

VOL. III. No. 35.

THE MARINE OBSERVER.

NOVEMBER 1926.

TABLE OF PRINCIPAL CONTENTS.

	PAGE
Charts of Currents - - - - -	187
The Marine Observer's Log (with illustrations) - - - - -	188
Cyclonic Storm in the Bay of Bengal - - - - -	191
Phosphorescence of the Sea (with illustrations) - - - - -	193
Local Winds—V. - - - - -	196
Weather Signals, South West Africa, Union of South Africa and Portuguese East Africa :—	
II. Wireless Weather Signals (Bulletins) - - - - -	198
III. Wireless Time Signals - - - - -	200
IV. Visual Storm Warnings - - - - -	200

Lithographic Illustrations after page 202.
Weather Charts XXII. to XXVI., Mornings of November 24th to 28th, 1925, Bay of Bengal.
Chart of Currents on the Routes from Latitude of Cape St. Vincent to Latitude of Cape Blanco, compiled from observations made by ships using the Routes from the Channel to S. Africa and S. America. November, December and January, 1910–1914, 1920–1924 and explanation.
Charts of Wind and Fog at Coast Stations, Great Britain and Ireland, and Wind, Fog and Mist, S.W. Approaches to Great Britain and Ireland, November.
Chart showing Mean Sea, Surface Temperatures, North Atlantic, for month of November, compiled from all available sources during the period 1855 to 1917.

CHARTS OF CURRENTS.

In this number we complete the charting of currents on the Routes from the Channel to South Africa and South America with the last quarter of the section from the Latitude of Cape St. Vincent to Cape Blanco. In the December number the charting of currents on the Trans North Atlantic Tracks will be completed.

Next year we intend to chart the currents on the tracks to and from the West Indies and Panama and we hope in 1928 to be able to commence charting the currents along the route from Panama to New Zealand and Australia across the South Pacific.

We hope that Marine Observers who have experience in navigating the former will not wait until these charts are published to send in remarks but that they will forward information, based on experience, of peculiarities of current which they may have experienced and that Marine Observers now navigating the latter will give the question of current in the Pacific their most careful attention, making notes of their experiences so that they will be prepared towards the end of 1927 to send in remarks. As has already been proved the value of the current charts may be increased if accompanied by explanatory and

amplifying information in the form of articles, and the collective views and experiences of commanders engaged for many years in navigating any particular route may add very greatly to the practical utility of the charted observations especially if those views and experiences are the result of careful record.

With so variable an element as current, memory if unaided by record may play us false, for it has sometimes happened that on several voyages in some locality where the current is variable a set and drift of similar direction and velocity has been observed, so creating the impression that it was usual.

It is of great importance that the set and drift should be carefully and constantly observed by ships in all parts of the world whether on recently charted routes or not, and Marine Observers are urged to record the set and drift whenever it is possible to obtain them with reliability.

We also wish to emphasise the importance of including the set and drift in Wireless Weather reports to "All ships" when available.

MARINE SUPERINTENDENT.

THE MARINE OBSERVER'S LOG.

It is hoped that these pages will be filled each month with a selection of the contributions of Mariners in manuscript, or remarks from the Logs and Reports of regular Marine Observers.
Responsibility for statements rests with the Contributor.

GREEN FLIES FOUND 300 MILES FROM LAND.

Bay of Bengal.

THE following is an extract from the Meteorological Log of S.S. *Risaldar*, Captain G. PARK, Bombay to Calcutta :—

"November 12th, 1925, 7 p.m. in Latitude 18° N., Longitude 85° E. observed number of green flies on board, usually foretelling arrival of Calcutta cold weather.

"Wind N.E. 4. Nearest land to the N.E. being approx. 300 miles.

"These flies come out after dark, and presume rose in the air at 7 p.m. on November 11th, reaching me in one day and generally proving I may expect strong N.E. wind to Sandheads."

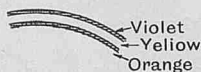
SOLAR HALO.

Off East Coast Queensland, Australia.

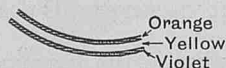
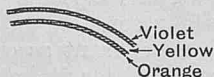
THE following is an extract from the Meteorological Log of H.M.A.S. *Moresby*, Captain J. A. EDGELL, O.B.E., R.N., surveying East Coast of Australia :—

"November 4th, 1925. Whilst at sea off the Keppel Is. on the East coast of Queensland, in position Latitude $23^{\circ} 06\frac{1}{2}'$ S., Longitude $150^{\circ} 57'$ E., at about 0800, a portion of a halo was observed, SKETCH 1, above the upper limb of the sun, apparently reflected on to a semi-transparent and misty cloud. Shortly afterwards the halo was observed below the lower limb, SKETCH 2, and at 0815 a complete circle was formed. The phenomenon then extended rapidly and by 0830 was fully developed as indicated in SKETCH 3.

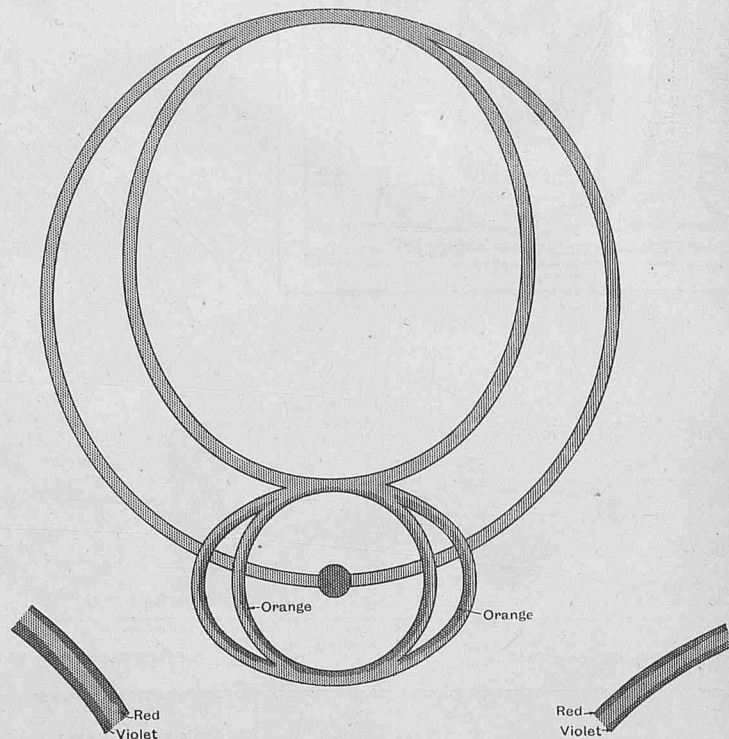
"The various rings were distinctly visible from 0830 until 0845 when the outer ones began to fade and at 0930 a single halo round the sun only remained, this gradually faded, the last portion visible being that below the lower limb, which finally disappeared at 1045. During practically the whole time that phenomenon was visible, the brightest and clearest portions of the circle were the segments of the original halo immediately close and below the upper and lower limbs.



Sketch 1—at 0805, 4th November, 1925, Latitude $23^{\circ} 04' S.$, Longitude $151^{\circ} 00' E.$



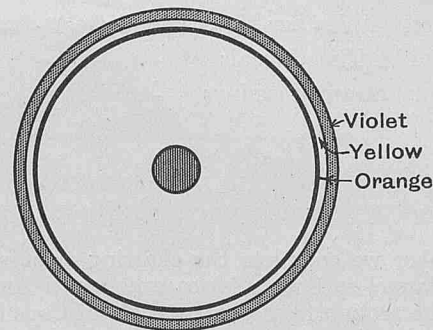
Sketch 2—at 0812.



Sketch 3—at 0840.

"The colours of the spectrum were clearly seen as indicated in the sketches; the large circle with the Zenith as centre and the large ellipse were of a faint white colour like white clouds.

"The altitude of the sun at 0840 was 47° and the angular distance of the circumference of the inner halo was $22\frac{1}{4}^{\circ}$. The weather was fine, a few Cumulus clouds were about and there was a light easterly breeze.



Sketch 4—at 1035.

"During the night a thunderstorm which lasted some hours was observed over the mainland some 20 or more miles away, but the storm did not come out to sea, and the weather both before and after the phenomenon was unusually fine and the absence of strong wind which had previously been experienced for some days most marked.

"The barometer was about 1/10 of an inch above the mean average height and from observations so far made, this seems to indicate in general a decrease in the force of the wind in this locality; further data are necessary, however, before this can be accepted as a fact.

"8 a.m. November 4th—Wind ESE force 1-2. Barometer 1019.5. Dry Bulb 73°. Wet Bulb 70°. Sea surface temperature 76°. Weather b.c."

CLOUD MOVEMENT.

In the Atlantic Doldrums.

THE following is an extract from the Meteorological Log of S.S. *Valdura*, Captain J. ANDERSON, Cardiff to Rio de Janeiro, Observer Mr. L. ROWLING :—

"Sunday, 8th November, 1925, at 10.45 p.m., in approximately Latitude 7° N., Longitude 26° W. Cirrus and Cirro-Stratus from W.S.W. Cumulus and Cumulo-Nimbus from N.E. Wind veered suddenly to S.E. Two large masses of Cu-nb which had passed over the ship from the N.E. changed their direction and passed away to the N.W. Intermittent flashes of sheet lightning from 9.00 p.m. to 10.30 p.m."

NOTE.—This observation is of considerable interest, as *Valdura* proceeded southward she was just passing out of the Doldrums into the South-East Trade. The Doldrums had at the time an indefinite northern edge, the winds logged being from N.N.E. force 1 since 4 a.m. of the 8th. The veer of the wind to S.E. may have been caused by a fluctuation northwards of the southern verge of the Doldrums belt such as was found in the investigation described in THE MARINE OBSERVER, Volume II, No. 14, page 20, or alternatively the change in direction of the drift of the Cumulus clouds might have been due to the South-East Trade overriding the almost stagnant air of the Doldrums and the Cumulus clouds becoming elevated into the southerly wind. It would have been interesting to have known whether the Cumulus clouds appeared to float northward at a higher level than that at which they had floated southward, and whether there appeared to be any deformation of their shapes when they were changing direction of drift. If the second of these alternatives were the true explanation it is to be expected that the upper portions of the clouds would have felt the effect of the Southerly wind before the lower portions, and so the clouds would have assumed twisted shapes.

LINE SQUALL.

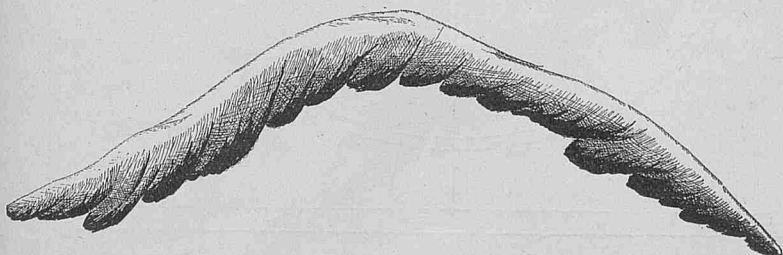
Off Coast of South Africa.

THE accompanying sketch and remarks have been received with the Meteorological Report of S.S. *Dromore Castle*, Commander E. S. VINCENT, R.N.R., Durban to Cape Town, Observer Mr. S. S. SMITH, 3rd Officer. Sketch drawn by Cadet A. F. TREW.

"19th November, 1925. Latitude 31° 25' S. Longitude 30° 09' E. G.M.T. 2.15 p.m. Local M.T. 4.15 p.m.

"4.15 p.m. Barometer 1007.8 mb. Wind N.E. Force 3. Air temperature 82° Arc of Cloud 140°. Thunder and lightning. Course 220°. Sea N.E. 3. Swell N.E. 4.

"4.20 p.m. Wind S.W. Force 8, rain. Air temperature 80°. Hail $\frac{1}{2}$ "; some stones half clear ice. Visibility 1. Cloud now overhead. Previous N.E. sea flattened out and ripples superimposed. Swell decreased.



"4.25 p.m. Barometer 1009.5 mb. Air temperature 76°. Hail ceased. Wind S.E., force 4.

"4.30 p.m. Barometer 1008.8 mb. Air temperature 74°. Rain easing. Wind East, force 4.

"The cloud was seen right ahead, 222°, and appeared to be moving broadside on, in a direction opposite to the ship's course. The sketch shows it as it appeared when the lower centre had an elevation of 40° above the horizon. As it approached the Zenith it was impossible to see anything owing to the heavy rain and hail. After the rain and hail had stopped, the cloud was seen slightly on the starboard quarter and practically the same shape without the definite black and white shading."

A SQUALL.

In the Arabian Sea.

THE following is an extract from the Meteorological Log of S.S. *Elpenor*, Captain T. W. HANNEY, Suez to Penang, Observer Mr. M. ROBERTSON, 3rd Officer :—

"20th November, 1925, at 10 p.m. Latitude 9° 18' N., Longitude 62° 00' E. Experienced severe line squall from N.E. similar in every respect as the one experienced by S.S. *Auditor* on 24th December, 1924, and described in December 1925 MARINE OBSERVER (Vol. II, No. 24, p. 192) except that wind remained steady from N.E. and there was no appreciable change in barometer."

WATERSPOUT.

In the Pacific.

THE following is an extract from the Meteorological Log of M.S. *Aorangi*, Captain R. CRAWFORD, Suva to Honolulu, Observer Mr. J. V. BRAY :—

"7 a.m. November 1st, 1925. When first observed by Senior 2nd and 4th Officers, waterspout appeared descending from a white Cumulus cloud, revolving in a counter clockwise direction.

"The phenomenon disappeared about 20 minutes after first observed, and about half way down during descent the spout could be plainly seen to take a sharp turn, almost at right angles, curving around a small Cumulus cloud underneath; also spray distinctly white to be seen rushing up the spout. When abeam it lifted and disappeared. The whole aspect was white: white spray ascending and white cloud descending; the clouds being of a clearly defined white Cumulus type.

"Other observers state that before final descent the spout thinned and could be seen through.

"State of the sky: Cumulus: Cloud amount '2.'

"Visibility '8.'

"Position, Latitude 5° 42' S., Longitude 172° 39' W.

"Direction of spout when observed, 010° true; distance, 2½ miles.

"Height of spout—estimated, 3,000 feet.

"Disappeared bearing 300°, true.

"Dry Bulb, 83°; Wet Bulb, 77°.

"Barometer, 1012.9 mb. Wind, E.N.E., force 1."

WATERSPOUTS.

North Atlantic.

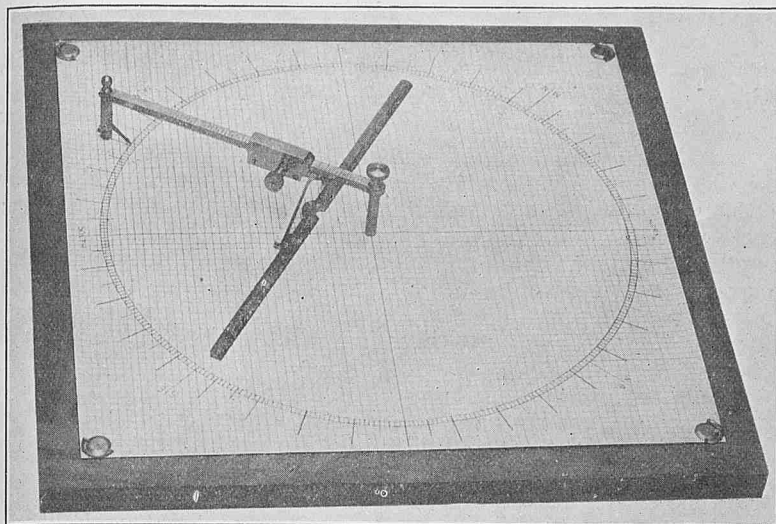
THE following is an extract from the Meteorological Report of S.S. *Laomedon*, Captain A. S. BLUES, Suez to New York, Observer Mr. F. HOWE, 3rd Officer :—

"November 12th, 1925. Latitude 42° 32' N., Longitude 58° 05' W. Wind, E.S.E., force 5. Moderate sea. Nb/Cu. Cloud amount, 9/10. Showery.

"At 8.30 a.m. A.T.S. Wind suddenly veered from E.S.E., force 5 to W.N.W., force 4, causing several very large waterspouts. In one of these, which passed fairly close to the ship, I observed the water was rising from the sea in spirals, like a corkscrew, round another column which was falling straight down from the cloud edge.

"The column was remarkably large in diameter and very short, owing to the low altitude of the cloud base.

"Another feature was the height to which the spray was being whirled round the base of the 'spout,' at times it was quite 150 feet high."



Star Plotting Instrument.

As the sights are plotted on a squared diagram the relation between departure and difference of longitude should be carefully borne in mind.

INDEX TO THE VARIOUS PARTS OF THE INSTRUMENT.

Lettered as per drawings.

- A—board on which instrument is mounted.
- B—diagram mounted on board, on which is drawn a compass, completely graduated in degrees. The diagram is squared on the scale as the graduations on C and F, and is holed in the centre to go over the centre column or pivot H.
- C—azimuth or bearing bar, graduated on the uppermost side, and a rack cut on the under side as shown at L.
The scale is for the setting of the *intercept*.
- D—box or slide containing pinion, which engages rack at L and traverses the length of C.
- E—handle actuating pinion.
- F—sumner or position of line bar, secured to bracket G at an angle of 90° to C. This bar forms a straight edge.
- G—bracket securing F to D.
- H—centre column or pivot, coned at top and threaded to receive clamp screw or nut, and fitted with a collar at base which is sunk flush with the board A and held in position by a wing nut in a recess on the underneath side of the board as shown at K.
- I—clamp screw or nut for setting up C.
- J—bearing column fitted with a wheel and pointer.
- K—wing nut for securing centre column or pivot round which the instrument revolves.
The centre of the centre column or pivot represents the dead reckoning position, and is the point to which all positions by observation, that is all the plots, are referred.
- L—rack which engages pinion actuated by E.
- M—knife edge projection on the bracket side of D for setting the required *intercept* on C.

I have used this instrument almost daily for laying down position lines from stellar observations and have found it a great improvement on the old way of laying them down in a work book, as it not only saves time but labour as well."

EXCEPTIONAL VISIBILITY.

Pico de Teyde, Teneriffe.

THE following is an extract from the Meteorological Report of S.S. *Desna*, Captain G. F. HUFF, River Plate to Liverpool, Observer Mr. J. W. SMITH, 4th Officer :—

"November 23rd, 1925. 8.00 a.m. A.T.S. Weather heavily overcast, with intermittent rain. Wind West, force 4. Barometer, 1011.5 mb. and pumping, but steady.

"9.30 a.m. Clouds begin to lift on Western horizon till at 10.00 a.m. ship in Latitude $29^\circ 46' N.$, Longitude $14^\circ 49' W.$, Pico de Teyde, Teneriffe, was observed bearing S. $47^\circ W.$ (true) distance 133 miles.

"The trunk of this mountain was plainly visible, but the summit was obscured by Cumulus clouds which at 10.15 a.m. covered the whole mountain."

DEAD WHALE FLOATING AWASH.

THE following remarks by Mr. H. E. McCARTNEY accompanied the Meteorological Report Form 911 of S.S. *Minnetonka*, Captain T. F. GATES, C.B.E. :—

"November 26th, 1925.

"12.20 p.m. A.S.T.

"14.10 p.m. G.M.T.

"Latitude $48^\circ 07' N.$, Longitude $29^\circ 51' W.$

"Passed about one hundred yards North of a large dead whale floating awash. The body lay in a North-South direction, and was surrounded by a large oil patch which extended South East for about a mile.

"Wind E. by N., force 3. Sea E. by N. 3. Swell E.N.E. 3.

"Temperature—Air 58° . Sea 56° .

"No birds were seen anywhere in the vicinity, nor were any fish observed.

"It is possible that scavengers were at work below the oil patch, thus causing the oil to exude from the carcass.

"Dead whales sometimes being seen floating high and sometimes, as in this case, just awash, and also the presence, or non-presence, of large or small quantities of oil, can the time of the whale's death be approximately arrived at, without viewing the state of decomposition?

"If you could oblige by reply in the M.O., I would be gratified and interested, though I fully realise that this somewhat exceeds the bounds of meteorology."

NOTE.—This report was forwarded to the Director of the Fisheries Laboratory at Lowestoft who communicated with Sir SIDNEY HARMER, Director of the British Museum of Natural History. Though unable to hazard even a guess as to the lapse of time since the animal's death when the carcass was seen, Sir SIDNEY HARMER makes the following observations :—

"Oil exudes very easily from the body of a dead whale, and I have seen it trickling out like water in a continuous stream from whales on a flensing stage. Any cut or injury of the blubber may produce this result. I should think it is extremely probable, as suggested in your enclosure, that fishes may have been damaging the skin, thus causing the oil to exude. I think it is also possible that the ordinary processes of decay would liberate oil from the blubber. It does not seem to me that any conclusions of importance can be drawn from the recorded facts."

CYCLONIC STORM IN THE BAY OF BENGAL.

NOVEMBER 24TH TO 28TH, 1925.

Compiled from observations returned by ships on the list of regular observers to the Meteorological Office only and from observations given in the Indian Daily Weather report.

BY L. A. BROOKE SMITH, MARINE SUPERINTENDENT.

UNMISTAKABLE signs of the proximity of this storm appear to have been first noted at sea in S.S. *Clan Macindoe*, Captain A. Low, from Malabar Coast to Coromandel Coast, at 6.30 a.m. on November 24th,

1925, in Latitude $10^\circ 48' N.$, Longitude $82^\circ 18' E.$ At 8 a.m. the day before the barometer at coast stations and in regular observing ships in the Bay of Bengal showed no depression below the normal,

which might be considered as a sign that a storm was forming. A proof that routine Wireless Weather reports by ships are necessary.

On November 23rd, *Clan Macindoe* was in Latitude $7^{\circ} 26' N.$, Longitude $82^{\circ} 12' E.$ at noon, when the wind was N.W. force 2, and veered to N.E. with rain squalls; confused swell; Cirrus, Cirro-Stratus and Strato Cumulus covering the sky from the south-east.

November 24th, 1925. Weather Chart No. XXII.

Mr. J. W. ELVISH, 2nd Officer, S.S. *Clan Macindoe*, Captain A. Low, writes: "An increasingly heavy swell was coming from S.E. and the sky had a very threatening appearance. At 7 a.m. rain ceased, the wind backed to North and increased to force 6 with weather conditions generally worsening. As the vessel was bound to the Coromandel Coast in ballast to load and having come to the conclusion that the ship was in the track of a storm which was probably to the S.E. and distant about 200 miles, the Master decided to run into the left-hand semicircle, so altered course to the Southward keeping the wind on the Starboard Quarter." (Course S. $22^{\circ} W.$, Wind North 7.)

During the morning they received Wireless Weather reports from *Clan MacFadyen* and *Gambhira*, the former a regular observer, the latter not. She sent reports which must have been most useful, but unfortunately, the time of observation does not synchronise and therefore we have not been able to chart them.

At 2.30 p.m. they received a Wireless Warning via Madras which confirmed their opinions with regard to the position of the centre, and they continued to the Southward, weather improving, until at 9 p.m. Trincomali Light was sighted bearing West 20 miles when they hove to and awaited developments.

On November 24th at 0230 G.M.T. 8 a.m. local time, approximate, the centre was in about Latitude $9^{\circ} N.$, Longitude $85^{\circ} E.$

November 25th, 1925. Weather Chart No. XXIII.

At noon on this day *Clan Macindoe* estimated that they were 190 miles S.W. of the centre, her position was Latitude $7^{\circ} 33' N.$, Longitude $82^{\circ} 9' E.$ and she proceeded slowly to the Northward edging towards the Indian Coast. The weather got worse but the barometer remained fairly steady.

S.S. *Actor*, Captain E. HAYLETT, from Suez to Calcutta, experienced a N.W. gale and altered course to the Eastward to pass in the rear of the vortex.

On this day at 0230 G.M.T. the centre was in approximate Latitude $10^{\circ} N.$, Longitude $84\frac{1}{2}^{\circ} E.$

November 26th, 1925. Weather Chart No. XXIV.

Clan Macindoe proceeded throughout to the Northward and Westward at from 9 to 7 knots, the wind increasing to gale force and veering from W. to N.W. *Actor* passed across the track of the storm in its rear and did not record wind of greater force than 6, a strong breeze. At 0230 G.M.T. on this day the centre was in approximate Latitude $12^{\circ} N.$, Longitude $83^{\circ} E.$

November 27th, 1925. Weather Chart No. XXV.

At daybreak *Clan Macindoe* experienced improving weather and wireless reports received indicated that the storm was weakening. At 9 p.m. they sighted Tripalur Reef Light bearing N. $45^{\circ} W.$ 12 miles and reduced speed. Much rain was experienced. At 11 p.m. the wind backed to West force 8 until 3 a.m. 28th, when the barometer dropped a tenth of an inch, the wind fell to a calm and the temperature rose. Then the wind came from East force 6 and backed slowly to N.E. moderating with rising barometer; heavy rain. At sunrise the sky had a very threatening look, coppery in colour, and they intercepted a wireless message from Madras that the storm was expected to cross the coast within 60 miles of that port in the morning. They proceeded North, the weather improving assuming that they had passed the centre at 3 a.m. Ships' Time 28th, when it was calm. At 0230 G.M.T. on November 27th the centre was in about Latitude $12\frac{1}{2}^{\circ} N.$, Longitude $82^{\circ} E.$

November 28th, 1925. Weather Chart No. XXVI.

At 0230 G.M.T. the centre lay in about Latitude $12\frac{1}{2}^{\circ} N.$, Longitude $81^{\circ} E.$ and the depression was filling in rapidly with corresponding moderation of wind.

The greatest force of wind recorded by any ship returning observations was force 9 from N.W. observed in *Clan Macindoe* on the night of November 26th to 27th. No ship got near the centre during the time that the storm was at its height and though we have no observa-

tions near the centre—through the good seamanship displayed—all observations indicate that the wind in the inner part of the storm field probably did not reach hurricane force.

Mr. ELVISH, of *Clan Macindoe*, wrote:—

"At 11.30 a.m. (November 28th) we moored in Madras Harbour. Our assumption was found correct, and the storm centre that we encountered must have been that of a secondary from the main storm.

"On both the Ceylon and Madras Coasts we experienced S.S.E. currents of abnormal velocity. The drift off Ceylon was nearly 5 knots near Trincomali, whilst off Tripalur Reef we steamed at 7 knots towards Madras and were from midnight to 9 a.m. in covering 30 miles of ground."

From the observations available and the accompanying charts it would appear that the calm preceded by a West wind and followed by an East wind which *Clan Macindoe* passed through at 3 a.m. ship's time on November 28th, was the centre of the system; by this time the depression had filled in considerably and probably was very irregular. The observations when charted give no indication of two centres. It will be remembered that in the case of the Arabian Sea Cyclone of November 1920 there was the question of two centres being in existence at Noon on the 23rd but it is considered impossible that there should be two centres in close proximity with winds of gale force between them.

Mr. ELVISH's remarks on the currents experienced are further proof of the desirability of including the set and drift of current in Wireless Weather reports to "all ships," for there is much to be learned as to current in connection with cyclones, and as possibly marine observers engaged in navigating Tropical seas may have passed over the article "Currents on the Trans-North Atlantic Tracks," No. 30, Vol. III, pages 100 to 103, as being of more interest to those navigating higher latitudes, they are invited to peruse it.

Shortly after the *Okara* cyclone, a commander of considerable experience in advocacy of the practice of Wireless and Weather as an aid to navigation in Indian Waters, suggested that Marine Superintendents or Nautical Advisers to the several Steamship Lines should be advised by concrete examples where there is clear proof of the value of the exchange of signals, for he thought that this might result in a Standing Order such as "The exchange between vessels of Wireless Weather signals is much desired especially when entering upon suspicious weather. There is ample proof, where, by this exchange vessels have been able to avoid serious weather; such signals to be recorded and will be referred to when found necessary."

In THE MARINE OBSERVER we have given to all who are interested alike, Ship-owners, Marine Superintendents, Commanders, Officers, and Wireless Operators, who receive it in return for voluntary co-operation as well as others who may read it, such examples which have been reported. As was contended in the last serial chapter of Wireless and Weather an aid to Navigation, Vol. I., No. 12, page 162, "The ways of commerce over the oceans and the hereditary chivalry of the sea are beyond doubt more adapted to voluntary Meteorological Service than to obligatory Service."

The matter of standing orders is for the Steamship Companies to decide; that voluntary methods are the best for British Marine Meteorology is proved by over 70 years work.

This occasion proves that Regular observing ships are making reports to "All Ships" and Simla, and it may not be too much to hope that they may be assisted in the future with reports of actual observations from coast stations in all regions of Tropical Revolving Storms.

In forwarding the observations made in *Clan Macindoe*, Captain A. Low writes of the scheme outlined in Vol. II., No. 24, pages 189 to 191:—

"I am greatly in favour of the scheme for obtaining Synchronized G.M. Times of weather observations in all parts of the world and also for ships fitted with W/T to participate in the scheme. It will greatly facilitate the construction of Weather Charts on board and cannot be too strongly urged." As it is proposed to revise and republish the serial chapters "Wireless and Weather an aid to Navigation" as a 2nd edition in THE MARINE OBSERVER next year, to meet the requirements of new members of our Corps who have not received the first volume of THE MARINE OBSERVER and others who advocate its being brought up to date, those who have suggestions for improvement should communicate their ideas to the writer as soon as possible.

PHOSPHORESCENCE OF THE SEA.

PREPARED IN THE MARINE DIVISION BY H. T. SMITH, CLERICAL ASSISTANT.

OF all the wonders of the deep, none is perhaps more startling and few more brilliant than the phenomenon of phosphorescence. Observed from ancient times, when its occurrence was attributed to supernatural agencies, its origin and causes have been matters of speculation throughout the centuries.

Various explanations were attempted from time to time. It was thought that the sea absorbed sunlight by day and emitted it by night in this form, or, later, that the friction of the atmosphere against the water caused by the rotation of the earth effected an emission of light. It was not until the time of FRANKLIN (1750) who himself believed the sea water to be responsible, that the true explanation was found. During the years 1749-50, a small animalcule that emitted a blue light when disturbed was discovered by VIANNELLI and GUIXELLANI in the Mediterranean and subsequent investigation has proved that the animal life of the ocean is the origin of the phosphorescence of the seas.

That being so, the term phosphorescence is in itself misleading since it implies a connexion with the substance "phosphorus," but as this substance is deadly poisonous to any living tissue, it follows that the production of this light has nothing to do with the oxidisation of phosphorus and the word "luminescence" has been suggested by several investigators as being a better description.

This capability to produce light is present in many of the organisms that inhabit the deep, from the minute microscopic forms of life, bacteria and the unicellular animalculæ, to many forms of deep sea fish. According to "Depths of the Ocean" (Sir JOHN MURRAY and Dr. J. HJORT), except for some species of fish living in the abyssmal depths of the ocean, it is generally associated with the free-swimming organisms found between the surface and 500 metres (273 fathoms) depth and in particular in those forms inhabiting Tropical waters. The means of production vary throughout the different zoological groups. In the lowest forms of life, the one cell animals (Protozoa, Protophyta, &c.) the light emanates from groups of points distributed over the protoplasm.

In higher orders, specialised organs and glands for the production of this light appear, some being equipped with lenses and reflectors giving them the appearance of an eye. In other forms still, a mucous is secreted which becomes luminous in contact with the sea water, making as it were a luminous cloud in the water.

M. GIGLIOLI of Italy has classed the light emitted by individual organisms in three types—

- (a) a diffused milky light.
- (b) luminous points, sparkling and inconsistent.
- (c) luminous discs, dull fixed lights.

but in a display of phosphorescence at sea, it is probable that all three types will occur simultaneously in many instances, owing to the varying species of animals contributing to it.

The colour of phosphorescent light varies with different animal groups and ranges through white, silver, green, blue, lilac and red.

The method of production has been shown to be a chemical one, being the slow oxidisation of one or more substances secreted by the living animal. In the case of the one cell animals it is thought to be simply part of the chemistry of living. In the same way, as in the human body for instance, chemical energy is transformed into heat, so in the case of these organisms, chemical energy is transformed into radiant energy, such a transformation being essential for the continued existence of the animal. The result is the production of purely radiant energy, for it is a peculiarity of phosphorescent light in all its forms that it is *cold* light, no heat being generated in the process. Under these circumstances, the giving off of phosphorescent light is not under the control of the individual. But in more highly developed forms, the light would seem to be under some sort of nerve control, its emission only occurring in response to definite stimulation and then only under certain conditions. G. H. PARKER has shown that in a species "Renilla" which is brilliantly phosphorescent when stimulated at night, there is no response to stimulation during daylight. The complexity of the light producing organs does not increase in accordance with the depth at which the animal lives, some of the surface forms having more complex organs than those living at greater depths; nor do all organisms living at any particular depth possess this property. It would seem therefore that the light is not of necessity given off for the illumination of the darkness of the ocean, otherwise all species would possess the means of producing it and phosphorescence possibly has a variety of uses. Another peculiarity is the way in which stimulation is communicated from one individual to another in the case of animals living joined together in colonies, the whole colony lighting up almost simultaneously.

The use of this luminescence to the creatures producing it, can only be surmised. It has been suggested that in some cases it forms a lure, attracting other organisms upon which the animal preys, in others it may constitute a recognition mark for the purposes of mating. Again the sudden flashing of light may be a protective weapon against enemies or where luminous clouds are secreted, a means of distracting the enemy while the animal escapes. In the deep sea forms it may be a means of illuminating the darkness of the ocean depths. The fact that in some of the higher forms it is produced by highly specialised organs functioning under nerve control would seem to indicate that phosphorescence does serve some definite purpose. In

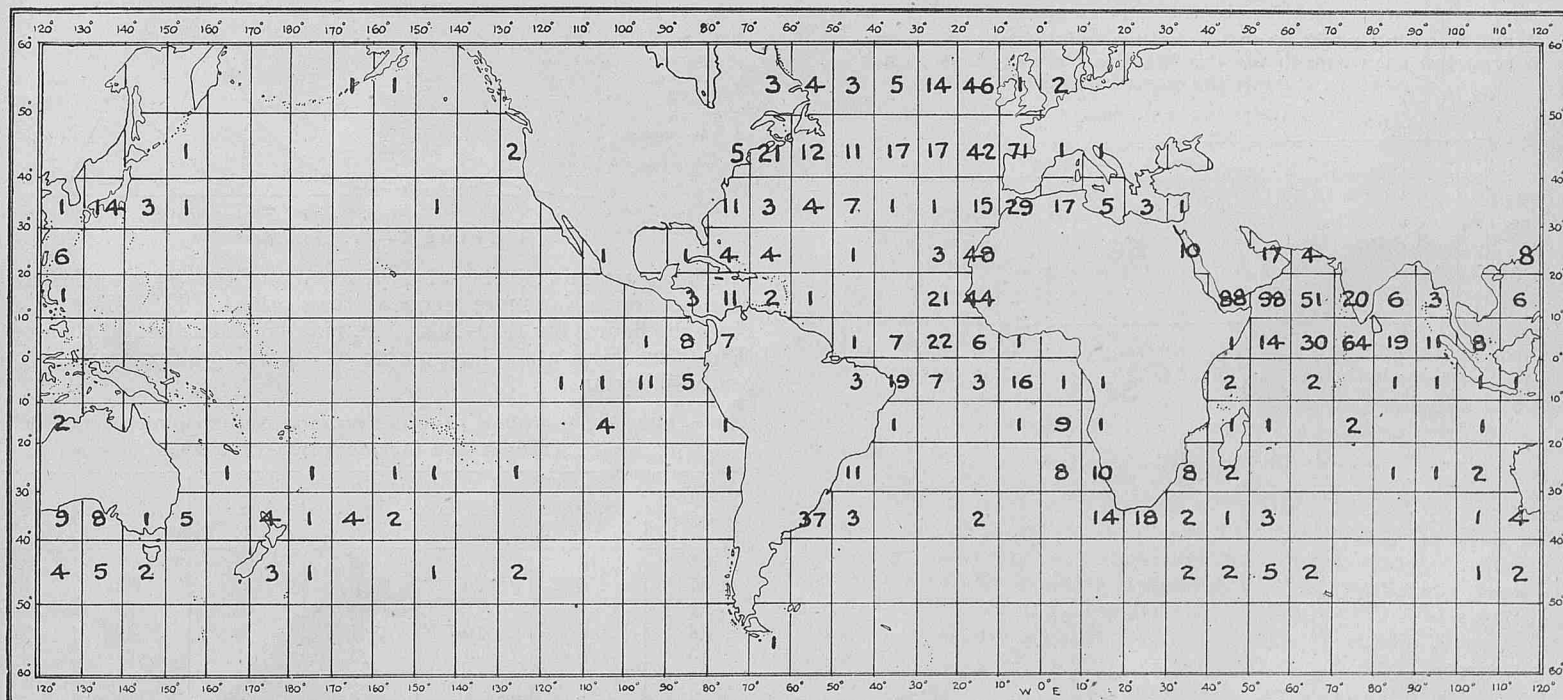


Figure 1—Number of observations of phosphorescence in each 10° square, reported during the period 1920-1925 by ships observing for the Meteorological Office.

the processes of evolution possibly the phosphorescent light which in the first instance was simply part of the chemistry of living, has been developed where it could serve some useful purpose. Where no such purpose could be served the power of producing it has been lost.

It seems feasible that the production of large displays of phosphorescence, such as are frequently seen at sea, may be influenced by variations in the environment of the animal life, and that possibly variations in ocean currents, sea temperature and salinity may be factors affecting its occurrence. Sir JOHN MURRAY and Dr. HJORT hold the view that the great surface drift currents are responsible for many forced migrations of surface life away from their natural habitat. Salt water seems to be essential to the phenomenon, phosphorescence never having been observed in fresh water animals.

Since 1920 an index of phenomena reported in meteorological Logs and Reports has been kept in the Marine Division, so that it has been possible to examine in some detail the distribution of the occurrence of phosphorescence as reported by Marine Observers. While the period covered, 1920-1925, is too short a one to enable any inferences to be made, the results are not without interest.

During the six years some 1,300 observations of phosphorescence have been reported. FIGURE 1 shows the distribution of these reports in 10° squares (10° Latitude by 10° Longitude).

It should be borne in mind that the observations are of necessity grouped along the steamship tracks and a blank square does not necessarily imply that phosphorescence does not occur in that locality. Also the fact that there are more observing ships on any particular route may affect the number of reports, but since the observing fleet has been kept fairly constant both in number and distribution during the last five years, the chart does give some idea of the distribution and frequency of occurrence. It will be seen that while phosphorescence may occur in all parts of the ocean, its most frequent occurrence is in the warmer tropical seas and in particular in the Arabian Sea. It is also fairly frequent on the Trans-North Atlantic Tracks and generally on the borders of the Atlantic Ocean. Indeed, it seems generally to be more confined to the sides of the oceans; even where it is of fairly frequently occurrence, there is a marked dropping off in the numbers of observations reported, in mid-ocean.

The observations in the Arabian Sea have been analysed in more detail and FIGURE 2 shows the percentage of the number of observations, in each Marsden 10° Square shown at the top of the figure, reported each month. In every case the maximum frequency is in August, confirming what is common knowledge among seamen traversing those waters. The general conditions prevailing during August are that the South West Monsoon has passed its maximum strength, while the current sweeping up the East African Coast reaches its maximum as also does the current sweeping down the West Coast of India.

Graph showing percentage of observations of phosphorescence reported each month for the Marsden 10° squares shown below, during the period 1920-1925.

Marsden Squares.

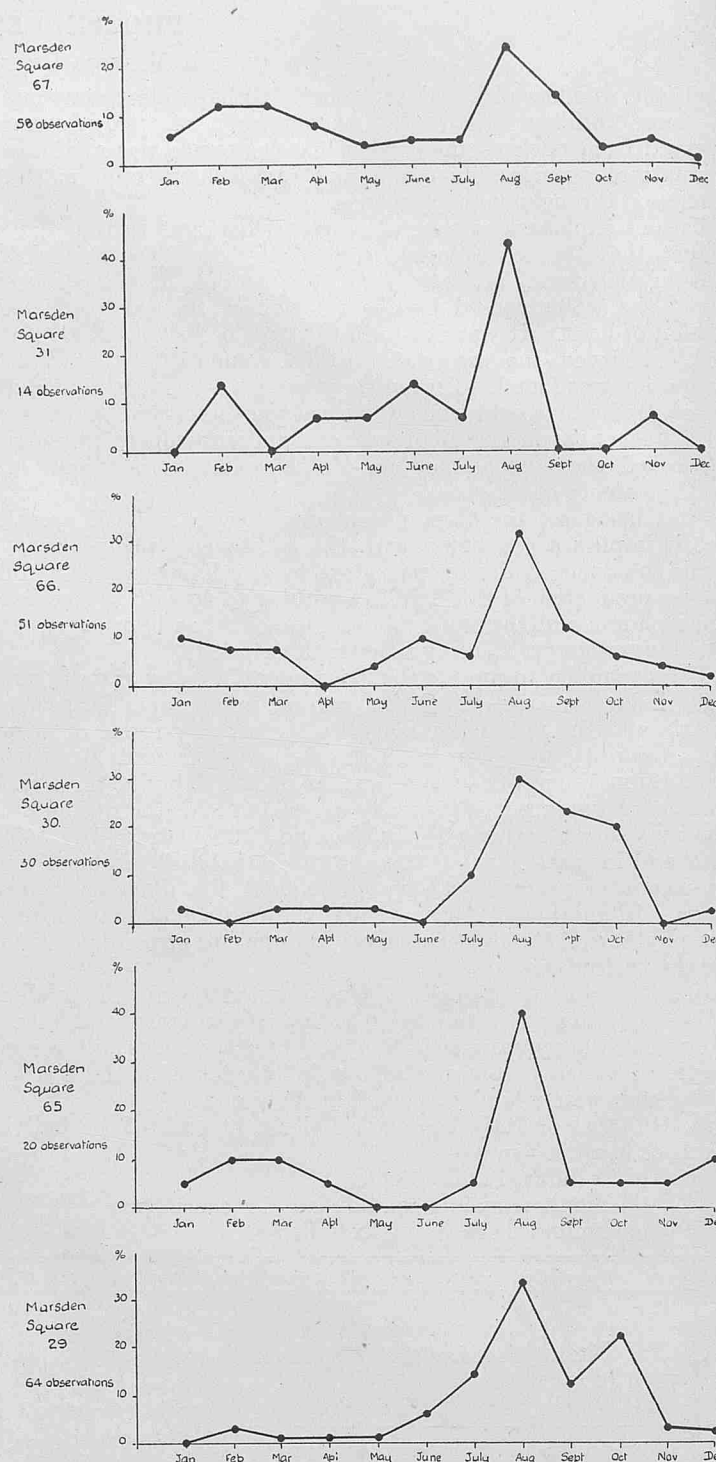
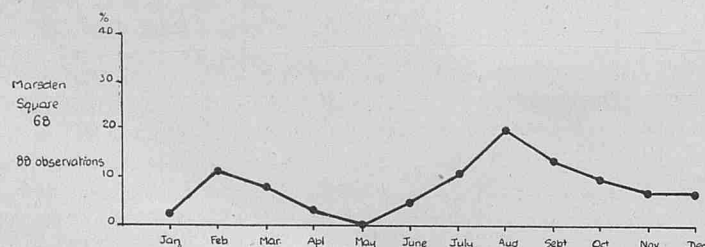
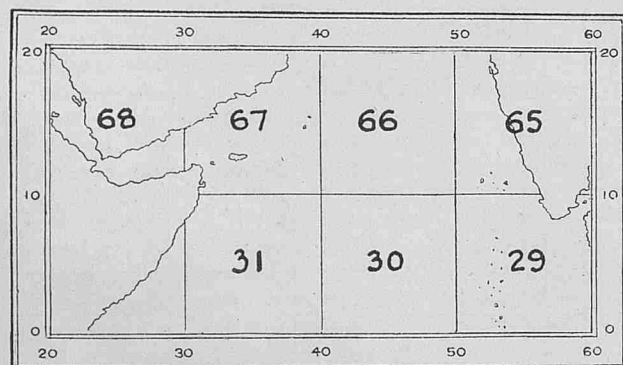


Figure 2—Arabian Sea.

There appears to be also years when the occurrence of this phenomenon is far more frequent than others. The following table gives the figures for 1920-1925. It may be taken that on the average there have been a similar number of observing ships traversing this route each year.

Table showing number of observations of phosphorescence in the Arabian Sea for the years 1920-1925.

Marsden Square.	1920.	1921.	1922.	1923.	1924.	1925.
68	10	17	19	13	16	13
67	9	19	16	9	13	32
31	1	1	3	0	1	8
66	6	10	1	3	6	25
30	0	4	5	1	3	17
65	3	5	2	2	1	7
29	9	19	9	3	5	19
Total -	38	75	55	31	45	121

The observations of phosphorescence in the North Atlantic in the Marsden Squares 145 to 151 have been analysed in the same way, with the result shown in FIGURE 3. Here, no consistent marked monthly variation is shown. But it must be remembered that the North Atlantic is a region of constantly changing atmospheric conditions, whereas in the Arabian Sea, conditions are generally more or less stable, fluctuating only with the alternation of the South West and North East Monsoons. The peculiar feature seems to be that a decided maximum in one particular month occurs in the 10° Squares nearest each side of the ocean, while in mid-ocean its monthly frequency of occurrence is more or less uniform.

Graph showing percentage of observations of phosphorescence reported each month in the Marsden 10° squares shown below, during the period 1920-1925.

Marsden Squares.

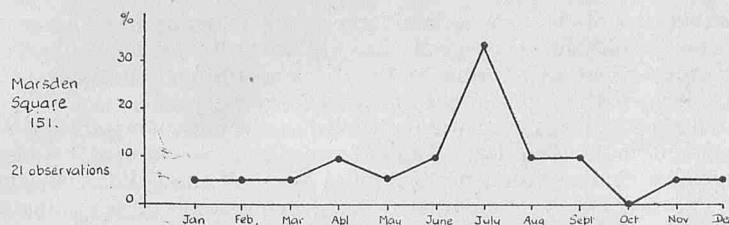
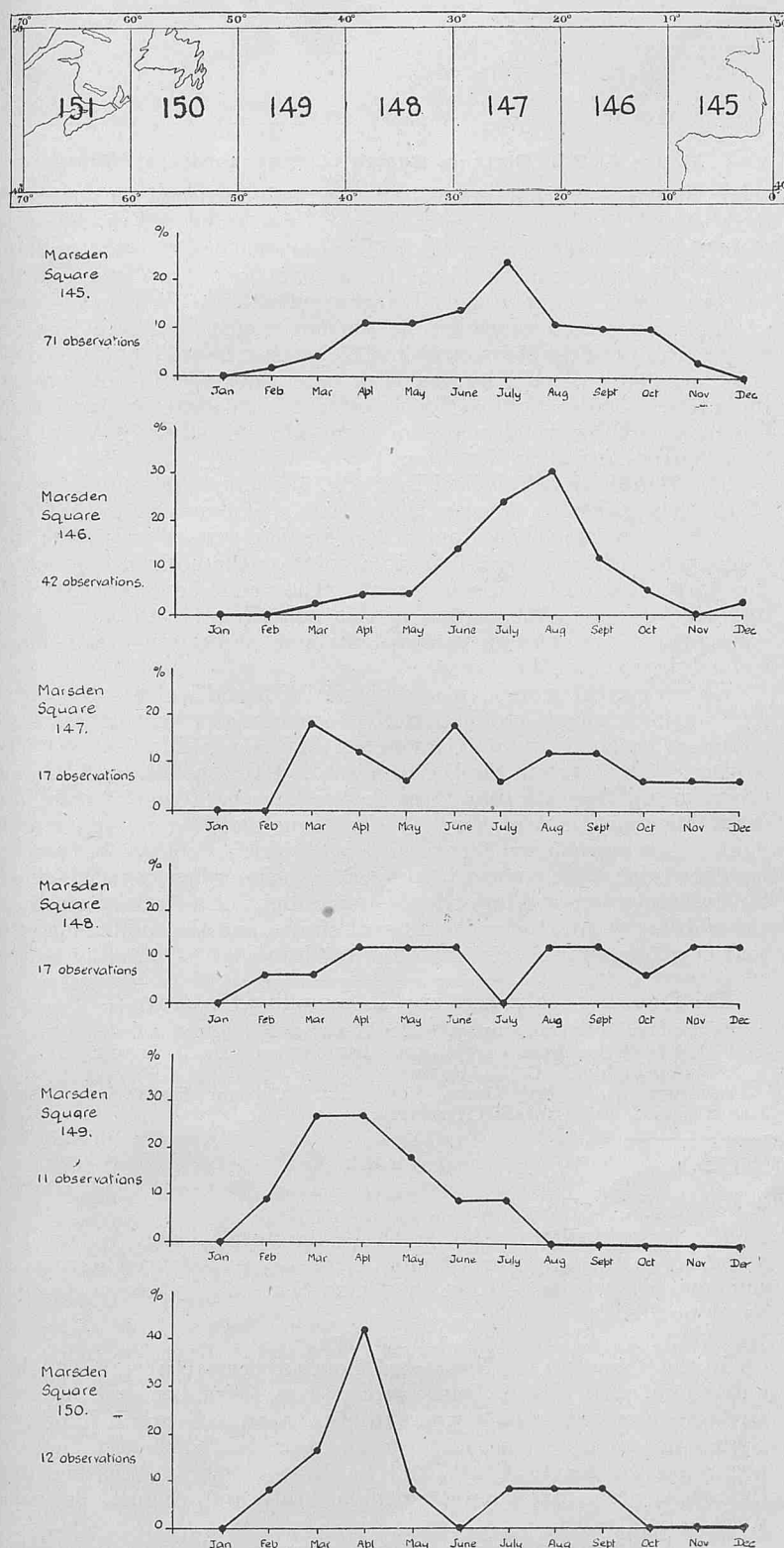


Figure 3—Trans-North Atlantic.

Here again there appear to be some years when this phenomenon is more frequent than others.

Table showing number of observations of phosphorescence in the North Atlantic between Latitude 40°-50° N., Longitude 0°-70° W. for the years 1920-1925.

Marsden Square.	1920.	1921.	1922.	1923.	1924.	1925.
145	3	9	26	5	8	20
146	2	7	11	6	4	12
147	3	4	4	2	3	1
148	2	9	2	1	1	2
149	1	1	2	2	4	1
150	2	4	0	4	1	1
151	2	11	1	5	2	0
Total -	15	45	46	25	23	37

Comparing this with the previous table there seems to be some sort of agreement between the total figures for each year.

Although no conclusions can be drawn from the above figures they would seem to indicate, since as far as can be ascertained there is no known biological condition to account for their variation, that possibly varying conditions of environment may be factors in governing the frequency with which phosphorescence is produced, at least as regards the large and remarkable displays so often reported by Marine Observers.

Many accounts of displays of phosphorescence, often extending over the surface of the ocean as far as the eye can see, have been received in the Marine Division. Several of the more interesting ones have already been published from time to time in this Journal, in "The Marine Observer's Log." One form that is very frequently met with, is the "white" or "milky water" which is often so intense as to outshine the light of the stars overhead. This peculiar effect seems to be located generally in the Arabian Sea, more particularly in the neighbourhood of the Eastern end of the Island of Sokotra, although it has been met with in other oceans. It is probably caused by some of the most minute forms of animal life, which exist in countless myriads and emit a diffused light. A species known as "Salpæ," which swim about in colonies and often form the plankton of these waters, contribute very largely to its occurrence.

This milky sea was very prevalent during August 1925 and several reports were published in Vol. III, No. 32, pp. 131-132, of this Journal.

On July 29th, 1921, at 7.20 p.m., S.S. *Arracan*, Captain W. T. HAMILTON, approaching the east end of Sokotra from Rangoon, reports having "observed abnormal brightness in sea, apparently due to phosphorescent action in the water. The whole surface of the water was brilliantly lit up, giving the sea a milky white appearance. The horizon around was exceptionally clear cut, and the whiteness of the sea gave the sky an inky black appearance, although the sky was quite clear and cloudless and the stars were shining brightly. The phenomena lasted until 3.30 a.m. of the following morning."

Mr. ZEAL, of the S.S. *City of Brisbane*, also communicated that on August 26th, 1921, at 9.30 p.m. in Latitude 12° 49' N., Longitude 57° 04' E. the ship steamed into a field of what looked like milk. The night was bright and starlight, and previous to encountering this, there was a strong monsoon wind (S.S.W.) blowing and a rough sea running. On entering this field of whiteness the sea seemed to moderate considerably, although the vessel's speed did not seem to be reduced. The sea became normal again at 11 p.m., the ship then being in Latitude 12° 33' N., Longitude 56° 49' E. and the previous monsoon weather continued until Sokotra was reached.

The calming of a rough sea during a display of phosphorescence is frequently mentioned in reports and possibly the explanation is that

the presence of these animals in large numbers, many of which secrete mucous to adjust their specific gravity in order to keep afloat, has the same effect as pouring oil on the sea, although to some extent the glare of the light might cause the sea to appear calm. Similar patches of milky water were reported by the *Lynton* off the West Coast of South America. The *Pizarro* also reported in 1859 passing through a similar experience 300 miles North of the Falkland Islands.

The second type mentioned above consisting of sparkling and pulsating points of light is also of frequent occurrence and apparently is caused by species of higher order, possessing light organs functioning under nerve control.

S.S. *Peleus*, Captain J. L. REYNARD, Singapore to Colombo, reports on November 7th, 1920, at 4 a.m. "a phenomenon consisting of lightning like flashes in the water of great brilliancy."

S.S. *Orvieto*, Captain W. S. SHELFORD, Suez to Colombo, reports on July, 23rd, 1920, at 4 a.m. "area of about 50 yards, close to ship suddenly lighted up with brilliant electric blue light, lasting about 45 seconds and dying away." Other examples have been published in Vol. III., No. 28, p. 59, and No. 29, p. 70.

Other reports would appear to be examples of the dull fixed light type.

S.S. *Mantua*, Captain W. H. SWENY, C.B.E., R.D., R.N.R., reported that on August 22nd, 1920, at 0.10 a.m. in Latitude 17° N., Longitude 66° E., "remarkable phosphorescence in water was observed having the appearance of lights in open boats," while on January 25th, 1923, S.S. *Waipara*, Captain H. LEARMONT, R.D., R.N.R., in 14° N., 18° W. observed minute "balls" of phosphorescent matter in sea water.

Perhaps, however, the most remarkable and most inexplicable of these displays are phosphorescent wheels and phosphorescent bands. Numerous reports of this phenomenon have been received of which one observed by S.S. *Bintang* of the Danish East Asiatic Company and forwarded to the Danish Meteorological Institute, may be quoted.

Captain GABE was called on deck by the officer of the watch to witness a peculiar display of light on the sea surface at 3 a.m., 19th June, 1909, in 3° 20' N., 100° 20' E. The second mate first observed "light-waves" travelling from west to east over the sea surface; and these "light-waves" seemed to gradually assume the form of long arms which issued from a focus, around which they rotated with the sun increasing at the same time both in brightness and in velocity. The focus appeared to be on the horizon, and moved from right astern to a position on the steamer's starboard beam. At the instant when Captain GABE reached the bridge this phenomenon resembled a revolving light, rotating fairly rapidly, and the reflection of which could be distinguished, albeit the light itself was not visible. The system moved forward with decreasing brightness and velocity of rotation, and eventually disappeared when the focus appeared to be right ahead after having lasted about a quarter-of-an-hour.

Captain GABE describes this phenomenon as "perfectly regular"; the illuminated beams being about six feet wide where they touched the steamer, and the dark intervals were twice that width. He considered that the light had its origin in the sea; inasmuch as the steamer's hull was not more illuminated by it than might have been expected from the ordinary form of phosphorescence of which there was a good display at the time. The beams of light, as shown in the accompanying illustration (FIGURE 4), were somewhat curved the concave edge of each being in the direction of rotation round the apparent focus. Moreover, the larger phosphorescent patches were noticed to glow more vividly as the illuminated beams swept over

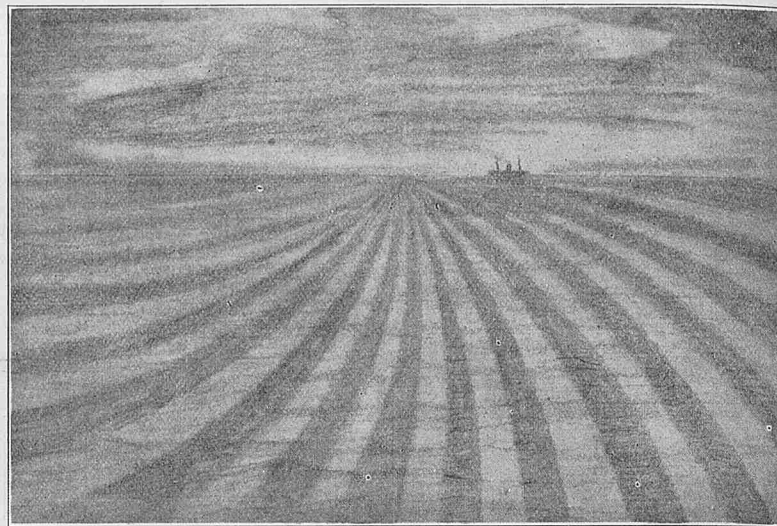


Figure 4—S.S. *Bintang*, Sketch of Phosphorescent Wheel.

them, but to diminish in intensity under the influence of the successive dark spaces. When this phenomenon was right abeam about a second intervened between the passage of one bright beam and the next. The more remote side of the steamer was lit up less than the side which was nearer to the advancing pulsations. When the beams of light had ceased to be visible the larger phosphorescent patches in the vicinity of the steamer seemed to increase in brilliancy as though they were still affected by beams of light that were invisible to the observers. Gradually this alternating intensity died out, and there remained but the usual phosphorescent glow on the ripples at the vessel's bows and along her sides.

The Danish Meteorological Institute, in commenting on the report of the S.S. *Bintang*, suggests that a likely explanation is that it is a "reflex" phenomenon from a very regular system of waves; the convergence of the rays of light to a point on the horizon is probably due to the perspective displacement. They add, however, that it is difficult to explain the motion of this point relative to the ship, as consequently this motion must originate in a rotation in the longitudinal direction of the waves.

No very satisfactory explanation can be found which will account for the simultaneous production of phosphorescent light over a large stretch of ocean. Captain CARPENTER (in "Nature Studies for Ocean Voyagers" by Captain Sir DAVID WILSON BARKER, Kt., and Captain CARPENTER), suggests that these flashes may be a sort of combined satisfying movement of the tiny organisms emitting phosphorescent light, following out some natural law of which we have at present no knowledge. He quotes in support of this explanation the simultaneous movements of individuals in the flight of a flock of starlings, the whirling of flocks of rooks in great circles, and the sudden madness that may temporarily seize a herd of cattle.

The following books were used in compiling the above :—

- "Founders of Oceanography." Sir WILLIAM HERDMAN.
- "Depths of the Ocean." Sir JOHN MURRAY and Dr. J. HJORT.
- "Living Lights." C. F. HOLDER.
- "Nature Studies for Ocean Voyagers." Captain Sir DAVID WILSON BARKER, Kt., and Captain CARPENTER.

LOCAL WINDS—V.

China Seas, Japan and Eastern Siberia.

THE climate of the China and Japan seas is of a monsoonal character, and is largely influenced by the great land mass of Asia on the west, and by the Pacific Ocean on the east. During the winter months, October to March, the continent of Asia is very cold, and is covered by what is in effect a large stationary anticyclone; while the north-east portion of the Asiatic Coast is situated on the western edge of the Aleutian low pressure system. As the result, the prevailing winds, north of about Latitude 30° N. to the Okhotsk Sea, are from the N.W., while south of Latitude 30° N. the general direction of the wind is from N.E.

In summer the conditions are reversed. The land mass of Asia becomes very hot, and is a region of relatively low pressure, central over the Himalayas; while the northern islands of Japan are situated

on the western edge of the North Pacific anticyclone. Winds from a southerly direction are therefore generally experienced during the summer, being from S.W. in the China Sea, and further north from South or S.E.

China Sea.

In the China Sea the North-east monsoon is established in October, and blows until March, being strongest in December and January. In April gales and variable winds from between N.E. and S.E. precede the change of the monsoon. During May the South-west monsoon begins on the Asiatic Coast, and by June is fairly established over the whole area. It blows throughout July and August, becoming weak in September.

The North-east monsoon is much stronger and more regular than

the South-west, the former being rarely interrupted in the open sea, except in the northern portion of the China Sea, whilst the latter is particularly irregular and often very weak.

Squalls are common during both monsoons, the most dangerous being those known as Arch squalls. When clouds are seen rising from the horizon in the shape of an arch, a heavy gust of wind may be expected. These squalls, when the arch is near the zenith, are accompanied by heavy rain.

Land and sea breezes are experienced near the coasts, particularly when the monsoon is weak. They are felt more frequently during the South-west than during the North-east monsoon.

Normal conditions are frequently interrupted, principally between May and November, by the occurrence of typhoons, the majority of which have their origin in the Pacific, eastward or south-eastward of the Philippines.

Eastern Malaya.—From November to March the North-east monsoon blows hard on-shore. In other months the coast is comparatively calm, except when visited by short sharp squalls, locally known as "Ribut," which usually commence about May. The South-west monsoon is hardly felt in-shore.

Land and sea breezes blow with great regularity during the greater part of the year.

Gulf of Siam.—The North-east monsoon in the gulf sets in at the end of October or early in November, usually preceded by a month of squally, variable and uncertain weather, with frequent fog; and until January blows from between N.N.E. and E. Along the eastern shore during this period the sky is often cloudless, while on the western shore the weather is wet and squally.

In February the wind is more constant from the E.S.E. than from any other point. It blows between S.E. and N.E., with occasional calms and squalls, but fine weather predominates over the whole gulf.

In March the monsoon cannot be depended upon, and until mid-May, southerly winds predominate, with calms near the middle of the Gulf, and slight squalls or land and sea breezes near the shore.

At Bangkok the fresh to strong S. to S.S.W. breezes which prevail during the day in March are locally termed the "Kite and Junk Winds."

About the middle of May the S.W. monsoon sets in, usually with squally weather. This monsoon is scarcely felt close inshore, between Cape Patani and Redong Islands, owing to the high land in the neighbourhood.

From June to August the monsoon blows strongest, with generally fine weather along the western shore of the gulf, where also the wind is more southerly. Much rain, and occasionally a fresh gale are experienced along the eastern shore.

In September the wind is unsteady, shifting between S.W. and W.N.W., in strong gusts; and in October it decreases considerably in strength, shifting between west and north.

Cochin China.—The North-east monsoon sets in towards the end of October and continues until March, when variable easterly winds and calms are experienced, lasting until May, in which month the first light airs of the South-west monsoon are felt.

During June, July and August, the South-west monsoon blows at full strength and is accompanied by heavy rains. By reason of the trend of the coastline between Kamao Point and Cape Padaran, this monsoon blows nearly parallel to the coast; and near the land, during the night, a light land breeze is sometimes experienced, succeeded by a short interval of calm in the morning. This is followed by the monsoon breeze, with a trend towards the land, which blows freshly during the remainder of the day.

Annam.—The winds are rather variable and weak on this coast throughout the year. The monsoons blow nearly parallel to the coastline, that is from a northerly or southerly direction.

The northerly winds (N.E. monsoon) set in about the middle of October, with rain, and blow generally stronger to the northward than to the southward of Cape Padaran.

The southerly winds (S.W. monsoon) set in about the middle of May, generally preceded by a month of calm weather.

During the period of the South-west monsoon, land and sea breezes are fairly regular on the coast between Cape Padaran and the Gulf of Tongking. The wind dies away almost every evening at about 8 p.m., and is replaced by a land breeze, usually commencing about midnight, though the hour is not regular. The land breeze generally persists until 7 or 8 a.m., when it falls light or calm; and is followed at Noon by a south-easterly sea breeze, backing to south as the day advances.

Gulf of Tongking.—During the month of October, the North-east monsoon is established in the Gulf and lasts until April, being of moderate strength, and rarely exceeding force 6. Between Latitude 18° and 20° N. the winds are not so strong as those further south.

South of the 17th parallel the direction varies between E. and E.N.E. and between Latitude 17° and 18° N. winds from between N. and N.W. and calms are occasionally experienced. Near Hainan the direction of the wind varies from E.N.E. to E.S.E.

In June the South-west monsoon is ushered in by storms, and the rainy season lasts up to September. This monsoon is weaker than the N.E. monsoon, and the wind seldom exceeds the force of a moderate breeze. The mornings are usually calm, the wind freshening about noon, and continuing so until about 4 p.m., dying away towards sunset.

Near the coast from June to August, the prevailing direction of the wind is from between S.S.E. and S.S.W., with variable winds from a westerly and sometimes an easterly direction.

In September, and until the North-east monsoon is established, the winds are weak and variable, but typhoons are of somewhat frequent occurrence.

China Coast and Yellow Sea.

The southern portion of this region is within the limits of the monsoon areas. The northern coasts are beyond the limits, but the influence of the monsoon prevails, and the periods of northerly and southerly winds are the same, though they are much diminished in regularity, and broken by calms and variables, especially in summer.

Hong Kong to Latitude 25° N.—Off this coast the North-east monsoon is at its height from November to January, the wind blowing mostly from E.N.E., parallel with the coast. At night the wind will frequently be found to draw off the land. Strong gales, with a rising barometer are frequently experienced.

The South-west monsoon generally commences about the middle or end of April and continues until early October. The winds are not so constant in direction as during the North-east monsoon, and frequently blow from South to S.S.E.; while in Formosa Strait there are often strong N.Ely. winds from July to September.

Land and sea breezes occur near the coast.

Latitude 25° to 30° N.—Off this portion of the coast, north-easterly winds prevail for nine months of the year, September to May inclusive; while during the summer, June to August, south-westerly winds predominate, interspersed with calms, and winds varying between south and north-east, with thunderstorms of common occurrence.

Yellow Sea.—In the Yellow Sea between Shanghai and Korea, in December and January, it blows almost constantly from north-west (seldom ranging beyond N. and W.S.W.), with gales of long duration from between N. and N.N.W.; the weather is sometimes fine, but is generally overcast and gloomy with rain.

Near the coasts, the winds during the greater part of the year are local, and inclined to follow the trend of the land, from the northward in winter, and the southward in summer.

Off the coasts of Shantung, a mountainous peninsula, the winds are variable during spring and summer; and during the latter season sudden and heavy squalls and thunderstorms sometimes occur.

In the Gulfs of Pe-chili and Liao Tung the prevailing winds from October to March are from the northward to north-eastward, but with frequent interruptions. During this season deep depressions occasionally advance from the north-westward and cause gales which often continue for 2 or 3 days, blowing strongest from the north-west.

During April to September, the prevailing winds are light and variable from the southern semicircle, with very little rain during the summer. In the Gulf of Pe-chili, westerly winds are laden with dust, which obscures the land at a distance of four miles. Sudden squalls and thunderstorms, with hail, are frequent in summer; while during the months of September to November, in the north-eastern part of Liao Tung Gulf, S.S.E. to S.S.W. winds may commonly be expected to shift to the north-west or north, without warning, and blow hard for about 12 hours or even longer.

Korea, West and South Coasts.—On the west and south coasts of Korea, winds from between north-east and north-west prevail in January and February, with gales between south-west and north. In March N.Ely. and S.Wly. winds, with calms, are experienced, and in April variable winds and calms. From May to August, south to south-west winds prevail, with calms and occasional fresh northerly winds, but on the south coast south-easterly winds are also frequent.

From September to December inclusive, N.Wly. winds prevail, with occasional calms; and in December there are also N.Ely. winds. Gales are common in the latter part of the year and are most prevalent in November and December.

Western Shores of Japan Sea and Sea of Okhotsk.

This region, being in winter situated on the east side of the continental anticyclone, and on the western side of the Aleutian low pressure, the winds are northerly and north-westerly. In summer the region is bounded on the east by the North Pacific anticyclone and on the south-west by the continental low pressure, so that during this season the winds are from south and south-east.

East Coast of Korea and Manchuria.—The north to north-westerly winds prevail from October to March, and the south to south-easterly winds from June to August. During April, May and September the winds are variable owing to the changes in the main pressure systems, but frequently blow fresh from north and west.

During the latter half of the summer in Posiette Bay, S.W. winds blow frequently from about 11 a.m. until sunset. During autumn and winter, N.E. winds are infrequent, but when from that quarter, especially in winter, they blow with considerable violence, accompanied by snow storms.

At Vladivostok the average force of the wind throughout the year is between 1 and 2 on the Beaufort scale.

Gulf and Strait of Tartary.—From October to March, the prevailing winds are northerly, varying between N.W. and N.E., with frequent gales from N.W. and snowstorms. These gales commence at S.W., but soon veer to W. and N.W., from which direction they sometimes last from 2 to 4 days.

From April to August the winds are generally south-easterly, backing occasionally to E.N.E., these latter winds bringing very foggy weather. Moderate S.S.W. winds at times intervene, bringing fine clear weather. S.Ely. winds in summer are sometimes strong and squally; and occasionally in May a gale from that quarter is experienced lasting 10 or 12 hours. These gales associated with a falling barometer generally veer to the southward, and south-west or west, and commence and cease quite suddenly.

In September the wind becomes variable, north-easterly winds being the most prevalent, with frequent accompanying snow storms.

Sea of Okhotsk.—From October to March northerly winds predominate on the western and northern shores of this sea, while on the Kamchatka shore westerly winds prevail from September to May, and are frequently very stormy.

On the west side of the sea, fine weather is experienced with N. and N.W. winds, but with winds from E. and S.E. bad weather and gales may be expected. From December to April, the wind is from N. to N.E., fresh, with a clear sky, but snow falls when the wind veers to the eastward of N.E.

In April and May the winds are moderate and generally from north during the night and from south during the day.

During June, July and August, the winds on the western and northern shores are generally from between south and east, moderate in force; while on the Kamchatka shore they are from between N.E. and S.E., with frequent calms.

On the western and northern shores during September, a land wind blows from sunset throughout the night from west to north-west,

while during the day a moderate southerly sea breeze prevails with sometimes a southerly gale.

Japanese Islands.

Owing to the numerous channels and gulfs, there are considerable local variations of the direction of the winds along the extensive seaboard of the Japanese Archipelago, which extends from Latitude $24^{\circ} 30' N.$ to $51^{\circ} N.$, and from Longitude $123^{\circ} 40' E.$ to $156^{\circ} 30' E.$

Eastern shores of the Japan Sea.—From January to March northerly or north-westerly winds prevail generally, but occasionally during the latter part of March southerly winds are experienced on the coast of Nipon. In April the winds are variable, and from May to September, on the Nipon coast, south and south-west winds predominate, with land and sea breezes in fine weather. South-easterly winds and frequent calms are experienced on the Hokushu coast until late in summer.

From October to December north-westerly winds are generally prevalent, except on the Nipon coast, where winds between N.E. and S.E. are experienced in October and November.

North-westerly gales occur frequently in the early and latter part of the year, lasting from one to three days. These gales usually commence with light N.Ely. winds, veering to S.E., after which the barometer commences to fall rapidly and the wind veers to south. The wind increases to gale force at south-west, accompanied by heavy snow; and may shift at any moment to N.W. in a heavy squall. The gale continues to blow from between N.W. and S.W., until with a rising barometer, the wind veers to the eastward of north, and a period of fine weather ensues.

South Coast.—On the coasts of Kiusiu, Shikoku, the south coast of Nipon, and the Inland Sea, during the months September to March, winds from between N.W. and N.E. predominate, with frequent gales during the winter months. April is a changeable month, with winds varying between N. and S.E. and sometimes round by south and south-west.

During the summer months in the Inland Sea, calms or light variable airs are experienced. Elsewhere the prevailing winds are from between N.E. and S., with generally fine weather, but occasional gales from N.E. and N.W.

East Coast.—The prevailing winds during the winter, November to March, are between north and west. Towards the end of March the westerly winds decrease both in force and frequency; and in April and May the weather is fine with light variable winds. During the summer months the winds are mainly from between south and east, while land and sea breezes are common. In the early part of October, the winds become variable, and the weather unsettled; and towards the end of that month the N.W. winds of winter commence.

Gales are rare in summer, but sudden squalls are experienced from the northward, often giving no warning, light S.W. winds or calms preceding them.

Easterly gales set in with cold weather and a high barometer, which remains stationary until the wind shifts to N.E., when, should the barometer fall, a continuance of bad weather may be expected.

In winter, a westerly gale may certainly be expected if the wind shifts from north to north-west and the barometer falls below 1,007 millibars (29.74 ins.).

WEATHER SIGNALS.

II. WIRELESS WEATHER BULLETINS.

SOUTH WEST AFRICA, UNION OF SOUTH AFRICA, AND PORTUGUESE EAST AFRICA.

Spark Issues.

REPORTS of weather conditions at 0630 G.M.T. at South African ports are issued daily by Coast W/T Stations in code, mainly New International, in the form:—

1_n BBBSB_r DDFww VNR_r where

1_n = Indicator letters, *three in number*, of observation station (generally the station's W/T call signal).

BBB = Barometer reading, corrected, in mbs. and tenths, initial 9 or 10 omitted. (See Table XIII, p. 19, Vol. III, No. 25, for conversion to inches.)

S = State of sea and swell. (See Table XXIV, p. 51, Vol. III, No. 27.)

B_r = Only used for Capetown, Mossel Bay, East London, Durban, Lourenço Marques,* Beira and Mossoril,† for other stations a dash will be sent. It represents the following:—

At Capetown - - Run, or undertow in docks, Table XLV.

At Mossel Bay - - Instructions regarding anchorage, Table XLVI.

At East London, Durban, Lourenço Marques, Beira, and Mossoril. } State of bar. Table XLVII.

* Refers to the bar near Inyack Island.

† Refers to the bar at the Mozambique Port.

DD = Wind direction, true. (See Table III, p. 17, Vol. III, No. 25.)

F = Wind force by Beaufort Scale, Forces 9 and above reported as 9, with the actual force at the end of the particulars for each port concerned, *e.g.*, "Gale ten," "Storm eleven," "Hurricane twelve."

ww = Weather at time of observation. (See Table V, p. 17, Vol. III, No. 25.)

V = Visibility. (See Table VI, p. 18, Vol. III, No. 25.)

N = Number of tenths of sky clouded.

RRR = Rainfall in whole millimetres.

A dash (— . . . —) will be sent should any portion of a report not be available. In the absence of a complete report from any station the station's indicator letters followed by the words "not received" will be transmitted.

Details of Reports.

1. Transmitting station - **Walvis Bay** (Latitude 22° 58' S.; Longitude 14° 30' E., approx.).

Call signal - - - VNV.

Messages directed to - CQ.

Wave length - - - 600 m. spk.

Times of transmission :—

0840 G.M.T. (observations at following stations at 0630 G.M.T.).

1300 G.M.T. (forecast for coast in plain language).

2000 G.M.T. (forecast for coast in plain language).

2. Observation stations, 0840 report :—

Indicator		Position (approx.).	
Letters.	Station.	Lat. S.	Long. E.
VNC	Capetown - - -	33° 56'	18° 29'
VNJ	Port Nolloth - - -	29° 14'	16° 51'
VNV	Walvis Bay - - -	22° 58'	14° 30'
CRM	Mossamedes - - -	15° 12'	12° 09'
CRL	Loanda - - -	8° 49'	13° 13'

1. Transmitting station - **Capetown** (Latitude 33° 56' S.; Longitude 18° 29' E., approx.).

Call signal - - - VNC.

Messages directed to - CQ.

Wave length - - - 600 m. spk.

Times of transmission :—

0830 G.M.T. (observations at following stations at 0630 G.M.T.).

1115 G.M.T. (forecasts for coasts in plain language).

2. Observation stations, 0830 report :—

Indicator		Position (approx.).	
Letters.	Station.	Lat. S.	Long. E.
VNO	East London - - -	33° 02'	27° 55'
VNQ	Port Elizabeth - - -	33° 59'	25° 37'
MB	Mossel Bay - - -	34° 11'	22° 09'
VNC	Capetown - - -	33° 56'	18° 29'
VNJ	Port Nolloth - - -	29° 14'	16° 51'
VNV	Walvis Bay - - -	22° 58'	14° 30'

1. Transmitting station - **Port Elizabeth** (Latitude 33° 59' S.; Longitude 25° 37' E. approx.).

Call signal - - - VNQ.

Messages directed to - CQ.

Wave length - - - 600 m. spk.

Times of transmission :—

0820 G.M.T. (observations at following stations at 0630 G.M.T.).

1130 G.M.T. (forecast for coasts in plain language).

2. Observation stations 0820 report :—

Indicator		Position (approx.).	
Letters.	Station.	Lat. S.	Long. E.
VND	Durban - - -	29° 52'	31° 03'
VNO	East London - - -	33° 02'	27° 55'
VNQ	Port Elizabeth - - -	33° 59'	25° 37'
MB	Mossel Bay - - -	34° 11'	22° 09'
VNC	Capetown - - -	33° 56'	18° 29'

1. Transmitting station - **Durban** (Latitude 29° 52' S.; Longitude 31° 03' E., approx.).

Call signal - - - VND.

Messages directed to - CQ.

Wave length - - - 600 m. spk.

Times of transmission :—

0810 G.M.T. (observations at following stations at 0630 G.M.T.).

1100 G.M.T. (forecast for coasts in plain language).

2. Observation stations, 0810 report :—

Indicator		Position (approx.).	
Letters.	Station.	Lat. S.	Long. E.
CRT	Beira - - -	19° 50'	34° 51'
CRZ	Lourenço Marques - - -	25° 58'	32° 36'
VND	Durban - - -	29° 52'	31° 03'
VNO	East London - - -	33° 02'	27° 55'
VNQ	Port Elizabeth - - -	33° 59'	25° 37'

1. Transmitting station - **Lourenço Marques** (Latitude 25° 58' S.; Longitude 32° 36' E., approx.).

Call signal - - - CRZ.

Messages directed to - CQ.

Wave length - - - 600 m. spk.

Time of transmission :—

0800 G.M.T. (observations at following stations at 0630 G.M.T.).

2. Observation stations, 0800 report :—

Indicator		Position (approx.).	
Letters.	Station.	Lat. S.	Long. E.
VNO	East London - - -	33° 02'	27° 55'
VND	Durban - - -	29° 52'	31° 03'
CRZ	Lourenço Marques - - -	25° 58'	32° 36'
CRT	Beira - - -	19° 50'	34° 51'

1. Transmitting station - **Mozambique** (Latitude 14° 57' S.; Longitude 40° 40' E., approx.).

Call signal - - - CRV.

Messages directed to - CQ.

Wave length - - - 600 m. spk.

Time of transmission :—

0900 G.M.T. (observations at following stations at 0700 G.M.T.).

2. Observation stations 0900 report :—

Indicator		Position (approx.).	
Letters.	Station.	Lat. S.	Long. E.
CRV	Mozambique (Mossoril) - - -	14° 57'	40° 40'
CRT	Beira - - -	19° 50'	34° 51'
CRZ	Lourenço Marques - - -	25° 58'	32° 36'

SPECIAL WEATHER TELEGRAPHY TABLES NOT NEW INTERNATIONAL CODE. (SOUTH AFRICA).

Table XLV.

Run or Undertow (at Table Bay Docks).

Code figure.	Meaning.
0 - - - - -	No run.
1 - - - - -	Slight run.
2 - - - - -	Moderate run.
3 - - - - -	Heavy run.

NOTE.—"Run" is a local term for the undertow, due to a heavy swell in the Bay, which causes vessels to range so heavily along the quays that it is difficult to hold them.

Table XLVI.

Instructions regarding Anchorage at Mossel Bay.

Code figure.	Meaning.
1 - - - - -	It is recommended that vessels should anchor well up the Bay towards Seal Island in not less than 9 fathoms of water, and veer plenty of cable.
5 - - - - -	It is recommended that vessels should take up ordinary anchorage with beacons in line in about 7 fathoms.

Table XLVII.

State of bar (at East London, Durban, Lourenço Marques, Beira and Mossoril).

Code figure.	Meaning.
1 - - - - -	Bar smooth.
2 - - - - -	„ breaking slightly.
3 - - - - -	„ rough.
4 - - - - -	„ breaking heavily.
5 - - - - -	„ dangerous.
6 - - - - -	„ impassable.

NOTE.—At East London the use of 1, 2, and 3 also implies that work with lighters is possible, and 4, 5, and 6, that it is impossible.

MADAGASCAR.

THE following W/T Stations broadcast, *en clair*, the general atmospheric situation in Madagascar and a weather forecast for the day on 600 metres (spark) in each case.

W/T Station.	Call Sign.	Lat.	Long.	Time.
Majunga	- HYE	15° 43' S.	46° 20' E.	0900 G.M.T.
Diégo Suarez	- HYD	12° 15' S.	49° 23' E.	0830 „
Tamatave	- HYL	18° 08' S.	49° 26' E.	0800 „

WIRELESS STORM WARNINGS.

MADAGASCAR.

Spark Issues.

CYCLONE warnings are broadcast when necessary by the following stations on a wave length of 600 metres (spark), in each case :—

Zaudzi (Mayotta I.) : Latitude 12° 47' S., Longitude 45° 16' E., Call Sign HYH.

Majunga : Latitude 15° 43' S., Longitude 46° 20' E., Call Sign HYE.

Diégo Suarez : Latitude 12° 15' S., Longitude 49° 23' E., Call Sign HYD.

Tamatave : Latitude 18° 08' S., Longitude 49° 26' E., Call Sign HYL.

The warning, originating from the observatory at Antananarivo, will be broadcast at every even hour during the probable passage of the cyclone when within the range of the W/T stations, alternately by Zaudzi and Majunga W/T stations in the case of a cyclone affecting the Mozambique Channel, and alternately by Diégo Suarez and Tamatave W/T stations in the case of a cyclone affecting the area north-east and east of Madagascar.

The warning will be preceded by the Danger Signal **TTT(— — —)** repeated ten times at short intervals on full power. The warning will be broadcast one minute after the Danger Signal, and will be repeated three times at intervals of ten minutes.

If the Danger Signal *only* is broadcast it will indicate, in the absence of precise information, that there is reason to expect the passage of a cyclone.

During the whole period of this service Zaudzi and Tamatave W/T stations will remain permanently on watch.

III.—WIRELESS TIME SIGNALS.

UNION OF SOUTH AFRICA.

Spark Issue.

TIME signals controlled from the Cape Observatory are broadcast daily by Capetown W/T Station, call sign VNC, Latitude 34° 08' 45" S., Longitude 18° 19' 17" E., on a wave length of 600 metres (spark).

A warning signal is broadcast before the time signal.

The time signal consists of a series of 12 dashes each of about $\frac{3}{4}$ sec. duration, extending over half a minute, and divided up into five groups, a dash commencing at each of the following times :—

G.M.T.			G.M.T.		
h.	m.	s.	h.	m.	s.
20	59	30	20	59	48
		32			50
		34	20	59	54
20	59	38			56
		40			58
20	59	44	21	00	00

NOTE.—Each signal may be used as indicating the exact G.M.T. recorded above; the *beginning* of the last dash of the series is exactly 21h. 00m. 00s. G.M.T.

PORTUGUESE EAST AFRICA.

Spark Issues.

TIME signals controlled automatically by the Observatory are broadcast by Lourenço Marques W/T Station, call sign, CRZ, Latitude 25° 58' 00" S., Longitude 32° 36' 00" E., on a wave length of 600 metres (spark).

The time signals are transmitted in accordance with the International System, from 0757—0800 and 1857—1900 G.M.T. (see Fig. 1, p. 104, Vol. III., No. 30.

IV.—VISUAL STORM WARNINGS.

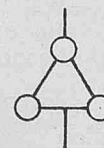
Mozambique.

STORM signals are displayed at Sebastian fort on receipt of information by cable from Mojanda in Madagascar. They consist of warning signals which are hoisted at the northern yard-arm, and are as follows—

By day.



By night.

















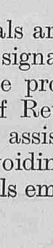



The lights displayed in the night signal are *white*.

MADAGASCAR.

SIGNALS indicating the localities threatened by a cyclone are exhibited at the following ports : Tamatave, Andovoranto, Vatomandri, Mahanoro Mananjari, Farafangana, Fort Dauphin, Tuléar, Ambohibé, Morondava, Maintirano, Namela, Majunga, Analalava, Nosi Bé, Diégo Suarez, Vohemar, Maroantsetra, Dzaudzi, and St. Mary.

The signals, which are made from a flagstaff by a black cylinder and black cones, are as follows :—

Signal.	Locality threatened.
	Between Diégo and Antalaha.
	Between Antalaha and St. Mary.
	Between St. Mary and Vatomandri.

Signal.	Locality threatened.	Signal.	By Day.	Meaning.
	Between Vatomandri and Mananjari.			Cyclone expected.
	Between Mananjari and Farafangana.			Cyclone approaching from the north eastward.
	Between Farafangana and Fort Dauphin.			Cyclone appears likely to pass at a considerable distance northward of the island.
	Between Diego and Nos Bé.			Cyclone appears likely to pass a short distance northward of the island.
	Between Nosi Bé and Majunga.			Cyclone appears likely to pass southward of the island, travelling from north-eastward to south-westward.
	Between Majunga and Maintirano.			Cyclone appears likely to pass southward of the island, travelling from north-westward to south-eastward.
	Between Maintirano and Morondava.			Cyclone appears likely to pass westward of the island, travelling from northward to southward.
	Between Morondava and Tuléar.			Cyclone appears likely to pass eastward of the island.
	Between Tuléar and Fort Dauphin.			Cyclone, which had already passed in a northerly direction, appears to have recurved, and is again approaching the island, travelling from N.W. to S.E.
				Barometer rising; all danger over.
			By Night.	
				Vessels should prepare for a storm.

REUNION ISLAND.

CYCLONE signals are displayed at Port des Galets, St. Denis, St. Paul, and St. Pierre signal stations, and also on the Vigie flagstaff, St. Denis, to indicate the probable approach and general track of cyclones in the vicinity of Reunion. The signals are to be taken as a general guide only, to assist mariners in using their own judgment as to the best way of avoiding storms.

The symbols employed (*black*) and their meanings are as follows :—

and gun fired.

The lights displayed are *white*.

MAURITIUS.

Storm Signals.

DURING the cyclone season, from 1st November to 15th May, annually, a storm signal is hoisted daily, except Sundays and public holidays, at the Port office at Port Louis, to indicate the weather conditions prevailing in the vicinity of Mauritius. The storm signal consists of four International Code flags or pennants and a cone.

The upper flag refers to the quadrant from east to north.
 The second " " " north to west.
 The third " " " west to south.
 The fourth " " " south to east.

(The flags are placed vertically.)

When the signal is headed by a cone the information refers to the area within a circle with a radius of 300 miles.

When the International Code Flag and Answering pennant is hoisted below the fourth flag it indicates that no information has been received, and that the signal refers to the previous day.

International Code Flags and Pennants used and their meanings.

- A. There are no indications of disturbed weather.
- B. Weather is unsettled, but there are no indications of a cyclonic storm.
- C. Weather is unsettled, and may lead to the formation of a cyclonic storm.
- D. There are indications that a cyclonic storm is forming.
- E. There is distinct evidence of the existence of a cyclonic storm.
- F. The disturbed weather is apparently due to an extra tropical storm to the southward, "Southerly buster."
- G. The weather is clearing, but the sea may still be heavy.
- H. The cyclonic storm is moving south-westward.
- I. The cyclonic storm is moving southward.
- J. The cyclonic storm is moving south-eastward.
- K. The cyclonic storm is moving westward, northward of Mauritius.
- L. The cyclonic storm is moving eastward, southward of Mauritius.

The above signals are made when bad weather is approaching, and it is not safe for any vessel to proceed to sea.

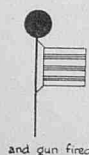
Cyclone Signals.

When bad weather is approaching and precautions are necessary in the harbour, the following cyclone signals are made to vessels in the harbour and roadstead from the flagstaff of the Port Office, at the head of the harbour, and repeated from Fort George:—

By Day.

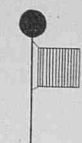
Signal.

Meaning.



and gun fired

Send down top-gallant yards and prepare for bad weather. The masters of all ships and vessels in this port are required immediately to repair on board their respective vessels, and half the crew should be kept on board; vessels at the Outer anchorage ought to proceed to sea.



and gun fired

Vessels in the port are to strike lower yards and topmasts. Vessels at the Outer anchorage to go to sea.

Vessels are required to answer the signals by hoisting their national ensign at the main.

Signal.

By Night.

Meaning.



and gun fired

Vessels at the Outer anchorage to proceed to sea forthwith, and vessels in the port to make every preparation for bad weather.



Blue



Red



Black.

CREAT BRITAIN.

Gale Warnings by Wireless Telephony, R/T.

AMENDMENT TO NOTICE ON PAGE 186, VOLUME III, No. 34.

With reference to the above notice, Gale Warnings will be broadcast as necessary by Wireless Telephony, by the BRITISH BROADCASTING COMPANY's station at Daventry on Sundays at 1530 G.M.T. only.

When British Summer Time is in operation this time should be retarded one hour.

Changes of the time of issue by R/T of Weather Signals for Shipping are necessary at shorter notice than can be given by THE MARINE OBSERVER. Mariners are, therefore, referred to THE RADIO TIMES, the official organ of the BRITISH BROADCASTING COMPANY, published weekly, for the exact times of issue. The times given in THE RADIO TIMES are only G.M.T. when summer time is not in operation.

Special Notices regarding Personnel.

The Marine Superintendent will be glad to receive information of special distinctions gained and retirements, &c., of Marine Observers.

OBITUARY.

The death of Captain N. R. de la Cour CORNWALL, R.D., R.N.R., at Nelson, New Zealand, on June 18th, 1926, is noted with deep regret.

Born at Cork, Ireland, in 1869, Captain CORNWALL joined the sailing ships of the NEW ZEALAND SHIPPING COMPANY as an apprentice in 1886. Twenty years later he obtained command of one of the same Company's steamships.

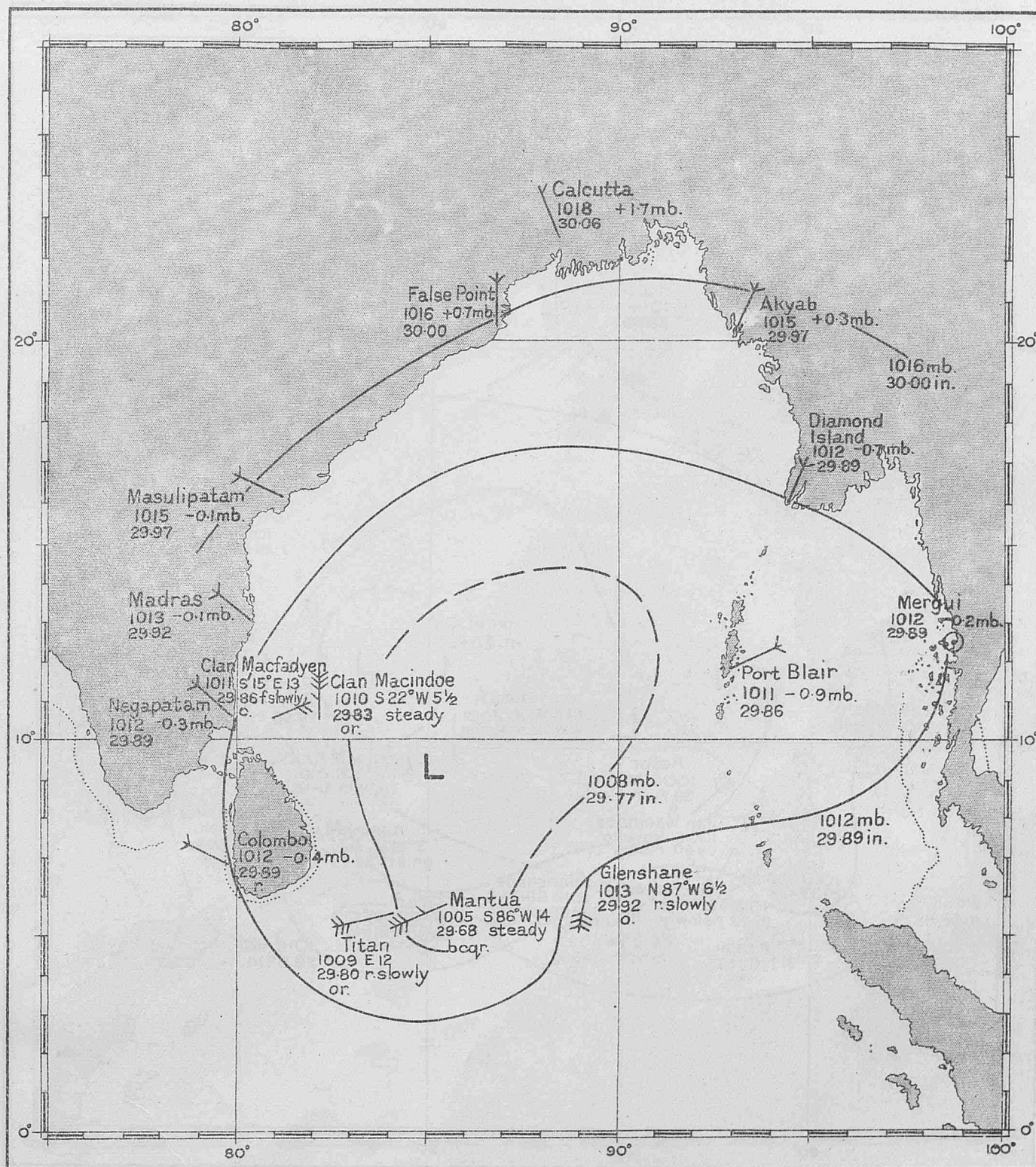
He was a member of the Corps of Voluntary Marine Observers from 1895, during which time, when in command of S.S. *Otarama*, *Paparui*, *Kaipara* and *Tongariro*, he contributed 17 Meteorological Logs.

Captain CORNWALL had the distinction of holding the appointment of Royal Naval Reserve, Aide-de-Camp to THE KING, before he was placed on the retired list.

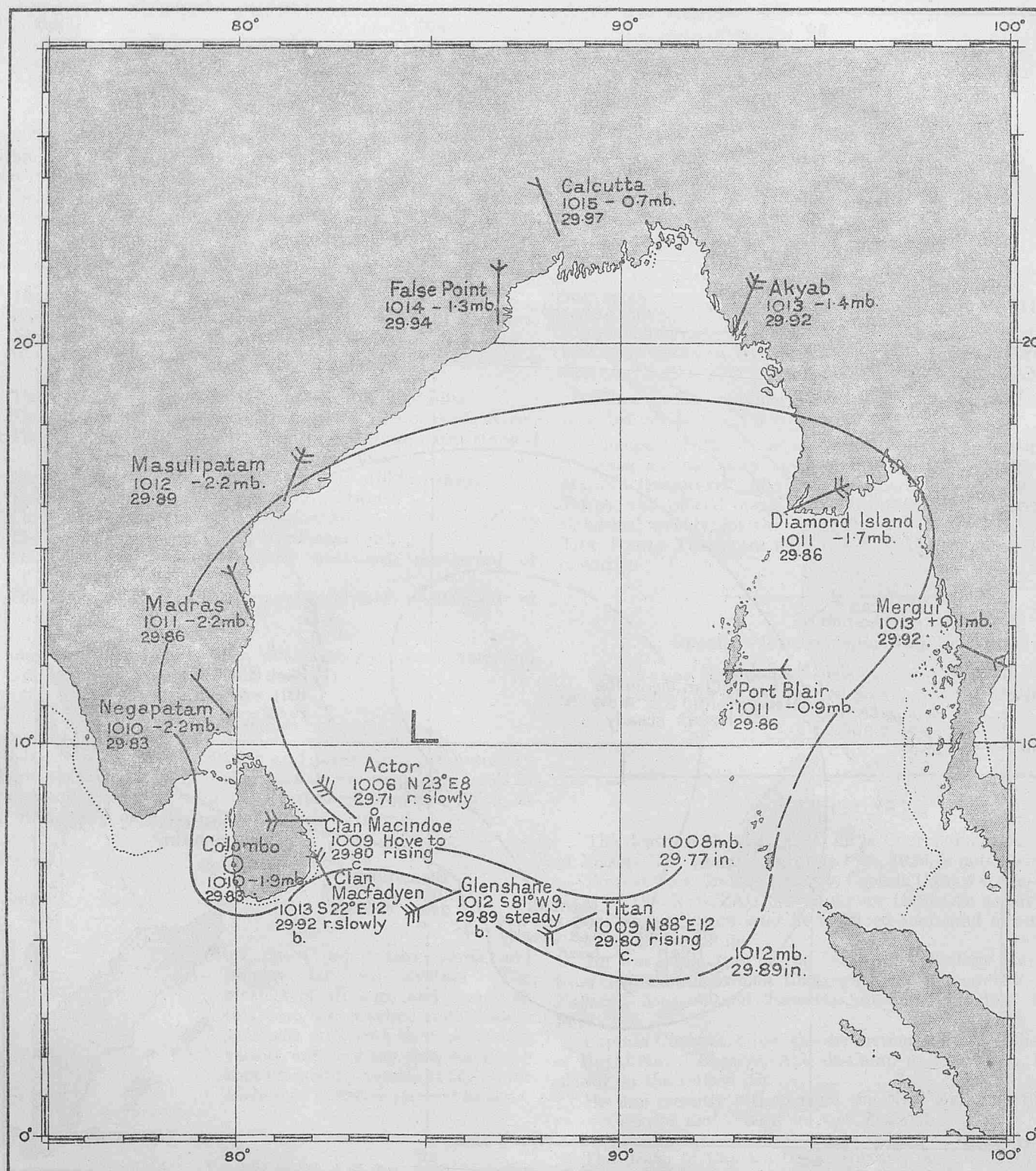
He had recently retired from the NEW ZEALAND SHIPPING COMPANY's service and settled in New Zealand.

The death of Captain G. E. BUTLER on July 27th, 1926, at St. Thomas's Hospital, London, at the age of 55 years, is noted with deep regret.

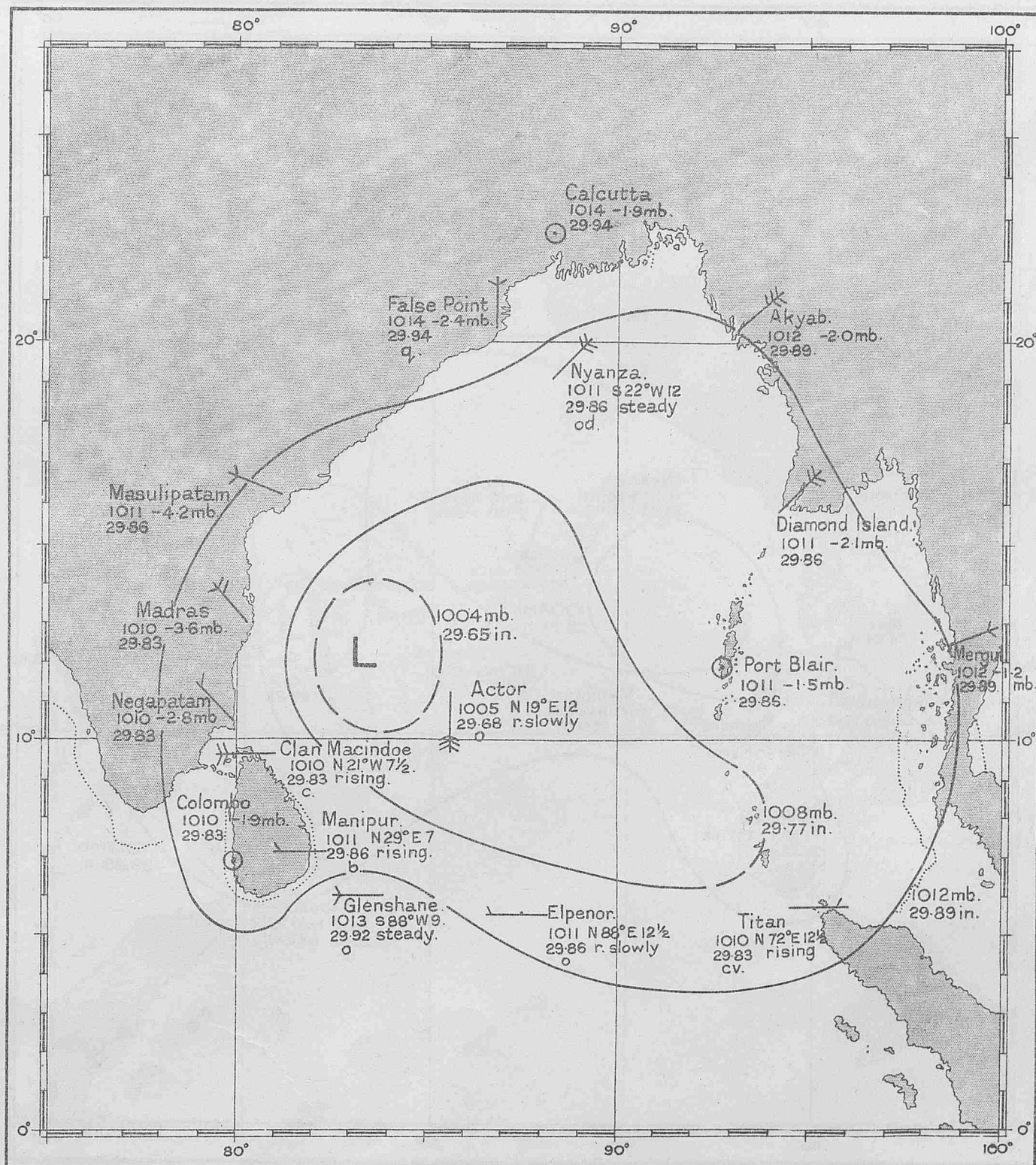
Captain BUTLER joined the PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY in March, 1893, and gained command of their S.S. *Khyber* on May 3rd, 1917. Latterly he commanded R.M.S. *Mantua*. He was a member of the Corps of Regular Voluntary Marine Observers from 1921.

MORNING OF NOVEMBER 24TH, 1925.

Weather Chart XXII.

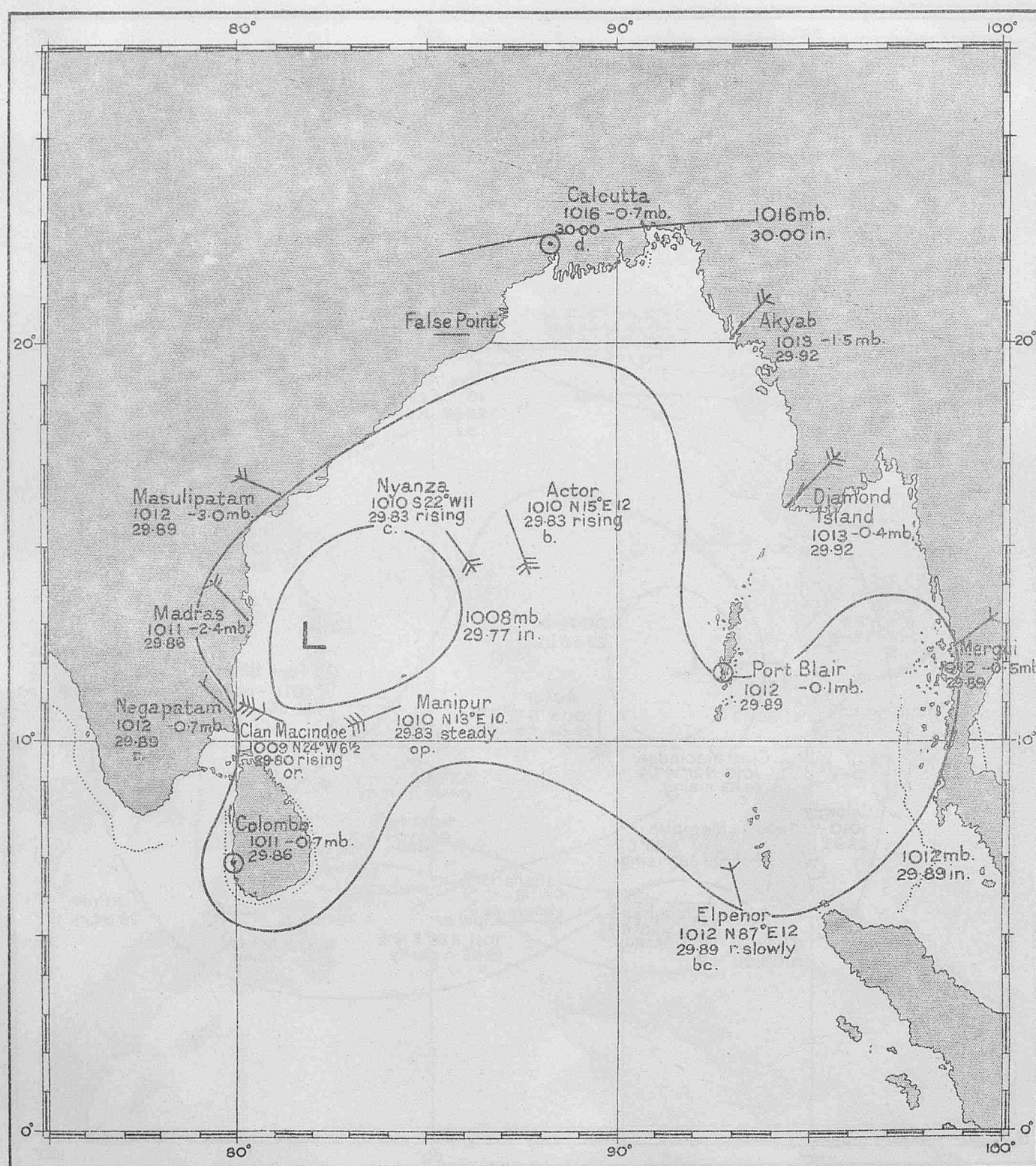
MORNING OF NOVEMBER 25TH, 1925.

Weather Chart XXIII.

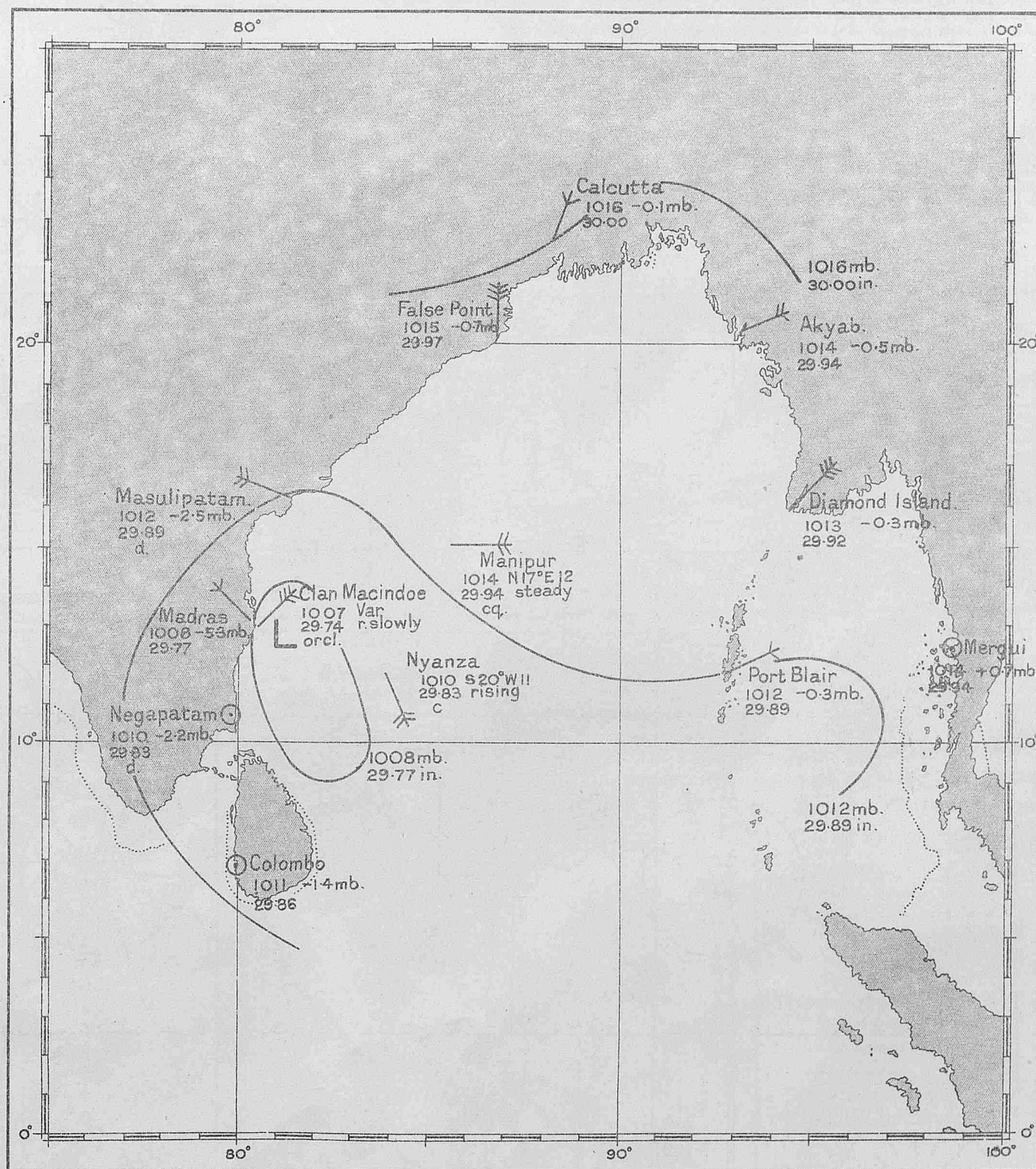
MORNING OF NOVEMBER 26TH, 1925.

Weather Chart XXIV.

MORNING OF NOVEMBER 27TH, 1925.



Weather Chart XXV.

MORNING OF NOVEMBER 28TH, 1925.

Weather Chart XXVI.

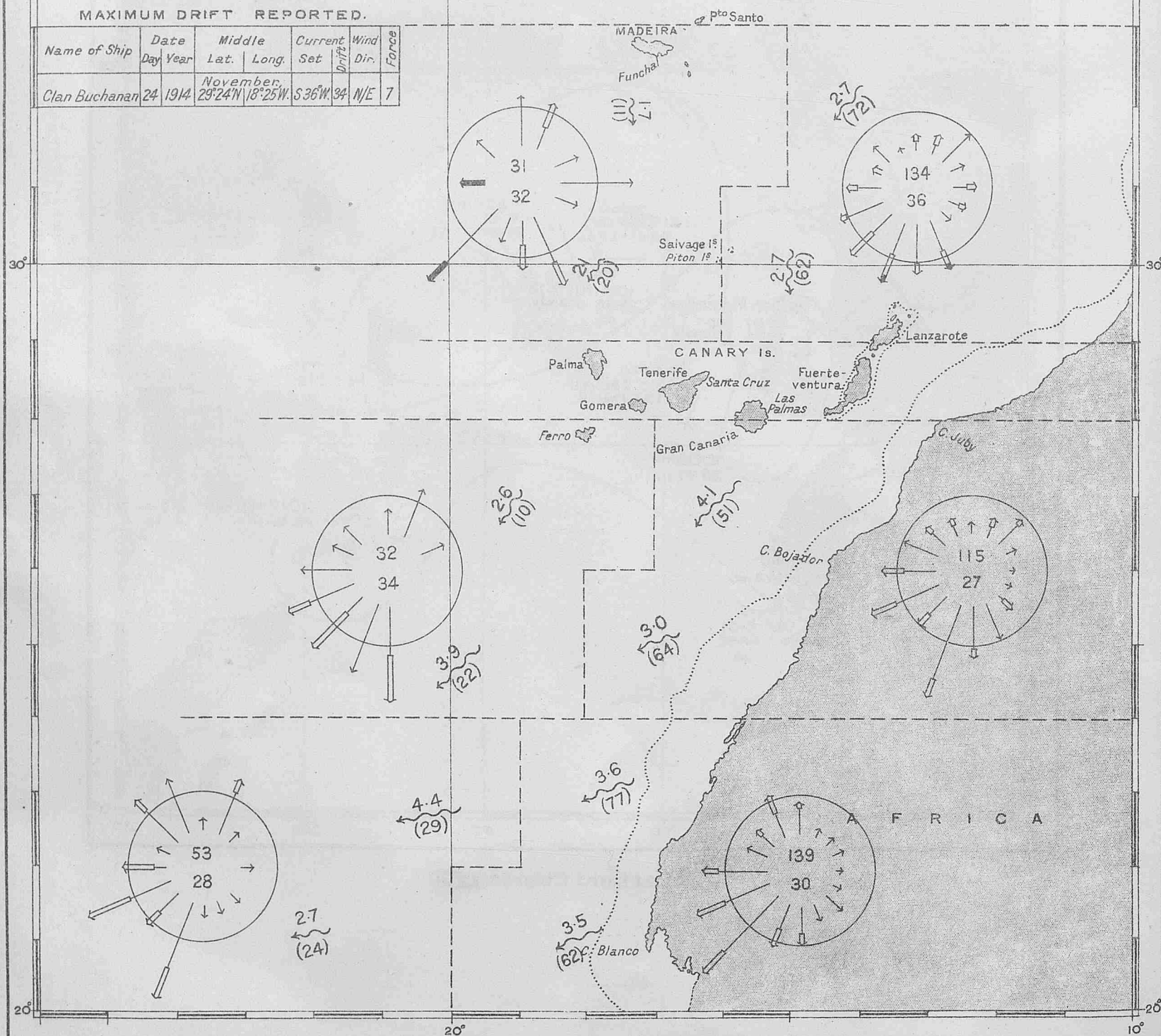
CURRENTS on the routes from LATITUDE OF CAPE ST VINCENT to LATITUDE OF CAPE BLANCO.
 Compiled from observations made by ships using the routes from the Channel to South Africa and South America.
 NOVEMBER, DECEMBER, JANUARY, 1910-1914, 1920-1924.

EXPLANATION.

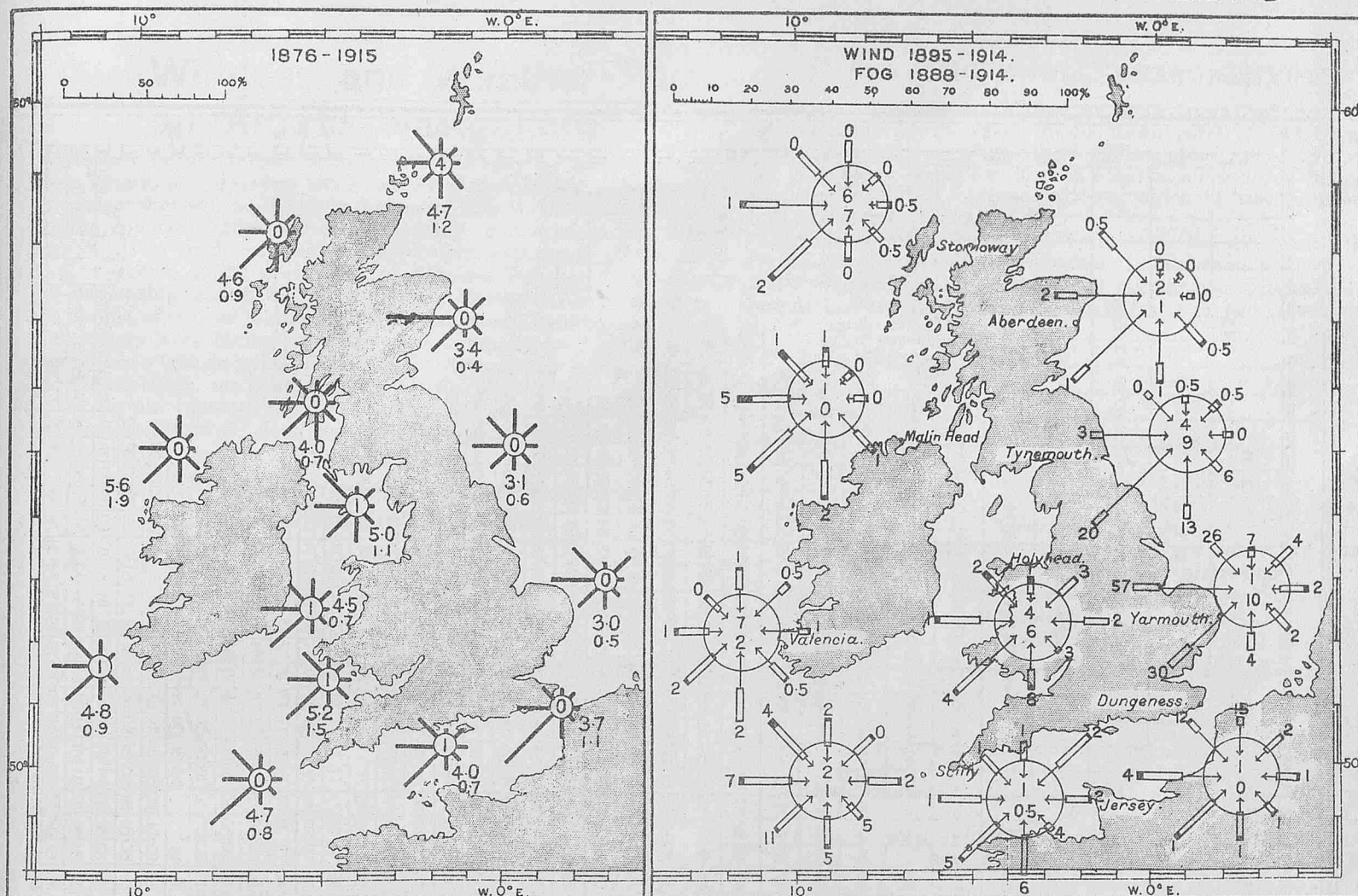
The current roses are drawn for each 4 degrees of latitude.
 The roses are displaced in order not to clash with the resultant arrows, but they refer to the same track.
 Arrows flow with current, length represents frequency, thickness strength.
 6-12 miles per day
 13-24 " " "
 25 and over " " "
 Distance from tail of arrow to circle represents 5%.
 Scale:- 0 10% 20% 30%
 Upper figure in centre of rose gives total number of observations, lower figure, the frequency of currents less than 6 miles per day.
 Waved arrows represent the resultant current for 2° of latitude.
 The figure above the arrow gives velocity in miles per day, the figure below in brackets, the number of observations.
 The resultant arrows are drawn with their centres on the mean of tracks.

MAXIMUM DRIFT REPORTED.

Name of Ship	Date	Middle	Current	Wind	Force
	Day Year	Lat. Long.	Set Drift Dir.		
Clan Buchanan	24 1914	November, 29°24'N 18°25'W.	S 36°W. 34	N/E	7



WIND AND FOG AT COAST STATIONS. GREAT BRITAIN AND IRELAND



WIND, FOG AND MIST.

S.W. APPROACHES TO GREAT BRITAIN AND IRELAND.

Frequency of fog per thousand observations for each 2 points of compass 1921-1924.

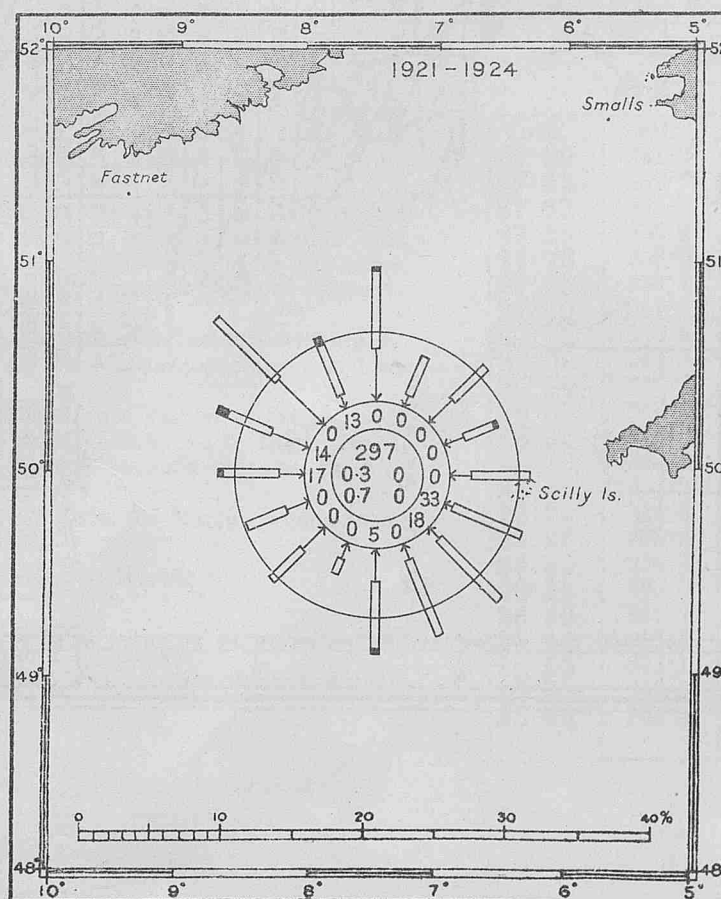
Latitude 48°-52°N.

Longitude 5°-10°W.

Direction. Frequency.

N	0
NNE	0
NE	0
ENE	0
E	0
ESE	20
SE	14
SSE	0
S	3
SSW	0
SW	0
WSW	0
W	10
WNW	10
NW	0
NNW	7
Calm	0
Var.	0
Total	64

Percentage frequency of fog and mist for area = 6%.

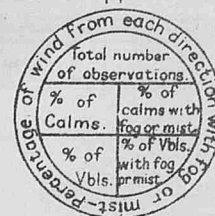


Mean and Maximum number of days with fog during the month at the different stations.

Station.	Mean.	Max.
Stornoway	0.5	5
Malin Head	0.9	3
Valencia	0.6	2
Holyhead	2.0	9
Scilly	2.0	5
Jersey	1.4	4
Dungeness	3.8	10
Yarmouth	7.2	14
Tynemouth	3.4	7
Aberdeen	0.5	2

For explanation of charts see Vol. III, No 25, page 10 of this journal.

Key to numbers in rose, S.W. Approaches.





NOTICES.

Wireless and Weather an Aid to Navigation.

Advance in any subject or movement can only be truly attained from within, and therefore advancement of meteorology as a branch of seamanship will be the surer if seamen take the initiative, hence in the chapters under the above heading, published in the 1924 numbers, we made suggestions based upon experience at sea for the promotion of the application of Wireless Weather Telegraphy to seamanship, and in the January, 1926, Number, page 2, all ships in the list of regular Marine Observers indicated as having mercurial barometers were invited to make routine reports to "All Ships" giving observations synchronising with those of the nearest coast. For these times, see chart on page 14, No. 25, Vol. III.

A sample message is given below to which may be added information of swell, cloud type, or other predominant elements as necessary.

Plain Language Wireless Weather Report in standard form recommended.

To C.Q.

*Weather 4757 N 1908 W Barometer corrected
2994 NNW 2 Overcast 0700 G.M.T. Fifth
Course N70 E 10 rising slowly Current S 59 E
quarter knot from 47 N 24 W to 48 N 20 W
Air 59 Sea 61 Catalina.*

NOTE.—The date appears in the middle of this message, the most important elements appearing before it. If abbreviation is desired omit all after date.

INVITATION TO MARINE OBSERVERS.

The Marine Superintendent will be pleased to see the Captains of Observing Ships or their Observing Officers when they are in London, between 10 a.m. and 4 p.m. at Room 319, Adastral House, Kingsway, W.C.2. Telephone No., Holborn 3434, Extension 421. Telegrams, Marine Superintendent, Weather, London. (Nearest Station, Temple, District Railway.)

Personal touch is not only conducive to efficient work, but by this means we may be better able to advance upon lines which will further the practice of Meteorology in Navigation and at the same time provide the most suitable data for the general needs of Meteorological Science.

Those Marine Observers who do not come to London wishing to discuss matters connected with Marine Meteorology, are asked to consult the Agents at the Ports.

The Marine Agencies in Great Britain are visited at least once a year by the Marine Superintendent, and it is hoped by these means to further promote voluntary co-operation between ships at sea, and with the Meteorological Office.

Usually the Marine Superintendent visits the Marine Agencies as follows:—

Southampton and Cardiff, first week of March.

Liverpool, last week of May.

Glasgow and Liverpool, early October.

Leith, North Shields and Hull, mid November.

Marine Agencies are given about two weeks notice of exact dates.

SEA AND SWELL MEASUREMENTS.

Marine Observers are invited to make special efforts to obtain measurements of Seas and Swells in all parts of the Oceans and under all conditions of weather. These observations are required for completing scales for routine observation and for many other purposes including information upon which to base form of ship's hull and construction.

An article will be found in Volume II, No. 19, upon "Sea and Swell" giving suggestions as to how to take these observations and Form 684 has been circulated to all regular observing ships for the purpose. Further supplies of Form 684 may be had on request.

POSTAL ARRANGEMENTS.

THE MARINE OBSERVER is published, when circumstances permit, on the first Wednesday of the month previous to that to which the number refers.

If captains of observing ships will forward to the Office the particulars required hereunder, endeavour will be made as far as mails permit to post the latest number for use on their homeward passage.

S.S..... Captain.....

Port of Call.....

Date of Homeward Departure.....

Postal Address.....

When this information is not given THE MARINE OBSERVER is addressed to the Commanding Officer, s.s., c/o the owners, and captains are requested to make their own arrangements for forwarding.

CONVERSION TABLE.

To Convert Inches into Millibars.

Inch.	mb.	Inch.	mb.	Inch.	mb.
27.50	931.2	28.65	970.2	29.85	1,010.8
27.55	932.9	28.70	971.9	29.90	1,012.5
27.60	934.6	28.75	973.6	29.95	1,014.2
27.65	936.3	28.80	975.3	30.00	1,015.9
27.70	938.0	28.85	976.9	30.05	1,017.6
27.75	939.7	28.90	978.6	30.10	1,019.3
27.80	941.4	28.95	980.3	30.15	1,021.0
27.85	943.1	29.00	982.0	30.20	1,022.7
27.90	944.8	29.05	983.7	30.25	1,024.4
27.95	946.5	29.10	985.4	30.30	1,026.1
28.00	948.2	29.15	987.1	30.35	1,027.7
28.05	949.9	29.20	988.8	30.40	1,029.4
28.10	951.6	29.25	990.5	30.45	1,031.1
28.15	953.2	29.30	992.2	30.50	1,032.8
28.20	954.9	29.35	993.9	30.55	1,034.5
28.25	956.6	29.40	995.6	30.60	1,036.2
28.30	958.3	29.45	997.3	30.65	1,037.9
28.35	960.0	29.50	999.0	30.70	1,039.6
28.40	961.7	29.55	1,000.7	30.75	1,041.3
28.45	963.4	29.60	1,002.4	30.80	1,043.0
28.50	965.1	29.65	1,004.0	30.85	1,044.7
28.55	966.8	29.70	1,005.7	30.90	1,046.4
28.60	968.5	29.75	1,007.4	30.95	1,048.1
		29.80	1,009.1		

ICE CHART. WESTERN NORTH ATLANTIC.

LETTERS OF TRANSATLANTIC TRACKS INDICATE.

- (C) From 1st September to 31st January, inclusive.
- (F) From 16th May to opening of Belle Isle route, and to 30th November when not using Belle Isle route.
- (G) Westbound, on approaching Cape Race steer a course to pass 10 miles S. of Cape Race.
- (G) Eastbound, steer from position 25 miles S. of Cape Race.
- (G) From the opening of the Straits of Belle Isle to 14th November.

These routes are liable to alteration when, owing to abnormal ice conditions, it is considered advisable by the steamship lines who are parties to the Track agreement.

ROUTE NOTICES.

For latest information re Tracks see Board of Trade "Notices to Mariners," 1st September, 1926. pp. 127-31

SYMBOLS USED ON THE CHART.

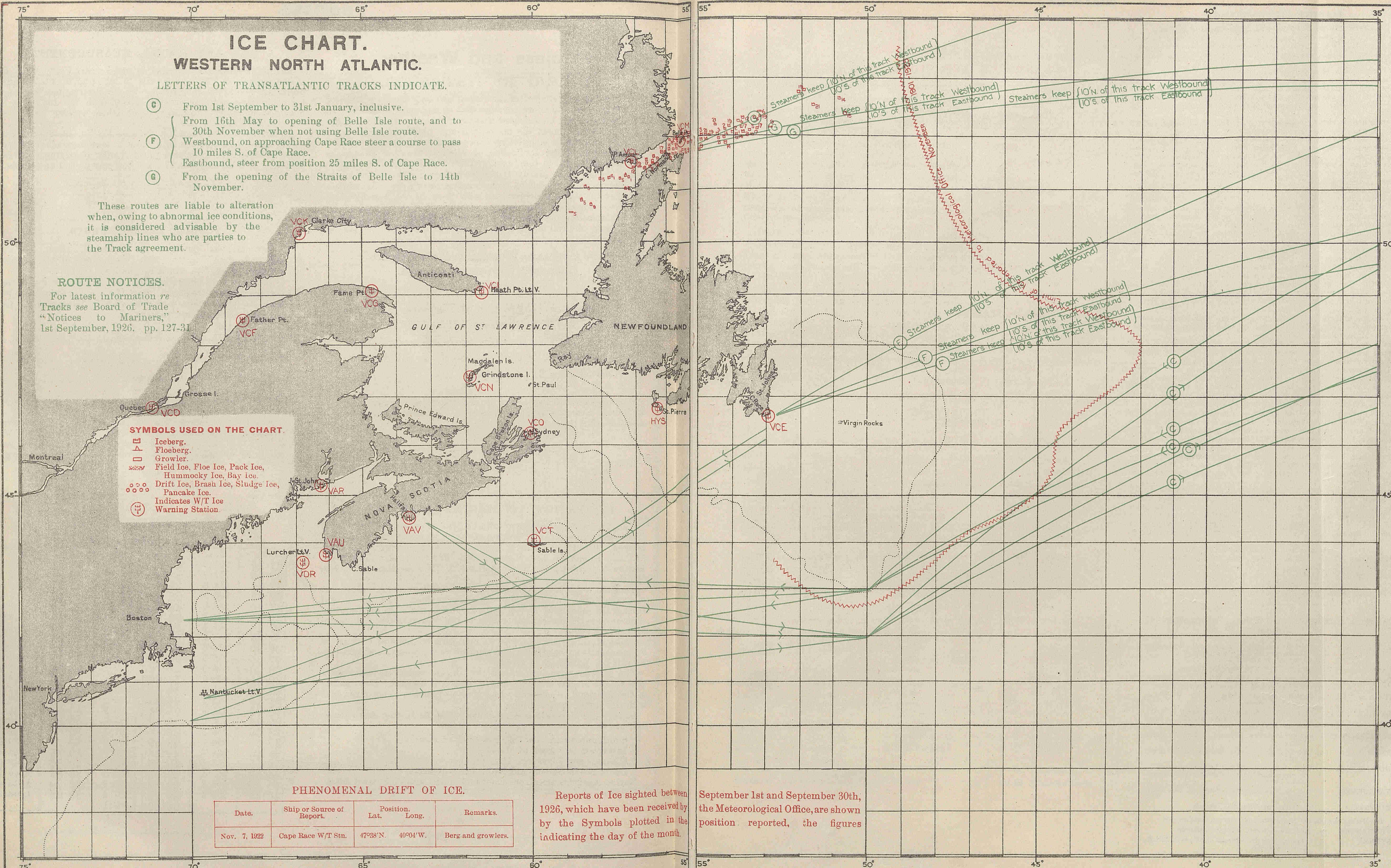
- Iceberg.
- Floeberg.
- Growler.
- Field Ice, Floe Ice, Pack Ice, Hummocky Ice, Bay Ice.
- Drift Ice, Brash Ice, Sludge Ice, Pancake Ice.
- Indicates W/T Ice
- Warning Station.

PHENOMENAL DRIFT OF ICE.

Date.	Ship or Source of Report.	Position. Lat. Long.	Remarks.
Nov. 7, 1922	Cape Race W/T Stn.	47°38'N. 40°04'W.	Berg and growlers.

Reports of Ice sighted between September 1st and September 30th, 1926, which have been received by the Symbols plotted in the indicating the day of the month.

September 1st and September 30th, the Meteorological Office, are shown position reported, the figures



MARINE METEOROLOGY.

Co-operation of Shipowners, Masters and Mates.

The Director of the Meteorological Office is authorised to lend tested Instruments to Captains of British-owned ships who undertake to make 4 hourly observations and keep Meteorological Logs for the Office.

The instruments supplied for this purpose are one barometer, four thermometers with screen, two hydrometers and in some cases a Barograph and rain gauge is added to the equipment.

Tested instruments are also lent to a number of British Atlantic Liners which make special coded W/T weather reports to the Office.

The number of ships co-operating with the M.O. using official tested instruments on loan is limited.

Vessels observing regularly for the Meteorological Office to which office instruments are not lent, keep Form 911, Ship's Meteorological Report, using the ship's instruments, the barometer being compared with Standards. The number of ships regularly contributing approved forms of all descriptions to the Marine Division is limited to 500.

Captains and Officers who wish to co-operate with the Meteorological Office should apply *by letter* to The Director, Meteorological Office, Air Ministry, Kingsway, London, W.C.2; or *in person* between the hours of 10 a.m. and 4 p.m., to the Marine Superintendent at the same address or to any of the gentlemen whose names and addresses are given below acting as agents at the respective ports. A waiting list is kept of the names of ships whose commanders have offered to regularly co-operate.

Marine Observers (*i.e.*, Captains and Officers who regularly observe for the Meteorological Office) will greatly assist if they will send in Meteorological Logs immediately on completion through the Port Meteorological Officer or Agent, at the same time notifying him of any possible instrumental defects.

Defective instruments will then be replaced and new Log Books, etc., provided.

In London and at base ports where there is not an Agency, notification of defects should be sent to headquarters on arrival, with the Meteorological Log.

Vessels making voyages of less than two months' duration are requested to retain their logs until nearly filled up, but the log should be returned in all cases at least twice yearly.

W/T Registers and Forms 911 should in all cases be sent directly to the Meteorological Office, London. The Port Meteorological Officer at Liverpool and the Visiting Officer in London board vessels co-operating with the Meteorological Office, and the agents visit ships at their ports when circumstances permit.

Postage abroad incurred on behalf of the Meteorological Office in returning logs will be refunded. Postage from British Empire ports need not be prepaid, if the envelope is marked O.H.M.S., and addressed to the Director, Meteorological Office, London.

Captains and Officers whether they observe regularly for the Meteorological Office or not are urged to report exceptional phenomena in air or sea. Reports of weather experienced in or near Tropical Cyclones or hurricanes, also abnormal currents are specially desired.

Marine Observers who wish to assist in developing the rapid interchange of Meteorological information and Weather Forecasting at sea can do so by using the standard form, *not* in code, of W/T Weather Report suggested in "Weather Signals," given in Vol. III, No. 25, pages 14 and 15. For this purpose a mercurial barometer of which the index error has been ascertained is essential.

THE MARINE OBSERVER is sent monthly to all ships regularly contributing Logs, Forms and W/T Registers to the Meteorological Office. It is hoped that each ship will preserve *all* her copies. Personal copies of Numbers are sent to those whose special contributions are published in them. A suitable cover may be obtained from H.M. Stationery Office, price 2s.

LATE PRESS.

DERELICTS AND FLOATING WRECKAGE.

Date.	Position.		Description.
	Latitude.	Longitude.	
BALTIC.			
2.9.26	57°—'N.	11°—'E.	Wreck of fishing vessel.
NORTH SEA.			
9.9.26	56°57'N.	1°22'W.	Two masts projecting about four feet above water and about 100 feet apart, apparently attached to submerged wreckage.
17.9.26	51°49'N.	2°44'E.	Red conical buoy.
IRISH SEA.			
5.9.26	53°22'N.	5°17'W.	Large black buoy, no marks, floating high.
ENGLISH CHANNEL.			
8.9.26	4 m. S. of E. Goodwin Lt. V.		Half submerged lifeboat marked <i>Felipe</i> .
MEDITERRANEAN.			
17.9.26	37°15'N.	8°55'E.	Sunken object.
24.9.26	31°21'N.	29°19'E.	Wooden deckhouse partly submerged.
NORTH ATLANTIC.			
1.9.26	40°17'N.	73°13'W.	Red gas buoy marked <i>F 6</i> in white letters, with a black ball cage on top.
2.9.26	41°11'N.	17°38'W.	Big drifting bell buoy, painted black.
3.9.26	41°10'N.	66°40'W.	Black can buoy.
3.9.26	41°29'N.	50°16'W.	Pontoon.
4.9.26	47°39'N.	39°48'W.	Schooner <i>Hazel Trahey</i> on fire.
6.9.26	37°12'N.	74°30'W.	Large spar showing 2 feet out of water, apparently attached to submerged wreckage.
6.9.26	28°57'N.	74°37'W.	Black cylindrical gas and whistle buoy with a skeleton superstructure marked <i>MS.</i> on its side, whistle operating.
6.9.26	41°48'N.	60°41'W.	Fisherman's dory, partly filled with water, with <i>No. 16</i> on bow.
7.9.26	38°37'N.	71°47'W.	Pontoon.
8.9.26	5 m. E. & S. from Portland Lt. V.		Large triangular shaped boat flying a red flag with yellow square.
9.9.26	31°25'N.	79°35'W.	Heavy logs.
10.9.26	48°20'N.	7°27'W.	Large red can buoy with high upper structure.
10.9.26	16°40'N.	75°46'W.	Large spar about 3 feet in diameter projecting upright about 10 feet out of water and apparently attached to submerged wreckage.
11.9.26	27°17'N.	74°10'W.	Gas and whistle buoy painted black with skeleton superstructure and marked 7, light not burning.
13.9.26	49°42'N.	9°50'W.	Wreckage, dangerous to navigation.
13.9.26	48°13'N.	6°52'W.	Black buoy with frames.
14.9.26	Ushant bearing S.62°E. (T.) 24 m.		Spherical buoy fitted for light or staff.
15.9.26	65°08'N.	8°16'E.	Capsized fishing boat, approximate length 30 feet.
16.9.26	51°35'N.	14°13'W.	Large buoy.
17.9.26	47°06'N.	17°26'W.	Rusty can buoy, dangerous to navigation.
19.9.26	50°52'N.	11°35'W.	Empty lifeboat, damaged, name on stern, <i>Ellenia Trieste</i> .
19.9.26	25°—'N.	73°37'W.	Schooner <i>St. Pierre et Miquelon</i> , fire on board, slowly sinking.

Marine Agencies and Port Meteorological Officers.

LIVERPOOL	..	(Port Meteorological Office). Lieut.-Commander M. Cresswell, R.N.R., Dock Office. Telephone No.: Bank 3959.
CARDIFF	..	Captain T. Johnston, Technical College.
CLYDE	..	Captain M. O. Corrance, Board of Trade Surveyor's Office, 73, Robertson Street, Glasgow.
HULL	..	Captain Geo. B. Sturdy, c/o Mr. W. Hakes, Commercial Road.
LEITH	..	Captains G. Black and C. G. Bonner, V.C., D.S.C., Leith Salvage and Towage Co., Ltd., 2, Commercial Street.
SOUTHAMPTON	..	Captain D. Forbes, Nautical Academy, 1, Albion Place.
TYNE	..	Captain J. J. McEwan, Marine School, South Shields.
HONG KONG	..	Lieut.-Commander O. C. G. Leveson-Gower, R.N., Superintendent, Admiralty Chart and Chronometer Depot.
VANCOUVER	..	T. S. H. Shearman, Esq., Room 40, Post Office Building.
AUSTRALIA	..	The Commonwealth Meteorologist.

The Deputy Directors of Navigation act as agents as follows:—

FREMANTLE	..	Captain J. J. Airey, Dalgety's Buildings.
SYDNEY	..	Commander G. D. Williams, D.S.O., R.D., R.N.R., Customs House.

LIST OF VOLUNTARY OBSERVING SHIPS

i

The following is a complete list of ships regularly contributing observations to the Meteorological Office.

The names of the Captains and Officers, as ascertained from logs and reports received, are given with the date and description of last log, register or report received up to the time of going to press.

Marine Observers are requested to take this as complete and grateful acknowledgment for the work they have contributed, as it has been found necessary to reduce as far as possible the correspondence of the Marine Superintendent, which was largely composed of letters acknowledging logs and reports, in order that more time may be devoted to obtaining results from the data received.

Only in special cases will individual letters be sent.

Excellent awards will be made at the end of the financial year. The names of Commanders and Officers gaining these awards will be published in a special list in THE MARINE OBSERVER.

Ships not contributing logs or reports within a reasonable period will automatically be removed from the list and the free issue of THE MARINE OBSERVER discontinued; it is, therefore, earnestly requested that changes of service, probable periods of lay up or transfer of Commanders may be notified whenever possible.

A waiting list is kept of the names of vessels whose Commanders have offered to regularly co-operate.

The number of voluntary observing ships is limited to a maximum total of 500.

Commanders are requested to point out any errors which may occur in the list.

Unless otherwise stated, vessels on the following list are s.s.

M.L. = Equipped with tested Instruments for keeping Meteorological Log.

W.T. = Equipped with tested Instruments for making coded W/T reports to the Meteorological Office, London.

No. = Keeps Ship's Meteorological Report Form 911 with ship's instruments. Letter M after No. indicates ship's barometer Mercurial; A. ship's barometer Aneroid.

C.C. = Equipped with tested Instruments for making Cross Channel Telegraphic Reports to the Meteorological Office, London.

The numbers which appear before the names of ships equipped for making coded W/T reports to the Meteorological Office, London, are used for the purpose of identification when the observations are re-transmitted in synoptic messages by Wireless or Cable.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed Received up to 17.9.26.	Date Received.
<i>Aba</i>	Hughes, J. ...	R. A. Roberts, R. A. Downes, L. B. Silvester, S. J. Britow.	M.L.	Elder Dempster ...	Met. Log. 11.11.25 to 11.4.26...	23.4.26.
<i>Abinsi</i>	Millson, H. E. ...	H. H. Burke	No. A.	" " ...	Form 911 21.7.26 to 29.8.26 ...	1.9.26.
<i>Achilles</i>	Hill, R.	D. MacTavish	" A.	A. Holt	" 8.10.25 to 19.10.25...	18.11.25.
<i>Actor</i>	Haylett, E. ...	A. Frew, J. McKay, G. Penston.	M.L.	Harrison	Met. Log. 12.5.26 to 2.7.26 ...	14.8.26.
<i>Adda</i>	Toft, J. T.	E. C. Davis	No. M.	Elder Dempster ...	" 7.7.26 to 13.8.26 ...	17.8.26.
50 <i>Adriatic</i> ...	Beadnell, F. E., Capt., R.N.R.	R. G. Roberts, H. J. Yates ... J. W. Allingham.	W.T.	White Star	W.T. Reg. 26.7.26 to 14.8.26 ...	18.8.26.
<i>Aeneas</i>	Wallace, W. K. ...	J. M. Anderson	No. A.	A. Holt	Form 911 23.8.26 to 11.9.26 ...	16.9.26.
<i>Agapenor</i>	Ramsay, J.	S. G. Ellams	" A.	"	" 25.7.26 to 12.9.26 ...	16.9.26.
<i>Aidan</i>	Whayman, W. R. ...	J. J. West	" A.	Booth	" 21.3.26 to 9.4.26 ...	17.5.26.
<i>Alban</i>	Whayman, W. R. ...	C. D. Lane, A. T. Douglas ...	" A.	"	" 13.8.26 to 11.9.26 ...	16.9.26.
<i>Albania</i>	Gronow, S.	L. Harper	" A.	Cunard	" 2.7.26 to 23.8.26 ...	6.9.26.
<i>Alipore</i>	Harrison, R., D.S.O., R.D., Commr., R.N.R.	D. N. Stafford	" M.	P. and O.	" 6.12.25 to 22.12.25...	4.1.26.
<i>Almanzora</i> ...	Mackenzie, G. A. ...	A. H. Phillipson	" A.	R.M.S.P.	" 29.8.25 to 22.9.25 ...	24.9.26.
<i>Alondra</i>	Vanderkast, J. J. ...	H. Peters	" A.	Yeoward	" 2.6.26 to 24.8.26 ...	14.9.26.
<i>Ampetco</i>	Vandenkerckhove, A.	A. Aspaslagh	" A.	American Petroleum...	" 31.7.26 to 12.9.26 ...	14.9.26.
<i>Antiochus</i> ...	Dunlop, S. K.	E. T. Bayes	" A.	A. Holt	" 15.8.26 to 5.9.26 ...	8.9.26.
<i>Aorangi</i>	Crawford, R.	J. W. Bray, G. H. Kime, H. A. Titchfield, E. Anderson.	M.L.	Canadian-Australasian	" 25.5.26 to 3.7.26 ...	22.7.26.
<i>Appam</i>	Yardley, H. A., D.S.C.	Prendergast, Dutton, W. Page	"	Elder Dempster ...	" 14.6.26 to 6.8.26 ...	13.9.26.
30 <i>Aquitania</i> ...	Britten, E. T., R.D., Commr., R.N.R.	J. L. Croasdaile, J. Locke, D. MacLean.	W.T.	Cunard	Met. Log. 7.5.26 to 19.8.26 ...	10.9.26.
62 <i>Arabic</i>	Davies, J.	R. Walker, H. G. Morgan, W. Clements.	W.T.	White Star	" 23.12.25 to 23.5.26...	5.6.26.
<i>Arafura</i>	Gordon, A. S.	J. T. Heddle, G. C. Smith, O. B. Godfrey.	M.L.	Eastern and Australian	W.T. Reg. 15.8.26 to 29.8.26 ...	3.9.26.
<i>Archimedes</i> ...	Downs, E. B.	J. M. Edgar	No. A.	Lamport & Holt ...	" 21.4.26 to 13.5.26 ...	17.5.26.
<i>Ariguan</i>	Scudamore, J. H. H., D.S.C., R.D., Commr., R.N.R.	G. Dobson, S. A. Sapworth, G. McKee, W. E. Butcher.	M.L.	Elders & Fyffes ...	Form 911 20.4.26 to 14.5.26 ...	17.5.26.
<i>Armada Castle</i> ...	Millard, L. A., Knight, A.	"	"	Union Castle	Met. Log. 7.4.26 to 23.6.26 ...	1.9.26.
<i>Arracan</i>	Willis, M.	R. McInnes, M. S. Stuart, C. C. Weir.	"	P. Henderson	" 22.3.26 to 9.6.26 ...	16.7.26.
<i>Arundel</i>	Short, H.	Mr. Hill	C.C.	Southern Rly.	" 10.4.26 to 8.8.26 ...	18.8.26.
<i>Arundel Castle</i> ...	George, J., O.B.E....	C. S. Keen	No.	Union Castle	Met. Log. 9.8.25 to 4.4.26 ...	19.4.26.
<i>Astronomer</i> ...	Richards, J.	H. Thomas, J. Glen, — Winstanley.	M.L.	Harrison	" 4.1.26 to 11.4.26 ...	26.4.26.
<i>Athenic</i>	Davies, E.	W. Hill	No. A.	White Star	Telegraphic Report 6.7.26 ...	6.7.26.
<i>Atreus</i>	Salter, G. H.	J. C. Podmore	" A.	A. Holt	Met. Log. 26.2.26 to 20.6.26 ...	13.7.26.
<i>Atsuta Maru</i> ...	Arakida, R.	K. Murazumi	" A.	Nippon Yusen Kaisha	" 18.2.26 to 16.6.26 ...	24.6.26.
<i>Auditor</i>	Owen, W. T.	T. E. Steel	" M.	Harrison	Form 911 10.7.26 to 1.8.26 ...	4.9.26.
<i>Ausonia</i>	Stafford, W., D.S.C., R.D., Lt.-Commr., R.N.R.	E. R. B. Freeman...	" A.	Cunard	" 7.7.26 to 19.7.26 ...	6.8.26.
<i>Avon</i>	Adam, C., R.D., Commr., R.N.R.	E. S. Dunch	" M.	R.M.S.P.	" 29.7.26 to 10.8.26 ...	16.8.26.
<i>Balfour</i>	Dott, J.	S. W. Keay	No. A.	Canadian Pacific ...	" 11.3.26 to 25.4.26 ...	10.5.26.
					" 25.7.26 to 1.9.26 ...	13.9.26.
					" 24.3.26 to 2.7.26 ...	17.7.26.
					" 13.7.26 to 10.8.26 ...	14.8.26.

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro- logical Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.9.26.	Date Received.
<i>Balranald</i> ...	Townshend, W. P., Commr., R.N.R.	...	M.L.	P. & O. Branch ...	...	...
51 <i>Baltic</i> ...	White, E. R., Commr. R.N.R.	H. R. Wilkinson, H. C. Gray, D. K. Crawford.	W.T.	White Star ...	W.T. Reg 9.8.26 to 28.8.26 ... Form 911 9.8.26 to 28.8.26 ...	1.9.26. 1.9.26.
<i>Bambra</i> ...	Turner, J. E. ...	H. W. Norris, J. E. Turner, F. Humble.	M.L.	State Service, Australia	Met. Log. 25.11.25 to 3.5.26 ...	15.6.26.
<i>Bampton Castle</i> ...	Hutchings, A. H. ...	J. W. S. Brooks ...	No.	Union Castle ...	... 12.3.26 to 3.7.26 ...	16.7.26.
<i>Banbury Castle</i> ...	Singeisen, E. A., D.S.C., R.D., Capt., R.N.R.	...	"	" ...	...	...
<i>Banffshire</i> ...	Wynne, R. H. ...	W. F. Lockhead ...	No. A.	Turnbull Martin ...	Form 911 2.7.26 to 4.8.26 ...	6.9.26.
<i>Baron Murray</i> ...	Edgar, J. E. ...	W. P. G. Arthur, H. Thompson	" A.	Hogarth & Sons ...	" 8.5.26 to 10.6.26 ...	21.7.26.
<i>Barpeta</i> ...	Beytagh, L. S. F. ...	W. P. Page ...	" M.	British India ...	" 21.8.26 to 26.8.26 ...	13.9.26.
<i>Baychimo</i> ...	Cornwall, S. A. ...	E. J. Hankin ...	" A.	Hudson's Bay Co. ...	" 20.4.26 to 4.6.26 ...	28.7.26.
<i>Baymaud</i> ...	Foellmer, G. ...	...	" M.	" ...	...	...
<i>Beaufort</i> ...	Rice, W. V., D.S.O., D.S.C., Commr., R.N.	C. R. Brent ...	M.L.	His Majesty's Ship ...	Met. Log. 16.4.26 to 29.8.26 ...	14.9.26.
59 <i>Belgenland</i> ...	Howell, T. ...	C. Murray, J. Cross ...	W.T.	Red Star ...	W.T. Reg. 8.8.26 to 28.8.26 ... Form 911 8.8.26 to 28.8.26 ...	1.9.26. 30.8.26.
<i>Benalder</i> ...	Cole, J. H., D.S.C. ...	T. S. Rawlingson ...	No. A.	Ben Line ...	" 18.7.26 to 11.8.26 ...	26.8.26.
<i>Bendigo</i> ...	Nicholl, R. N. C. ...	H. J. Cholerton ...	" M.	P. & O. Branch ...	" 1.7.26 to 19.7.26 ...	6.9.26.
31 <i>Berengaria</i> ...	Rostron, Sir A. H., K.B.E., R.D., Capt., R.N.R.	J. A. Myles, W. C. A. Robson, E. W. Connell ...	W.T.	Cunard ...	W.T. Reg. 6.8.26 to 6.9.26 ...	8.9.26.
<i>Berrima</i> ...	Short, C. E. ...	T. Ferguson ...	No. M.	P. & O. Branch ...	Form 911 24.7.26 to 12.8.26 ...	8.9.26.
<i>Bintang</i> ...	Morzer Bruyns, M. F.	A. Kret ...	" M.	Nederland ...	" 26.7.26 to 9.8.26 ...	17.8.26.
<i>Bogota</i> ...	Dunn, R. E., O.B.E.	T. R. Thomas ...	" A.	R.M.S.P. Co. ...	" 8.10.25 to 28.10.25 ...	5.11.25.
<i>Bolingbroke</i> ...	Dott, J. F. ... McQueen, D. Murray, M. F.	C. A. Mott ...	M.L.	Canadian Pacific ...	Met. Log. 23.1.26 to 31.8.26 ...	8.9.26.
<i>Borda</i> ...	Holland, R. ...	...	No. M.	P. & O. Branch ...	Form 911 9.5.26 to 28.6.26 ...	30.6.26.
<i>Bothwell</i> ...	Rothwell, A. J. ...	G. Mowatt ...	" A.	Canadian Pacific ...	" 13.7.26 to 12.8.26 ...	17.8.26.
<i>Brandon</i> ...	Sargent, A. H., R.D., Lt.-Commr., R.N.R.	T. Beck ...	" A.	" ...	" 25.7.26 to 25.8.26 ...	27.8.26.
<i>Brecon</i> ...	McCombie, G. ...	F. E. Bevis ...	" A.	" ...	" 29.6.26 to 27.7.26 ...	3.8.26.
<i>Brenda</i> ...	Lamont, A. ...	F. R. Ness ...	" A.	Scottish Fishery Board ...	" 1.6.26 to 30.6.26 ...	3.7.26.
<i>Brighton</i> ...	Hill, A. ...	Mr. Munton ...	C.C.	Southern Railway ...	Telegraphic Report 17.9.26 ...	17.9.26.
<i>British Advocate</i> ...	Taylor, R. J. ...	G. H. Wylie, T. Copeman ...	No. M.	British Tankers ...	Form 911 21.6.26 to 22.8.26 ...	27.8.26.
<i>British Engineer</i> ...	Joures, T. W. ...	E. L. W. Evans ...	" M.	" ...	" 26.1.26 to 9.3.26 ...	12.4.26.
<i>British Soldier</i> ...	Putt, R. O. ...	H. J. Crangle ...	" A.	" ...	" 19.7.26 to 13.8.26 ...	8.9.26.
<i>Bronte</i> ...	Crappier, J. S. ...	W. Jones ...	" A.	Lampont & Holt ...	" 1.8.26 to 1.9.26 ...	10.9.26.
<i>Browning</i> ...	Connorton, W. A. ...	A. B. Murray ...	" A.	" ...	Form 911 29.3.26 to 1.7.26 ...	5.7.26.
<i>Brusiere</i> ...	Denson, W. ...	R. Mowbray ...	" A.	" ...	" 20.1.26 to 12.2.26 ...	22.3.26.
<i>Burma</i> ...	Cattanach, J. C. ...	...	" A.	Henderson ...	...	...
<i>Cambria C.S.</i> ...	Sherwood, C. A., D.S.C.	H. Selby, A. J. English, B. C. Farrow.	M.L.	Eastern Tel. Co. ...	Met. Log. 14.7.25 to 21.11.25...	26.1.26.
<i>Cambria</i> ...	Telfer, J. E. ...	V. S. Phillips ...	C.C.	L.M. & S. Rly. ...	Telegraphic Report 2.9.26 ...	2.9.26.
<i>Cameronia</i> ...	Smart, R. W. ...	C. Paton ...	No. A.	Anchor ...	Form 911 1.8.26 to 21.8.26 ...	1.9.26.
<i>Camito</i> ...	Forrester, W. T., O.B.E.	W. T. Broome, H. J. Perrett, P. C. Congdon, F. Dudgeon.	M.L.	Elders & Fyffes ...	Met. Log. 25.1.26 to 14.6.26 ...	16.6.26.
<i>Canadian Inventor</i> ...	Boulton, F. W. ...	T. Edgar ...	No. A.	Canadian Govt. Mer- cantile Marine.	Form 911 21.11.25 to 9.12.25...	1.2.26.
<i>Canadian Miller</i> ...	McConechy, W. T. ...	C. E. Moore, H. Ruegg ...	" A.	" ...	" 14.3.26 to 23.6.26 ...	15.7.26.
<i>Canadian Scottish</i> ...	Wallace, C. ...	A. E. Webster ...	" A.	" ...	" 9.5.26 to 10.6.26 ...	27.7.26.
<i>Canadian Skir- misher.</i> ...	Millar, W. H. ...	R. J. Watson ...	" A.	" ...	" 24.7.26 to 4.9.26 ...	16.9.26.
<i>Canadian Winner</i> ...	Hocking, N. P. ...	R. Girling, J. Cochrane ...	" M.	" ...	" 12.6.26 to 15.7.26 ...	13.8.26.
35 <i>Carmania</i> ...	Brown, F. G. R.D., Capt., R.N.R.	M. Boston, L. R. Simpson, D. E. Sibson, W. M. Stewart, P. L. Williams.	W.T.	Cunard ...	W.T. Reg. 26.7.26 to 13.8.26 ... Form 911 22.8.26 to 10.9.26 ... Form 911 25.7.26 to 13.8.26 ...	17.8.26. 15.9.26. 20.8.26.
<i>Carnarvon Castle</i> ...	Hague, J. W., Commr., R.N.R.	...	M.L.	Union Castle ...	...	...
34 <i>Caronia</i> ...	Hossack, W. H., R.D., Capt., R.N.R.	R. F. Bovey, T. Ashcroft, D. Butler.	"	Cunard ...	W.T. Reg. 8.8.26 to 27.8.26 ... Form 911 9.8.26 to 27.8.26 ...	1.9.26. 1.9.26.
52 <i>Cedric</i> ...	Hickson, V. W., Lt.- Commr., R.N.R.	P. Conway, H. Daman. E. A. A. Crowley.	"	White Star ...	W.T. Reg. 2.8.26 to 22.8.26 ... Form 911 2.8.26 to 22.8.26 ...	25.8.26. 25.8.26.
53 <i>Celtic</i> ...	Berry, G. ...	A. Thompson, G. T. Kavanagh, J. Peters.	"	" ...	W.T. Reg. 16.8.26 to 5.9.26 ... Form 911 15.8.26 to 6.9.26 ...	9.9.26. 9.9.26.
<i>Centaur</i> ...	Rose, A. F. ...	L. Johnstone, E. Potts ...	No. M.	A. Holt & Co. ...	" 2.4.26 to 6.6.26 ...	5.7.26.
<i>Ceramic</i> ...	Roberts, J. C.B.E., D.S.O., R.D., Capt., R.N.R.	D. W. Chamberlain ...	" A.	White Star ...	" 20.4.26 to 24.5.26 ...	26.5.26.
<i>Changle</i> ...	Gambrill, F. C. ...	J. Thomas, Tyer, J. A. Allan	M.L.	Ynill & Co. ...	Met. Log. 2.2.26 to 28.3.26 ...	19.6.26.
<i>China</i> ...	Cossey, W. F. ...	D. A. C. Butler ...	No. M.	P. & O. ...	Form 911 30.4.26 to 23.6.26 ...	25.6.26.
<i>Chindwara</i> ...	Brisley, P. L. ...	W. Welch ...	" M.	British India ...	" 29.8.25 to 17.12.25...	11.1.26.
<i>City of Baroda</i> ...	Houghton, W. ...	A. Beaton, J. Cook, W. H. Dalton.	M.L.	Ellerman ...	Met. Log. 19.9.25 to 31.5.26 ...	4.6.26.
<i>City of Benares</i> ...	Anderson, W. W. ...	C. G. Inglis ...	No. A.	" ...	Form 911 23.7.26 to 9.8.26 ...	20.8.26.
<i>City of Brisbane</i> ...	Seaborne, F. O., D.S.C.	E. W. Watkin ...	" A.	" ...	" 24.5.26 to 4.6.26 ...	18.6.26.
<i>City of Canterbury</i> ...	Bremner, D. M. ...	E. Garner ...	" A.	" ...	" 20.3.26 to 13.6.26 ...	15.6.26.
<i>City of Chester</i> ...	Letton, F. W. ...	F. C. Wilson, H. Asher, W. Speakman.	M.L.	" ...	Met. Log. 15.11.25 to 3.3.26 ...	8.3.26.
<i>City of Edinburgh</i> ...	Wyper, J. ...	N. G. Fraser ...	No. M.	" ...	Form 911 3.7.26 to 30.7.26 ...	9.9.26.
<i>City of Hong Kong</i> ...	Walton, H. L., O.B.E., R.D., Commr., R.N.R.	A. M. Westlake ...	" A.	" ...	" 11.8.26 to 30.8.26 ...	9.9.26.
<i>City of London</i> ...	Martin, D. ...	J. J. McTigue ...	" A.	" ...	" 8.3.26 to 2.4.26 ...	12.4.26.
<i>City of Marseilles</i> ...	Brown, G. ...	W. A. MacAdams, G. F. L. Coates.	" A.	" ...	" 25.2.26 to 18.3.26 ...	22.3.26.
<i>City of Rangoon</i> ...	Dunning, T. W. J. ...	A. Gibb, V. S. Turner, A. H. Cosker, G. Lawrey.	M.L.	" ...	Met. Log. 14.12.25 to 4.6.26 ...	28.6.26.
<i>City of Yokohama</i> ...	McDonald, W. D. ...	R. A. Fulton ...	No. A.	" ...	Form 911 25.5.26 to 23.7.26 ...	3.8.26.
<i>Clan Alpine</i> ...	Lennox, W. J. ...	G. Short ...	" A.	Clan ...	...	...
<i>Clan Lamont</i> ...	Urquhart, P., D.S.C.	P. de Gruchy ...	" A.	" ...	Form 911 24.7.26 to 26.8.26 ...	13.9.26.
<i>Clan Lindsay</i> ...	Worthington, J. H. ...	T. E. Woodall ...	" A.	" ...	" 5.8.26 to 31.8.26 ...	13.9.26.
<i>Clan Macbeth</i> ...	Young, A. H., R.D., Lieut.-Commr., R.N.R.	W. Hurst ...	" A.	" ...	" 14.7.26 to 11.8.26 ...	16.8.26.
<i>Clan Macfadyen</i> ...	Stenson, F. J., R.D., Capt., R.N.R.	J. W. Charles ...	" A.	" ...	" 21.7.26 to 9.8.26 ...	1.9.26.
<i>Clan Macgillivray</i> ...	West, W. F. ...	A. J. Brewer ...	" A.	" ...	" 9.5.26 to 9.9.26 ...	14.9.26.

LIST OF VOLUNTARY OBSERVING SHIPS

iii

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.9.26.	Date Received.
<i>Clan Macindoe</i> ...	Low, A. ...	J. G. Baillie ...	No. A.	Clan ...	Form 911 24.2.26 to 19.6.26 ...	28.6.26.
<i>Clan Mackellar</i> ...	Scotland, A. ...	D. McAllister ...	" A.	" ...	28.6.26 to 20.7.26 ...	9.8.26.
<i>Clan Mackinnon</i> ...	McLean, J. G. ...	W. F. Isaac, S. Y. Strange, J. E. Clayton. ...	M.L.	" ...	Met. Log. 25.3.26 to 14.7.26 ...	19.7.26.
<i>Clan Macphee</i> ...	Gourlay, J. B. ...	D. S. Rae, J. O. Woodall, J. J. Millar. ...	"	" ...	" 6.9.25 to 14.5.26 ...	24.6.26.
<i>Clan Macnaughton</i> ...	Thomson, W. ...	A. J. Storkey, D. MacDiarmid ...	No. M.	" ...	Form 911 19.6.26 to 29.6.26 ...	14.8.26.
<i>Clan Macnaghtart</i> ...	Gray, J. N. ...	W. J. Henderson ...	" A.	" ...	" 19.4.26 to 23.5.26 ...	26.5.26.
<i>Clan MacTavish</i> ...	Higgins, C. J. ...	" ...	" A.	" ...	" ...	" ...
<i>Clan Macwhirter</i> ...	Waterhouse, J. ...	R. W. Roberts ...	" A.	" ...	Form 911 16.6.26 to 7.7.26 ...	3.8.26.
<i>Clan Macwilliam</i> ...	Williamson, A. ...	" ...	" A.	" ...	" ...	" ...
<i>Clan Malcolm</i> ...	Neill, G. A. ...	S. M. Werrey Easterbrook, N. MacLeod. ...	M.L.	" ...	Met. Log. 18.10.25 to 5.4.26 ...	13.4.26.
<i>Clan Morrison</i> ...	Porterfield, W. M. ...	L. C. Higgins ...	No. A.	" ...	Form 911 15.7.26 to 15.8.26 ...	8.9.26.
<i>Clan Murdoch</i> ...	Miller, W. ...	P. McMillan ...	" A.	" ...	" 24.3.26 to 14.4.26 ...	17.5.26.
<i>Clan Ranald</i> ...	Laird, C. ...	T. O. Marr ...	" A.	" ...	" 3.8.26 to 25.8.26 ...	9.9.26.
<i>Clan Ross</i> ...	Jones, R. C. ...	G. Short ...	" A.	" ...	" 23.4.26 to 19.5.26 ...	25.5.26.
<i>Clan Sinclair</i> ...	George, L. S. ...	J. Brittain ...	" A.	" ...	" 28.8.25 to 6.9.26 ...	10.9.26.
<i>Clan Urquhart</i> ...	Gibb, A. F. W. ...	T. G. Mitchell ...	" A.	" ...	" 29.3.26 to 4.4.26 ...	10.5.26.
<i>Colonia, C.S.</i> ...	Campos, V., O.B.E., Lt.-Com m r, R.N.R.	S. A. Garnham, C. A. Bullock, L. J. Hegarty, W. R. Matthews, W. Anderson. ...	M.L.	Telegraph Construction & Maintenance.	Met. Log. 16.1.26 to 29.4.26 ...	25.5.26.
<i>Colonian</i> ...	Gittins, R. P. ...	T. A. Schofield-Miller ...	No. A.	Leyland ...	Form 911 14.7.26 to 10.8.26 ...	14.8.26.
<i>Comorin</i> ...	Borland, J. Mc. I., C.B., D.S.O., R.D., Capt. R.N.R.	E. A. O. Chambers ...	" M.	P. & O. ...	" 1.7.26 to 19.7.26 ...	23.8.26.
<i>Concordia</i> ...	Telfer, J. H. ...	T. Philip, J. McIntosh, J. Mackay. ...	M.L.	Anchor Donaldson ...	Met. Log. 3.4.26 to 20.8.26 ...	27.8.26.
<i>Corinthic</i> ...	Hart, F. ...	F. Kean, M. Bennett, F. G. Rogers. ...	"	White Star ...	" ...	" ...
<i>Cornish City</i> ...	James, D. P. ...	" ...	No. A.	Reardon Smith ...	" ...	" ...
<i>Cornwall</i> ...	Haines, F. P. ...	T. Hains ...	" A.	Federal ...	Form 911 10.4.26 to 25.5.26 ...	28.5.26.
<i>Crawford Castle</i> ...	Morgan, A. O., R.D., Commr., R.N.R.	J. E. R. Wilford ...	" A.	Union Castle ...	" 19.6.26 to 17.7.26 ...	21.7.26.
<i>Cristales</i> ...	Isaacson, J. M. ...	S. Browne, R. Southerland, D. M. Baker. ...	M.L.	Elders & Fyfes ...	Met. Log. 17.3.26 to 19.7.26 ...	21.7.26.
<i>Culebra</i> ...	Mackay, A. S., R.D., Commr., R.N.R., Davies, B. J.	P. Cooper, H. V. Todd, C. A. Payne, F. G. Dawson. ...	"	R.M.S.P. Co. ...	" 11.1.26 to 14.6.26 ...	22.6.26.
<i>Cumberland</i> ...	Deith, G. T. ...	E. F. Hopkins ...	No. A.	Federal ...	Form 911 18.2.26 to 19.6.26 ...	22.6.26.
<i>Cuthbert</i> ...	Barlow, F. P. ...	S. E. Adams ...	" A.	Booth ...	" 11.6.26 to 26.8.26 ...	1.9.26.
<i>Cyclops</i> ...	Cosker, W. ...	H. L. Cole ...	" A.	A. Holt ...	" 18.4.26 to 23.7.26 ...	23.8.26.
<i>Dardanus</i> ...	Williams, D. T. ...	C. F. Morgan ...	" M.	" ...	" 19.5.26 to 22.8.26 ...	26.8.26.
<i>Darian</i> ...	Masters, W. ...	A. S. Holland ...	" A.	Leyland ...	" 12.7.26 to 22.8.26 ...	9.9.26.
<i>Darro</i> ...	Matthews, G. P. ...	W. Halder Campe ...	" M.	R.M.S.P. Co. ...	" 12.6.26 to 8.8.26 ...	12.8.26.
<i>Demerara</i> ...	Willan, F. C. L. ...	J. J. C. Blake ...	" M.	" ...	" 31.5.26 to 22.7.26 ...	27.7.26.
<i>Demosthenes</i> ...	Orriss, F. A. ...	J. F. Cruickshank ...	" M.	Aberdeen ...	" 8.7.26 to 27.8.26 ...	1.9.26.
<i>Deseado</i> ...	Hannam, F. S. ...	C. C. Dingle, L. D. Jennings ...	" M.	R.M.S.P. Co. ...	" 26.6.26 to 21.8.26 ...	26.8.26.
<i>Desna</i> ...	Green, J. ...	J. W. Smith ...	" M.	" ...	" 10.7.26 to 3.9.26 ...	9.9.26.
<i>Deucalion</i> ...	Findlay, J. ...	W. L. Michie, R. Wilson ...	" A.	A. Holt ...	" 20.5.26 to 17.6.26 ...	19.7.26.
<i>Dieppe</i> ...	Marmery, S. ...	Mr. Parsons ...	C.C.	Southern Railway ...	Telegraphic Report 16.9.26 ...	16.9.26.
<i>Dimboola</i> ...	Roy, C. M. ...	S. J. Griffith ...	No. A.	Melbourne S.S. Co. ...	Form 911 10.7.26 to 4.8.26 ...	6.9.26.
<i>Discoverer</i> ...	Ling, J. T. ...	C. C. Heaton ...	" M.	Harrison ...	" 28.3.26 to 16.6.26 ...	24.6.26.
<i>Discovery, R.R.S.</i> ...	Stenhouse, J. R., D.S.O., D.S.C., O.B.E., R.D., Commr., R.N.R.	T. W. Goodchild ...	M.L.	Discovery Expedition	Met. Log. 8.1.23 to 7.5.26 ...	11.8.26.
<i>Domala, M.V.</i> ...	Kitson, A. G. ...	R. W. Smith ...	No. M.	British India ...	Form 911 19.7.26 to 11.8.26 ...	13.9.26.
<i>Domina, C.S.</i> ...	Campos, V., O.B.E., Lt.-Commr., R.N.R.	" ...	M.L.	Telegraph Construction & Maintenance.	" ...	" ...
<i>61 Doric</i> ...	S. Bolton, D.S.C., R.D., Commr., R.N.R.	W. F. Dennison ...	W.T.	White Star ...	Form 911 11.8.26 to 29.8.26 ...	1.9.26.
<i>Doric Star</i> ...	Thomas, R. T. ...	L. McDermott ...	No. M.	Blue Star ...	" 28.6.26 to 15.7.26 ...	26.7.26.
<i>Dorington Court</i> ...	Isaacs, W. A. ...	E. D. A. Gibbs ...	" A.	Haldin & Co. ...	" 12.9.25 to 6.11.25 ...	20.11.25.
<i>Dromore Castle</i> ...	Vincent, E. S., R.D., Commr., R.N.R.	D. H. McDougall ...	" A.	Union Castle ...	" 11.4.26 to 17.5.26 ...	31.5.26.
<i>Dryden</i> ...	Major, T. W. ...	G. W. Major ...	" M.	Lampert & Holt ...	" 12.6.26 to 29.6.26 ...	26.7.26.
<i>Duendes</i> ...	Cox, F. D. ...	R. W. Hanson ...	" M.	P.S.N. Co. ...	" 3.4.26 to 14.8.26 ...	17.8.26.
<i>Dundrum Castle</i> ...	Weller, H. E. ...	W. S. Byles ...	" A.	Union Castle ...	" 4.8.26 to 30.8.26 ...	14.9.26.
<i>Dunrobin</i> ...	Ramsay, J. D. ...	C. H. Kendall ...	" A.	Glen & Co. ...	" 6.8.26 to 21.8.26 ...	26.8.26.
<i>Duquesa</i> ...	Ellis, F., D.S.C. ...	W. Myerscough, W. D. Thornton. ...	" M.	Furness Withy ...	" 19.4.26 to 14.7.26 ...	19.7.26.
<i>Durenda</i> ...	Wilson, W. ...	K. G. Pullman ...	" M.	British India ...	" 1.1.26 to 9.1.26 ...	1.2.26.
<i>Edinburgh Castle</i> ...	Wilford, T. H. ...	" ...	No.	Union Castle ...	Met. Log. 8.1.26 to 24.1.26 ...	29.5.26.
<i>Egyptian Prince</i> ...	Ord, T. ...	" ...	"	Prince ...	" ...	" ...
<i>El Cordobes</i> ...	Noton, F. G. ...	S. C. N. Burridge ...	No. A.	British & Argentine S.N. Co.	Form 911 15.4.26 to 14.5.26 ...	25.5.26.
<i>Elmina</i> ...	Millson, H. E. ...	H. Readman, J. M. Stuart, D. S. Mackenzie, J. A. McGough. ...	M.L.	Elder Dempster ...	Met. Log. 2.12.25 to 19.4.26 ...	25.5.26.
<i>El Paraguay</i> ...	Smith, F. C. ...	J. Allerton ...	No. M.	Houlder Bros. ...	Form 911 18.4.26 to 9.7.26 ...	12.7.26.
<i>Elpenor</i> ...	Leslie G., D.S.C., R.D., Lt.-Commr., R.N.R.	M. Robertson ...	M.L.	A. Holt ...	Met. Log. 28.3.26 to 28.8.26 ...	8.9.26.
<i>Elysia</i> ...	Duncan, A. R. ...	" ...	"	Anchor ...	" ...	" ...
<i>Empress of Asia</i> ...	Douglas L. D., R.D., Lt. - Commr., R.N.R.	R. H. Foley, L. Johnston, L. C. Hogg, T. M. W. Golby. ...	"	Canadian Pacific ...	Met. Log. 8.2.26 to 16.5.26 ...	23.6.26.
<i>Empress of Australia</i> ...	Hailey, A. J. ...	R. Leicester, J. Downes ...	"	" ...	" 21.3.25 to 17.12.25 ...	12.1.26.
<i>Empress of Canada</i> ...	Robinson, S., C.B.E., R.D., Commr., R.N.R.	W. S. Halliday, L. C. Barry, J. W. Thomas. ...	"	" ...	" 20.2.26 to 30.5.26 ...	28.6.26.
<i>Empress of France</i> ...	Griffiths, E. ...	E. Roberts, F. Chodzko, W. Ewens. ...	"	" ...	" 27.1.26 to 13.4.26 ...	19.4.26.
<i>Empress of Russia</i> ...	Hosken, A. J. ...	J. H. Reid ...	"	" ...	" 7.3.26 to 14.6.26 ...	6.9.26.
<i>Empress of Scotland</i> ...	Latta, R. G. ...	B. Grant, W. Bacon, F. G. Hutchings. ...	"	" ...	" 14.11.25 to 20.4.26 ...	26.4.26.
<i>Endeavour</i> ...	Commr. S. A. Geary-Hill, D.S.O., R.N.	R. M. Southern, G. S. Norrington, E. V. B. Baker, E. H. B. Baker, J. Torlesse. ...	"	His Majesty's Ship ...	" 3.3.26 to 30.6.26 ...	17.7.26.
<i>Essequibo</i> ...	Kite, E. ...	J. L. Forster ...	No. M.	R.M.S.P. Co. ...	Form 911 15.7.26 to 30.8.26 ...	13.9.26.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.9.26.	Date Received.
<i>Eumaeus</i> ...	Read, J. W. ...	W. J. Ryan ...	No. A.	A. Holt ...	Form 911 28.6.26 to 7.8.26 ...	10.8.26.
<i>Euripides</i> ...	Roberts, T. V. ...	H. S. Cox, G. R. Fisher, G. Perry. ...	M.L.	Aberdeen ...	Met. Log. 17.7.25 to 16.4.26 ...	23.4.26.
<i>Eurybates</i> ...	Carnon, C. G. ...	C. Napier ...	No. A.	A. Holt ...	Form 911 8.6.26 to 22.6.26 ...	1.9.26.
<i>Explorer</i> ...	Lamont, A. ...	Scientific Staff ...	M.L.	Scottish Fishery Board	Met. Log. 2.3.25 to 17.10.25 ...	29.12.25.
<i>Ferndale</i> ...	Daniel, F. ...	D. Jones, A. Murdoch ...	No. M.	Commonwealth Govt.	Form 911 14.5.26 to 17.6.26 ...	22.6.26.
<i>Fitzroy</i> ...	Harvey J.R., O.B.E., Lt.-Commr., R.N. Lockhart, C. S. Lt.-Commr., R.N. ...	K. Collins ...	M.L.	His Majesty's Ship ...	Met. Log. 16.4.26 to 31.7.26 ...	18.8.26.
<i>Flandria</i> ...	Bakker, F. J. ...	T. Doornbosch ...	No. M.	Holland Lloyd ...	Form 911 23.7.26 to 11.9.26 ...	14.9.26.
<i>Flinders</i> ...	Law, E. F. B., Lt.-Commr., R.N. ...	D. W. Deane ...	M.L.	His Majesty's Ship ...	Met. Log. 27.3.26 to 24.7.26 ...	6.8.26.
<i>Francisco</i> ...	Collins, F. ...	C. Walker ...	No. A.	Ellerman Wilson ...	Form 911 23.1.26 to 5.2.26 ...	15.2.26.
<i>Freyja</i> ...	Angus, W. ...	J. Murray ...	" A.	Scottish Fishery Board	" 9.7.26 to 30.7.26 ...	4.8.26.
<i>Garret</i> ...	Visser, C. W. ...	C. J. Vandenberg ...	" M.	Rotterdam Lloyd ...	" 22.5.26 to 11.8.26 ...	9.9.26.
<i>Gascoyne</i> ...	Rutt, W. N. ...	R. Simpson ...	" A.	Dalgely & Co. ...	" 19.1.26 to 24.2.26 ...	30.3.26.
<i>Gelria</i> ...	Bakker, T. J. ...	T. van der Mast ...	" M.	Holland Lloyd ...	" 28.5.26 to 15.7.26 ...	26.7.26.
<i>Glenamoy, M.V.</i> ...	Homan, C. E. ...	R. H. Bishop ...	" A.	Glen Line ...	" 24.7.26 to 11.8.26 ...	6.9.26.
<i>Glenapp, M.V.</i> ...	Roberts, W. E. ...	S. W. Bell ...	" A.	" ...	" 14.11.25 to 27.12.25 ...	4.1.26.
<i>Glenishane</i> ...	Beer, E. ...	R. A. Dale ...	" A.	" ...	" 22.3.26 to 8.7.26 ...	12.7.26.
<i>Gloucestershire</i> ...	Robin, E. ...	M. W. Simmons ...	" A.	Bibby ...	" 8.5.26 to 19.7.26 ...	21.7.26.
<i>Gorgon</i> ...	Hughes, J. W. ...	A. E. Bowlt ...	" A.	A. Holt & Co. ...	" 23.6.26 to 10.7.26 ...	23.8.26.
<i>Gourko</i> ...	Aspinall, A. E. ...	G. B. Bray, S. N. Stokes, J. D. Birch. ...	No.	Ellerman Wilson ...	Met. Log. 16.5.25 to 1.11.25 ...	10.12.25.
<i>Haliartus</i> ...	Marsh, L. V. ...	W. H. Upton ...	No. A.	R. P. Houston ...	Form 911 11.4.26 to 8.5.26 ...	7.6.26.
<i>Harmonides</i> ...	Hughes, W. F. ...	S. S. Davidson ...	" A.	" ...	" 15.7.26 to 3.8.26 ...	23.8.26.
<i>Harmony, Auxy.</i> ...	Jackson, J. C. ...	A. W. Bush ...	" A.	Moravian Mission ...	" 1.12.25 to 18.12.25 ...	29.12.25.
<i>Hatarana</i> ...	Denne, G. H. A. ...	F. Wells, C. Parkes, W. T. Barnes. ...	M.L.	British India ...	" 12.6.25 to 27.2.26 ...	29.3.26.
<i>Hauraki, M.V.</i> ...	Beddle, T. S. ...	J. A. Pearson ...	No. M.	Union S.S. Co. N.Z. ...	" 12.1.26 to 17.3.26 ...	29.4.26.
<i>Henry Holmes, C.S.</i> ...	Davey, A. H. ...	M. A. Green ...	" M.	W. I. & Panama Telegraph Co. ...	" 9.8.26 to 28.8.26 ...	14.9.26.
<i>Herald</i> ...	Bicker Caarten, A. ...	" ...	" ...	" ...	" ...	" ...
<i>Herefordshire</i> ...	Harvey, J.R., O.B.E., Commr., R.N. ...	W. C. Jenks ...	M.L.	His Majesty's Ship ...	Met. Log. 25.9.25 to 25.12.25 ...	24.2.26.
<i>Hermionus</i> ...	Mann, R. P. ...	H. R. Mackay ...	No. A.	Bibby ...	Form 911 25.4.26 to 3.7.26 ...	12.7.26.
<i>Herschel</i> ...	Andrews, C. M. ...	" ...	" A.	Shaw, Savill & Albion	" 21.4.26 to 1.6.26 ...	8.6.26.
<i>Hertford</i> ...	Davies, G. W. ...	J. M. Edgar ...	" A.	Lampart & Holt ...	" 14.10.25 to 15.12.25 ...	29.12.25.
<i>Hibernia</i> ...	Urquhart, D. ...	A. Robertson ...	" A.	Federal ...	" 20.5.26 to 8.6.26 ...	14.9.26.
<i>Highland Enterprise</i> ...	Tanner, E. B. ...	R. Woodall ...	C.C.	L.M. & S. Rly. ...	Telegraphic Report, 16.9.26 ...	16.9.26.
<i>" Glen</i> ...	Pond, R. H. ...	J. H. Tilton ...	No. A.	Nelson ...	Form 911 12.12.25 to 11.2.26 ...	10.3.26.
<i>" Heather</i> ...	Jones, T. J. ...	W. Jealous ...	" A.	" ...	" 29.3.26 to 26.5.26 ...	31.5.26.
<i>" Laddie</i> ...	Powell, G. A. ...	J. H. Fitton, J. Hardy ...	" A.	" ...	" 13.12.25 to 24.6.26 ...	14.7.26.
<i>" Piper</i> ...	Alford, C. ...	E. F. Smart ...	" A.	" ...	" 8.6.26 to 3.8.26 ...	16.8.26.
<i>" Pride</i> ...	Collings, D. ...	A. S. Jones, J. S. Collins, W. T. Breen, E. F. Smart. ...	M.L.	" ...	Met. Log. 20.6.25 to 3.11.25 ...	18.11.25.
<i>" Prince</i> ...	Davies, G. A. ...	F. Falconer, R. R. Soanes, G. E. Leech. ...	No.	" ...	" 5.12.25 to 31.1.26 ...	4.2.26.
<i>" Rover</i> ...	Brown, J. B. ...	N. Hunter ...	No. A.	Prince ...	Form 911 9.7.26 to 6.8.26 ...	12.8.26.
<i>" Warrior</i> ...	Asby Graves, F. ...	C. C. Legg ...	" A.	Nelson ...	" 25.5.26 to 19.7.26 ...	30.7.26.
<i>Hildebrand</i> ...	Robinson, R. H. ...	J. O. Simons ...	" M.	" ...	" 25.3.26 to 19.5.26 ...	26.5.26.
<i>Hobsons Bay</i> ...	Maddrell, J. ...	A. Allan ...	" A.	Booth ...	" 22.5.26 to 8.7.26 ...	13.7.26.
<i>54 Homeric</i> ...	Kydd, O. J. ...	R. Pearce, A. Badman, T. Morrison, H. Hendy. ...	M.L.	Commonwealth Govt.	Met. Log. 30.3.26 to 11.7.26 ...	17.7.26.
<i>Hororata</i> ...	Bulman, J. B. ...	A. E. Dyer, H. G. Morgan, A. H. H. Griffiths, J. W. Best. ...	W.T.	White Star ...	W.T. Reg. 5.8.26 to 20.8.26 ...	24.8.26.
<i>Hubert</i> ...	Holland, E. ...	E. R. Kemp ...	No. A.	New Zealand S.S. Co.	Form 911 26.8.26 to 10.9.26 ...	14.9.26.
<i>Huntingdon</i> ...	Pym, J. H. ...	S. G. Edwards ...	" A.	" ...	" 10.4.26 to 15.8.26 ...	17.8.26.
<i>Hurunu</i> ...	Ashworth, W. ...	R. Cox ...	" A.	Booth ...	" 28.3.26 to 8.6.26 ...	3.7.26.
<i>Ingoma</i> ...	Burton Davies, J. ...	J. C. Tuckett, F. G. Capon, F. Pover, G. R. Hogg. ...	M.L.	Federal ...	Met. Log. 21.6.25 to 6.7.26 ...	14.7.26.
<i>Intaba</i> ...	Barrow, R. K. ...	A. M. Hughes ...	No. M.	New Zealand S.S. Co.	Met. Log. 21.6.25 to 6.7.26 ...	14.7.26.
<i>Iris, C.S.</i> ...	Gibbins, W. A. ...	A. H. Thompson ...	" A.	Harrison ...	Form 911 16.6.26 to 31.7.26 ...	6.8.26.
<i>Iroquois</i> ...	Hughes, H. R. ...	" ...	M.L.	" ...	" 30.5.26 to 13.7.26 ...	16.7.26.
<i>Ixion</i> ...	Jackson, A. L., Commr., R.N. ...	A. K. Baxendell ...	"	Pacific Cable Board ...	" ...	" ...
<i>Japanese Prince</i> ...	Williams, R. J. ...	W. Angus ...	No. A.	His Majesty's Ship ...	Met. Log. 17.8.25 to 30.11.25 ...	27.1.26.
<i>Jervis Bay</i> ...	Naylor, E. ...	T. H. Sessions ...	" A.	A. Holt ...	Form 911 23.6.26 to 21.7.26 ...	16.8.26.
<i>John Pender, C.S.</i> ...	Chaplin, W. R. ...	R. W. Laycock ...	" M.	Prince ...	" 24.7.26 to 7.8.26 ...	14.9.26.
<i>Justin</i> ...	Smythe, T. W. ...	A. E. Everall ...	" A.	Commonwealth Govt.	" 14.7.26 to 1.8.26 ...	23.8.26.
<i>Kasari-Hind</i> ...	Evans, L. ...	R. C. Holmes ...	" A.	Eastern Tel. Co. ...	" 18.5.26 to 11.6.26 ...	29.6.26.
<i>Kamo Maru</i> ...	Marte, G. ...	A. H. Cole ...	" M.	Booth ...	" 26.7.26 to 8.8.26 ...	30.8.26.
<i>Kangaroo</i> ...	Shiratori, S. ...	H. Yesaki ...	" A.	P. & O. ...	Form 911 23.7.26 to 12.8.26 ...	6.9.26.
<i>Kashmir</i> ...	Norris, H. C. ...	R. J. Sinclair, V. J. Denton, J. Egglestone. ...	M.L.	Nippon Yusen Kaisha	Form 911 13.6.26 to 13.7.26 ...	21.7.26.
<i>Kathlamba</i> ...	Stringer, R.H., O.B.E., R.D., Commr., R.N.R. ...	J. H. Anderson ...	No. M.	State Service Australia	Met. Log. 21.9.25 to 27.2.26 ...	14.6.26.
<i>Kellett</i> ...	Mordue, J. A. ...	" ...	" A.	P. & O. ...	Form 911 23.7.26 to 9.8.26 ...	30.8.26.
<i>Kenilworth Castle</i> ...	Maxwell, P. S. E., Commr., R.N. ...	W. H. Dickenson ...	M.L.	Ellerman Bucknall ...	" 26.6.26 to 16.7.26 ...	3.8.26.
<i>Kent</i> ...	Chave, Sir B., K.B.E. ...	H. L. Iddes, T. M. Gordon ...	"	His Majesty's Ship ...	Met. Log. 14.4.26 to 11.8.26 ...	26.8.26.
<i>Khyber</i> ...	Attwood, J. ...	" ...	"	Union Castle ...	" 17.1.26 to 11.7.26 ...	15.7.26.
<i>Kia Ora</i> ...	Owen, S. ...	" ...	"	" ...	" ...	" ...
<i>Kildonan Castle</i> ...	Downton, M. M. ...	F. M. Knight ...	No. A.	New Zealand S.S. Co.	Form 911 28.7.26 to 31.8.26 ...	8.9.26.
<i>Kitano Maru</i> ...	Hester, C. W., R.D., Commr., R.N.R. ...	C. B. Roche ...	M.L.	P. & O. ...	" 16.6.26 to 19.7.26 ...	23.7.26.
<i>Knight Companion</i> ...	McIntosh, A. ...	E. A. Hickling ...	M.L.	" ...	" ...	" ...
<i>Kovno</i> ...	Imlah, C. B. ...	G. H. Pickering ...	No. A.	Shaw Savill & Albion	" 27.2.26 to 9.4.26 ...	13.4.26.
<i>Kwaiyang</i> ...	Gotoh, M. ...	M. Hara ...	" A.	Union Castle ...	" 2.1.26 to 21.2.26 ...	1.3.26.
<i>Kyogle</i> ...	Reed, G. C. ...	J. J. Daniel ...	" M.	Nippon Yusen Kaisha	" 12.9.25 to 6.10.25 ...	13.11.25.
<i>37 Laconia</i> ...	Dossor, W. A. ...	J. J. Collier, H. Redfern, S. Duckells, A. Snowdon, J. C. Nettleship, C. Williams. ...	M.L.	A. Holt ...	" 14.6.26 to 20.7.26 ...	20.8.26.
<i>Lady Denison Pender, C.S.</i> ...	Byers, G. ...	C. B. Odman, E. W. Hughes ...	No. A.	Ellerman Wilson ...	Met. Log. 7.11.25 to 4.4.26 ...	3.6.26.
<i>Laguna</i> ...	Coalstad, C. ...	" ...	"	China Nav. Co. ...	" ...	" ...
<i>Lahore</i> ...	West, G. W. ...	F. Lawrence ...	W.T.	Commonwealth Light-house Service.	Form 911 17.8.25 to 9.11.25 ...	14.12.25.
<i>Lady Denison Pender, C.S.</i> ...	Pattison, G. H. ...	" ...	No. A.	Cunard ...	" ...	" ...
<i>Laguna</i> ...	Kirkwood, J. H. ...	W. P. Boon ...	" A.	Eastern Tel. Co. ...	" 9.5.26 to 7.7.26 ...	7.8.26.
<i>Lahore</i> ...	Gordon, L. M., R.D., Commr., R.N.R. ...	A. D. Dennis ...	" M.	Pacific S.N. Co. ...	" 25.6.26 to 13.7.26 ...	3.8.26.
				P. & O. ...	" 26.2.26 to 27.4.26 ...	17.5.26.

LIST OF VOLUNTARY OBSERVING SHIPS

V

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.9.26.	Date Received.
<i>Lalande</i> ...	Hamill, H. ...	R. S. Hagley ...	No. A.	Lampport & Holt ...	Form 911 30.3.26 to 12.4.26 ...	15.6.26.
<i>Lancashire</i> ...	de Legh, P. ...	R. Cuming ...	A.	Bibby ...	29.7.26 to 29.8.26 ...	2.9.26.
36 <i>Lancastria</i> ...	Malin, R. G., Lt.-Commr., R.N.R.	R. P. Campbell, L. R. Sharp, F. G. Russell	"W.T.	Cunard ...	W.T. Reg. 14.8.26 to 4.9.26 ...	8.9.26.
<i>Larnedon</i> ...	Beswick, W., D.S.C., Lt.-Commr., R.N.R.	A. Yarwood ...	No. A.	A. Holt ...	Form 911 13.8.26 to 4.9.26 ...	9.9.26.
<i>La Paz, M.V.</i> ...	Dunn, R. E. ...	W. L. Jones ...	" M.	Pacific S.N. Co. ...	" 23.7.26 to 8.8.26 ...	30.8.26.
<i>Laplace</i> ...	Shaw, W. ...	R. B. Langley ...	No. A.	Lampport & Holt ...	" 6.5.26 to 31.5.26 ...	10.6.26.
55 <i>Lapland</i> ...	Thomas, A. J. ...	E. Cornellie, F. Good, Flett ...	W.T.	Red Star ...	Met. Log. 1.1.26 to 8.5.26 ...	17.5.26.
<i>Lassell, M.V.</i> ...	Hickman, V. T. ...	F. J. Durrant ...	No. A.	Lampport & Holt ...	W.T. Reg. 27.6.26 to 13.7.26 ...	16.8.26.
<i>Leicestershire</i> ...	English, G. L. ...	J. Cullen, W. A. Kent, D. Y. Sharrock, J. Logan.	M.L.	Bibby ...	Form 911 27.6.26 to 16.7.26 ...	16.8.26.
<i>Leighton, M.V.</i> ...	Lindesay, J. M. ...	H. A. Bolding ...	No. A.	Lampport & Holt ...	Met. Log. 20.2.26 to 9.3.26 ...	29.3.26.
<i>Leitrim</i> ...	Robertson, A. ...	H. G. Letts ...	" A.	Dowie, J., & Co. ...	Met. Log. 9.4.26 to 19.6.26 ...	1.7.26.
<i>Loch Katrine</i> ...	Shillito, B. ...	K. Whitaker ...	" M.	R.M.S.P. Co. ...	Form 911 2.3.26 to 3.4.26 ...	19.4.26.
<i>London Commerce</i> ...	Young, H. J., D.S.C.	H. P. Longland ...	" A.	Furness Withy ...	" 10.7.26 to 7.9.26 ...	10.9.26.
<i>London Importer</i> ...	Williamson, J. M. ...	J. S. Williams, A. B. Gloyne	M.L.	"	" 9.3.26 to 30.5.26 ...	7.6.26.
<i>Loriga, M.V.</i> ...	Makin, F. W. ...	W. N. Anders ...	No. A.	Pacific S.N. Co. ...	" 13.3.26 to 16.4.26 ...	22.4.26.
<i>Losada, M.V.</i> ...	Meldrum, G. W. ...	E. Baxter ...	" M.	"	Met. Log. 8.2.26 to 26.4.26 ...	28.5.26.
					Form 911 16.10.25 to 2.4.26 ...	13.8.26.
					" 21.6.26 to 12.8.26 ...	16.8.26.
<i>Macedonia</i> ...	Potter, H. W., R.D., Commr., R.N.R.	E. R. Bodley ...	" M.	P. & O. ...	" 1.5.26 to 22.5.26 ...	31.5.26.
<i>Macharda</i> ...	Richardson, T. ...	D. M. Fulton ...	" M.	Brocklebank ...	" 14.7.26 to 15.8.26 ...	17.8.26.
<i>Mahana</i> ...	Kershaw, W. A. R. ...	F. M. Smith, H. C. Smith, J. C. K. Rogers.	" A.	Shaw, Savill & Albion	Met. Log. 15.4.26 to 10.8.26 ...	30.8.26.
<i>Maharaja</i> ...	Elliott, G. F. ...	T. E. Turner ...	No. M.	Asiatic S.N. Co. ...	Form 911 18.4.26 to 25.5.26 ...	14.6.26.
<i>Mahia</i> ...	Williams, G. ...	R. Naef ...	No.	Shaw, Savill & Albion	" 20.3.26 to 23.6.26 ...	15.7.26.
<i>Maihar</i> ...	Rowe, J. P. ...	C. Shaw, H. T. Scoins, G. Henshaw.	M.L.	Brocklebank ...	Met. Log. 25.4.26 to 4.6.26 ...	6.7.26.
<i>Maimyo</i> ...	Scurr, T. W. ...	H. M. Drummond ...	No. A.	Burns Philp ...	Form 911 29.7.26 to 2.9.26 ...	6.9.26.
<i>Maiwara</i> ...	Brown, T. M. ...	W. Pearson, J. Paine, A. Young, W. T. Fitzgerald.	M.L.	White Star ...	Met. Log. 3.3.26 to 15.6.26 ...	10.8.26.
58 <i>Majestic</i> ...	Metcalfe, G. R. ...	F. C. Vogelmann, T. R. Lang, W. O. L. Wilding.	W.T.	"	" 11.3.25 to 19.2.26 ...	4.5.26.
<i>Makambo</i> ...	McLean, J. ...	O. C. Bray, J. M. Hood, A. Foster.	M.L.	Canadian-Australasian	" 15.5.26 to 6.9.26 ...	15.9.26.
<i>Makura</i> ...	Worrall, L. C. H. ...	J. H. Round ...	" M.	Burns, Philp & Co. ...	" 17.7.26 to 27.7.26 ...	4.8.26.
<i>Malabar</i> ...	Adamson, F. L. ...	R. Humble ...	" M.	Brocklebank ...	" 24.5.26 to 28.6.26 ...	3.7.26.
<i>Malakuta</i> ...	Sharpe, G. ...	J. McLean Brown ...	" M.	British India ...	Form 911 11.7.26 to 15.8.26 ...	23.8.26.
<i>Malancha</i> ...	Gray, T. N. ...	E. Hale ...	" A.	Shaw, Savill & Albion	" 24.7.26 to 30.8.26 ...	6.9.26.
<i>Malda</i> ...	Falconer, H. ...	W. L. Lavers ...	" A.	Manchester Liners ...	Met. Log. 3.10.25 to 20.7.26 ...	27.7.26.
<i>Mamari</i> ...	Stott, C. H. ...	J. H. Emmitt, H. Anderton, B. M. Brown.	M.L.	"	Form 911 26.6.26 to 11.8.26 ...	20.8.26.
<i>Manchester Brigade</i> ...	Everest, J. E. ...	E. W. Jeffries ...	No. A.	"	" ...	"
<i>Manchester Corporation</i> ...	Riley, J. E. ...	H. Dobson ...	" A.	"	Met. Log. 19.9.25 to 8.5.26 ...	31.5.26.
<i>Manchester Hero</i> ...	Struss, F. D. ...	Dormer, A. E. ...	M.L.	"	Form 911 2.3.26 to 16.5.26 ...	17.6.26.
<i>Manchester Merchant</i> ...	Foale, J. R. ...	...	"	"	" 20.5.26 to 23.7.26 ...	26.7.26.
<i>Manchester Regiment</i> ...	...	...	"	"	" 10.11.25 to 25.11.25 ...	4.1.26.
<i>Manchester Shipper</i> ...	...	...	"	"	" 24.4.26 to 17.5.26 ...	20.5.26.
<i>Manipur</i> ...	Cochran, G. N. ...	R. Penston ...	No. M.	Brocklebank ...	Met. Log. 2.4.25 to 25.8.25 ...	1.12.25.
<i>Mantua</i> ...	Randell, G. G. ...	J. Paice ...	" M.	P. & O. ...	" 20.3.26 to 30.8.26 ...	2.9.26.
<i>Manzanaras</i> ...	Maxwell Brown, W. E. ...	G. S. Gracie ...	" A.	Elders & Fyffes ...	" 21.2.26 to 2.5.26 ...	4.6.26.
<i>Marburn</i> ...	Stewart, A. ...	R. H. W. Jackson ...	" M.	Canadian Pacific ...	Form 911 20.5.26 to 25.6.26 ...	3.8.26.
<i>Marella</i> ...	Mortimer S. ...	J. A. Street ...	M.L.	Burns Philp ...	Met. Log. 23.2.26 to 14.7.26 ...	22.7.26.
<i>Marengo</i> ...	Brown, A. M. ...	F. Eglin, H. Brown, J. Ford	"	Ellerman Wilson ...	Form 911 5.6.26 to 8.7.26 ...	6.9.26.
<i>Margha</i> ...	Williams, J. C. R.D., Commr., R.N.R.	J. Strachan, P. Wright, J. Ball.	"	British India ...	Met. Log. 23.3.26 to 1.8.26 ...	13.9.26.
<i>Marsina</i> ...	Milne, R. A., R.D., Commr., R.N.R.	N. Morrison ...	No. A.	Burns, Philp & Co. ...	Form 911 1.2.26 to 3.3.26 ...	8.3.26.
<i>Masirah</i> ...	Mallett, R. ...	H. W. Thompson, J. Hart, S. P. Stockholm, Turnbull.	No. A.	Brocklebank ...	" 29.4.26 to 27.5.26 ...	31.5.26.
<i>Matakana</i> ...	Thurston, H. P. ...	H. H. Armstrong, H. Willington, J. Richardson.	M.L.	Shaw, Savill & Albion	" 4.6.26 to 9.7.26 ...	23.8.26.
<i>Mataram</i> ...	Williams, J. D. ...	K. L. Thompson ...	No. A.	Burns Philp & Co. ...	Form 911 11.7.26 to 23.8.26 ...	25.8.26.
<i>Matheran</i> ...	Sandeman, W. ...	H. H. Armstrong, H. Willington, J. Richardson.	M.L.	Brocklebank ...	" 29.8.26 to 12.9.26 ...	16.9.26.
<i>Mathura</i> ...	Hanna, R. G. ...	H. H. Armstrong ...	No. M.	British India ...	Form 911 2.5.26 to 28.6.26 ...	7.7.26.
<i>Matiana</i> ...	Bacon, A. E. ...	G. Earl ...	" M.	Union S.S. Co. of N.Z. ...	W.T. Reg. 1.8.26 to 21.8.26 ...	24.8.26.
<i>Maunganui</i> ...	Davey, A. H. ...	C. G. Eustace ...	" M.	"	Form 911 3.7.26 to 21.7.26 ...	23.7.26.
32 <i>Mauretania</i> ...	Britten, E. T., R.D., Commr., R.N.R.	E. R. Taylor, A. Mackellar, L. L. Harper.	W.T.	Cunard ...	" 30.11.25 to 17.12.25 ...	21.12.25.
<i>Media</i> ...	Mallett, R. ...	S. C. Cramb ...	No. A.	T. & J. Brocklebank ...	" 16.11.25 to 3.3.26 ...	13.3.26.
56 <i>Megantic</i> ...	Jones, T. ...	S. A. Jones, N. E. Banks, A. W. C. Robinson.	W.T.	White Star ...	" 15.10.25 to 21.11.25 ...	25.11.25.
22 <i>Melita</i> ...	Notley, A. H. ...	J. Shearer, D. Dunn ...	"	Canadian Pacific ...	Form 911 11.8.26 to 23.8.26 ...	27.8.26.
<i>Memnon</i> ...	Evans, D. L. ...	L. S. Evans ...	No. A.	A. Holt ...	W.T. Reg. 14.8.26 to 1.9.26 ...	6.9.26.
<i>Menominee</i> ...	Pollard, W. F., D.S.O., R.D., Capt., R.N.R.	R. Day ...	" A.	Atlantic Transport ...	Form 911 15.8.26 to 4.9.26 ...	8.9.26.
21 <i>Metagama</i> ...	Freer, A., Commr., R.N.R.	R. Walker, A. Mansey ...	W.T.	Canadian Pacific ...	" 14.8.26 to 21.8.26 ...	30.8.26.
<i>Miami</i> ...	Makepeace, S. ...	C. H. Drummond ...	No. A.	Elders & Fyffes ...	Form 911 27.7.26 to 28.8.26 ...	8.9.26.
<i>Minderoo</i> ...	Richardson, E. ...	B. J. Bennie, W. J. McPhedran, J. H. Oxtan.	M.L.	West Australia Nav. Co. ...	Met. Log. 10.11.25 to 1.5.26 ...	6.7.26.
<i>Minna</i> ...	MacKenzie, G. G. ...	J. H. Hennessey ...	No. A.	Scottish Fishery Board ...	Form 911 11.8.26 to 23.8.26 ...	27.8.26.
23 <i>Minnedosa</i> ...	McQueen, D. S. ...	L. Hammersley, F. W. Roberts	W.T.	Canadian Pacific ...	W.T. Reg. 14.8.26 to 1.9.26 ...	6.9.26.
<i>Minnetonka</i> ...	Gates, T. F., C.B.E.	H. E. McCartney ...	No. M.	Atlantic Transport ...	Form 911 15.8.26 to 4.9.26 ...	8.9.26.
<i>Minnewaska</i> ...	Claret, F. H., C.B.E., Commr., R.N.R.	J. W. Grier ...	" M.	"	" 14.8.26 to 21.8.26 ...	30.8.26.
<i>Mirror, C.S.</i> ...	Gibson, L. ...	A. G. Watts ...	" M.	Eastern Tel. Co. ...	" 5.5.26 to 17.5.26 ...	22.6.26.
<i>Moldavia</i> ...	Burleigh, C. W., D.S.O., R.D., Capt., R.N.R.	G. E. Owen ...	" M.	P. & O. ...	" 7.4.26 to 23.5.26 ...	10.6.26.
<i>Mongolian Prince</i> ...	Durrant, G. D. ...	M. Gibson ...	" A.	Prince ...	" 13.9.25 to 15.10.25 ...	26.10.25.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.9.26.	Date Received.
<i>Monkbarns</i> , Ship	Davies, W. ...	R. Baise ...	No. M.	J. Stewart & Co. ...	Form 911 24.1.26 to 11.7.26 ...	17.8.26.
24 <i>Montcalm</i> ...	Hamilton, G. ...	H. McFadyen, J. Lewis ...	W.T.	Canadian Pacific ...	W.T. Reg. 15.8.26 to 3.9.26 ...	7.9.26.
25 <i>Montclare</i> ...	Webster, G. S., R.D., Lt.-Commr., R.N.R.	R. Fegan, H. S. Knight, A. Harrison, E. F. Aikman.	"	" " ...	" 25.7.26 to 13.8.26 ...	17.8.26.
<i>Montferland</i> ...	Van Noppen, C. D.	W. Slooten ...	No. M.	Holland Lloyd ...	Form 911 25.7.26 to 10.9.26 ...	15.9.26.
27 <i>Montnairn</i> ...	Turnbull, J., C.B.E., R.D., Capt., R.N.R.	F. E. Williams, F. Chodzko ...	W.T.	Canadian Pacific ...	W.T. Reg. 14.8.26 to 2.9.26 ...	7.9.26.
<i>Montoro</i> ...	Donaldson, A. ...	K. Morris ...	No. A.	Burns, Philp & Co. ...	Form 911 2.9.25 to 19.10.25 ...	14.12.25.
26 <i>Montrose</i> ...	Laudy, E. ...	A. Watt, R. Woods, J. Patrick.	W.T.	Canadian Pacific ...	W.T. Reg. 13.6.26 to 26.8.26 ...	3.9.26.
20 <i>Montroyal</i> ...	Stewart, A. ...	J. H. Tudor, W. P. Hains ...	"	" " ...	" 4.7.26 to 22.7.26 ...	26.7.26.
<i>Moresby</i> ...	Edgell, J. A., O.B.E., Capt., R.N.	C. F. Mills ...	M.L.	His Majesty's Australian Ship.	Met. Log. 4.7.25 to 13.12.25	10.2.26.
<i>Morvada</i> ...	Mills, T. L., O.B.E., R.D., Commr., R.N.R.	A. J. Norris ...	No. M.	British India ...	Form 911 14.8.26 to 4.6.26	8.6.26.
<i>Mulbera</i> ...	Steadman, W. R. ...	F. Broomhead ...	" M.	" " ...	" 22.5.26 to 6.7.26 ...	8.7.26.
<i>Nagara</i> ...	Buret, T. J. C. ...	F. A. C. Thacker ...	" M.	R.M.S.P. Co. ...	" 16.1.26 to 19.3.26 ...	26.3.26.
<i>Nagoya</i> ...	Davis, H. C., D.S.C., R.D., Commr., R.N.R.	L. Porter ...	" M.	P. & O. ...	" 30.5.26 to 27.8.26 ...	2.9.26.
<i>Nardana</i> ...	Moth, F. L. ...	S. C. T. Smith ...	" M.	British India ...	" 15.9.25 to 25.10.25...	31.10.25.
<i>Nellore</i> ...	Hignett, A. H., R.D., Lt. - Commr., R.N.R.	S. H. Baldwin ...	" M.	P. & O. ...	" 20.3.26 to 12.6.26 ...	14.7.26.
<i>Nestor</i> ...	Owen, R. D., O.B.E.	D. Rees, F. J. Silva, D. W. Stroud.	M.L.	A. Holt ...	Met. Log. 24.1.26 to 30.5.26 ...	4.6.26.
<i>Newby Hall</i> ...	Edge, T. P. ...	R. H. Stewart, G. E. M. Jenkins, R. M. Redhead, D. F. Galloway.	"	Ellerman ...	" 18.12.25 to 15.5.26...	10.6.26.
<i>Newfoundland</i> ...	Westgarth, W. A., D.S.C.	" " " " " "	"	Furness Withy ...	" " " " " "	"
<i>Niagara</i> ...	Showman, A. C. ...	J. Dawson, A. P. Cousin, D. McKenzie, T. Haulton.	"	Canadian-Australian...	Met. Log. 14.1.26 to 28.5.26 ...	23.6.26.
<i>Ningchow</i> ...	Wilson, C. A. ...	G. H. Oldridge ...	No. A.	A. Holt ...	Form 911 11.6.26 to 5.8.26 ...	9.8.26.
<i>Norna</i> ...	Wright, J. W. ...	T. Mather ...	" A.	Scottish Fishery Board	" 14.8.26 to 31.8.26 ...	2.9.26.
<i>Norseman</i> , C.S. ...	Barter, H. O., R.N., Commr., R.N.R.	E. Pearce ...	" M.	Western Tel. Co. ...	" 6.5.26 to 16.6.26 ...	13.7.26.
<i>Northwestern Miller</i>	Nuttall, E. L. ...	N. Macdonald ...	" A.	Furness Withy ...	" 18.7.26 to 18.8.26 ...	23.8.26.
<i>Nova Scotia</i> ...	Furneaux, S. ...	" " " " " "	" A.	" " " " " "	" 4.8.26 to 30.8.26 ...	2.9.26.
<i>Nubian</i> ...	Watmough, T. M. ...	H. R. Gaskill ...	" A.	Leyland ...	" 23.12.25 to 24.1.26	28.1.26.
<i>Oaklands Grange</i> ...	Routledge, R. ...	E. J. Longheed ...	" A.	Houlder Bros.	" 15.4.26 to 15.5.26 ...	25.5.26.
42 <i>Ohio</i> ...	Clarke, E., R.D., Commr., R.N.R.	D. R. Miller, H. Baylis, E. A. E. Littlewood.	W.T.	R.M.S.P. Co. ...	W.T. Reg. 25.7.26 to 13.8.26 ...	16.8.26.
<i>57 Olympic</i> ...	Marshall, W., C.B., D.S.O., R.D., Capt., R.N.R.	H. J. C. Day, A. Fisher, J. Law.	"	White Star ...	Form 911 23.7.26 to 12.9.26 ...	15.9.26.
<i>Orama</i> ...	Staunton, H. G., C.B.E., R.D., Commr., R.N.R.	T. L. Shurrock, T. Fox Russell, C. K. Blake.	M.L.	Orient ...	W.T. Reg. 13.8.26 to 26.8.26 ...	1.9.26.
<i>Oranian</i> ...	Hoskins, W. ...	W. Lawton ...	No. A.	Leyland ...	Form 911 12.8.26 to 27.8.26 ...	1.9.26.
<i>Orari</i> ...	Robinson, F. W. ...	F. Longheed, C. Wilkinson, W. Tarr.	M.L.	New Zealand S.S. Co.	Met. Log. 7.3.26 to 8.6.26 ...	21.6.26.
40 <i>Orbita</i> ...	Warner, G. E., R.D., Capt., R.N.R.	C. V. Fletcher, H. H. Treweek, A. Chamberlin.	W.T.	R.M.S.P. Co. ...	Form 911 1.6.26 to 15.8.26 ...	23.8.26.
43 <i>Orca</i> ...	Le Brecht, H. A. ...	R. Griffiths, R. Gill, T. Naylor.	M.L.	Pacific S.N. Co. ...	Met. Log. 15.9.25 to 9.6.26 ...	17.6.26.
<i>Orcoma</i> ...	Dominy, R. H., C.B.E., Commr., R.N.R.	H. G. Whittle, S. Robbins, J. E. P. Matthews, D. P. Larham.	W.T.	R.M.S.P. Co. ...	W.T. Reg. 14.8.26 to 5.9.26 ...	9.9.26.
41 <i>Orduna</i> ...	Smith, W. E., D.S.O., R.D., Capt., R.N.R.	" " " " " "	"	" " " " " "	W.T. Reg. 8.8.26 to 29.8.26 ...	3.9.26.
<i>Orestes</i> ...	Hanney, T. W. ...	T. Berry ...	No. A.	A. Holt ...	Form 911 7.8.26 to 30.8.26 ...	2.9.26.
<i>Oriana</i> ...	Ross, J. ...	W. Pearce, R. D. Eckford, W. Salmon.	M.L.	Pacific S.N. Co. ...	Met. Log. 11.5.26 to 19.7.26 ...	3.8.26.
<i>Orita</i> ...	Splatt, W. A. ...	T. R. Scott, D. W. Hutchinson, R. W. Hanson, G. R. Bubb.	"	" " " " " "	" 17.2.26 to 29.5.26 ...	9.6.26.
<i>Ormonde</i> ...	Knowles, C. H., D.S.O., Commr., R.N.	A. M. Hughes ...	"	His Majesty's Ship ...	" 4.9.25 to 4.12.25 ...	22.12.25.
<i>Ormonde</i> ...	James, L. V., D.S.C.	A. J. Croft Cohen, V. C. Davies, B. Winsor, H. Petit Dan.	"	Orient ...	" 30.5.26 to 8.9.26 ...	15.9.26.
<i>Ormuz</i> ...	O'Sullivan, F. R. ...	F. J. L. Butler, W. Wickham, Addison.	"	" " " " " "	" 21.3.26 to 25.6.26 ...	30.6.26.
<i>Oronsay</i> ...	Owens, A. L., R.D., Lt.-Commr., R.N.R.	Hatch, Rice, W. Elliot	"	" " " " " "	" 21.2.26 to 25.5.26 ...	31.5.26.
<i>Oroya</i> ...	Pearce, A. ...	G. Lewis ...	No. M.	Pacific S.N. Co. ...	Form 911 27.4.26 to 5.7.26 ...	12.7.26.
<i>Orsova</i> ...	Cameron, E. P., R.D., Commr., R.N.R.	L. J. Vesty, R. J. Galpin, J. F. Castle-Bartley.	M.L.	Orient ...	Met. Log. 4.4.26 to 8.7.26 ...	17.7.26.
<i>Orieto</i> ...	Matheson, C. G., D.S.O., R.D., Capt., R.N.R.	J. Goldsworthy, A. Hawker, G. L. Carter, J. L. Skilling.	"	" " " " " "	" 2.5.26 to 5.8.26 ...	14.9.26.
<i>Osterley</i> ...	Sarson, M. J. ...	H. Tanner, N. A. Whinfield, S. Burnnand.	No.	" " " " " "	" 24.1.26 to 27.4.26 ...	20.5.26.
<i>Otira</i> ...	Elford H. E. ...	E. J. Riccard ...	No. M.	Shaw, Savill & Albion	Form 911 19.3.26 to 7.4.26 ...	7.5.26.
<i>Otranto</i> ...	Sinner, G. L., R.D., Commr., R.N.R.	R. H. Rogerson ...	" M.	Orient ...	" 29.1.26 to 10.4.26 ...	15.4.26.
<i>Ovid</i> ...	Groom, A. C. B. ...	" " " " " "	" A.	Shakespear Shipping Co.	" 10.5.26 to 19.5.26 ...	26.5.26.
<i>Oxfordshire</i> ...	Crumplin, W. E. ...	F. C. Brooks ...	" A.	Bibby Bros. ...	" 27.5.26 to 2.8.26 ...	9.8.26.
<i>Pacific Shipper</i> , M.V.	Newman, G. W. A. ...	G. Davis ...	" A.	Furness Withy ...	" 4.7.26 to 2.8.26 ...	4.8.26.
<i>Pacure</i> ...	Harvey, A. E. ...	M. C. Cruickshank ...	" A.	Elders & Fyffes ...	" 3.8.26 to 16.8.26 ...	8.9.26.
<i>Pakeha</i> ...	W. P. Clifton Mogg	E. T. Baker, A. Black, A. Lockhart	M.L.	Shaw, Savill & Albion	Met. Log. 26.9.25 to 28.2.26 ...	8.3.26.
<i>Pareora</i> ...	Evans, J. O. ...	N. Turner ...	No. A.	Hain S.S. Co. ...	Form 911 13.7.26 to 6.9.26 ...	10.9.26.
<i>Paris</i> ...	Cook, C. L. ...	Mr. Biles...	C.C.	Southern Rly. ...	Telegraphic Report. 14.4.26	14.4.26.
<i>Patia</i> ...	Maxwell Brown, W. E.	J. Kinsley ...	No. A.	Elders & Fyffes ...	Form 911 1.8.26 to 6.9.26 ...	13.9.27.
<i>Patrician</i> ...	Pugh, — ...	" " " " " "	" M.	Harrison ...	" " " " " "	"
<i>Patrol</i> , C.S. ...	Welsh, T. K. ...	H. F. P. Albrecht ...	M.L.	Eastern Extension (A. & C.) Telegraph Co.	Met. Log. 8.7.25 to 3.2.26 ...	1.4.26.

vii

Name of Vessel.	Captain	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 13.8.26.	Date Received.
Persic ... Peshawur ...	Bulman, J. B. ... Hester, C. W., R.D., Commr., R.N.R.	R. Conway ... D. G. Baillie, J. K. Crone, R. D. Whyte-Mackay.	No. A. M.L.	White Star P. & O. ...	Form 911 27.9.25 to 4.11.25 ... Met. Log. 16.1.26 to 2.7.26 ...	17.3.26 9.7.26
Philadelphian ... Polycarp ... Port Adelaide ...	Baker, J. A. ... Evans, T. G. ... Hayter, J. W. ...	W. T. Godwin ... C. W. Smethurst ... R. W. Linklater, G. Love- grove, J. L. Porter.	No. A. ... M.L.	Leyland ... Booth ... Commonwealth & Do- minion.	Form 911 9.10.25 to 1.11.25 ... 8.6.23 to 29.7.26 ... Met. Log. 6.2.26 to 11.6.26 ...	16.11.25 4.8.26 21.6.26
„ Albany ...	Robinson, C. A. ...	E. A. Leavett, A. G. Newbury, W. Eastoe, N. A. Crowe.	„	„ „ „	„ 14.11.25 to 13.4.26...	21.4.26
„ Auckland ...	Durham, R. S. ...	R. B. Stannard ...	„	„ „ „	Form 911 4.3.26 to 20.7.26 ...	26.7.26
„ Bowen ... Caroline ...	Gilling, W. ... Renaut, F. A. ...	W. R. Johnston ... H. H. Smith, E. Fenton, C. Chamberlin, A. T. C. Cooper.	No. A. M.L.	„ „ „ „ „ „	„ 7.4.26 to 11.5.26 ... Met. Log. 3.10.25 to 11.4.26 ...	6.7.26 19.4.26
„ Darwin ...	Sawbridge, I. R. ...	E. T. N. Lawrey, G. F. Pannett.	No. A.	„ „ „	Form 911 23.4.26 to 6.6.26 ...	24.6.26
„ Dunedin ... Hacking ... Hobart ... Hunter ...	Lea, W. H. ... Hoad, A. C. ... Craven, R. ... Cottell, S. C. ...	E. G. Jones ... F. W. Elgar ... G. Langford ... A. Cooper, C. F. Post, J. T. Weldin.	M.L. „ „ „	„ „ „ „ „ „ „ „ „ „ „ „	„ 7.1.26 to 1.5.26 ... 1.8.26 to 14.8.26 ... 6.3.26 to 25.6.26 ... Met. Log. 30.10.25 to 2.4.26 ...	19.5.26 30.8.26 8.7.26 14.4.26
„ Melbourne ...	Kearney, F. J. ...	D. G. H. Bradley, J. A. Fair- bairn, A. G. Starkey.	M.L.	„ „ „	„ 4.5.26 to 5.9.26 ...	8.9.26
„ Napier ... Nicholson ...	Jones, C. N. ... Jack, J. ...	A. R. Martin... J. L. Lewis, A. McDonald, P. A. Munday, C. Jolly.	No. A. M.L.	„ „ „ „ „ „	Form 911 8.7.26 to 20.8.26 ... Met. Log. 20.2.26 to 18.7.26 ...	26.8.26 24.7.26
„ Pirie ...	Kippons, T. ...	H. C. Jeffery, W. G. Jones, N. M. Muzzill, S. Hearn.	„	„ „ „	„ 6.4.26 to 6.9.26 ...	13.9.26
„ Sydney ...	Higgs, W. G. ...	G. L. H. Dean, K. D. Morgan, H. G. Boys Smith.	„	„ „ „	„ 26.6.26 to 29.7.26 ...	5.8.26
„ Victor ...	Swan, L. H. ...	W. Howe, W. Renouf, W. J. Watson.	„	„ „ „	„ 6.9.25 to 2.6.26 ...	7.6.26
„ Wellington ... President Jackson ... President Jefferson ... President Wilson ... Protea, H.M.S.A.S.	Farmer, F. ... Griffith, J. ... Nichols, F. R. ... Nelson, H. ... Woodhouse, A. F. B., Lt.-Commr., R.N.	P. H. Pedrick ... B. Christensen, A. L. Herre- schmidt, C. Ranchich ... A. M. Quinlan ... R. J. Whitley ...	No. A. „ A. „ A. No. M. No. M.	Pacific Mail S.S. Co... Admiral Oriental Line Dollar ... South African Naval Service.	Form 911 22.3.26 to 24.7.26 ... 19.4.26 to 21.5.26 ... 4.6.26 to 20.7.26 ... 24.8.26 to 14.5.26 ... 13.7.26 to 31.7.26 ...	6.8.26 22.7.26 9.8.26 3.7.26 8.9.26
Pyrrhus ... Rangpur ... Regina ...	Elford, W. J. ... King, A. M., D.S.C. Smith, R. G. ...	J. L. Millar... H. C. Slinn ... G. W. Couch, R. H. Shaw, C. Cochran.	„ A. „ A. W.T.	A. Holt ... P. & O. ... White Star-Dominion }	„ 25.3.26 to 20.6.26 ... 21.7.26 to 26.8.26 ... W.T. Reg. 5.4.26 to 20.4.26 ... Form 911 5.4.26 to 20.4.26 ...	22.6.26 1.9.26 22.4.26 26.4.26
Reindeer ... Remuera ... Rhodesian Trans- port.	Langdon, C. ... Cameron, J. J. ... Fowler, W. H. ...	„ ... McCullum, P. Shakespeare F. F. Feint ...	C.C. No. A. „ A.	G.W. Railway ... New Zealand S.S. Co. Houlder Bros.	Telegraphic Report 15.5.26 ... Form 911 13.3.26 to 19.4.26 ... 22.4.26 to 19.8.26 ...	15.5.26 27.7.26 25.8.26
Rimutaka ... Risaldar ...	Hemming, F. A. ... Park, G. ...	F. Bishop ... A. J. Cavallo, H. Hardwick, C. M. Knight.	M.L. „	New Zealand S.S. Co. Asiatic S.N. Co. ...	Met. Log. 31.5.25 to 29.3.26 ... 11.10.25 to 9.4.26 ...	1.4.26 11.5.26
Romney ... Rotorua ...	Syms, G. ... Hunter, J. B. ...	J. W. McMullan ... D. F. Clegg, E. Lawrence, R. H. Cockerrill.	No. A. M.L.	Lampert & Holt ... N.Z.S. Co. ...	Form 911 27.4.26 to 7.7.26 ... Met. Log. 13.2.26 to 29.5.26 ...	13.8.26 8.6.26
Royal Fusilier ...	Dawson, J. ...	J. Fraser ...	No. A.	London & Edinburgh S.S. Co. ...	Form 911 18.7.26 to 12.8.26 ...	16.8.26
Royal Transport... Ruapehu ...	Dove, J. ... McKellar, A. W., R.D., Capt., R.N.R.	R. W. Wass ... - R. Russel, O. M. Watts, W. J. Glassborow.	„ A. M.L.	Houlder Bros. ... New Zealand S.S. Co. ...	„ 24.1.26 to 24.7.26 ... Met. Log. 16.4.26 to 10.8.26 ...	6.8.26 16.8.26
St. Albans ...	Smith, G. L. ...	J. W. Kavanagh, J. F. Heddie, H. J. Jeans, W. McIntyre.	„	Eastern and Australian	„ 5.8.25 to 2.12.25 ...	24.3.26
St. Helier ... St. Julien ... St. Patrick ... Salaga ... 38 Samaria ...	Mulhall, W. ... Langdon, C. H. ... Bearpark, E. W. ... Sola, P. D.S.O. ... McNeil, S.G.S. R.D., Capt., R.N.R.	C. Bell ... C. Joy ... F. C. Smith ... C. V. Evans ... H. L. Pryse ...	C.C. No. A. „ A. „ A. W.T.	G.W. Railway ... Rankin Gilmour ... Elder Dempster ... Cunard ...	Telegraphic Report 16.9.26 ... 15.9.26 ... Form 911 27.4.26 to 5.8.26 ... 12.6.26 to 29.8.26 ... 24.7.26 to 13.9.26 ...	16.9.26 15.9.26 17.9.26 9.9.26 15.9.26
Sandown Castle ... Saxoleine ... Saxon ... Scindia ... Scotia ... Scottish Bard ... 33 Scythia ...	Jackson, C. R. ... Rodgers, C. S. ... Knight, A. ... Matthews, W. ... Priehard, S.D. ... McDonnell, S. ... Prothero, W. ...	P. G. MacIver ... B. Johnson ... E. G. Broodbank ... R. S. Paton ... O. W. L. Jones ... J. W. Lilley ... A. Nicholson, J. C. Munro, J. W. Caunce.	No. A. „ A. „ A. „ A. C.C. No. A. W.T.	Union Castle ... Hunting & Son ... Union Castle ... Anchor ... L.M. & S. Rly. ... Tankers Ltd. ... Cunard ...	„ 16.12.25 to 23.2.26... „ 18.2.26 to 9.3.26 ... „ 25.6.26 to 16.8.26 ... „ 8.5.26 to 16.7.26 ... Telegraphic Report 9.9.26 ... Form 911 31.1.26 to 15.2.26 ... W.T. Reg. 1.8.26 to 21.8.26 ... Form 911 1.8.26 to 21.8.26 ...	26.2.26 29.3.26 20.8.26 12.8.26 9.9.26 9.3.26 25.8.26 26.8.26
Sheaf Lance ... Sheaf Mount ... Sheaf Spear ...	Earl, C. ... Groves, C. V. ... Whitfield, G. A., O.B.E.	„ ... G. A. Goold ... W. H. Grisewood, N. Thomp- son.	No. No. A. M.L.	W. A. Souther ... „ ... „	„ 10.6.26 to 8.7.26 ... Form 911 18.3.26 to 20.6.26 ...	22.7.26 26.6.26
Socrates ... Soekaboemi ... Somerset ... Somersetshire ...	Taylor, F. C. ... Z. W. Flach ... Barnett, H. ... Foster, W. L. ...	W. E. Jordan ... C. van Reenen ... J. J. Youngs ... R. C. Leitch, H. G. Walton, P. H. Potter.	No. A. „ M. „ M. M.L.	Lampert & Holt ... Rotterdam Lloyd ... N.Z.S. Co. ... Bibby ...	Form 911 21.2.26 to 10.5.26 ... „ 2.5.26 to 30.7.26 ... „ 15.12.25 to 21.1.26... Met. Log. 2.5.26 to 25.8.26 ...	28.5.26 12.8.26 26.1.26 3.9.26
Somme... ..	Miles, F. R., Commr., R.D., R.N.R.	J. Watson ...	No. A.	R.M.S.P. Co. ...	Form 911 1.5.26 to 23.7.26 ...	13.8.26
Spectator ...	Harding, C. H. J. ...	D. Fraser, J. G. F. Betson ...	„ A.	Harrison ...	„ 20.11.25 to 20.2.26...	26.2.26
Spero ...	{ Norton, W. J. ... Montgomery, H.	T. E. Fea ...	M.L.	Ellerman Wilson	Met. Log. 12.12.25 to 14.6.26...	1.7.26
Stockwell ... Stuart Prince ... Suva Maru ... Sylvafield...	Thowless, E. ... Kemp, E. J. ... Okuno, Y. ... Biddick, E....	W. Gibson ... W. Venn ... T. Nosaka ... R. A. Hanson ...	No. A. „ A. „ A. „ A.	Brocklebank ... Prince ... Nippon Yusen Kaisha Hunting & Son	Form 911 11.8.26 to 23.8.26 ... „ 18.2.26 to 6.3.26 ... „ 21.3.26 to 4.4.26 ... „ 1.8.26 to 20.8.26 ...	27.8.26 26.4.26 5.5.26 27.8.26
Tainui ... Tairoa... .. Tahiti ... Taiping ...	Elford, H. C. ... Summers, W. G. ... Aldwell, B. L. ... { Hamilton, H. E. ... Frame, A. M.	P. S. Horwood ... S. A. Bannister ... C. G. Hill ... A. M. Frame, T. G. Strat- ford, W. Bailey, L. A. Baillie	„ A. „ A. „ A. M.L.	Shaw, Savill & Albion „ „ Union S.S. Co. of N.Z. Yuill & Co.	„ 4.6.26 to 16.7.26 ... „ 30.3.26 to 12.5.26 ... „ 11.6.26 to 6.8.26 ... Met. Log. 22.1.26 to 17.5.26 ...	20.8.26 17.5.26 14.9.26 19.7.26
Talthybius ... Tanda ...	Ireland, T. R. ... Plicher, E. ...	P. Elder ... R. Lloyd Harry, B. Dun, H. Jeans, F. Colvin.	No. A. M.L.	A. Holt ... E. & A. S.S. Co.	Form 911 19.9.25 to 26.10.25... Met. Log. 3.3.26 to 30.5.26 ...	2.11.25 10.7.26
Tambora ...	Huisman, N. ...	H. Van Manen ...	No. M.	Rotterdam Lloyd ...	Form 911 15.2.26 to 31.3.26 ...	15.4.26

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.9.26.	Date Received.
<i>Teiresias</i> ...	Dodds, R. ...	W. H. Newby ...	No. A.	A. Holt & Co. ...	Form 911 13.12.25 to 14.1.26...	28.1.26.
<i>Tekoa</i> ...	Barnett, H. ...	D. M. Lambert ...	" M.	New Zealand S.S. Co. ...	" 17.6.26 to 22.7.26 ...	26.7.26.
<i>Telamon</i> ...	Duggan, C. ...	G. Bevan ...	" A.	A. Holt ...	" 20.4.26 to 21.6.26 ...	3.7.26.
<i>Teucer</i> ...	Hodgson, R. N. ...	R. T. Harries ...	" A.	A. Holt ...	" 29.7.26 to 14.8.26 ...	13.9.26.
<i>Themistocles</i> ...	Jernyn, W. M. ...	R. J. Buckland ...	" M.	Aberdeen ...	" 3.6.26 to 22.7.26 ...	3.8.26.
<i>Theseus</i> ...	Jones, E. ...	W. A. Fyfe ...	" A.	A. Holt ...	" 4.8.26 to 14.8.26 ...	17.8.26.
<i>Titan</i> ...	Wilkinson, T. G. ...	D. MacLavith, D. T. Williams, G. W. Best, C. G. Bailey ...	M.L.	" ...	Met. Log. 20.10.25 to 11.3.26...	18.3.26.
<i>Tongariro</i> ...	White Parsons, V.C. ...	J. J. Youngs, E. Quick ...	No. M.	New Zealand S.S. Co. ...	Form 911 11.6.26 to 17.7.26 ...	4.9.26.
<i>Transylvania</i> ...	Bone, D. W. ...	A. Middleton ...	" A.	Anchor ...	" 21.8.26 to 28.8.26 ...	1.9.26.
<i>Traveller</i> ...	Worthington, B. ...	" ...	No.	T. & J. Harrison ...	" ...	" ...
<i>Trematon</i> ...	Evans, B. ...	R. Gregory, J. Toms, J. Bell ...	M.L.	Hain S.S. Co. ...	Met. Log. 2.9.25 to 8.2.26 ...	2.3.26.
<i>Turakina</i> ...	Hamilton, E. S. ...	A. N. Marshall, G. S. Shepherd ...	No. M.	New Zealand S.S. Co. ...	Form 911 9.2.26 to 4.5.26 ...	26.5.26.
<i>Tuscania</i> ...	Gemmell, W. J. ...	J. Hamilton ...	" A.	Anchor ...	" 31.7.26 to 22.8.26 ...	30.8.26.
<i>Tyndareus</i> ...	Scott, J. R. ...	A. G. Phillips, C. E. Mock, A. R. McDavid.	M.L.	A. Holt ...	Met. Log. 7.1.26 to 9.6.26 ...	6.8.26.
<i>Ulimaroa</i> ...	Wylie, W. J. ...	J. Gilbertson ...	No. M.	Huddart Parker, Ltd. ...	Form 911 29.5.26 to 26.7.26 ...	14.9.26.
<i>Ulysses</i> ...	Gordon, A. L. ...	F. H. Barley ...	" A.	A. Holt ...	" 5.7.26 to 20.7.26 ...	26.8.26.
<i>Uncolosi</i> ...	Barnes, E. W. ...	R. L. B. Ryde ...	" A.	Bullard King ...	" 16.7.26 to 6.8.26 ...	13.9.26.
<i>Valacia</i> ...	Doyle, M. ...	N. Grayson ...	" M.	Cunard ...	" 8.1.26 to 19.5.26 ...	31.5.26.
<i>Vardulia</i> ...	Hughes, W. ...	A. Watts ...	" A.	" ...	" 3.11.25 to 14.11.25...	8.2.26.
<i>Vasconia</i> ...	Bond, H. A. L., R.D., Commr., R.N.R. ...	F. G. Watts ...	" A.	" ...	" 21.4.26 to 6.8.26 ...	1.9.26.
<i>Verbania</i> ...	Pooley, T. S. M. ...	W. Bradley ...	" A.	" ...	" 4.4.26 to 7.5.26 ...	11.5.26.
<i>Vigilant</i> ...	Simpson, E. S. S. ...	J. Hunter ...	" A.	Scottish Fishery Board ...	" 1.8.26 to 31.8.26 ...	2.9.26.
<i>Waitapu</i> ...	Norton, A. ...	W. Johnson ...	" A.	Canadian-Australasian ...	" 5.5.26 to 18.6.26 ...	3.8.26.
<i>Wairuna</i> ...	" ...	" ...	M.L.	Union S.S. Co. of N.Z. ...	" ...	" ...
<i>Walmer Castle</i> ...	Chave, Sir B., K.B.E. ...	H. A. Deller ...	No. A.	Union Castle ...	Form 911 7.5.26 to 23.5.26 ...	7.6.26.
<i>Wangaratta</i> ...	Scutt, W. ...	T. W. Wordingham, G. R. Millard, K. M. Morrison, N. A. Pope.	M.L.	British India ...	Met. Log. 6.3.26 to 30.7.26 ...	3.8.26.
<i>Warfield</i> ...	Steel, R. ...	H. Coffey ...	No. A.	" ...	Form 911 16.6.26 to 2.7.26 ...	12.7.26.
<i>War Nizam</i> ...	Moncrieff, T. ...	J. Row ...	" A.	British Tankers ...	" 27.6.26 to 8.8.26 ...	17.8.26.
<i>Welshman</i> ...	Rollerson, W. ...	W. A. Fletcher ...	" M.	White Star-Dominion ...	" 29.4.26 to 25.5.26 ...	31.5.26.
<i>Westmoreland</i> ...	Upton, H. C. ...	R. G. Kers ...	M.L.	Federal ...	" 18.9.25 to 3.4.26 ...	3.5.26.
<i>William Scoresby, R.S.S.</i> ...	Mercer, G. M., D.S.C., Lt.-Commr., R.N.R. ...	" ...	"	Falkland Islands Government.	" ...	" ...
<i>Windsor Castle</i> ...	Strong, H., R.D., Commr., R.N.R. ...	F. Wilbraham ...	"	Union Castle ...	Form 911 26.3.26 to 16.5.26 ...	26.5.26.
<i>Winifredian</i> ...	Harrocks, W. ...	A. Crone ...	No. M.	Leyland ...	" 22.5.26 to 21.6.26 ...	29.6.26.
<i>Woodarra</i> ...	Hudson, H. T. ...	L. D. Graham, G. Hyland, H. Goater, J. Wallace ...	M.L.	British India ...	Met. Log. 20.3.26 to 8.9.26 ...	15.9.26.
<i>Yorkshire</i> ...	Adamson, B. W. ...	R. S. Evans, W. T. Wamsley, S. Hay, J. C. Goldsworthy ...	"	Bibby ...	Form 911 3.7.26 to 14.9.26 ...	17.9.26.
<i>Zeeland</i> ...	Harvey, H. ...	W. N. Jenkins ...	No. M.	Red Star ...	" 15.8.26 to 4.9.26 ...	6.9.26.
<i>Conway H.M.S.</i> ...	Broadbent, H. W., R.D. Capt., R.N.R. ...	The Senior Cadets... ...	Cadets' M.L.	" ...	Cadets' Met. Log. 10.5.26 to 24.7.26 ...	29.7.26.
<i>Pangbourne Nautical College.</i> ...	Tracy, A. F. G., Commr., R.N. ...	" ...	"	" ...	Cadets' Met. Log. 2.5.26 to 24.7.26...	6.8.26.
<i>Worcester, H.M.S.</i> ...	Sayer, M. B., O.B.E., R.D., Capt., R.N.R. ...	" ...	"	" ...	Cadets' Met. Log. 7.5.26 to 28.7.26...	31.7.26.
<i>Abaco</i> ...	" ...	The Keepers ...	Lighthouse Register.	" ...	Lighthouse Register 20.7.25 to 31.12.25 ...	9.3.26.
<i>Cay Lobos</i> ...	" ...	" ...	"	" ...	Lighthouse Register 1.7.25 to 31.12.25 ...	8.3.26.
<i>Double Headed Shot</i> ...	" ...	" ...	"	" ...	Lighthouse Register 1.7.25 to 31.12.25 ...	21.4.26.
<i>Inagua...</i> ...	" ...	" ...	"	" ...	Lighthouse Register 1.7.25 to 31.12.25 ...	9.3.26.
<i>Sombrero</i> ...	" ...	" ...	"	" ...	Lighthouse Register 1.1.26 to 30.6.26 ...	5.8.26.
<i>Watling Island</i> ...	" ...	" ...	"	" ...	Lighthouse Register 18.7.25 to 16.1.26 ...	8.3.26.
<i>Cape Pembroke (Falkland Is.).</i> ...	" ...	" ...	"	" ...	Lighthouse Register 1.1.26 to 30.6.26 ...	18.8.26.

LIST OF SHIPS CO-OPERATING THROUGH THE METEOROLOGICAL OFFICE WITH THE MINISTRY OF AGRICULTURE AND FISHERIES (FISHERIES LABORATORY, LOWESTOFT) IN THE COLLECTION OF WATER SAMPLES, ETC.

Name of Vessel.	Captain.	Observing Officer.	Line.	Last Case of Water Samples, Reports, etc., Received up to 31.8.26.	Date Received.
<i>Darro</i> ...	Matthews, G. P. ...	W. Halder-Campe ...	R.M.S.P. Co. ...	Water Samples ...	...
<i>Desado</i> ...	Hannam, F. S. ...	C. C. Dingle ...	" ...	" ...	...
<i>Hildebrand</i> ...	Maddrell, J. ...	A. Allan ...	Booth ...	" ...	14.7.26.
<i>Miami</i> ...	Makepeace, S. ...	H. Jolliff ...	Elders & Fyffes ...	" ...	14.6.26.
<i>Pacure</i> ...	Harvey A. E. ...	H. G. Cruickshank ...	" ...	"

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