lines, Ltd.
**Hadrian Coast*	W. Wyness	Coast Lines, Ltd.
Harrogate	J. M. Walters	Associated Humber Lines
**Hebble*	H. W. Crabtree	British Transport Commission
Hibernia	E. A. Horspool	British Transport Commission
**Hibernian Coast*	S. Mearns	Coast Lines, Ltd.
**Iberian Coast*	G. G. Coxford	Tyne Tees Shipping Co., Ltd.
**Inmisfallen*	J. Williams	City of Cork Steam Packet Co.
Isle of Guernsey	H. Brieully	British Transport Commission
Isle of Jersey	F. Cantle	British Transport Commission
Isle of Sark	H. G. Hequet	British Transport Commission
Jersey Coast	H. G. Keilit	Coast Lines, Ltd.
**Jura*	L. J. Blanche	Admiral Shipping Co., Ltd.
**Kirkham Abbey*	W. H. Fox	Associated Humber Lines
Lairds Crest	D. McCornmace	Burns Laird Line, Ltd.
Lairds Wood	H. Davidson	Burns Laird Line, Ltd.
**Leinster*	P. Mullan	British & Irish Steam Packet Co.
Loch Seaforth	J. Smith	David MacBrayne, Ltd.
**London Merchant*	W. Fisher	London Scottish Lines, Ltd.
**Macclesfield*	P. Boylan	British Transport Commission
Maidstone	E. H. Ashton	British Transport Commission
Marine Craft Unit (R.A.F.) No. 1102	B. Rose	Royal Air Force
**Melrose*	J. Murray	Geo. Gibson & Co., Ltd.
Melrose Abbey	J. Blackburn	Associated Humber Lines
†Meta	A. D. McNab	Clydesdale Shipowners Co., Ltd.
†Milo	G. E. Knight	Bristol Steam Navigation Co., Ltd.
Minna	T. Mather	Fishery Board for Scotland
**Munster*	T. MacFarlane	British & Irish Steam Packet Co.
†Narva	R. S. MacLachlan	Glen & Co. (Scottish Navigation Co., Ltd.)
**Netherlands Coast*	E. G. Fisher	Tyne Tees Shipping Co., Ltd.
Ocean Coast	A. Millson	Coast Lines, Ltd.
Orchy	J. McGugan	Wm. Sloan & Co., Ltd.
**Pluto*	A. F. Dudgeon	Bristol Steam Navigation Co., Ltd.
Princess Maud	E. A. Bradshaw	British Transport Commission
Ringdove	E. C. Painter, D.S.C.	General Steam Navigation Co., Ltd.
**Rollo*	S. Stakes	Ellerman's Wilson Line, Ltd.
Runa	J. Gilfillan	Clydesdale Shipowners Co., Ltd.
St. Helier	G. Cartwright	British Transport Commission

Marid Ships—*contd.*

Name of Vessel	Captain	Owners/Managers
St. Julien	B. Newton	British Transport Commission
**St. Magnus*	L. Mainland	N. of Scotland & Ork. & Shet. S.N. Co., Ltd.
**St. Ninian*	A. M. Dundas	N. of Scotland & Ork. & Shet. S.N. Co., Ltd.
†Sandpiper	W. G. James	General Steam Navigation Co., Ltd.
Selby	F. Drury	Associated Humber Lines
**Silvio*	H. Whitfield	Ellerman's Wilson Line, Ltd.
Slieve Bawn	A. Robertson	British Transport Commission
Slieve Bernagh	E. H. Ashton	British Transport Commission
Slieve Bloom	I. Griffiths	British Transport Commission
Slieve League	R. Roberts	British Transport Commission
Slieve More	G. J. Butterworth	British Railways (L.M. Region)
Southern Coast	D. Mercer	Coast Lines, Ltd.
**Suffolk Coast*	T. Tulloch	Tyne Tees Shipping Co., Ltd.
Teano	E. R. Corp	Ellerman's Wilson Line, Ltd.
†Thelma	T. Fairweather	Glen & Co., Ltd.
Vienna	R. Good	British Railways (Eastern Region)
**Whitby Abbey*	H. M. Collier	Associated Humber Lines
Yarmouth Trader	R. A. Goodings	Great Yarmouth Shipping Co., Ltd.

* These ships also send in non-instrumental weather messages when in the North Sea.
† Ships also on the supplementary list.

Trawlers

The following is a list of trawler skippers who voluntarily observe and report those elements of the weather which do not entail the use of any meteorological instruments (irrespective of the vessels in which they sail).

Skipper	Trawler Owners/Managers	Skipper	Trawler Owners/Managers
W. Barrell	Northern Trawlers, Ltd.	E. Johnson	Thomas Hamling & Co., Ltd.
R. Blyth	Northern Trawlers, Ltd.	J. A. Kersey	St. Andrew's Steam Fishing Co., Ltd.
T. Booth	Northern Trawlers, Ltd.		
J. T. Cod	Onward Steam Fishing Co., Ltd.	W. Marsh	Hellyer Bros., Ltd.
C. Coultas	Sir Thomas Robinson & Son, Ltd.	J. Myers	Thomas Hamling & Co., Ltd.
L. Coultas	Onward Steam Fishing Co., Ltd.	G. Phillips	Lord Line, Ltd.
J. Dobson	Thomas Hamling & Co., Ltd.	F. Pitt	Hudson Bros. Trawlers, Ltd.
R. East	Lord Line, Ltd.	D. Roberts	Derwent Trawlers, Ltd.
J. C. Evans	Crampin Steam Fishing Co., Ltd.	N. Rogers	St. Christopher Steam Fishing Co., Ltd.
T. Fall	Atlas Steamship Co., Ltd.		
W. Fletcher	Lord Line, Ltd.	R. Sackville-Bryant	Boyd Line, Ltd.
J. Gibson	Thomas Hamling & Co., Ltd.	T. Sawyers	Thomas Hamling & Co., Ltd.
C. Gill	Boyd Line, Ltd.	J. W. Tomlinson	Lionel C. Tomlinson
J. Gower	Hudson Bros. Trawlers, Ltd.	G. Ward	Dominion Steam Fishing Co., Ltd.
F. Gray	Thomas Hamling & Co., Ltd.	B. C. Wharam	St. Andrew's Steam Fishing Co., Ltd.
J. Green	Northern Trawlers, Ltd.		
A. E. Hall	St. Andrew's Steam Fishing Co., Ltd.	G. Whitecombe	Northern Trawlers, Ltd.
		A. Whittlelon	Derwent Trawlers, Ltd.
R. Hall	Hudson Bros. Trawlers, Ltd.	—. Whur	Charleson-Smith Trawlers, Ltd.
W. Hardie	Consolidated Fisheries, Ltd.	E. A. Woolridge	Lord Line, Ltd.
G. Honhold	Hellyer Bros., Ltd.	J. M. Wright	Loyal Steam Fishing Co., Ltd.
T. Howe	Thomas Hamling & Co., Ltd.		

North Sea Traders

The following is a list of North Sea traders voluntarily observing and reporting those elements of the weather which do not entail the use of any meteorological instruments.

Name of Vessel	Captain	Owners/Managers
Electra	A. L. Cook	Cable & Wireless, Ltd.
Folda	A. Goodlad	Chr. Salvesen & Co.

Light-vessels

The following light-vessels voluntarily observe, record and/or report from coastal waters of Great Britain.

Name of Vessel	Masters
Bar	E. E. Abbott, N. S. Burns
Dowsing	W. M. Ling, T. J. Lewis
East Goodwin	G. A. Nixion, D. A. Bacon
Galloper	E. G. Mullitt
Humber	H. V. Fuller
Newarp	B. Hadden, R. Middleton
Royal Sovereign	L. P. Dawson, S. G. Sharman
St. Gowan	E. H. Rosser, S. G. Lloyd
Seven Stones	D. Appleby, J. H. Cooper
Shambles	A. C. Edward, C. N. Duff
Shipwash	G. W. Broom, R. Thomas
Skulmartin	D. Hawkins, J. O'Neill
Smith's Knoll	J. A. R. Reeves

Training Establishments

The following is a list of Training Establishments which submit logbooks, kept by the cadets under training, to the Marine Division.

Establishment	Captain/Superintendent	Last Return Received
Conway, H.M.S.	E. Hewitt, R.D., Capt. R.N.R.	24.7.57
Pangbourne Nautical College	H. C. Skinner, O.B.E., Cdr. R.N. (Retd.)	30.7.57
Reardon Smith Nautical College	J. N. Rose, R.D., Lt.-Cdr. R.N.R.	15.7.57
Warsash, School of Navigation	G. W. Wakeford, Capt.	14.8.57
Worcester, H.M.S.	R. Gabbett-Mulhallen, Cdr. R.N. (Retd.)	29.4.57

BRITISH COMMONWEALTH

The following lists give the names of observing ships that co-operate with meteorological services of the British Commonwealth.

AUSTRALIA

(Information dated 9.4.57)

Name of Vessel	Call Sign	Owners
Selected Ships:		
Aros	SMPT	Australia West Pacific Line
Asphalion	GZPZ	A. Holt & Co.
Bulolo	VJPD	Burns, Philip & Co.
Canara	MAGZ	British India Steam Navigation Co.
Charon	GZJQ	A. Holt & Co.
Chupra	GDZV	British India Steam Navigation Co.
Citos	SEDN	Australia-West Pacific Line
Delos	SIGA	Australia-West Pacific Line
Duntroon	VLFB	Melbourne Steamship Co., Ltd.
Gorgon	MBKC	A. Holt & Co.
Idomeneus	GKYZ	A. Holt & Co.
Koolinda	VJFC	Western Australian State Steamships
Koorawatha	VLCW	McIlwraith & McEachern Ltd.
Kooringa	VLKR	McIlwraith & McEachern, Ltd.
Malaita	VJYY	Burns, Philip & Co.
Malekula	VLWB	Burns, Philip & Co.
Milos	SIVA	Australia-West Pacific Line
Nellore	GBLZ	Eastern & Australian Steamship Co., Ltd.
Orestes	GFPQ	A. Holt & Co.
Port Melbourne	GTFF	Port Line, Ltd.
Romanic	GSLS	Bolton Steam Shipping Co., Ltd.
Triadic	GDNM	British Phosphate Commissioners
Trienza	GJJZ	British Phosphate Commissioners
Triona	GDFZ	British Phosphate Commissioners
Wanganella	VJPQ	Huddart, Parker & Co., Ltd.
Westralia	VJNJ	Huddart, Parker & Co., Ltd.
Supplementary Ships:		
Daylesford	VJQM	Western Australian State Steamships
Dorrigo	VMWB	Western Australian State Steamships
Dulverton	VJVJ	Western Australian State Steamships
Kabbarli	VLXV	Western Australian State Steamships
Koojarra	VMXK	Western Australian State Steamships
Kybra	VJFN	Western Australian State Steamships

BERMUDA (Information dated 1.2.56)

Name of Vessel	Call Sign	Owners
Ocean Monarch	GJXD	Furness, Withy & Co., Ltd.
Queen of Bermuda	GZKF	Furness, Withy & Co., Ltd.

CANADA (Information dated 15.3.57)

Name of Vessel	Call Sign	Owners
Selected Ships:		
Arosa Sun	HPTT	Arosa Lines (Canada), Ltd.
Baffin		Minister of Mines and Technical Surveys
Bluenose	VDND	Minister of Transport, Canadian Government
Canadian Challenger	VGSK	Canadian National (West Indies) Steamships, Ltd.
Canadian Constructor	VGBY	Canadian National (West Indies) Steamships, Ltd.
Canadian Cruiser	VGPZ	Canadian National (West Indies) Steamships, Ltd.
Cyrus Field	GKQC	Western Union Telegraph Company
D'Iberville	CGSM	Minister of Transport, Canadian Government
Esso Knoxville	HPTK	Panama Transport Co., Panama, R.P.
Esso San Juan	HOJV	Panama Transport Co., Panama, R.P.
Fort Avalon	MBMC	Furness Withy & Co.
Fort Hamilton	GCSS	Furness Withy & Co.
Fort Hearne	VCGX	Hudson's Bay Co., Ltd.
Imperial Edmonton	VGSJ	Imperial Oil Shipping Co., Ltd.
Imperial Toronto	VGSG	Imperial Oil Shipping Co., Ltd.
Irvingbrook	HPBM	Western Trading Corporation, Nassau, Bahamas
Lakemba	VPKV	Pacific Shipowners, Suva, Fiji
Lakonia	GCDB	Donaldson Lines, Ltd.
Lord Kelvin	GDMM	Western Union Telegraph Co.
Pinnacles	VGGZ	Shell Canadian Tankers, Ltd.
Rupertsland	VDXX	Hudson's Bay Co., Ltd.
Sungleam	LJSQ	Lorents S. Lyngass, Tonsberg, Norway
Sunjarv	MSPD	Saguenay Terminals, Ltd.
Thor I	LLWZ	A.S. Thor Dahl, Sandefjord, Norway
Thorsgaard	LALK	A.S. Thor Dahl, Sandefjord, Norway
Waihemo	ZMJO	Union Steamship Co. of New Zealand
Waikawa	ZMJI	Union Steamship Co. of New Zealand
Wairuna	ZMJT	Union Steamship Co. of New Zealand
Waitomo	ZMKO	Union Steamship Co. of New Zealand
Supplementary Ships:		
Anna Bakke	LHNK	Knutsen Line
Bougainville	LMSQ	Klaveness Line
Canadian Conqueror	VCPV	Canadian National (West Indies) Steamships, Ltd.
Canadian Highlander	VCPP	Canadian National (West Indies) Steamships, Ltd.
Canadian Leader	VCQC	Canadian National (West Indies) Steamships, Ltd.
Canadian Observer	VCNW	Canadian National (West Indies) Steamships, Ltd.
Canadian Victor	VCNX	Canadian National (West Indies) Steamships, Ltd.
City of Brooklyn	GZKT	Ellerman Lines, Ltd.
Elisabeth Bakke	LJJX	Knutsen Line
Ellen Bakke	LDAA	Knutsen Line
Gjertrud Bakke	LJZK	Knutsen Line
Hindanger	LMAB	Westal-Larsen, Bergen, Norway
Kristen Bakke	LATI	Knutsen Line
Paloma Hills	VGGX	Shell Canadian Tankers, Ltd.
Rincon Hills	VGGY	Shell Canadian Tankers, Ltd.
Sunbeam	LMCE	Samulsen Falsun, Norway
Sunmoira	LLXD	Dampskibsselkapet, Marna A/S, Oslo, Norway
Sunnyville	LNQZ	Klaveness Line
Sunrose	LLLR	Lorents S. Lynglass, Tonsberg, Norway
Suva	VQWQ	Pacific Shipowners, Ltd.
Ventura	LAFS	Ditleve-Simonsen, Ltd.
Vigan	LAGQ	Ditleve-Simonsen, Ltd.
William Carson	VOLW	Minister of Transport, Canadian Government

PAKISTAN (Information dated 1.10.57)

Name of Ship	Call Sign	Owners
Al Hasan	AQAN	Muhammadi S.S. Co., Ltd.
Al Hussaini	AQAH	Muhammadi S.S. Co., Ltd.
Al Sayyada	AQAS	Muhammadi S.S. Co., Ltd.
Anwar Baksh	AQAM	United Oriental S.S. Co., Ltd.
Maula Baksh	AQBP	United Oriental S.S. Co., Ltd.
Ocean Endurance	AQBW	Trans-Oceanic S.S. Co., Ltd.
Pakistan Prosperity	AQAZ	Karachi Steam Navigation Co., Ltd.
Safina-e-Arab	AQBI	Pan-Islamic S.S. Co., Ltd.

HONG KONG (Information dated 5.10.57)

Name of Veseel	Call Sign	Captain	Observing Officers	Senior Radio Officer	Owner/Manager
Anking	MLLJ	G. T. M. Ramsay	T. A. C. Taylor, G. S. R. Ormond, D. Lyon	Chin Fook On	China Navigation Co., Ltd.
Anshun	GMFM	J. McKinlay	G. E. Bennett, R. A. Elder, P. J. Mooney	Leung Shu Fun	China Nvaigation Co., Ltd.
Belinda	VRPY	J. D. Chapman	R. E. Easley, S. M. Cheng, L. S. Cheng	K. F. Chan	Shun Cheong Steam Navigation Co., Ltd.
Changsha	MLLK	D. C. Sim	S. H. Damp, R. J. Carson, J. M. Crockett	Tsin Pun Cheung	China Navigation Co., Ltd.
Changte	VPFK	E. B. Beeham	J. W. Tinson, T. I. Robertson, M. J. Drummond	A. M. McGregor	China Navigation Co., Ltd.
Chengtu	MTWN	V. R. Woolfe	J. A. McDonald, R. Sanders, Khin Hla	Wu P. Chi Siang	China Navigation Co., Ltd.
Choy Sang	VRKQ	J. H. Thomas	T. H. Nichols, J. E. Hanbidge, P. D. Seddon	D. B. Cumming	Indo-China Steam Navigation Co., Ltd.
Chungking	GTCN	H. Pilling	J. R. Suffren, W. S. Sutcliffe-Key	Ng Pui Chuen	China Navigation Co., Ltd.
Eastern Argosy	ZCUG	H. J. Cairns	J. P. B. Stormont, J. Chisholm, J. D. Witschi	T. McMinn	Indo-China Steam Navigation Co., Ltd.
Eastern Glory	VRLL	W. T. Rochester	J. G. Perrin, D. J. Hooper, J. A. C. Hunter	A. P. MacIsaac	Indo-China Steam Navigation Co., Ltd.
Eastern Maid	ZCSH	G. Kinley	W. F. Povey, P. Ferrar, K. K. Chen	D. C. Matheson	Indo-China Steam Navigation Co., Ltd.
Eastern Muse	ZCSF	F. H. Main	P. J. Sullivan, R. Maund, G. A. Angus	J. C. Middleton	Indo-China Steam Navigation Co., Ltd.
Eastern Queen	VRML	E. J. Thomson	P. G. Harkness, J. W. Nugent, M. H. Major	R. O. Smith	Indo-China Steam Navigation Co., Ltd.
Eastern Saga	VRKK	D. G. R. Kinnear	C. Preston, D. McCrudden, R. E. Strange	R. H. Bullers	Indo-China Steam Navigation Co., Ltd.
Eastern Star	VRPF	W. J. Bartlett	P. Bush, J. A. Cant, R. Beedie	A. Smith	Indo-China Steam Navigation Co., Ltd.
Elsbeth	VRJL	H. Worton	M. Clent, S. Luk	K. B. Wong	Shun Cheong Steam Navigation Co., Ltd.
Fengning	GGQY	R. C. W. Gorman	J. W. G. Wilby, R. G. W. Macalister, G. Burgum	Tsang Pui Leung	China Navigation Co., Ltd.
Fengtien	GDVX	G. Baxter	J. Kiely, C. H. Shih, S. C. Tseng	Ho Po Lam	China Navigation Co., Ltd.
Foochow	GFPD	J. R. Brett	F. Cunningham, M. L. Wong, S. D. Hwang	Tang Yuen	China Navigation Co., Ltd.
Fukien	GBQZ	G. P. Cope	A. H. McAuley, W. Cooper, C. Tee	Yeung Wai Ki	China Navigation Co., Ltd.
Funing	GGSB	A. V. Harrison	J. R. Kidd, D. M. Clift, R. F. D. Pook	Choi Pong Cheung	China Navigation Co., Ltd.
Golden Kappa	VRPB	F. T. Dunn	R. J. Porter, Andrew G. Agnew	Wong Sik Yan	World Wide Steamship Co., Ltd.
Hai Hing	LKFD	G. Hamre	H. Kystvaag, R. Andressen, C. M. Bjorndal	Yeuk Chung	China Siam Line
Hai Lee	LIVC	T. Thorkildsen	E. O. Kvalheim, A. Gronvik, Jorgen Waage		China Siam Line
Hai Meng	LNXK	J. Eide	O. S. Schibsted, O. Johannesen, T. B. Naess	Chan Kam Tsun	China Siam Line
Hang Sang	VRKR	M. J. K. Crichton	J. Parish, G. G. Mackay, J. S. Woodard	R. Prosser	Indo-China Steam Navigation Co., Ltd.
Hanyang	GTTY	E. Bruce	A. Bartlev, P. A. Blaney, C. To	Yue Shiu Ming	China Navigation Co., Ltd.
Heinrich Jessen	OXRE	J. N. Holst	H. P. Fallesen, W. Kronenbitter, E. Andersen	Tse Kam Sak	Jebsen & Co.
Helios	LACF	N. Soelberg	O. Sorbye, F. Rosendahl, J. Aasebo	Ip Yuk Fai	China Siam Line
Henrik	LAPM	E. Nordendal	H. Yndestad, S. Hostad, A. Solbaak	Chiu Tze Kong	China Siam Line
Hermelin	LKIZ	O. Osterberg	B. Maaren, P. Finne, R. Johansen	Lai Kwong Yin	China Siam Line
Hermod	LKTL	O. J. Apold	A. Lerstang, A. Sjoberg, O. Olsen	P. Poon	China Siam Line
Hervar	LAPL	H. Andersen	R. Skarpnes, K. Jacobsen, R. Farstad	Fung Wing Chee	China Siam Line
Hew Sang	VRKV	W. E. Reeve	M. J. Pope, B. O. Jensen, D. Wilson	S. F. V. Yarrow	Indo-China Steam Navigation Co., Ltd.
Hin Sang	VRKL	J. F. G. Fotheringham	S. R. Bridgeford, N. J. Wilson, Hsu Chien Szu	D. Taylor	Indo-China Steam Navigation Co., Ltd.
Hoi Houw	LNXE	B. Maeland	M. Aarland, K. Hemnes, H. L. Pedersen	H. O. Olsen	Karsten Larsen & Co. (Hong Kong), Ltd.
Hoi Wong	LNQL	M. Bjerkenes	O. Oftedal, O. G. Espeseth, L. Hovland	J. Larsen	Katsen Larssen & Co. (Hong Kong), Ltd.
Hoi Ying	LLUJ	K. Munkejord	J. Ekrene, R. Lien, K. Andersen	L. G. Anderssen	Katsen Larssen & Co. (Hong Kong), Ltd.
Hong Kong Trader	ZCKN	E. G. Anderson	L. Wykie, Li Yat Bui, Leung Kui Yuen	Wen Wing Ho	Great Southern Steamship Co., Ltd.
Hop Sang	VPBP	T. C. W. Marr	W. D. Skidmore, E. E. Ewbank, D. E. Wiles	D. Taylor	Indo-China Steam Navigation Co., Ltd.
Ho Sang	VRGJ	R. K. Learoyd	A. W. Lloyd-Taylor, M. Tonner, T. Y. Yuen	Luk U Cheong	Indo-China Steam Navigation Co., Ltd.
Hunan	GPQL	D. W. R. Gash	D. Green, P. J. Wu, Y. S. Loh	Tsang Kau	China Navigation Co., Ltd.
Hupeh	GWRN	A. Harper	R. E. Brooks, J. C. Mark, R. A. Button	Tong Sik Iu	China Navigation Co., Ltd.
Jacob Jebsen	OYJO	R. A. D. Nielsen	U. Bahnsen, F. Kopp, T. Moeller Hansen	L. Yong	Jebsen & Co.
Lao	SKRT	S. A. Ostling	R. A. Ericksson, P. O. Granqvist, T. H. P. Gustavsson	P. E. G. Wengelin	Everett Steamship Corporation
Lok Sang	VRJN	R. G. G. Stanton	J. H. Gould, G. A. Milward, H. F. B. Schack	H. Burgoyne	Indo-China Steam Navigation Co., Ltd.

Mui Hock	LJEU	O. Antonsen	H. F. Ugland, Erling Johnson, K. G. Sivertsen	Chan Fuk Sze	Karsten Larssen & Co. (Hong Kong), Ltd.
Ocean Trader	ZCKH	J. L. Baines	S. J. Harvey, C. S. Barboza, Fung Bui	Hung San	Great Southern Steamship Co., Ltd.
Pakhoi	GTTK	J. Hunter	G. Gilroy, N. C. Pearson, C. T. Lu	Lam Bun	China Navigation Co., Ltd.
Poyang	GTTF	R. E. Selwyn-Jones	P. W. Campbell, E. F. Lee, T. F. Hung	Leung Man Hin	China Navigation Co., Ltd.
Produce	LLPG	L. Hetland	J. Jensen, O. Gjerde, A. Hjaltalin	Lok Kow Wei	Karsten Larssen & Co. (Hong Kong), Ltd.
Sangola	GCLB	F. Mears	I. W. Crawford, K. R. Ray	D. Dowie	British India Steam Navigation Co., Ltd.
Shansi	GTQP	J. F. Follett	J. M. Innes, M. D. O'Keeffe, N. B. Manning	J. P. Asome	China Navigation Co., Ltd.
Sinkiang	GNQW	W. J. Bunney	D. A. Hutchinson, M. E. Barrett, G. Chell	Kwan Hok Kwan	China Navigation Co., Ltd.
Soochow	GTWS	A. Watson	J. B. H. J. Aldiss, B. G. D. Ward, A. T. Tugwell	Leung Kan	China Navigation Co., Ltd.
Star Alcyone	HPUU	D. S. Hulten	S. A. Bengtsson, P. E. A. Kindberg, E. N. Nielsen	B. A. I. Olsson	Everett Steamship Corporation
Star Betelgeuse	HOFI	S. E. Sundstedt	S. G. Andersson, R. Krastins, L. O. Lunden	P. G. Nilsson	Everett Steamship Corporation
Szechuen	GKWJ	E. H. Histed	D. G. Langdon, C. F. Chan, C. J. Wong	Li San Kau	China Navigation Co., Ltd.
Tai Chung Shan	VRGX	D. O. Conway	H. C. N. Hyde, K. S. Ho, C. L. Ho	K. Y. Pun	Shun Cheong Steam Navigation Co., Ltd.
Taiping	VPFQ	N. L. Hall	J. A. Doyle, T. Haworth, G. J. James	R. P. Emery	China Navigation Co., Ltd.
Tai Poo An	ZCSG	E. C. Thomson	M. L. Shi, H. K. Fung, S. H. Fung	K. Y. Lam	Shun Cheong Steam Navigation Co., Ltd.
Tai Poo Sek	ZCKP	E. M. L. Merrett	C. Alexander, Y. S. Lee, W. Lau	F. Y. Kan	Shun Cheong Steam Navigation Co., Ltd.
Taiyuan	MMLF	Y. N. Campbell	J. F. O'Connor, J. M. K. Kelly, K. H. Nettleship	Wan Siu Hung	China Navigation Co., Ltd.
Tak Sang	VRKN	G. P. Parish	I. D. Patterson, R. King, F. G. Christie	W. I. Briggs	Indo-China Steam Navigation Co., Ltd.
Yochow	GWQB	C. A. N. Baker	C. E. Lingard, Y. Lin, W. Lee	Wai Pun Un	China Navigation Co., Ltd.
Yunnan	GWXP	J. R. Keddie	M. R. M. Seale, M. T. Anderson, P. C. S. Yang	Cheung Shau Wai	China Navigation Co., Ltd.

MALAYA (Information dated August 1957)

Name of Vessel	Call Sign	Captain	Observing Officers	Senior Radio Officers	Owners and Managers
Bentong	ZBNF	R. G. Ogden	F. H. Roe	K. P. Quinn	Straits Steamship Co., Ltd.
Benveg	GMWB	R. D. Robb	J. M. MacLeod	S. G. Thompson	Ben Line Steamers, Ltd.
Bidor	ZBBZ	H. D. Nock	E. V. Bloomfield	B. G. Major	Straits Steamship Co., Ltd.
Darvel	VPQC	A. R. Pearson	R. G. Mallet	P. V. Abrahams	Straits Steamship Co., Ltd.
Islander	VSPS	F. C. Gray	A. H. Spears	P. L. Long	Christmas Island Phosphate Commissioners; Boustead & Co., Ltd.
Kajang	VPQD	A. B. Clerk	J. W. Cook, H. R. Watson	F. J. Menezes	Straits Steamship Co., Ltd.
Kah Poh	ZBBJ	J. S. Robertson	J. S. Robertson		Ho Chiang Shipping Co., Ltd.
Katong	ZBNR	R. C. Liddle	A. M. Hatton	J. W. F. Evans	Straits Steamship Co., Ltd.
Kimanis	VSND	A. W. Richardson	H. M. Stanfield, H. P. Davies	D. A. E. Goodland, Koh Chwee Seng	Straits Steamship Co., Ltd.
Kinabalu	MGDC	A. B. Durrant	P. N. Hicks, B. W. Reeves	K. M. Pillai	Straits Steamship Co., Ltd.
Larut	VPKO	G. H. Stewart	V. W. Pinnington	Mohamed Salleh bin Abdullah	Straits Steamship Co., Ltd.
Marudu	VPQB	N. R. Murray	P. C. Smith	C. E. George, Kuo Vhuen Shuan	Straits Steamship Co., Ltd.
Matang	VSPB	J. M. Harkness	J. H. G. Tapscott, Noor bin Ismail	A. E. Engineer	Straits Steamship Co., Ltd.
Perak	VSPJ	H. W. Wilkinson	B. S. Roberts	R. M. Fernandez	Straits Steamship Co., Ltd.
Perlis	VSRA	B. S. Sprenger	E. M. Evans	N. Tham	Straits Steamship Co., Ltd.
Recorder	GSFS	L. Cook	N. Morganti, J. S. Brown, R. D. Wright	G. O'Brien	Cable & Wireless, Ltd.
Salong	VSYZ	A. D. Watterson	A. D. Watterson	Chan Tham Shun	Straits Steamship Co., Ltd.

INDIA (Information dated 5.10.57)

Name of Vessel	Call Sign	Owners
Selected Ships:		
Alavi	VWBL	The Mogul Line, Ltd.
Bahadur	MAVH	Asiatic Steam Navigation Co., Ltd.
Dara	GDTT	British India Steam Navigation Co., Ltd.
Daressa	GFSM	British India Steam Navigation Co., Ltd.
Dumra	GMLM	British India Steam Navigation Co., Ltd.
Dwarka	GCKS	British India Steam Navigation Co., Ltd.
Havildar	GLVK	Asiatic Steam Navigation Co., Ltd.
Indian Exporter	VWVW	India Steamship Co., Ltd.
Indian Merchant	VWVR	India Steamship Co., Ltd.
Indian Pioneer	VWVS	India Steamship Co., Ltd.
Indian Reliance	VWCJ	India Steamship Co., Ltd.
Indian Trader	VWVT	India Steamship Co., Ltd.
Islami	VWJC	The Mogul Line, Ltd.
Jaladuta	VWDJ	Scindia Steam Navigation Co., Ltd.
Jalaganga	VWJG	Scindia Steam Navigation Co., Ltd.
Jalaketu	VWWC	Scindia Steam Navigation Co., Ltd.
Jalakrishna	VWJM	Scindia Steam Navigation Co., Ltd.
Jalamanjari	VWWY	Scindia Steam Navigation Co., Ltd.
Jalaprakash	VWYD	Scindia Steam Navigation Co., Ltd.
Jaljawahar	VWDD	Scindia Steam Navigation Co., Ltd.
Jalayamuna	VWJJ	Scindia Steam Navigation Co., Ltd.
Jehangir	VWBJ	The Mogul Line, Ltd.
Kampala	GCKX	British India Steam Navigation Co., Ltd.
Karanja	MACS	British India Steam Navigation Co., Ltd.
Mahadevi	GCRN	Asiatic Steam Navigation Co., Ltd.
Mohammedi	GCBS	The Mogul Line, Ltd.
Mozaffari	MACV	The Mogul Line, Ltd.
Nadir	GCDV	Asiatic Steam Navigation Co., Ltd.
Nicobar	VWJL	The Eastern Shipping Corporation
Nurani	MAPS	Asiatic Steam Navigation Co., Ltd.
Rajula	GMSN	British India Steam Navigation Co., Ltd.
Risaldar	GLVL	Asiatic Steam Navigation Co., Ltd.
Santhia	GFSN	British India Steam Navigation Co., Ltd.
Shahjehan	GPVX	Asiatic Steam Navigation Co., Ltd.
Sirdhana	GCLD	British India Steam Navigation Co., Ltd.
State of Bombay	VWWP	The Eastern Shipping Corporation
State of Kutch	VWBY	The Eastern Shipping Corporation
State of Madras	VWWN	The Eastern Shipping Corporation
State of Saurashtra	VWXY	The Eastern Shipping Corporation
State of Travancore-Cochin	VWBX	Eastern Shipping Corporation
Subadar	MADK	Asiatic Steam Navigation Co., Ltd.
Umaria	GMNS	British India Steam Navigation Co., Ltd.
Supplementary Ships:		
Amra	GNNX	British India Steam Navigation Co., Ltd.
Bharatbhushan	VWCY	The Bharat Line, Ltd.
Bharatmitra	VWYX	The Bharat Line, Ltd.
Bharatraja	VWXL	The Bharat Line, Ltd.
Bharatrani	VWXM	The Bharat Line, Ltd.
Bharatratna	VWZX	The Bharat Line, Ltd.
Bharatveer	VWZY	The Bharat Line, Ltd.
Bharatvijaya	VWZK	The Bharat Line, Ltd.
Indian Commerce	VWZW	India Steamship Co., Ltd.
Indian Renown	VWCF	India Steamship Co., Ltd.
Indian Resolve	VWDN	India Steamship Co., Ltd.
Indian Resource	VWDK	India Steamship Co., Ltd.
Itaura	GMWW	British India Steam Navigation Co., Ltd.
Jag Ganga	VWYV	Great Eastern Shipping Co., Ltd.
Jag Rani	VWZF	Great Eastern Shipping Co., Ltd.
Jag Tara	LKJR	Great Eastern Shipping Co., Ltd.
Jag Vijay	VWWT	Great Eastern Shipping Co., Ltd.
Jaladhan	VWFQ	Scindia Steam Navigation Co., Ltd.
Jalakendra	VWWB	Scindia Steam Navigation Co., Ltd.
Jalamayur	VWWX	Scindia Steam Navigation Co., Ltd.
Jalamohan	VWCX	Scindia Steam Navigation Co., Ltd.
Jalapadma	VWYN	Scindia Steam Navigation Co., Ltd.
Jalaprabha	VWXS	Scindia Steam Navigation Co., Ltd.
Jalaputra	VWBN	Scindia Steam Navigation Co., Ltd.
Jalarajendra	VWYP	Scindia Steam Navigation Co., Ltd.
Jalausha	VWWV	Scindia Steam Navigation Co., Ltd.
Jalavihar	VWBQ	Scindia Steam Navigation Co., Ltd.
Jalavijaya	VWBR	Scindia Steam Navigation Co., Ltd.
Jalavishnu	VWBS	Scindia Steam Navigation Co., Ltd.
Jalazad	VWDF	Scindia Steam Navigation Co., Ltd.
Jalvallabh	VWYM	Scindia Steam Navigation Co., Ltd.
Malika	GCSK	Asiatic Steam Navigation Co., Ltd.
Rizwani	VWBF	The Mogul Line, Ltd.
Saudi	GVKL	The Mogul Line, Ltd.
State of Andhra	VWBD	Eastern Shipping Corporation
State of West Bengal	VWXW	The Eastern Shipping Corporation

NEW ZEALAND (Information dated 23.8.57)

Name of Vessel	Call Sign	Owners
Selected Ships:		
Kaimanawa	ZMGZ	Union Steam Ship Company of New Zealand, Ltd.
Kaimiro	ZMEC	Union Steam Ship Company of New Zealand, Ltd.
Kaitoa	ZMGC	Union Steam Ship Company of New Zealand, Ltd.
Kaitoke	ZMTZ	Union Steam Ship Company of New Zealand, Ltd.
Kaponga	ZMVE	Union Steam Ship Company of New Zealand, Ltd.
Karitane	ZMJX	Union Steam Ship Company of New Zealand, Ltd.
Kauri	ZMCV	Union Steam Ship Company of New Zealand, Ltd.
Kawaroa	ZMBX	Union Steam Ship Company of New Zealand, Ltd.
Kawatiri	ZMKX	Union Steam Ship Company of New Zealand, Ltd.
Kaweraw	ZMFY	Union Steam Ship Company of New Zealand, Ltd.
Komata	ZMCX	Union Steam Ship Company of New Zealand, Ltd.
Kopua	ZMLZ	Union Steam Ship Company of New Zealand, Ltd.
Koranui	ZMBG	Union Steam Ship Company of New Zealand, Ltd.
Koromiko	ZMRT	Union Steam Ship Company of New Zealand, Ltd.
Kowhai	ZMQU	Union Steam Ship Company of New Zealand, Ltd.
Kurow	ZMFJ	Union Steam Ship Company of New Zealand, Ltd.
Kurutai	ZMQH	Union Steam Ship Company of New Zealand, Ltd.
Matua	ZMBN	Union Steam Ship Company of New Zealand, Ltd.
Maui Pomare	ZMMG	New Zealand Government
Monowai	ZMCD	Union Steam Ship Company of New Zealand, Ltd.
Navua	ZMCZ	Union Steam Ship Company of New Zealand, Ltd.
Port Montreal	GRKJ	Port Line, Ltd.
Port Quebec	GWGQ	Port Line, Ltd.
Port Saint John	GBCZ	Port Line, Ltd.
Tofua	ZLMI	Union Steam Ship Company of New Zealand, Ltd.
Waimate	ZMDV	Union Steam Ship Company of New Zealand, Ltd.
Waimea	ZMRU	Union Steam Ship Company of New Zealand, Ltd.
Waipori	ZMFL	Union Steam Ship Company of New Zealand, Ltd.
Wairata	ZMBZ	Union Steam Ship Company of New Zealand, Ltd.
Wairimu	ZMVR	Union Steam Ship Company of New Zealand, Ltd.
Waitemata	ZMQW	Union Steam Ship Company of New Zealand, Ltd.
Supplementary Ships:		
Coromel	ZMLV	Jurie Shipping Co., Ltd.
Kaiapoi	ZMVD	Union Steam Ship Company of New Zealand, Ltd.
Kairanga	ZMCY	Union Steam Ship Company of New Zealand, Ltd.
Kaitangata	ZMTJ	Union Steam Ship Company of New Zealand, Ltd.
Kaitawa	ZMVC	Union Steam Ship Company of New Zealand, Ltd.
Kaituna	ZMHR	Union Steam Ship Company of New Zealand, Ltd.
Konui	ZMVB	Union Steam Ship Company of New Zealand, Ltd.
Korowai	ZMKD	Union Steam Ship Company of New Zealand, Ltd.
Piri	ZMGM	Imperial Chemical Industries, Ltd.
Port Waikato	ZMJN	Holm & Company, Ltd.
Viti	VQWS	Tasman Steam Ship Company of New Zealand, Ltd.
Waiana	ZMDQ	Union Steam Ship Company of New Zealand, Ltd.
Waitaki	ZMLR	Union Steam Ship Company of New Zealand, Ltd.

SOUTH AFRICA (Information dated 1.10.57)

Name of Vessel	Call Sign	Owners/Commanding Officer
Africana II	ZSVK	Division of Fisheries, Cape Town
F. T. Bates	ZSWW	South African Railways and Harbours, Cape Town
Constantia	ZSRF	South African Marine Corporation, Cape Town
Frances Repetto	ZSNB	Tristan Development Co., Cape Town
Herero Coast	MQZK	Thesens Steamship Co., Cape Town
Morgenster	ZSSJ	South African Marine Corporation, Cape Town
South African Merchant	ZTFT	South African Marine Corporation, Cape Town
Tristania	ZSCW	Tristan Development Co., Cape Town
Vergelegen	ZSSN	South African Marine Corporation, Cape Town
South African Nautical College, " General Botha "		Captain G. V. Legassick, D.S.C., R.D., Capt. R.N.R.
Naval Gymnasium, Saldanha Bay		Inst.-Commander S. C. Biermann, B.A.

WEST INDIES (Information dated 23.10.57)

Name of Vessel	Call Sign	Owners
Electra	MRYX	Cable & Wireless, Ltd.
West Indian	WRBR	Indo-China Steam Navigation Co., Ltd.

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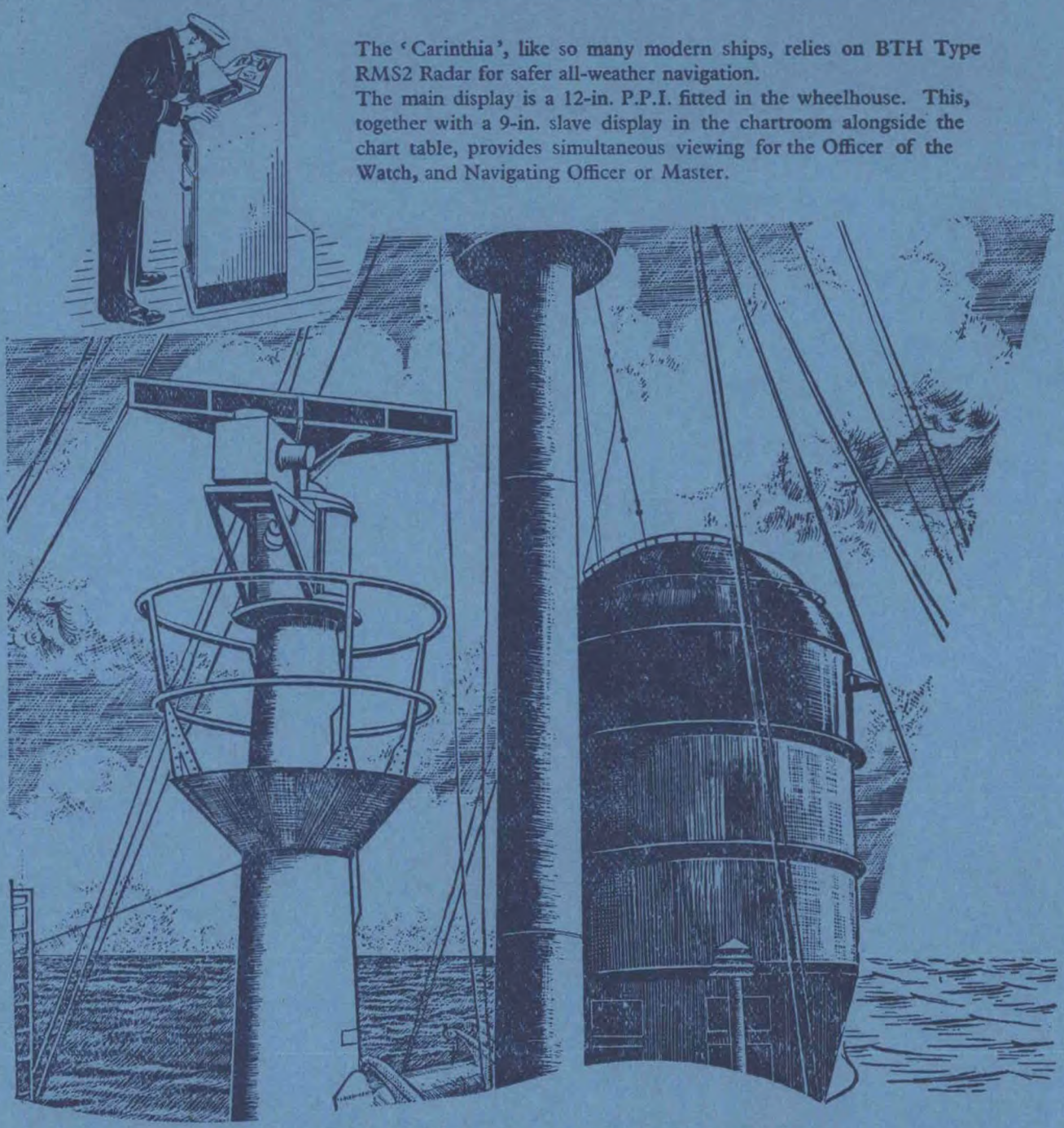

The 20,000-ton 'Carinthia' was built by John Brown, Clydebank, and commissioned for Cunard Steam-Ship Co. Ltd. in 1956. 'Saxonia' and 'Ivernia', two sister ships already in service, are also fitted with BTH Type RMS2 Radar.

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