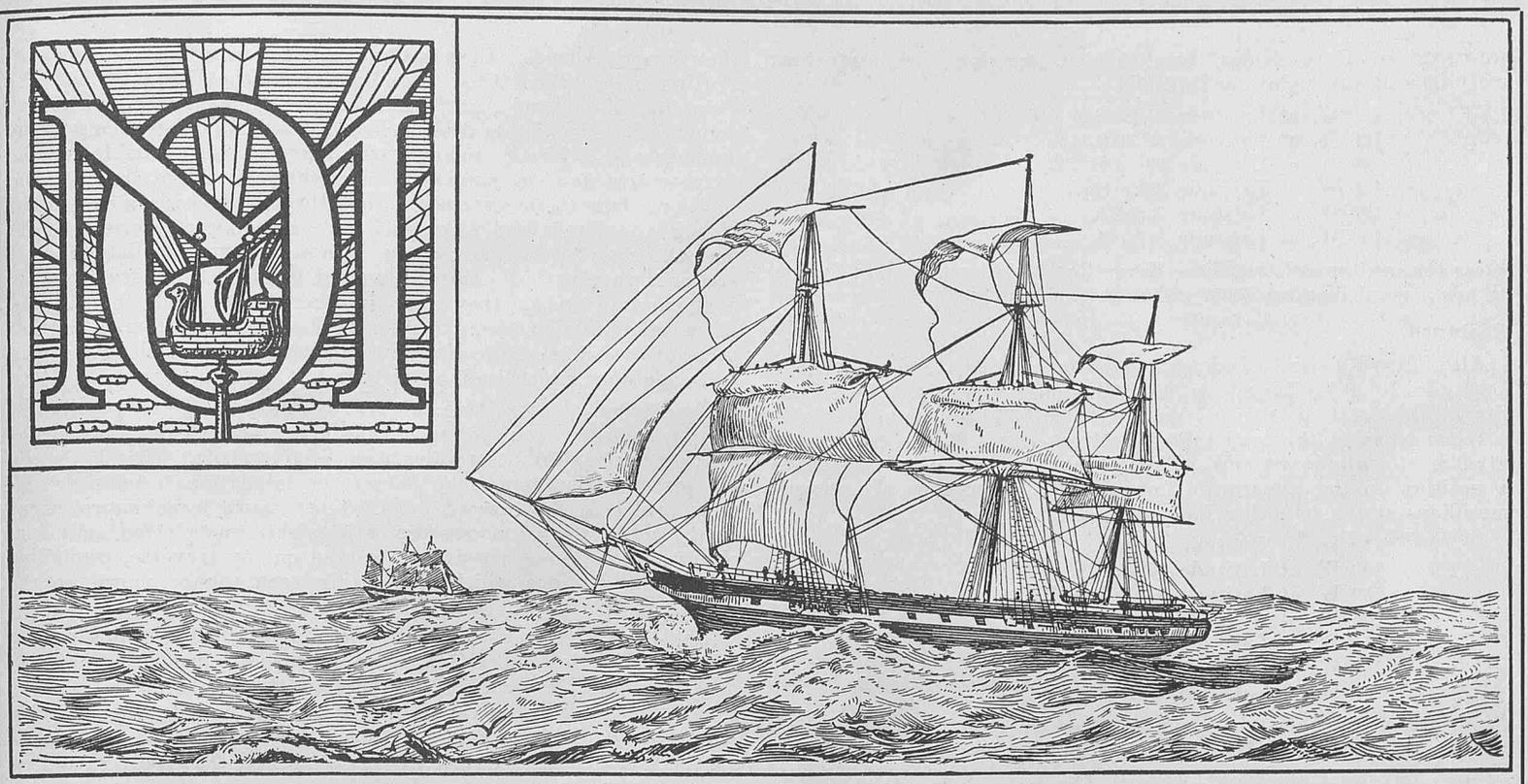

VOL. V. No. 51. THE MARINE OBSERVER. MARCH, 1928.

TABLE OF PRINCIPAL CONTENTS.

THE TRADE ROUTE ACROSS THE SOUTH PACIFIC BETWEEN PANAMA AND THE PORTS OF AUSTRALASIA.

IT is only proper to quote the general caution regarding the Navigation of the Pacific Ocean given in "Ocean Passages for the World," by Rear-Admiral BOYLE T. SOMERVILLE, C.M.G., published by Order of the Lords Commissioners of the Admiralty.

"As successful navigation amongst coral reefs depends largely upon the eye, it is well to name the conditions under which reefs are most easily seen: Thus, they are always more plainly visible from the mast head than from the deck or bridge, and when the sun is high rather than low; as also, with the sun behind the observer rather than facing him. With a glassy calm, it is extremely difficult to distinguish reefs.

"The best conditions, therefore, are, with the sun high and behind the observer, and the sea ruffled by a pleasant breeze. Banks, with about 3 feet of water over them, then appear of a light brownish colour; those with a fathom or more, of a clear green deepening to a darker green as the water increases in depth, and finally the colour of the water changes to a deep blue when out of soundings.

"Under favourable circumstances, a bank with 3 or 4 fathoms over it can be seen from aloft at a good distance; but where the depths increase beyond this, the bottom will only be seen when nearly over it."

For full information reference should be made to the book mentioned above and the Admiralty Pilots and Charts.

Briefly between Panama and Sydney, New South Wales, the routes recommended in "Ocean Passages for the World," are:—

Westward.

From Latitude 6°20′N. Longitude 80°35′W. at the entrance of Panama Bay steer on a Rhumb line to Latitude 2°10′S. Longitude 90°0′W., about 50 miles southward of the Galapagos Islands. Thence on a Great Circle to a position 30 miles south of Pitcairn Island in Latitude 25°40′S., Longitude 130°0′W., crossing the various meridians at the following latitudes:—

100°W. at Latitude 9°40′S.
110°W. at Latitude 15°30′S.
120°W. at Latitude 20°50′S.

and passing about 25 miles south of Henderson or Elizabeth Island (100 feet high).

From the position south of Pitcairn Island, steer on a Rhumb line to a position Latitude 30°0′S. Longitude 150°0′W., passing 30 miles southward of Bass Islands (Marotiri, 346 feet high) or 70 miles southward of Rapa Island.

From Latitude 30°0′S. Longitude 150°0′W. steer to pass about 5 miles northward of the Three Kings Rocks, lying 32 miles north-

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westward of Cape Maria Van Diemen, crossing the intervening meridians at the following latitudes:—

155°W. at Latitude 31°20′S.
160°W. at Latitude 32°20′S.
165°W. at Latitude 33° 0′S.
170°W. at Latitude 33°30′S.
175°W. at Latitude 33°50′S.
180°W. at Latitude 34° 0′S.

From the position off the Three Kings Rocks a Rhumb line to Sydney Heads. Total distance 7,697 miles.

Eastward.

After leaving Port Jackson, take the Great Circle track for Latitude 40°30′S. Longitude 173°55′E. off the entrance of Cook Strait, the total distance to Wellington is 1,233 miles.

When clear of the land take the Great Circle track to Latitude 41°40′S. Longitude 160°0′W. Thence take a Great Circle track to a position on the Equator in Longitude 83°W. crossing the various meridians at the following Latitudes:—

150°W. at Latitude 40° 0′S.
140°W. at Latitude 37°20′S.
130°W. at Latitude 33°35′S.
120°W. at Latitude 29° 0′S.
110°W. at Latitude 22°30′S.
100°W. at Latitude 15° 0′S.
90°W. at Latitude 6°25′S.

From the position on the Equator steer as directly as navigation permits eastward of Malpelo Island to Balboa (Panama).

	Miles.
Distance Sydney to Wellington	1,233
Wellington to Panama	6,533
Total	7,766

The direct Great Circle track between Wellington and Panama crosses the meridian of 150° W. at Latitude 38° 30′ S. The area immediately northward of this position has in it several reported dangers, Maria Theresa reef, etc. The route given above is only 45 miles longer than the direct Great Circle track.

The greatest distance between the recommended westward and eastward routes between Panama and the premier port of Australasia, is about 600 miles near the meridian of 150° W., and the westward passage covers 69 miles less distance than the eastward passage. With a considerable number of observing ships regularly running viâ Panama to and from Australasian ports as far apart as Brisbane and Lyttelton, it is obvious that a strip across the South Pacific Ocean considerably wider than 600 miles at its broadest part would be under constant observation.

In order to form an estimate of the extent of this strip under frequent observation, before deciding upon the limits of the charts which are being published in portions, Eastern, Middle and Western, in this year's MARINE OBSERVER, we laid down from Meteorological Logs the actual tracks made westward and eastward by 18 ships at all times of the year, but otherwise taken at random. They include the tracks of ships bound direct from Panama to Brisbane, Sydney, Auckland and Wellington, also direct from Brisbane, Auckland, Wellington and Lyttelton to Panama.

With the exception of the ships bound direct from Panama to Brisbane, these tracks approximate or lie between the westward and eastward tracks between Panama and Sydney, recommended by the Admiralty.

Observation by ships using the Panama-Australian-New Zealand routes actually covers a strip across the ocean, which is 900 miles broad at the 180th meridian, tapering to a point at the entrance of the Panama Canal.

Besides the observations of ships using the Panama-South Pacific main routes the observations of ships passing through this area, such as those running from Vancouver to Sydney and New Zealand Ports, ships trading from Sydney to the Islands and an occasional ship making a passage from Australia to a port on the West Coast of South America, add to the volume of observations.

All these observations entered in Meteorological Logs since 1920 are being used for compiling the Wind Charts, and all observations within this strip received since 1910 are being used for constructing the Current Charts. Even so, as will be seen by the Western Portion of the Wind Chart for March and the Current Chart for February, March and April, which will be found at the end of this number, and the Charts for the Eastern and Middle portions in the January and February numbers, the observations available for the purpose are few in number. The Charts are not based upon sufficient data to be conclusive; but they do give us a very good idea of the Winds and Currents which have been experienced and may therefore be expected again. They serve to stimulate interest and encourage us to do more; Marine Observers to record regularly and carefully what they see, in their logs, and the Marine Division to press on with extraction. The Wind Charts give another proof of the value of the Hollerith Method, and they show the plan and scale upon which we hope in time to Chart all Oceans.

The method of computing the arrows and roses is such that they can be revised when we have sufficient prepared observations to justify revision, without recalculation of the whole. That is to say, the present tabulations may have later tabulations combined with them, which in the case of the Current Charts is an improvement on the old system of arrows drawn by sight from plotted individual observations. These arrows are worked out by traverse, combining all the observations which fall within each square shown on the Chart.

Last July a letter was sent to the Commanders of ships on our list using the South Pacific-Panama route, advising them that this work was being commenced, and asking them to send in remarks giving their generalized experience of current and its vagaries. So that they should have sufficient time for consideration and should see the first quarter's Charts, it was suggested that reply should be made after receipt of this number.

There are probably few Ocean routes outside the regions of floating ice where material advantage can be gained on account of Weather and Currents by seasonal divergence from the direct track by full-powered steamers. By a direct track we mean the shortest navigable route consistent with safe and proper navigation, the Great Circle Track or a combination of Great Circle, and Mercator or Mid-Latitude sailings. But there are exceptions, and one of these is particularly well known, the homeward track from Colombo and the East to Perim across the Arabian Sea, where a divergence to the southward in the S.W. monsoon is recommended. See pages 79 to 81 and accompanying charts, Volume I.

Being familiar with the experience of a good many years navigating this route, when notice was called to certain modifications which might, with advantage, be made in the recommended routes by Captain A. TAYLOR, s.s. *Rotenfels*, in 1920, it was not so difficult to appreciate the need for investigation and indeed to know what to look for in a particular locality regarding current, wind, sea, swell and visibility as it would have been were our only information from logs and reports. The result of the investigation was fruitful, and it led to a modification of the recommended tracks. The views of Commanders here proved invaluable.

The steam route across the South Pacific from and to Panama is comparatively new, and with the exception of those who have continually navigated it since the Panama Canal was opened there are none who know the conditions really well. The information of meteorological conditions published up to the present for this route is probably mainly based upon the observation of sailing ships crossing it on passages round Cape Horn to and from American ports and across the Pacific from America to Australia. Moreover these observations of wind were probably taken only once daily, while the present observations were taken at the end of every watch. Therefore it behoved us at the earliest possible moment to see what could be done with the observations made since the Panama Canal was opened.

In order that this work may be of the greatest value it is essential that Commanders should now send in, not only their remarks upon their general experience of Currents, but their views as to the best routes and whether they find that there are possible advantages to be gained by seasonal change of route and what those changes may be. All who received the letter referred to are now asked to reply as soon as possible, and should there be any Commanders who did not receive it and who have experience of navigating these routes, we hope that they will send in their views. It is in the interest of navigation and meteorology that the individual practical experience

of seamen should be considered with the collective experience which the compiled observations from the logs provide.

The fact that the recommended westward routes and the actual tracks made by Steamers and Motor ships differ from the eastward route is proof of the fact that passages are affected by Weather and Currents. It is too soon to remark upon the general characteristics of the winds and currents which the new Charts show; that can be better done when they are completed, but as an indication that we may expect them to tell us a somewhat different story to the old charts of the South Pacific, one example may be cited.

Comparing the Wind roses on our new chart for March in Latitude 25° to 30° S. Longitude 135° to 145° W. with the old charts, we find that where the old charts indicated winds only from north through east to south the new chart shows winds nearly all round the compass with some frequency from N.W. The new current charts for the first quarter show even greater differences in the arrows compared with the old charts, and they show the variations of set and drift which were previously not given.

The figures indicating the numbers of observations on the charts not only show what reliance may be placed in the arrows and roses, but they also give some idea of where ships are most frequently passing.

To repeat what we said at the time of publication of the Charts giving Currents in the Atlantic on the route from Cape Blanco to the Brazils, Volume II, No. 13:—

"Marine Observers on other Ocean routes will be rewarded for their work in time; meanwhile they may study these Charts with advantage, for though they do not give them the information they desire in daily navigation, it is well to compare the currents on some Ocean routes with those upon others within corresponding belts; for by comparison and enquiry observations may be improved and currents better investigated."

We now have Charted Currents, remarks by Marine Observers and summarizing articles for the Atlantic routes published in the first Four Volumes with which we may compare the currents in the South Pacific, and no doubt we shall all gain by the experience.

We look forward to receiving the remarks of Marine Observers and possibly to summarizing this work in a later number.

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.

SOUTH EQUATORIAL CURRENT.

North Atlantic.

THE following is an extract from the Meteorological Report of S.S. *Socrates*, Captain F. C. TAYLOR, Santos to Barbados. Observer Mr. W. E. JORDAN, 2nd Officer:—

"March 3rd, 4th and 5th, 1927, bound from Santos to Barbados. Within the limits of the Equatorial Current, between the following positions, Latitude 6° 11′ N., Longitude 50° 14′ W., and Latitude 11° 52′ N., Longitude 57° 55′ W., a strong counter current was experienced for two days running north (true) at an average rate of .75 knots. Strong current ripples were observed within the above mentioned limits running in an east and west direction.

"Wind E.N.E.-E. force 5-4-3. Sea disturbance E.N.E., 5-4. At no time whilst within its limits was the Equatorial Current well defined, except from March 2nd to 3rd, between Latitude 3° 17′ N., Longitude 46° 43′ W., and Latitude 6° 11′ N. Longitude 50° 14′ W., when the set was N 59° W (true) 33 miles. The rest of the time it was vague, running anywhere between south and north through west. Its rate ranging from .5 knots to 1.5 knots."

SEA TEMPERATURE AND CURRENT, AND DISCOLOURATION.

Japanese and Chinese Waters.

THE following are extracts from the Meteorological Report of M.V. *Glenamoy*, Captain C. E. HOMAN, Otaru to Manila:—

"Sea temperatures in North Japan Sea were low and fluctuating, between 28° and 34° F. at surface, and between 34° and 37° F. at 18 feet below it. At noon 17th March, 1927, in Latitude 39° 56′ N., Longitude 136° 22′ E., surface temperature rose to 42°, but that at 18 feet below did not coincide until 8 p.m. As logged no current whatsoever was apparent in the vicinity.

"After passing through the Eastern Korean Strait with steady readings of 54° to 58° F. at 8 p.m., 20th March, a decided fall was noted in Latitude 30° 39′ N., Longitude 125° 38′ E., to 48° and 52° F. Four hours later a weak S by W current commenced. At midnight Latitude 27° 30′ N., Longitude 123° 18′ E., a sudden rise occurred 56° to 60°, and at 8 a.m., on the 21st, it reached a maximum of between 59° and 64° in a position about 50 miles E.S.E. of Nam Ki, the favourable current still persisting. Approaching the Formosa Strait the rate of this S.W. current quickened, the temperatures remaining steady at 59° to 60°, but at 8 p.m. on the 21st, off Turnabout Island, a remarkable drop to 50° to 51° occurred. Four hours later a rise to 56° to 60° was noted and then the readings gradually rose to tropical normals. There was no change in rate of current.

Year 1927.	From		To		Position. From		Position. To		Current. Set.	Current. Drift.
Month.	Day.	Time.	Day.	Time.	Latitude. N.	Longitude. E.	Latitude. N.	Longitude. E.	Direction (True).	Nautical Miles.
		a.m.		a.m.						
March	19.	4.28	19.	7.32	34° 24′	129° 52′	33° 59′	129° 20′	S. 50° W.	2·2
„	19,	7.32	20.	Noon	33° 59′	129° 20′	30° 07′	125° 04′	No Current	
„	20.	Noon	21.	Noon	30° 07′	125° 04′	26° 38′	121° 37′	S. 13° W.	7

"At 7.20 p.m., 22nd March, 1927, in a position about 90 miles E.N.E. of Pratas Reef, the weather being cloudy with good visibility, the sea became remarkably discoloured, taking on a uniform milky appearance as far as the horizon all round. The fact that the horizon was clearly definable against the dark masses of cloud with which the sky was overcast suggested a luminous property of the discolouration, but no phosphorescence was apparent in the vessel's wake, only an occasional glowing point in the wash from the bow.

"A vaporous haze was noted, passing in 'whiffs' across the main mast-head light. This could not be accounted for by the motor exhausts, as the wind was practically abeam.

"The phenomenon ceased at 8 p.m. and a fairly definite line of demarcation was observed S.W. and N.E. The temperature of the sea did not fluctuate from 73 degrees.

"Similar conditions were again experienced from 8.30-9.0 p.m. after which no further indications were observed before moonrise."

STRONG INSHORE SET OFF USHANT.

THE following is an extract from the Meteorological Report of S.S. *Cornish City*, Captain R. F. HELLINGS, Rotterdam to Buenos Aires. Observer, Mr. F. WAKEHAM:—

"7th March, 1927, whilst running on a four point bearing of Stiff Point Light-house, Ushant, a strong inshore set was experienced. Time was between two and three hours after High Water at Dover. Distance run on four point bearing was twelve miles by log. Time on bearing 1 hour 15 minutes. Distance off when abeam was 5.26 miles by sextant angle. True course S 50° W. Weather conditions at time, Wind WNW, force 6. Sea confused, disturbance 7. Swell NW, heavy."

DISCOLOURED WATER.

South Pacific.

THE following is an extract from the Meteorological Report of S.S. *Wonganella*, Captain H. SUFFERN, Melbourne to Central Pacific Islands. Observer, Mr. G. F. PHILLIPS, Chief Officer:—

"7th March, 1927, at 1443, Latitude 16° 21′ S., Longitude 159° 36′ E., course N 33° E., speed 10.4 knots. Wind NE by N., force 1. Sea smooth, swell confused, NE-SE., very slight. Barometer 1006.9 mb. Temperature air 87°, sea 86°, 1° increase since 9 a.m. Entered belt of discoloured water lying in ship's course and varying in width from about 50 feet to 150 feet east and west.

"Discolouration lying in parallel streaks, in some places six or eight streaks, in others as many as twenty; separated by 10 feet to 30 feet clear water, the streaks being from one foot to three feet in width.

"At times the streaks were barely visible alongside the ship and at others they showed clearly for 200 yards to 300 yards ahead, then appearing of a dirty yellowish colour.

"Observed close to, on shady side, it appeared to consist of myriads of brownish coloured particles just below the surface and somewhat resembling the dust residue on sea surface after dumping ashes.

"In short, the state of sea surface was that which, in sail, was jestingly referred to as 'whale feed.'

"It ceased to be visible at 1540.

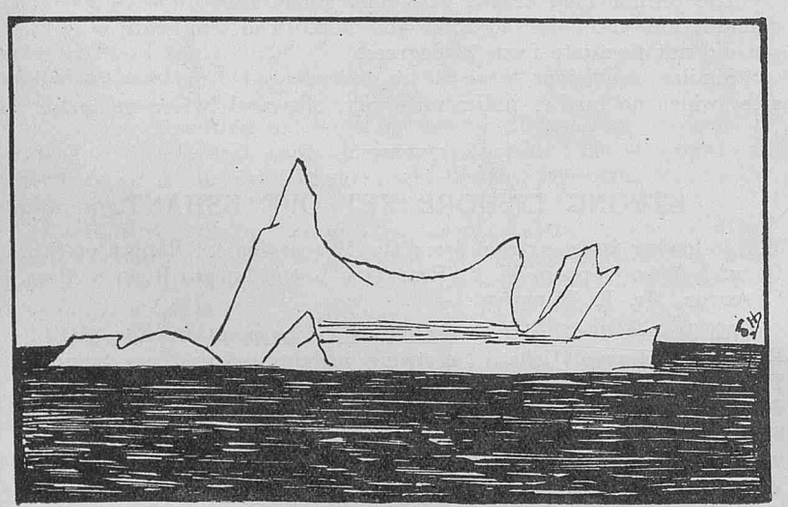
"No current was experienced prior to this time nor for the subsequent 40 hours, while the only weather change occurred at 11 h., when the direction of Cirrus and Ci-St., clouds changed from NE by N., to W., with a ragged windy appearance."

ICE IN THE SOUTHERN OCEAN.

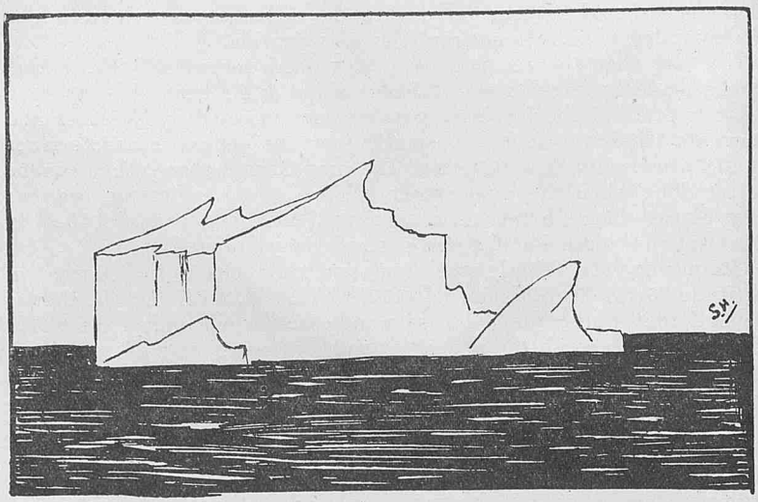
THE following is an extract from the Meteorological Log of S.S. *Port Darwin*, Captain I. R. SAWBRIDGE, London to Melbourne, via Cape of Good Hope, with sketches by Mr. S. HEARN, 3rd Officer:—

"March 6th, 1927, 3.55 p.m. A.T.S., in Latitude 51° 35′ S., Longitude 97° 40′ E., passed a large pinnacled berg distant about 1½ miles (view A). It was measured by the 2nd and 3rd Officers and found to be approximately 1,080 feet long and 285 feet high. A broad band of silt was clearly distinguishable about 100 feet above the water line, proving it to be of glacier origin. Eleven large bergs and numerous small bergs, bergy bits and growlers were sighted between the above position and Latitude 51° 10′ S., Longitude 102° 58′ E. In view of the positions in which these bergs were sighted it seems probable that they were broken off from Shackleton's Tongue. They were all pinnacled bergs. The accompanying sketches may serve to give some idea of the shape of the berg sighted at 3.55 p.m. on March 6th."

March 6th, 1927.



View A.—Bearing S.E. by E. (True). Distance 1·5 miles.



View B.—Bearing S.S.W. (True). Distance 2·5 Miles.

PHOSPHORESCENCE.

East Indies.

THE following is an extract from the Meteorological Report of S.S. *Atreus*, Captain G. H. SALTER, Yokohama to Suez via Manila. Observer, Mr. F. A. BROWN, 3rd Officer:—

"March 28th, 1927, 7.30 p.m., being off Corregidor Island at the entrance to Manila Bay. Ship passed through a large patch of highly phosphorescent water. Temperature of this patch being a little lower than that of surrounding water. Seen from a distance this phenomenon presented the appearance of a long, low lying, sand bank."

AURORA AUSTRALIS.

Southern Ocean.

THE following is an extract from the Meteorological Log of S.S. *Port Darwin*, Captain I. R. SAWBRIDGE, London to Melbourne, via Cape of Good Hope. Observer, Mr. S. HEARN, 3rd Officer:—

"March 5th, 1927, 11.25 p.m., A.T.S., Latitude 51° 54′ S., Longitude 92° 48′ E., course N 88° E., speed 12 knots. Wind W. by S., force 6. Barometer 1004.9 mb. Clouds, Nb/Cu., amount 3. Sea, WSW., disturbance 6. Swell, W.S.W., very heavy. Observed patches of aurora in the sky to the S.E. at an altitude of about 30 degrees. The patches rapidly took the form of rays and streaks and then well defined auroral draperies. The draperies were much better defined along their lower edge, the upper part merging into diffuse auroral light which extended to an altitude of about 70 degrees. At 11.30 p.m,. the phenomena extended over the southern part of the sky from E.S.E. to S.W., the lower edge forming an arc. The light was pale blue and white and the illumination something less than that from the moon in its first quarter. At 11.35 p.m. the draperies had disappeared, but bright rays and patches of aurora, sometimes in rapid motion were visible throughout the middle watch.

"March 9th, 10.37 p.m., observed another similar display of aurora lasting until 11.20 p.m., when the sky became overcast. It may be interesting to note that it was on March 4th, 5th and 6th, 1926, that brilliant auroral displays were observed from the S.S. *Port Darwin*. Position at 1.0 a.m., A.T.S., March 4th, 1926, Latitude 51° 00′ S., Longitude 102° 01′ E."

THE following is an extract from the Meteorological Log of S.S. *Opawa*, Commander F. W. ROBINSON, D.S.O., R.D., R.N.R., Cape Town to Adelaide. Observer, Mr. F. T. RENNY, 3rd Officer:—

"March 26th, 1927, 8.0. p.m. Position, Latitude 39° 38′ S., Longitude 110° 11′ E., course N 84° E, speed 11 knots. After sunset faint auroral glow observed to southward, this increased in brilliance until 10.30 p.m. when rays and streaks of electric blue light became visible between S.S.E. and S.W. by S. extending to a height of 15° above horizon.

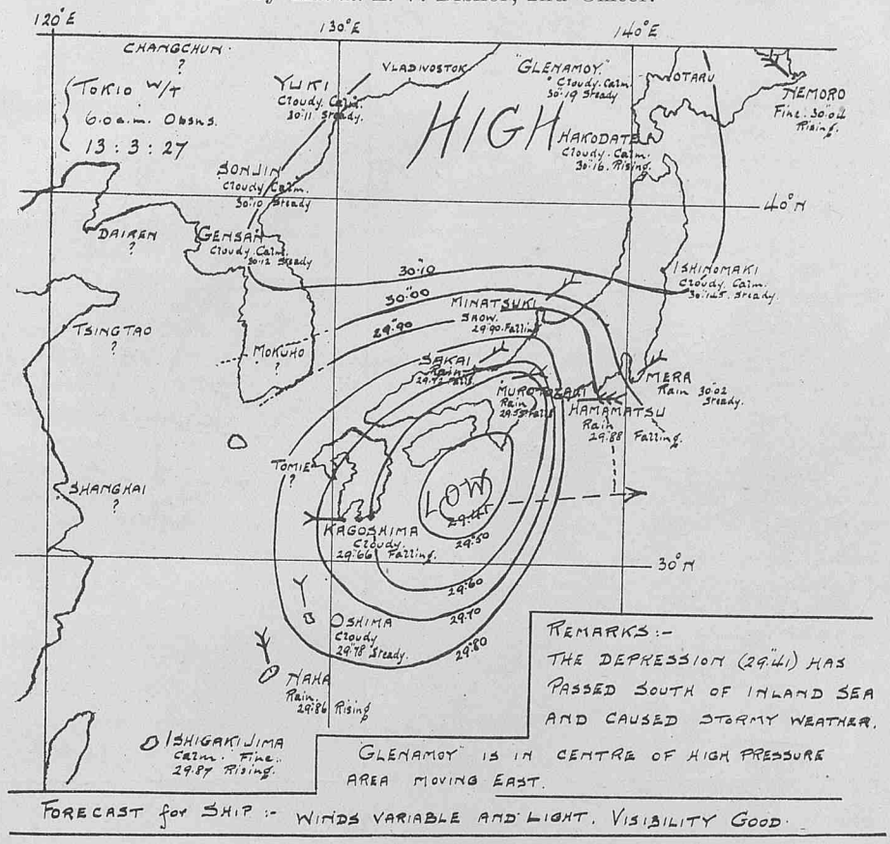
"This continued until 11.10 p.m. when rays and streaks of light faded away, leaving faint auroral glow which lasted until 4.0 a.m. of the 27th.

"Sky at time of display was clear with the exception of bank of Cumulus clouds round S.E. horizon, moon rose above bank of cloud at 11.15 p.m."

WEATHER CHARTS MADE AT SEA.

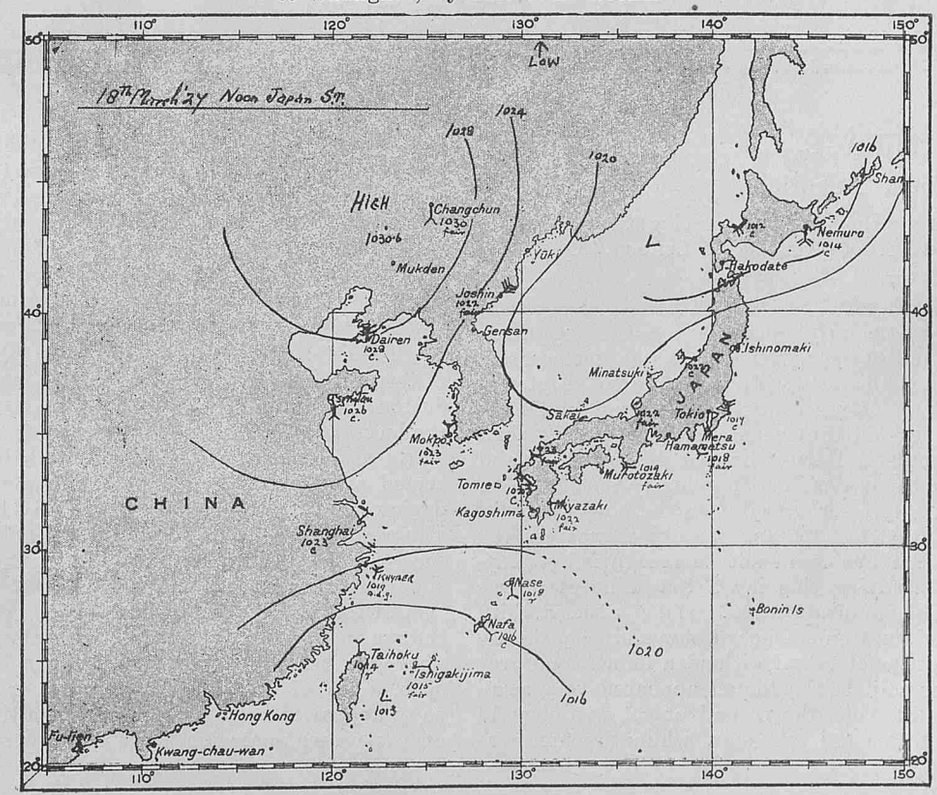
In the Sea of Japan.

Weather Chart made on board M.V. *Glenamoy*, Captain C. E. Homan, Vladivostok to Otaru, on 13th March, 1927, by Mr. R. L. V. Bishop, 2nd Officer.



In the China Sea.

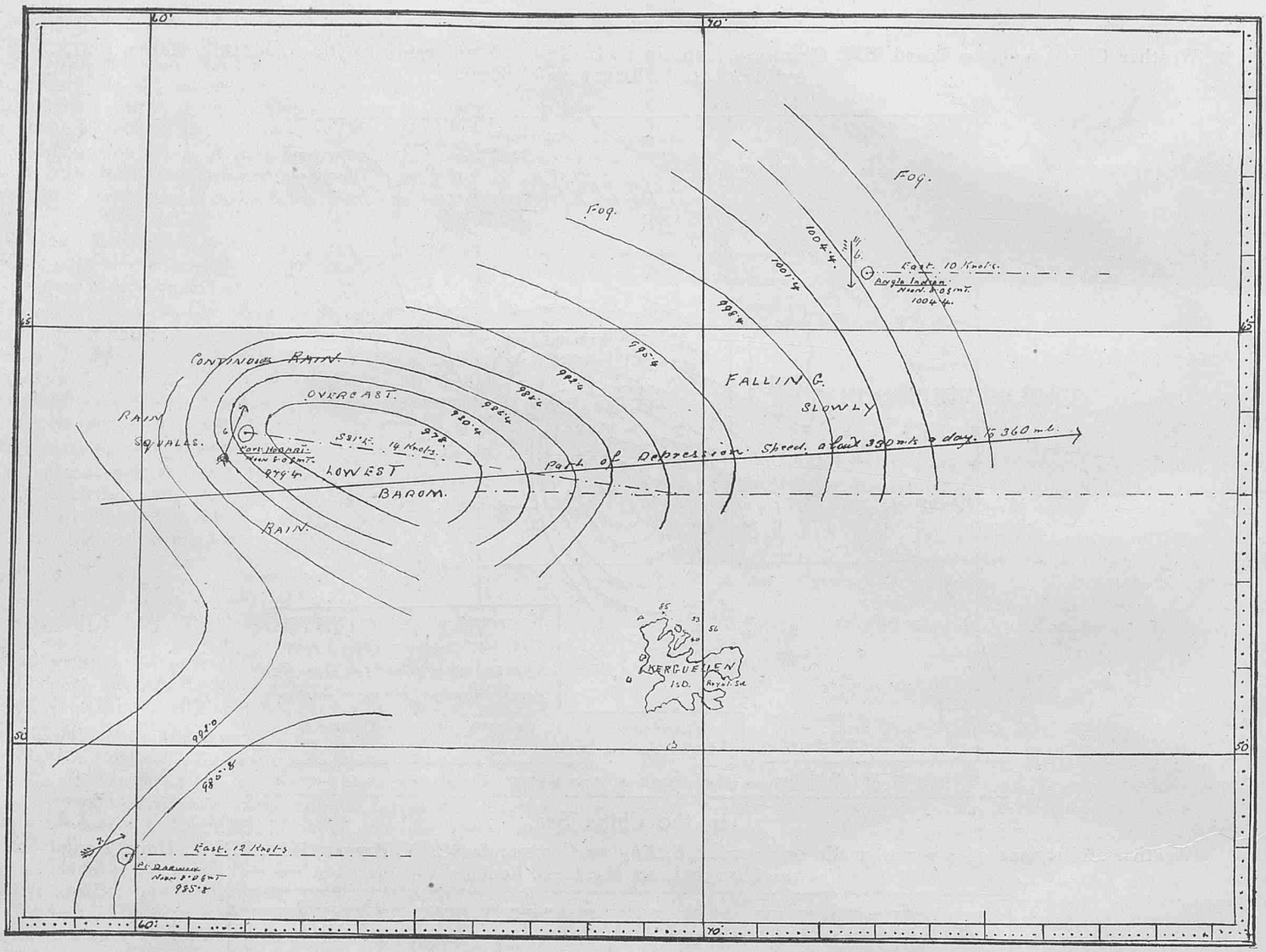
Weather Chart (one of a series) made on board S.S. *Khyber*, Commander C. W. Hester, R.D., R.N.R., Hong Kong to Shanghai, by Mr. C. B. Roche.



WEATHER CHARTS MADE AT SEA—*contd.*

In the Southern Ocean.

Weather Chart (one of a series) made on board S.S. *Port Hobart*, Captain R. CRAVEN, from London *via* Cape of Good Hope, to Melbourne, Australia, on 1st March, 1927, by Mr. L. COPELAND.



MIRAGE.

North Atlantic.

THE following is an extract from the Meteorological Report of S.S. *Tuscania*, Captain R. W. SMART, Halifax to London. Observer, Mr. J. HAMILTON, 2nd Officer:—

"At 10.55 a.m., 13th March, 1927, Latitude 40° N., Longitude 68° W., (approx.) after a particularly dense period the fog lifted leaving scattered banks around horizon. An object was immediately sighted about 2 points on the port bow. It appeared to be of tremendous size, not unlike a cliff of red sandstone, also not unlike an old rusty floating drydock and did not seem to be any more than 3 miles distant. Some few minutes later it became more defined and the funnel of a ship appeared and what had previously seemed to be waves breaking on the 'cliff' were recognisable as the bow wave and stern wash of the vessel. At 11.15 a.m. another object was sighted just before the starboard beam but could not be recognised as anything in particular. After studying this for a few minutes it was noticed that the first vessel had disappeared. 11.30 a.m., a third 'vessel' was then reported a point on starboard bow and very shortly was recognised as a large passenger vessel without a funnel, and grey painted upper works. After a little the funnel appeared very small and painted red and about this time the second object was clear of all distortion and was a five masted schooner, while the first was only picked up by telescope with difficulty, and recognised as a tanker. Not until the passenger vessel was practically abeam and about one mile was she recognised as the *Alaunia* of this company, up to which time her funnel had kept disappearing and reappearing and changing colour frequently and her superstructure appearing greatly distorted. The schooner also appeared very distorted at times and seemed occasionally to have no sails. This state of affairs continued until all the vessels were lost sight of, the weather throughout being calm with smooth sea, blue sky and visibility abnormal."

NOTE.—This type of mirage is often associated with the same conditions that cause sea-fog. Sea-fog is usually, though not invariably, produced by the presence of warm air over cooler water. The fog starts to form by the cooling of the air in contact with the sea. The cooled air is then gradually mixed upwards by eddies, finally producing a layer of foggy air which may be of considerable thickness. The air next the sea will still be the coldest and it therefore follows that the air is warmer with increasing height above the water up to a point depending on the conditions at the time. Thus the production of fog and the production of an inversion of temperature above the sea occur simultaneously. It is the cold dense layer of air just above the sea which gives rise to mirage of the vertical enlargement type, a ray of light from a low altitude being so bent by refraction as to appear to come from a greater altitude. The changes observed on the present occasion, such as objects disappearing and reappear-

ing, would be caused by motion of air of varying densities. On the morning of March 13th a very large anticyclone covered the whole region from the Great Lakes to the Spanish Coast and the direction of the isobars in the western Atlantic was such as to bring warmer air up from a south-easterly direction. At 8 a.m. the sea surface temperature observed by S.S. *Tuscania* was 38° F. and the air temperature was 6° higher.

On pages 73 and 74, Volume II, No. 17, will be found an explanation with diagrams of mirage.

MIRAGE AT NIGHT.

Mediterranean.

THE following is an extract from the Meteorological Report of S.S. *Maloja*, Captain S. C. WARNER, Marseilles to Port Said. Observer, Mr. C. S. COOKE, 3rd Officer:—

"March 20th, 1927, 9.0 p.m. A.T.S., (8.30 p.m. G.M.T.) Latitude 37° 48′ N., Longitude 15° 56′ E., observed reflection of water above the horizon caused by the moon. This appeared as the bright lights of a town and gradually rose in height reaching an altitude of 40 minutes at 9.11 p.m. A.T.S. when it suddenly disappeared. The horizon was clearly defined at the time. Altitude of moon 19° bearing S 67° E. Limits of mirage between S 64½° E. and S 69½° E. Weather clear overhead. Sea smooth. Wind variable. Barometer 30.43 in. Air Temperature 56°.

"During this occurrence no light was visible on the water as is usually the case with a moon, but prior to and immediately after, the water was reflecting as usual from the ship to the horizon. Ship's course at time S 65° E., (True)."

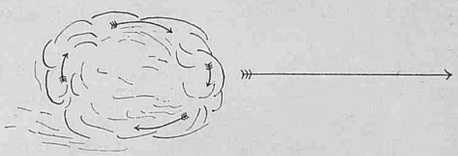
EDDY MOTION IN CUMULUS CLOUD.

North Indian Ocean.

THE following is an extract from the Meteorological Log of S.S. *Actor*, Captain E. HAYLETT, Colombo to Port Sudan. Observer, Mr. G. MORRICE:—

"9th March, 1927, at noon, in Latitude 8° 1½′ N., Longitude 74° 25′ E., wind NE., force 4, a cloud (Cumulus) was observed to be moving from the northward and under the influence of a revolving air current. The cloud appeared to roll. The upper part moving to the southward would swerve quickly downwards and move to the northward then recurving upwards would complete the cycle.

"While this action was taking place, the cloud was breaking up into thin white wisps resembling Cirrus clouds and the whole was moving bodily to the southward where it became vague and indefinable."



WATERSPOUT.

Mediterranean Sea.

THE following is an extract from the Meteorological Report of s.s. *Gloucestershire*, Captain E. ROBIN, Marseilles to Port Said. Observer, Mr. H. J. JARRETT, 3rd Officer:—

"22nd March, 1927, Latitude 35° 47′ N., Longitude 20° 58′ E., at 7.25 a.m., G.M.T. Barometer 1022.7 mb. Air temperature 59°. Sky overcast. Cloud, Cu/Cu-Nb/Nb. Heavy Nb. to southward with vivid lightning. A waterspout formed four points on port bow, approximately E.N.E. 2 miles. The wind veered from N.W., force 2 to north, force 4. The spout then passed rapidly to southward across the bow, and dispersed after being visible for about 12 minutes. The movement was counter-clockwise. Two other spouts were observed on N.E. horizon and one on S.S.W. horizon. They dispersed in about 2 minutes and did not appear to connect with a lower whirl. At 7.50 a.m., G.M.T., the wind fell to a light air and backed to N.W., force 3. The sky clearing from the northward. There was only a slight rainfall"

NAVIGATIONAL INSTRUMENTS.

CAPTAIN H. R. HUGHES, of H.M. Cable Ship, *Iris*, on station in the South Pacific, contributes the following remarks upon his experience with new instruments in response to what was said on page 2 of Volume IV:—

"This vessel is not fitted with the Gyro Compass, but has a Wireless Direction Finder, three BARR and STROUD'S Rangefinders, viz.:—one of 9 feet, 4 feet 6 inches, and 1 metre, and an Electric Submerged Log.

Wireless Direction Finder.

"This is a very valuable aid to navigation, providing the calibration is frequently checked, and carefully recorded with the main wireless aerial connected and disconnected, as we find a large error in this vessel with the main aerial connected, and very little when it is not in circuit with the sending and receiving instruments.

"Providing every care is taken to keep the error small and constant on quadrantal bearings, the bearings in line with the keel or at right angles to it should be nil. Bearings at sunrise or sunset, or those taken in line with the coast cannot be trusted.

"Providing care and judgment is exercised accurate position lines can be obtained, and used in conjunction with stellar observations, soundings, &c., when approaching the land.

Barr and Stroud's Rangefinders.

"The 9 feet latest model is par excellence for coasting and entering port, as the range and true bearing enable positions to be plotted with quickness and precision, to facilitate the work the scale marked in cables and fathoms is the best.

"Very excellent positions can be obtained in misty weather by taking the range of any floating object, and using its water line for the horizon when taking sights. We have obtained very accurate positions with this method used in conjunction with the Wireless Direction Finder and soundings.

"It requires a little practice to use a rangefinder properly in a lively vessel during rough weather, but with practice good results are assured, and it is very satisfactory when the observer becomes expert to find how exactly the position by range and bearing fits in with cross bearings, vertical angles, &c.

Electric Submarine Log.

"Providing this is correctly installed in a line parallel with the keel there is no error, and the actual speed through the water is registered in all weathers down to .1 of a knot.

"We have proved this by observations taken at anchor in a tideway, also when fast to submarine cables.

"This instrument is very strong and compact, is not expensive, and will no doubt be a serious rival to the old fashioned towing logs, as it does not get foul or require any line, and gives accurate speed through the water in any weather and at any time, per medium of a lamp which flashes at every 20th of a mile.

"The interval between flashes recorded by a stop watch is tabulated for reference and attached to the dial.

"One set of observations taken in Auckland Harbour on the ebb tide follows.

"Point to point observations taken with and against the current, and at slack water on the coast proved the log exact, and entirely free from error.

At Buoy Moorings—Devonport, New Zealand.
July 1st, 1927.

Record of observations taken with submerged log.

Time.	*Velocity of Tide in knots.*	*Time.*	*Velocity of Tide in knots.*
A.M.		A.M.	
" 9.50	1·275	10.42	1·145
10.03	1·275	10.45	1·245
10.06	1·340	10.47	1·145
10.08	1·460	10.49	1·130
10.12	1·400	10.51	1·145
10.14	1·250	10.55	1·100
10.16	1·290	10.58	1·050
10.18	1·270	11.00	1·100
10.20	1·440	11.15	1·150
10.22	1·430	11.32	1·000
10.28	1·275	11.45	·955
10.30	1·300	11.59	·955
10.32	1·300	12.15	·955
10.34	1·310	12.35	·750
10.36	1·285	1.00	·500
10.39	1·280	1.30	·200

H.W. at 8.13 a.m. L.W. at 1.46 p.m."

THE USE OF THE DIRECTION FINDING INSTRUMENT AT SEA.

By Mr. C. Mayne, 3rd Officer, S.S. *Barrabool*, Captain H. R. Rhodes.

" The Wireless Direction Finder, as supplied to most modern steamships, obviously leaves room for improvement, but there is no reason why the errors involved should not be reduced to a minimum, and enough confidence established in the instrument, for it to be relied upon in an emergency.

" The instrument in this ship is Type R.A. 59, supplied by the Radio Intercommunication Coy. in January, 1927.

" Every opportunity has been taken of getting D.F. bearings of land stations and comparing results with solar and stellar observations, with very good results.

" On one occasion during the voyage, the instrument was the means of giving an excellent position, making port, and saving many hours delay waiting for daylight.

" The ship was approaching Durban in fine weather, but with the visibility very poor, owing to low lying banks of Stratus cloud, amounting to mist—to northward and westward. Excellent sights were taken at noon, and the resultant position was 29° 40′ S., 32° 35′ E., bearing and distance of Natal Bluff Lighthouse, west 75 miles. A course was set to seven miles north of the lighthouse, and it was expected to be made at about 5.00 p.m.

" As the Agulhas current, setting down the coast, is very variable and subject to great changes, and soundings only extend a short distance off shore, we were fortunate in obtaining observations of the sun at 3.00 p.m. placing the ship about 3′ towards the sun. As the sun was bearing almost west, the position line was practically north and south, and so gave a very good idea of the longitude, but was useless for determining the latitude, as the bearing had very little change between sights and sunset.

" Some anxiety was felt as to how much southerly set would be experienced, as the previous voyage, a set of thirty miles to the southward was encountered, the ship making a point well down the coast, instead of the Bluff as expected.

" At 4.49 p.m. no sign of the land had been observed, and as it was imperative to make a good landfall as soon as possible, in order to pick the pilot up before sunset, no large vessel being taken into the port, except under very favourable conditions—a set of D.F. bearings of Durban W/T Station were taken, the corrected mean of which was 173.4°.

" This bearing was plotted on the chart and crossed with the solar position line of 3.00 p.m. brought up to 4.39 p.m., the time of bearing—with an allowance for current.

" The point of intersection was found to be 20 miles south of the D.R. position, the ship evidently having encountered a southerly set of 4 miles per hour since noon. A course was then set from this position to Natal Bluff Lighthouse, and at 5.21 p.m. the lighthouse was sighted right ahead, the position having been correct. The arrival was made at 5.47, pilot picked up and ship entered, thus saving twelve hours, which would have been spent cruising up and down the coast, until daybreak.

" This is just one of the many cases, in which the Direction Finder proves invaluable in ascertaining the ship's position under conditions unfavourable for astronomical observations, or in cases of thick weather when all landmarks are obscured."

COMMANDER JOHN W. HAGUE, R.N.R.

By one of his Officers.

Early this year, 1927, there retired after nearly half a century of sea-faring, Captain John W. Hague, who was Commodore of the Union-Castle Line, and commanded their large new Motor Liner *Carnarvon Castle*. He was many years in command in the Union-Castle Line and has long been actively interested in Marine Meteorology, having contributed logs and forms since as far back as 1892.

In 1878, when a lad of 16, J. W. Hague joined as an apprentice the wooden barque *Louisa Malcombe*, 750 tons, owned by John Ransom, of Southampton, in whose employ he made several deep water voyages and on finishing his time passed for 2nd Mate.

He sailed again under the same house flag as 2nd Mate of the barque *Hawthorn*.

Later, after obtaining his Mate's " ticket " and putting in a year or two as 2nd Mate and Mate in steam, he passed for Master and, joining the Union S.S. Co., Ltd., in 1885 was appointed 4th Officer of the R.M.S. *Trojan* on the South African Mail Service.

Four years later he was Chief Officer and in 1896 was appointed Master of the S.S. *Pretoria*, his first command, since when he has commanded twenty-five of the Company's ships, becoming Commodore of the line in 1923 when in Command of the R.M.S. *Arundel Castle*.

During the Great War, Captain Hague commanded the *Carisbrook Castle*, then a hospital ship, on the cross Channel service, the *Norman* and the *Walmer Castle*, ships employed as troopships, and which in 1918 carried large numbers of United States troops to Europe.

As this will be read mainly by merchant sailors it is unnecessary to say more about those " bad old days " of the war, as all will realise the arduous work, anxiety, and heavy responsibility that were the lot of those in command of ships, especially big ships.

The strain of those four years of war told on his health, and shortly before the Armistice he was landed sick in New York, but thanks to a splendid constitution he made a good recovery.

Genuinely fond of the sea and ships Captain Hague always shows the keenest interest in all the new " gadgets " and developments of the sailor's trade, the evolution of which, from the time he first went to sea, 49 years ago, to the date of his recent retirement must have been remarkable.

When afloat he was always much liked and respected by passengers and crew, and the writer counts himself lucky to have served under Captain Hague's command for about two years. Whilst it may not convey much to land-lubbers, to the " Cloth," the fact that the sailors and firemen (who can certainly never be accused of " gushing ") refer to him as " Gentleman John," speaks for itself. May he long enjoy his well-earned retirement.

C. H. W.

The Master of the *Carnarvon Castle*. 1926–27.

COMMANDER J. W. HAGUE, R.N.R.

WEATHER LORE.

Home Waters.

Prepared in The Marine Division by W. G. Williams, Clerical Assistant.

The first records of weather observations amongst most nations of the world are found in myths or popular tales which describe rain, cloud, wind and other natural phenomena in highly figurative language and assign their appearance to some super-natural or personal agency. Their value lies solely in the fact that they describe the climate of the country where they originated. Some of the names then given, especially for the clouds, such as "Goat's Hair," "Wool Bags," and "Mare's Tails," are still to be found in some popular prognostics.

At a later period the majority of the known signs of good or bad weather were incorporated in short sayings or popular prognostics. Some prognostics stated that changes in the weather were due to the influence of the stars or the phases of the moon, but a very large number were the results of very careful observations during changing weather conditions. It is this last class of prognostics that has proved valuable as an aid to weather forecasting. Seamen have contributed the most accurate observations to this last class. The weather meant so much to them that they became keen observers of its behaviour and were continually on the look-out for any signs in the heavens which would enable them to prepare for any coming change.

As no explanation could be given when some of the prognostics failed such as when the same kind of weather was not always preceded by the same signs, forecasting by means of prognostics did not make much progress.

Following the invention of the barometer in 1643, it was found that, in a general way, the mercury rose for finer weather and fell before wind and rain. Also that bad weather mostly prevailed when the general level of the barometer was low, independent of the movement of the mercury either way, than when the level was high. However, as with prognostics so with these indications, many failures occurred as when rain would sometimes fall with a high or rising barometer or when there be a fine day with a low or falling barometer and the whole science of barometric readings was but imperfectly understood.

It was only after synoptic charts, incorporating weather data from a large number of places, had been constructed for several years that the relationship which existed between atmospheric pressure and the direction and the force of the wind was revealed.

In temperate regions it was found that the broad features of weather depend upon the shape of the isobars and that practically all prognostics have a fixed place in some shape of isobars and so could be accounted for.

The seven fundamental shapes of isobars are, Cyclone, Secondary, Wedge, V-depression, Col, Straight Isobars and Anticyclone.

The prognostics that follow will be given under the weather system to which they generally refer.

Cyclone Prognostics.

In the February, 1927, number of this Journal, pages 27 to 29, a cyclone and secondary are fully explained so no details of weather accompanying them are necessary in this article.

Amongst the first indications of a coming change in the weather is the appearance of a halo round the sun or moon.

"Far burr (or halo), near rain." The farther the halo appears from the moon, the nearer at hand is the coming rain.

"Mock suns predict a more or less certain change of weather." A halo is the direct result from the reflection and refraction of light on small ice particles of Cirrus, or other high clouds and is of value since it indicates the presence of clouds of the Cirrus type which usually precede a storm.

"If Cirrus clouds form in fine weather with a falling barometer, almost sure to rain."

"When Cirrus merge into Cirro-Stratus and when Cumulus increase towards the evening and become lower, expect wet weather."

The late Admiral FitzRoy, who was responsible for a very large number of prognostics, summed up his observations of the approach of bad weather as follows:—"After fine clear weather the first signs in the sky of a coming change are usually light streaks, curls, wisps, or mottled patches of white distant clouds which increase and are followed by an overcasting murky vapour that grows into cloudiness. Usually the higher and more distant such clouds seem to be, the more gradual but general the coming change of weather will prove."

The following prognostics are also connected with the approach of a cyclone and often prove correct:—

"Mackerel scales, furl your sails."
"Mackerel scales, and mare's tails,
Make lofty ships carry low sails."

Following the halo comes a pale or watery sun or moon. "When the sun appears of a light pale colour, or goes down into a bank of clouds, it indicates the approach or continuance of bad weather." The reason why halo, watery or pale sun or moon are rain prognostics is that after the extreme front of a cyclone has passed over, the rainy portion has to follow before fine weather is again experienced. Should the cyclone alter its course so that the storm does not continue along the expected path, then the halo prognostics would appear to fail as the weather experienced would be simply that of the outskirts of the storm.

The barometer falls in the front of a cylone and so predicts bad weather; but the strength and duration of the storm has been observed by seamen to be very well indicated by the manner in which the barometer falls. "Long foretold, long last; short notice, soon past."

An approaching cyclone is generally preceded by a rise in temperature and increased humidity. Sailors note the tautning of running rigging as a sign of coming rain.

Other well known signs of a change in the weather are "if, during the absence of wind, the surface of the sea becomes agitated by a long rolling swell, a gale may be expected." According to FitzRoy "just before a storm the sea heaves and sighs."

The appearance of a rainbow also predicts unsettled weather as "rainbow to windward, foul fall the day."

"A weather-gall at morn, fine weather all gone;
A rainbow towards night, fair weather in sight."
"Rainbow at night, sailor's delight;
Rainbow in morning, sailor's warning."

The general track of cyclonic systems being from west to east in the southern semi-circle of the system, a rainbow in the morning indicates that the shower is west of the observer and that he will experience it. A rainbow in the evening shows that the shower is to the east and passing away. It is also stated that "when the stars want snuffing, bad weather may be expected." The apparent twinkling of the stars is the result of the refraction of the light as it passes through layers of air, which are mixing, of different temperatures, a process which frequently results in rain.

As the centre is approached the wind increases in force and driving rain is experienced. Then the line of the trough is reached and its passage is associated with a squall or heavy shower commonly known as a "clearing shower." The wind shifts and the barometer then rises as the centre has passed and squalls are characteristic of the rear of a cyclone. Hence the truth of the following: "First rise after low, foretells stronger blow." "When rise begins after low, squalls expect and clear blow." "When the rain comes before the wind, halyards, sheets and braces mind," or "When the rain's before the wind, your topsail halyards you must mind"—halyards for sudden increase of the wind and braces for sudden shift of the wind.

The mugginess, characteristic of the storm centre, has passed and the air becomes cooler and patches of blue sky appear; weather is improving. "When as much blue is seen in the sky as will make a Dutchman's jacket (or a sailor's breeches) the weather may be expected to clear up." Seamen regarded a small cloudless place in the north-east horizon as a certain precursor of fine weather or a clearing up.

In northern Europe, cyclones rarely pass so far to the south so as to experience a "backing" of the wind, but when they do they

are usually followed by a cyclone moving further north which brings bad weather and a complete shift of the wind. Hence the accuracy of the following prognostic—" When the wind veers (here means 'shifts') against the sun, trust it not for back 'twill run."

Wedge-shaped Isobar Prognostics.

A wedge is a projecting area of high pressure moving along with, but between, two areas of low pressure, an illustration of which appears on page 28, of the February, 1927, number of this Journal.

Under wedge shaped isobar conditions, Cirrus stripes and halos appear soon after the first cyclone has passed and indicate the approach of the second cyclone before the barometer has ceased to rise after the passage of the first depression. This is an instance where the barometer *appears* to fail as it continues to rise independent of the approaching cyclone.

In the rear of the retreating cyclone the air is dry and the weather exceptionally fine frequently described as " too fine to last," or if it has remained fine for a whole day, known as a " pet day." The sun is also very hot—" When the sun burns more than usual, rain may be expected."

As the result of radiation in calm weather, white frost is formed during the night. " Frost suddenly following heavy rain, seldom lasts long." As the day advances, after a white frost, the air becomes muggy from the influence of the advancing cyclone. Hence the saying " When the frost gets into the air, it will rain." There is often exceptional visibility during the fine weather on the east side of the wedge. " The further the sight, the nearer the rain " is true because of the cyclone which follows up the wedge. In the N.W. edge of a cyclone there is a kind of " refraction "—a well known sign of rain. It is due to the temperature of the air in the rear of the cyclone being much lower than that of the sea. Such being the case it is a sign of rain as one cyclone is usually soon followed by another. As the advancing cyclone approaches, the sky in the rear of the wedge becomes cloudy, a halo appears, and rain soon falls. In the southern portion, rain is often preceded by strips of Cirrus lying either in the direction of the wind or at right angles to it. Hence the truth of the following: " Cirrus at right angles to the wind is a sign of rain." It is generally the case that when the retreating cyclone has produced a N.W. gale, the advancing one brings on a S.W. one. Hence the significance of the well-known saying " A nor' wester is not long in debt to a sou' wester."

Straight Isobar Prognostics.

The rain prognostics dealing with a cyclone are associated with a calm and a dirty, murky sky, whilst those relating to straight isobars are characterised by a hard sky and blustery wind. Thus it would be remarked that " the wind keeps down the rain " or " that when the wind falls, it will rain." Those prognostics which precede cyclones are generally correct as they are seen in front of the depression. Those associated with straight isobars usually hold good because, though there is but little rain with them, the area covered by them on one day will, in all probability, be covered the following day by a cyclone, as straight isobaric conditions prove suitable for the passages of cyclones.

Under straight isobaric conditions (for diagram see page 28, February, 1927, Number), feathery Cirrus, or some form of windy sky, makes its appearance together with a blustery wind. " If clouds look as if scratched by a hen, get ready to reef your topsails then," is true as it refers to the cyclone that usually follows.

Another characteristic of these conditions is that a hard St-Cu covers the sky, at first with chinks between its masses through which the sun's rays stream down, known as " the sun drawing water " or " setting up his back stays." The visibility is often good although the sky is hard-looking and overcast. The air is moderately dry but distant objects are frequently obliterated when the sun pierces through the gaps in the Stratus.

Marked audibility is also found under straight isobar conditions and, together with the visibility already described, is a sign of rain owing to the fact that the conditions are favourable for the passage of depressions.

" A good hearing day is a sign of wet " or " Much sound in the air is a sign of rain."

" Sound travelling far and wide,
A stormy day will betide."

All prognostics associated with straight isobars fail when there has been a re-distribution of pressure over the area and the cyclone has either altered its course or dispersed.

Anticyclone Prognostics.

The changes of weather in anticyclones are the direct results of diurnal variations rather than the movement of the entire system as in a cyclone.

In winter, frost occurs in the centre of an anticyclone together with fog. Both are due to the radiation of calm weather. " White mist in winter indicates frost " and " Dew is an indication of fine weather." " Heavy dews," so an old prognostic states, " in hot weather indicate a continuance of fair weather, and no dew after a hot day foretells rain."

The wind is generally very light in force as the isobars are usually far apart and " It is a sign of continued fine weather when the wind changes during the day so as to follow the sun." This " veering with the sun " as it is called is the ordinary diurnal variation of the wind which is apparent only when the gradients are very shallow. It is only in anticyclones that local air currents—the land and sea breezes of summer—can over-ride the general circulation of the atmosphere of a country such as Britain.

In winter, on the southern side of an anticyclone, bitter easterly winds with a black-looking sky will prevail for several days. " When the wind is in the east, it is neither good for man nor beast."

The late Admiral FITZROY formed the following rule: " If the wind is north-east, three days without rain, eight days will pass before south again."

Fine, bright weather, which usually accompanies an anticyclone in summer, exerts an enlivening influence on animals and birds as well as human beings. Hence the saying—" When sea-birds fly out early and far to seaward, moderate winds and fair weather may be expected."

In summer also, light Cumulus clouds form during the day and continue to grow larger until the highest day temperature is reached when they decrease in size and disappear during the evening. Hence the following sayings " Clouds small and round like a dapple grey with a north wind—fair weather for two or three days." " When the Cumulus clouds are smaller at sunset than they were at noon, expect fair weather." " If woollen fleeces spread the heavenly way, be sure no rain disturbs the summer day."

Cirrus clouds appear on the outskirts of an anticyclone. When they appear in the front, they will eventually disperse. " If Cirrus clouds dissolve and appear to vanish, it is an indication of fine weather." However, when Cirrus clouds appear in the rear of an anticyclone they do not disappear but increase and come lower. The following prognostics, relating to the rear of an anticyclone, indicate the approach of a cyclone and the breaking up of the anticyclone: " If Cirrus clouds form in fine weather with a falling barometer, it is almost sure to rain." " When after a clear frost, long streaks of Cirrus are seen with their ends bending towards each other as they recede from the zenith, and when they point to the north-east, a thaw and a south-west wind may be expected."

NOTE.—Plates produced by Lithographic process, including Charts and other large diagrams, will be found in each number after "Weather Signals."

LOCAL WINDS.—INDIAN OCEAN.

II. Red Sea, Arabian Coast and Persian Gulf.

Red Sea.

From its geographical configuration, the Red Sea has only two general winds, those blowing up and down it.

In the northern part, from Suez to Port Sudan, northerly to north-westerly winds generally prevail throughout the year; and during June to September inclusive (when the S.W. monsoon is blowing in the Arabian Sea) they blow with scarcely any interruption. From December to March these N.W'ly. winds are very strong, and there are occasional moderate southerly gales, heralded by a falling barometer and damp weather. At this time of year also, westerly gales occur in the Gulf of Suez and as far south as Daedalus reef, accompanied at times by dense dust fogs, while on the Arabian Coast near Jidda there are sometimes violent N.E'ly. winds.

Throughout the Gulf of Suez a hazy horizon is generally a sign of wind, but does not always precede it. The same applies if white fleecy clouds are observed, from the entrance of Jubal Strait, on the summits of Mount Tor or Sinai.

During June to September land and sea breezes are common near the shore throughout the Red Sea, especially in the southern portion, the sea breezes sometimes being of considerable strength.

In the southern portion of the Red Sea, south to S.E'ly. winds prevail from October to May, but more especially from November to April when the north-east monsoon is blowing in the Arabian Sea. This S.E'ly. wind is the north-east monsoon, deflected clockwise, and on approaching the narrow strait of Bab el Mandeb attains a considerable force. On the Arabian Coast the force of the wind is apparently greater than on the Abyssinian Coast.

In June N.W'ly. winds set in, but seldom become strong. During August and September they are light and variable, and are frequently replaced by southerly winds and lengthy spells of calm.

Gulf of Aden.

In the Gulf of Aden between the meridians of Ras Asir and Bab el Mandeb, the winds during the south-west monsoon season are very variable, and as a general rule are stronger by day than by night. In April and May, before the monsoon has regularly set in, they vary from E.N.E. to S.E. and south, usually with clear weather, though hazy weather is sometimes experienced. In the vicinity of the coast, land breezes are often felt between 4 a.m. and 8 a.m.

June is an unsettled month, with the wind variable and the weather uncertain, at times clear but generally hazy. From the middle of June until August, along the African Coast between Bab el Mandeb and Burnt Island, strong W'ly. to S.W'ly. winds prevail. There are also moderate S'ly. winds during these months over the Gulf, which blow only during the day, falling away to light airs at night. On the Arabian Coast, after the S'ly. wind fails in the evening severe land squalls are not infrequent, warning of their approach being given by the formation of a thick bank of dust haze, especially where the coast is low.

On the African Coast, westward from Cape Guardafui, during this season, violent land squalls from the S.S.W. are sometimes experienced. These usually occur between midnight and 4 a.m., last about an hour, and are frequently followed by calms or moderate W'ly. to W.S.W'ly. breezes. These squalls are always very hot, and therefore extremely unpleasant.

In September the W'ly. winds cease and light variable winds prevail, with land and sea breezes on the coast west of Cape Guardafui, which continue into October.

Early in November the north-east monsoon commences to blow in the Gulf of Aden, and continues until March, the wind being steadier and the weather more settled than during the south-west monsoon. The wind blows from E.N.E. to east, changing to S.E. and becoming stronger near the entrance to the Red Sea. During December and January, it frequently reaches the force of a moderate gale, and may be accompanied by heavy rain. During this monsoon season, the weather is usually fine and agreeable.

A local wind, known as the "Khamsin," blows on the Arabian Coast during the south-west monsoon season, without giving any warning by barometer or weather signs. It blows violently about three or four times a season. Usually the monsoon dies down, and the wind comes suddenly and with great violence from north (at Aden from N.W. or N.E.), raising great clouds of reddish coloured sand, with much lightning, but no thunder, the barometer rising quickly about 4 mb. (.12 in.). The blow lasts three or four hours, and occasionally comes on again from east, the barometer rising and falling with the wind.

An account with sketch of one of these sand storms experienced near Aden in S.S. *Macedonia*, Commander H. W. Potter, R.D., R.N.R., observing Officer, Mr. F. W. Spurr, in September 1926 was given in "The Marine Observer's Log" in the September 1927 number of this Journal.

Towards the end of the south-west monsoon, northerly squalls occur near Aden. These differ from the "Khamsin" for though accompanied by thick weather, they carry no sand, are less violent, and the barometer does not rise.

Cyclones in the Gulf of Aden are of very rare occurrence.

South-East Coast of Arabia.

On this Coast, between Ras Kosair and Ras al Hadd the south-west monsoon begins to blow in May and persists until the end of August, but is not so strong here as in other zones of the Arabian Sea. The weather is usually hazy, but with a clear sky. In the vicinity of Khorya Morya Bay, the monsoon sets in with heavy squalls, with rain and thunderstorms.

The monsoon blows with its full force from June until the end of August, being strongest, and with the heaviest seas, between Ras Merbat and Masira Island. In September the monsoon declines to a moderate breeze from between south and west and in October light variable breezes and calms prevail, with sometimes land and sea breezes near the coast.

During November, between Masira Island and Ras al Hadd, land and sea breezes alternate, the land breeze being usually light and of short duration; the sea breeze coming from S.S.E. to S.E. Westward and southward of Masira land breezes are rare. A strong N.E'ly. wind is not unusual about this period, and gives rise to short choppy seas.

From December to the middle of March the north-east monsoon blows all along this coast, varying in direction with the coast line. At a distance from the coast, its direction is from between N.E. and East, or a little southward of east, with clear pleasant weather free from squalls and rain; but near the coast the weathy is hazy, and in the region of Masira Bay fog is frequently experienced.

About the Gulf of Masira, S.E'ly. winds are frequent in February and March; while fresh S'ly. winds occasionally blow, lasting two or three days. From the middle of March to the end of April, the winds along the whole coast are light and variable, and close inshore land and sea breezes blow alternately.

From the middle of December to the middle of March a land wind, called by the natives the "Belat," blows at times between Ras Sajar and Masira Island, its frequency and strength varying from season to season. The "Belat" is a strong north to N.N.W. wind, lasting from one to three days, at times even for seven days. Its approach is generally indicated by a faint hazy arch over the land the previous evening, or by the wind shifting towards the land, sometimes in sudden gusts, early in the night. The "Belat" usually commences between midnight and 4 a.m. with a light breeze, which increases to a moderate gale in about an hour. It is frequently associated with a dense sand storm, especially near the land, presenting all the appearance of a thunderstorm, but with the clouds of a dark red colour. The atmosphere is always hazy during the continuance of the "Belat." The wind blows strongest on the days following its commencement, between 9 p.m. and 9 a.m., and the "Belat" usually ceases about noon, as suddenly as it commenced, and is often succeeded by strong S.E'ly. winds, causing a considerable swell along the coast.

The squalls sometimes experienced during a "Belat" are dangerous to sailing vessels close inshore; as during the night the "Belat" occasionally dies away to a calm, remaining so for about

an hour, and followed, without warning, by violent squalls blowing down from the mountains at intervals of a few minutes, and continuing for five or six hours.

Persian Gulf.

The winds of the Persian Gulf, as in most inland seas, are very variable, and the usual signs of approaching changes in wind and weather are frequently lacking.

The prevailing wind throughout the year is the N.W. wind, called by the natives "Shamál." The direction of this wind mainly follows the trend of the coast, and thus becomes westerly or south-westerly inside the entrance to the Gulf. It veers a few points during the 24 hours, blowing more off the Persian Coast at night, and more from the sea by day.

In the northern half of the Persian Gulf, the "Shamál" blows regularly for nine months of the year, February to October. It is almost incessant during June and part of July (called the "Barih" or great shamál) and then reaches the force of a moderate gale. Its general duration is three days, but sometimes it may persist for seven days.

During a shamál the air is generally very dry, and the sky cloudless; but the weather is usually very thick owing to the masses of dust from the deserts of Mesopotamia, which obscure the land at very short distances. On the Shatt al Arab this dust is at times so thick that neither bank is visible from the middle of the river.

The shamál always blows with its greatest force at the outset, and does not always extend over the whole Gulf; it also often lulls for a short time about dawn. During the summer months, it seldom exceeds force 7, but in winter it often reaches force 8 and sometimes force 9, and at this season may be accompanied by rain squalls and often with thunder and lightning.

The readings of the barometer do not, as a rule, give any warning of the approach of a shamál. If the barometer is relatively low, it will begin to rise as soon as the shamál sets in, but not sooner; and will continue high during the storm. Sometimes the barometer is not affected either before, during, or after a shamál. The approach of some of the severest winter shamáls, which often spring up in fine weather, is heralded a few hours previously by a thick cloud bank to the N.W., which rolls down and veils everything in a haze, though this sometimes occurs without any storm following.

An account of a shamál experienced by H.M.S. *Crocus*, Lieutenant-Commander H. T. Baillie Grohman, O.B.E., D.S.O., R.N., between January 17th and 19th, 1923, just inside the entrance to the Persian Gulf, was given in the January, 1924, Number of this Journal. During the squalls, the force of the wind reached 10, with torrential rain and very heavy lightning.

During the winter S.E'ly. winds, known as "Kaus" or "Sharki," alternate with the N.W'ly. winds. Like the latter they follow the trend of the coast to a certain extent, but do not attain any great force, except between December and April, when they generally reach force 7, and sometimes force 8 or 9. Usually the "Kaus" is accompanied by thick weather and squalls, at times too by persistent rain and thunderstorms.

The air is very damp and the barometer low; hence a falling barometer and the clouding over of the previously clear sky may be taken as signs of an approaching "Kaus."

When the wind veers to south, the "Kaus" may be regarded as nearly blown out; and then sometimes the wind may suddenly veer to N.W., and a strong shamál follow.

In winter also, particularly in the southern part of the Gulf, strong N.E'ly. winds, called "Nashi," are experienced, which may last up to five days, blowing in gusts with frequent lulls. They are accompanied by cloudy weather, and as a rule, also by rain. During these winds, the barometer is usually high, and only begins to fall slightly after the wind has died away. The air is frequently thick before a "Nashi," due to the dust blown off the land, but it becomes clearer as the "Nashi" continues, probably owing to the fall of rain over the land.

Another local wind is the "Suhaili" which blows from the south-west. It occurs only in winter, and then infrequently, over the whole of the Persian Gulf. The "Suhaili" sometimes follows a "Kaus," and is preceded by masses of clouds rising from the south; it lasts generally only a few hours, and is accompanied by rain and thunderstorms.

Heavy squalls from various directions, called "Laheimar" by the natives, make their appearance at the change of the seasons, particularly between October 15th, and November 5th. If no squalls have occurred before November 5th, it is considered locally that there will be none until the commencement of the ordinary bad winter weather. The air is very clear during these squalls, but is unusually electric, St. Elmo's Fires being often observed on board ship at this season.

Violent squalls from the northward are also experienced in Basidu roadstead in May, and S.E'ly. squalls in July; while occasionally a succession of squalls alternate from opposite quarters, each lasting only a few minutes.

In general land and sea breezes in the Gulf are slight and uncertain. In fine settled weather, decided land breezes are experienced, but only close inshore; they usually set in, after a short calm, about sunset, freshening towards midnight, and dying away at sunrise. Sea breezes usually set in about mid-day, or a little later. In summer in the neighbourhood of Bushire, when there is no shamál, the sea breezes are strongest and the most constant, setting in at 9 a.m.; while the land breeze is slight and of short duration. On the other hand at Basidu, the land breeze is strong and persists until 10 a.m.

Gulf of Oman.

The south-west monsoon is not felt inside Ras al Hadd, and during that season light variable winds prevail westward of a line between Ras al Hadd and Cape Jask. Eastward of this line, light south-easterly winds are experienced, with frequent calms. Shamáls rarely occur.

During the north-east monsoon, shamáls and nashis prevail, but calms are frequent and sometimes last for days. The nashi blows very hard in the Gulf. The "Suhaili" occurs infrequently but is especially felt off Ras al Kuh.

(To be continued.)

WEATHER CHARTS, WESTERN NORTH ATLANTIC, MARCH 23RD TO 26TH, 1927.

PREPARED IN THE MARINE DIVISION BY J. HENNESSY, SENIOR NAUTICAL ASSISTANT.

These weather charts are constructed from observations of ships, recorded in Meteorological Logs and Reports, Form 911, and from coast observations obtained from the U.S.A. Daily Weather Map. They will be of interest to those Marine Observers who are making a study and practice of Wireless and Weather an Aid to Navigation.

Full particulars of the Arlington Weather Bulletin will be found in the August, 1927, Number of THE MARINE OBSERVER under "Weather Signals."

CHART V FOR MORNING OF MARCH 23RD, 1927.—An area of low pressure is seen to be situated S.E. of Cape Hatteras while a High extends over the north-eastern states.

Reventazon, Captain D. A. JACK, steaming N 52° E., 11 knots, is experiencing a strong NE by E. wind with a slowly rising barometer, while *Dunrobin*, Captain J. D. RAMSAY, steering N 27° W., 11 knots, has a light SSW breeze and a slowly falling glass. The barometric tendency at Cape Hatteras is steady and at Charleston rising slowly. These tendencies indicate that the depression is moving in a N E'ly. direction at a rate greater than *Reventazon's* speed.

CHART VI FOR MORNING OF MARCH 24TH, 1927.—This chart shows the depression to contain two centres, the low influencing *Reventazon's* weather is now seen to be moving N.E. *Reventazon* maintaining her position to the left of centre has experienced wind steady in direction, but increasing in force, her barometer rising quickly as the depression moves away from her.

At 0300 *Dunrobin* steaming N 32° W., 8 knots, experienced a shift of wind to the NW as she moved across the rear of the depression as it advanced N.E. At 0700 she came under the influence of the rear centre when her wind veered to ENE. and increased gradually to force 6, her barometer commencing to fall.

CHART VII FOR THE MORNING OF MARCH 25TH.—The two centres have now coalesced and continuing to move in a north-easterly direction have deepened considerably. *Reventazon* during the past twenty-four hours, steaming N 77° E., 8 knots, has crossed the depression's track and is now situated east of centre. Her barometer is falling rapidly and as the depression moves N.E. the wind will gradually veer to the south and increase to gale force.

At 1800 the previous day, *Dunrobin*, situated west of centre, and steering N 74° W., experienced a shift of wind to the NNE. gradually increasing in strength to force 9. As her course is taking her further away from centre and the depression itself is moving NE. her glass will commence to rise and her wind will back and decrease in force.

CHART VIII FOR THE EVENING OF MARCH 25TH shows the depression to have continued moving in a N E'ly. direction at about 15 knots.

Reventazon steaming N 74° E., 12 knots, now situated S.E. of centre has a steady barometer with a strong gale blowing from south. As the depression advances the trough will pass *Reventazon* when her barometer will commence to rise, the wind veer and decrease in strength, but as the track of the depression and *Reventazon's* course are only slightly divergent, improvement in weather conditions will be slow.

Dunrobin is now situated in the outer field of the storm and as her course and that of the depression are in nearly opposite directions her weather conditions will continue to improve rapidly.

CHART IX FOR THE MORNING OF MARCH 26TH.—The depression continues to advance in a north-easterly direction. *Reventazon* now in rear of trough is experiencing the wind from west, force 8, but with a quickly rising barometer may expect the weather to gradually improve as the depression draws away from her.

WEATHER SIGNALS.

II.—WIRELESS WEATHER SIGNALS.

WIRELESS WEATHER BULLETINS.

The Key and Decode Tables of the International Weather Telegraphy Code will be found on pages 20 to 23 of Volume V No. 49. (The January, 1928, Number.)

The method of decoding station weather reports made in code was described in the British "Weather Shipping" Bulletin, on pages 37 and 38 of Volume V No. 50. (The February, 1928, Number.)

The same method of decoding weather reports applies in all cases where the International Code is used.

The letters given in the descriptions which follow give the key to the tables for decoding the figures.

Where *other* than International code tables are used they are published along with the signals described and an explanation is given.

SWEDEN.

North Sea and Baltic (C.W. Issues).

Karlsborg W/T station, Latitude 58° 29′ N., Longitude 14° 29′ E. (approx.), call sign **SAJ**, broadcasts weather bulletins for shipping as follows:—

at 1050 G.M.T. and at 2200 G.M.T. } Wavelength 4,200 metres (C.W.).

NOTE.—The 1050 G.M.T. bulletin is broadcast at 1215 G.M.T. on Sundays and holidays.

The bulletins are similar in arrangement to the British "Weather Shipping" message which was explained in Vol. V, No. 50, pp. 37-8 of this Journal. **The two bulletins combined provide complete weather information in a simple form for the coasts of N.W. Europe, and on this account are strongly recommended to Mariners.**

The 1050 G.M.T. bulletin is based upon observations made at 0700 G.M.T., and that broadcast at 2200 G.M.T. upon observations made at 1800 G.M.T.

The bulletins commence with the words "Weather Report" and are divided into five parts, viz.:—

Part I, in code (International).

Contains observations made at nine Swedish and four Danish and Norwegian coast stations (*see* following List) and from ships in the North Sea.

Coast Stations' observations are broadcast in two five-figure groups for each station, represented by key letters as follows:—

i_nK′wwV$_s$ BBDDF.

List of Observation Stations.

Index Number.	Station.	Position (approx.). Latitude N.	Longitude E.
2	Bjurö klubb	64° 28′	21° 34′
3	Holmögadd	63° 35′	20° 45′
4	Bremö	62° 13′	17° 44′
5	Örskär	60° 31′	18° 22′
6	Sandhamn	59° 17′	18° 55′
7	Visby	57° 39′	18° 18′
8	Skanör	55° 24′	12° 49′
9	Kullen	56° 18′	12° 27′
0	Vinga	57° 38′	11° 36′
1	Hammeren	55° 33′	14° 47′
2	Hanstholm	57° 07′	8° 36′
3	Utsire	59° 18′	4° 53′
4	Kinn	61° 34′	4° 47′

Observations from ships in the North Sea follow the Coast Stations' reports. They are contained in four five-figure groups for each ship, represented by key letters as follow:—

PQLLL 111GG d_sK′wwv BBDDF

It will be noted that the Key letters have the same meanings as are given on the "Decode Form" p. 19, Vol. V, No. 49, **except that the barometer readings (BB) are given in millimetres,** initial 7 omitted, and d_s = direction of ship's movement as follows:—

1 NE	3 SE	5 SW	7 NW
2 E	4 S	6 W	8 N

Part II, en clair (English).

A General Inference of weather conditions in N.W. Europe and adjacent seas.

Part III, en clair (English).

Weather forecasts for 12 hours for the following areas:—

1 Eastern part of the North Sea (E. of Longitude 5° E.).
2 Sweden, West Coast (Skagerrak, Kattegat and the Sound).
3 Baltic (Southern Baltic; South Skane, Bleking and Oland; Northern Baltic; East Gotaland, Svealand and Gottland).
4 Gulf of Bothnia (Bothnia Sea; Bothnia Bay).

Part IV, en clair (English).

Gale warnings for areas 2, 3 and 4 (above) for particulars, *see* p. 56.

Part V.

Navigation and Ice Warnings.

GERMANY.

North Sea. (Spark Issues.)

Norddeich W/T station, approximate Latitude 53° 36′ N. Longitude 7° 08′ E., call sign **KAV**, broadcasts on a wavelength of 1,100 metres spark, at 1015 and 2130 G.M.T. weather bulletins, *en clair*, containing the 0700 and 1800 G.M.T. observations, respectively, of wind direction and force, state of the sea, clouds, rain, mist, fog, etc., of the following stations:—

	Latitude (approx).	Longitude (approx.).
Borkum Riff Light vessel	53° 45′ N.	6° 04′ E.
Amrum Bank Light vessel	54° 33′ N.	7° 53′ E.
Utsire	59° 18′ N.	4° 53′ E.
Tynemouth	55° 01′ N.	1° 25′ W.

followed by information concerning atmospheric pressure, and a 12 hours' weather forecast for the North Sea.

Western and Middle Baltic. (C.W. Issues.)

Swinemünde W/T station, approximate Latitude 53° 55′ N., Longitude 14° 16′ E., call sign **KAW**, broadcasts on a wavelength of 1,100 metres, I.C.W., at 1030 and 2145 G.M.T. weather bulletins *en clair*, containing the 0700 and 1800 G.M.T. observations, respectively, of wind direction and force, state of the sea, etc.—as for Norddeich, of the following stations:—

	Latitude (approx.).	Longitude (approx.).
Bülk	54° 27′ N.	10° 12′ E.
Adlergrund Light vessel	54° 50′ N.	14° 22′ E.
Skagen	57° 45′ N.	10° 38′ E.
Visby	57° 39′ N.	18° 18′ E.

followed by a general review of the weather, and a 12-hour forecast for the western and middle Baltic.

Eastern Baltic. (Spark Issue.)

Pillau W/T station, approximate Latitude 54° 39′ N. Longitude 19° 53′ E., call sign **KAP**, broadcasts on a wavelength of 600 metres, spark, at 1130 G.M.T., a weather bulletin, *en clair*, containing the 0700 G.M.T. observations of wind direction and force, state of the sea, etc., as for Norddeich, of the following stations:—

	Latitude (approx.).	Longitude (approx.).
Pillau	54° 39′ N.	19° 53′ E.
Brusterort	54° 56′ N.	19° 56′ E.
Memel	55° 42′ N.	21° 10′ E.
Visby	57° 39′ N.	18° 18′ E.

This bulletin also contains a general review of the weather, and a forecast for the eastern Baltic.

HOLLAND.

North Sea. (C.W. Issue.)

Scheveningen W/T station, Latitude 52° 06′ N., Longitude 4° 16′ E. (approx.) call sign **PCH**, broadcasts a weather bulletin in special code, at 1115 G.M.T., daily (Sundays and holidays excepted).

Wavelength used 600 metres (I.C.W.).

The bulletin contains 0700 G.M.T. observations of eight stations, which are transmitted in the *following order*:—

Station.	Position (approx.). Latitude.	Longitude.
Helder	52° 58′ N.	4° 45′ E.
Flushing	51° 26′ N.	3° 34′ E.
Gris Nez	50° 54′ N.	1° 35′ E.
La Hague	49° 43′ N.	1° 57′ W.
Yarmouth	52° 35′ N.	1° 43′ E.
Tynemouth	55° 01′ N.	1° 25′ W.
Skudesnaes	59° 08′ N.	5° 16′ E.
Sylt	54° 54′ N.	8° 21′ E.

Form in which the bulletin is broadcast:—

Commencing with the letters K.N.M.I. the observations of the above stations are given in two groups of five figures for each station (except last four stations, where second group contains only four figures).

Explanation of Code:—

First group. 1st 3 figures give barometer reading corrected, in **mms.**, and tenths, initial 7 omitted. (To convert to mbs. and ins. *see* Table XXIV.)

4th and 5th figures give wind direction true (*see* Table XXV.).

Second Group. 1st figure gives wind force by Beaufort Scale.

2nd figure gives state of sky and weather (Table XXVI).

3rd and 4th figures give temperature in whole degrees Centigrade, 50 added to negative values (to convert to Faht. *see* Table XXVII).

5th figure gives state of the sea (Table XXVIII). This figure **not** transmitted for Yarmouth, Tynemouth, Skudesnaes nor Sylt.

NOTE.—The letter "X" replaces each group of figures for which data cannot be supplied.

If the bulletin is transmitted **on request** a charge will be debited to the ship concerned.

SPECIAL WEATHER TELEGRAPHY TABLES. NOT INTERNATIONAL CODE.

Table XXIV.

Conversion of Millimetres into Millibars and Inches.

Mm.	Mb.	In.	Mm.	Mb.	In.	Mm.	Mb.	In.
695	926·6	27·37	743	990·6	29·25	759	1011·9	29·88
700	933·2	27·56	744	991·9	29·29	760	1013·2	29·92
705	939·9	27·76	745	993·2	29·33	761	1014·6	29·96
710	946·6	27·95	746	994·6	29·37	762	1015·9	30·00
715	953·2	28·15	747	995·9	29·41	763	1017·2	30·04
720	959·9	28·35	748	997·2	29·45	764	1018·6	30·08
725	966·6	28·54	749	998·6	29·49	765	1019·9	30·12
730	973·2	28·74	750	999·9	29·53	766	1021·2	30·16
735	979·9	28·94	751	1001·2	29·57	767	1022·6	30·20
736	981·2	28·98	752	1002·6	29·61	768	1023·9	30·24
737	982·6	29·02	753	1003·9	29·65	769	1025·2	30·28
738	983·9	29·06	754	1005·2	29·69	770	1026·6	30·32
739	985·2	29·10	755	1006·6	29·73	775	1033·2	30·51
740	986·6	29·13	756	1007·9	29·76	780	1039·9	30·71
741	987·9	29·17	757	1009·2	29·80	785	1046·6	30·91
742	989·2	29·21	758	1010·6	29·84			

Table XXV.

Wind direction (True). Scheveningen Bulletin.

02 = NNE	10 = ESE	18 = SSW	26 = WNW
04 = NE	12 = SE	20 = SW	28 = NW
06 = ENE	14 = SSE	22 = WSW	30 = NNW
08 = E	16 = S	24 = W	32 = N

00 = Calm.

Table XXVI.

State of Sky and Weather, Scheveningen Bulletin.

Code Figure.	Code Figure.
0 = Fine.	5 = Rain.
1 = Slightly cloudy.	6 = Snow.
2 = Cloudy.	7 = Misty.
3 = Very cloudy.	8 = Fog.
4 = Overcast.	9 = Storm.

Table XXVII.

Conversion of Centigrade Temperatures in Fahrenheit.

Cent.* Transmitted.	Fahr.	Cent. Transmitted.	Fahr.	Cent. Transmitted.	Fahr.	Cent. Transmitted.	Fahr.
—	—	00	32	10	50	21	70
51	30	01	34	11	52	22	72
52	28	02	36	12	54	23	73
53	27	03	37	13	55	24	75
54	25	04	39	14	57	25	77
55	23	05	41	15	59	26	79
56	21	06	43	16	61	27	81
57	19	07	45	17	63	28	82
58	18	08	46	18	64	29	84
59	16	09	48	19	66	30	86
				20	68		

* 50 is added to the amounts to indicate minus temperatures Centigrade.

Table XXVIII.

State of the Sea, Scheveningen Bulletin.

Code Figure.	Code Figure.
0 = Calm.	5 = Rough.
1 = Very smooth.	6 = Very rough.
2 = Smooth.	7 = High.
3 = Slight.	8 = Very high.
4 = Moderate.	9 = Phenomenal.

WIRELESS STORM WARNINGS.

SWEDEN.

Baltic. (C.W. Issues.)

Karlsborg W/T station broadcasts warnings, *en clair*, of strong winds or gales for the following areas:—

(*a*) Sweden, West Coast (Skagerrak, Kattegat and the Sound).
(*b*) Baltic (Southern Baltic; South Skane, Bleking and Oland; Northern Baltic; East Gotaland, Svealand and Gottland).
(*c*) Gulf of Bothnia (Bothnia Sea; Bothnia Bay).

The warnings commence with the words "Gale Warnings" and are valid for the ensuing 24 hours. They form Part IV of the weather bulletins broadcast by **Karlsborg W/T** at 1050* and 2200 G.M.T., explained on p. 54.

GERMANY.

North Sea. (Spark Issues.)

Norddeich W/T station, call sign **KAV,** broadcasts storm warnings, for the North Sea, on 600 metres, spark, on receipt, twice in succession. Warnings are also broadcast on 1,100 metres, spark, at 0515, 1015 (after the weather bulletin), 1630 and 2130 (after the weather bulletin) unless previously cancelled. All times are G.M.T. Warnings broadcast *en clair* and preceded by the word "Funksturm."

The Warnings will contain information as to the type of disturbance, together with the direction and force of the wind.

Western and Central Baltic. (Spark and C.W. Issues.)

Swinemünde W/T station, call sign **KAW,** broadcasts storm warnings for the coast from Flensburg to Leba, preceded by the word "Funksturm" on 600 metres, spark, on receipt, three times successively. Warnings are also broadcast on 1,100 metres I.C.W. at 0530, 1030 (after the weather bulletin), 1650 and 2145 (after the weather bulletin) unless previously cancelled. All times are G.M.T. Warnings broadcast *en clair*.

The warnings are also broadcast on request.

* 1215 G.M.T. on Sundays and Holidays.

Eastern Baltic. (Spark Issues.)

Pillau W/T station, call sign **KAP,** broadcasts storm warnings for the Eastern Baltic, preceded by the words "Storm Warnungen für die östliche Ostsee" on 600 metres, spark, on receipt. Warnings are also broadcast on 600 metres, spark, at 1130 G.M.T. (after the weather bulletin) and on request.

HOLLAND.

North Sea. (C.W. Issues.)

Scheveningen W/T station, call sign **PCH,** transmits a storm warning when necessary, both in Dutch and English, immediately after the daily weather bulletin at 1115 G.M.T., and also at 2315 G.M.T. Wavelength used is 600 metres (I.C.W.). If the warning should be broadcast on Sundays and holidays (when the station does not transmit a weather bulletin) it will be preceded by the letters KNMI.

The warnings are transmitted twice, first at the rate of 15 words per minute, and then quickly.

NOTE.—If the storm warning is sent on request a charge will be debited to the ship concerned.

WIRELESS ICE WARNINGS.

SWEDEN.

Swedish Ice Breaker.

(Spark and R/T Issues.)

The Swedish Government ice breaker, call sign **SEE** broadcasts information **in English** on a wavelength of 600 metres (spark), giving her position, proposed area for ice breaking and rendering assistance during the ensuing 12 hours. Important local information for mariners will also be broadcast.

The message is broadcast daily, during the time the vessel is employed on ice-breaking service, at 0800 and 1045 G.M.T. on weekdays and at 0800 and 1210 G.M.T. on Sundays.

The message will be repeated by wireless telephony on a wavelength of 600 metres R/T, in Swedish and English immediately after the transmission on spark. The repetition will be preceded by the words "Fran Statisbrytaren". (from the State ice breaker).

GERMANY.

Baltic. (Spark Issues.)

Kiel W/T station, approximate Latitude 54° 24′ N., Longitude 10° 11′ E., call sign **KBK,** transmits information regarding ice conditions in the Baltic, on request. Wavelength 600 metres, spark.

Pillau W/T station, call sign **KAP,** transmits information regarding ice conditions in the Baltic, on request. Wavelength 600 metres, spark.

DENMARK.

Danish Waters. (Spark Issues.)

The following W/T stations broadcast a summary of ice conditions in Danish waters, *en clair* (English). Wavelength 600 metres, spark.

Blaavand W/T station, approximate Latitude 55° 33′ N., Longitude 8° 05′ E., call sign **OXB,** at 0100 and 1300 G.M.T.

Copenhagen W/T station, approximate Latitude 55° 41′ N., Longitude 12° 35′ E., call sign **OXA** at 1100 and 2300 G.M.T.

Ice Breakers.—The Danish Government's ice breaker *Isbjorn* (call sign **OXP**) listens continuously. No charge is made for this service. The call sign for the Copenhagen Harbour Authority's ice-breaker *Væderen* is **OYK.**

HOLLAND.

C.W. Issues.

Scheveningen W/T station, call sign **PCH**, broadcasts, when necessary, data concerning ice conditions in certain Dutch harbours and approaches, daily as follows:—

at 1115 G.M.T. after the daily weather bulletin and Storm Warning and at 2315 G.M.T.

Wavelength 600 metres (I.C.W.).

The ice report which is broadcast in code will contain the ice conditions for the following harbours:—

Delfzijl (Ems).	Helder (Zuider Zee).
Harlingen (Zuider Zee).	Rotterdam (Waterway).
Amsterdam (North Sea Canal).	Dordrecht (North).
Zaandam (Voorzaan).	Dordrecht (Mallegat).

The report commences with the words "Ijsbericht, Ice report."

The code consists of two four-figure groups.

The ice information for the harbours is always broadcast in the order given in the foregoing list.

Each code figure therefore gives by its position the navigational conditions existing in the different harbours.

Code.

Code Figure.	Navigational Conditions.
1	Navigation practicable.
2	,, difficult for sailing vessels.
4	,, closed to sailing vessels; but still possible for steamers.
6	,, closed to small steamers and motor vessels.
8	,, closed.

Example.

Ijsbericht, ice report 4611 1111

Meaning.—**Delfzijl.** Navigation closed to sailing vessels; but still possible for steamers.

Harlingen.—Navigation closed to small steamers and motor vessels. For the remaining localities navigation is practicable.

NOTE.—The broadcast of the ice reports will begin when navigation is closed to small steamers and seagoing motor vessels at any of the harbours mentioned in the list, and will cease when navigation is re-opened.

Ice reports are transmitted twice: first at the rate of 15 words per minute, and then quickly.

IV. VISUAL GALE WARNINGS.

SWEDEN.

Day Signals.	Night Signals.	Explanation.
▲	R / R	Gale (Force 7 to 9) is expected between N. and W.
▼	W / W	Gale (Force 7 to 9) is expected between S. and W.
▲ ▲	R / W	Gale (Force 7 to 9) is expected between N. and E.
▼ ▼	W / R	Gale (Force 7 to 9) is expected between S. and E.
▼ ▲	R	Gale of which the direction is not indicated.
● ▲	R / R	Storm (Force 10 to 12) is expected between N. and W.
● ▼	W / W	Storm (Force 10 to 12) is expected between S. and W.
▲ ●	R / W	Storm (Force 10 to 12) is expected between N. and E.
▼ ●	W / R	Storm (Force 10 to 12) is expected between S. and E.
▲ ▼	R	Storm of which the direction is not indicated.

R = Red. W = White.

NORWAY, DENMARK, GERMANY, HOLLAND AND BELGIUM.

Day Signals.

Signal.	Meaning.
▼	Indicates that a gale is expected, or is probable from S.W.
▼ ▼	Indicates that a gale is expected, or is probable from S.E.

Norway, etc.—*contd.*

Day Signals—*contd.*

Signal.	Meaning.
▲	Indicates that a gale is expected, or is probable from N.W.
▲ ▲	Indicates that a gale is expected, or is probable from N.E.
●	"Atmospheric disturbance, be alert and look out for further information." Germany:—Displayed for benefit of fishing vessels and small craft. It denotes that the wind is expected to increase in strength to force 6–7 (Beaufort scale).
▲ ▼	Germany only:—Indicates the probability of a storm of which the direction of approach is not indicated.

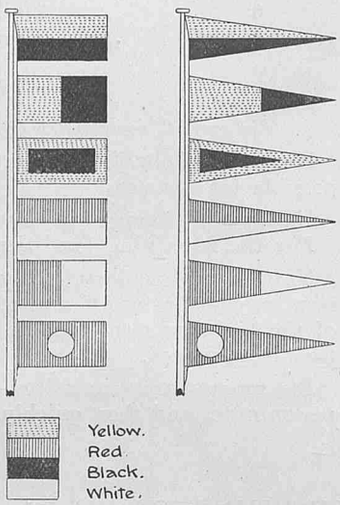
One flag displayed with any of the above signals indicates that the wind may be expected to *veer* during the gale.

Two flags displayed with any of the above signals indicate that the wind may be expected to *back* during the gale.

DENMARK.

Additional Gale Signals.

When a gale is blowing at Blaavands Huk, Hanstholm, the Skaw, Fornæs, Gjedser or Hammeren, the signals below are displayed at Aalborg, Tuborg and Copenhagen. The place and force of the wind, according to the Beaufort scale, are indicated by coloured flags, as follows:—

Place.	Force of the Wind.	
	7–9.	10–12.
Blaavands Huk		
Hanstholm		
The Skaw		
Fornæs		
Gjedser		
Hammeren		

These signals are usually made between 0900 and sunset.

NORWAY.

Night Signals.

Signal.	Meaning.
Three *white* lights, triangle point up	Gale from N.W.
Three *white* lights, triangle point down	Gale from S.W.
Four *white* lights, triangle point up (one light above)	Gale from N.E.
Four *white* lights, triangle point down (one light below)	Gale from S.E.
One *red* light	"Atmospheric disturbance, be alert and look out for further information."

GERMANY. HOLLAND.

Night Signals.

Signal.	Meaning.
Two *white* lights vertical... ...	Gale probable from S.W'd.
Two *red* lights vertical	Gale probable from N.W'd.
A *white* light over a *red* light ...	Gale probable from S.E'd.
A *red* light over a *white* light ...	Gale probable from N.E'd.
One *red* light	"Atmospheric disturbance, be alert and look out for further information."

Germany.—For the benefit of fishing vessels and small craft a warning signal, the *red* light, is hoisted to indicate that the wind is expected to increase in strength to force 6-7 (Beaufort scale).

Germany.

Storm Signals by Searchlight.

Storm signals are made at certain stations by searchlight directed towards the sky at an elevation of about 35°, and are repeated in various directions at two-hour intervals, commencing at the first even-numbered hour after dusk.

The day storm signals, indicated by cones, are made by long and short flashes. A short flash of about *three seconds'* duration corresponds with the point of the cone, and a long flash of about *nine seconds'* duration corresponds with the base of the cone; thus the day storm signals, indicated by cones, are made as follows:—

One cone point down ▬ ▪
Two cones points down ▬ ▪ ▬ ▪
One cone point up ▪ ▬
Two cones points up ▪ ▬ ▪ ▬
Two cones bases towards each other ▪ ▬ ▬ ▪

The day storm signal, indicated by a red flag, is made by a circular movement of the beam of light on the sky in a clockwise direction.

The day storm signal, indicated by two red flags, is made by a circular movement of the beam of light on the sky in an anti-clockwise direction.

The day storm signal, indicated by a ball, is made by a circular movement of the beam of light on the sky in a direction alternately clockwise and anti-clockwise.

The cone signal is preceded and followed by the flag signal. When no flag signal is made, the cone signal is preceded and followed by the ball signal, indicating that no direction of shift of wind can be given.

The warnings hold good for a distance of about 50 miles from the vicinity of the signal station; they continue in force until the evening of the day following the day of issue.

Special Notices regarding Personnel.

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

Captain J. Roberts, C.B.E., D.S.O., R.D., R.N.R.

Captain J. Roberts, C.B.E., D.S.O., R.D., R.N.R., Commander of the R.M.S. *Ceramic*, has retired after 30 years' service in the White Star Line.

Captain Roberts served his apprenticeship in the ships of Messrs. Lowden and Edgar and joined the White Star Line as a Junior Officer in 1897. He reached the rank of Chief Officer in 1903 and obtained command in 1910, his first ship being the *Georgic*. Since then Captain Roberts has commanded many of the Company's big ships. A regular member of the corps of Voluntary Marine Observers since 1902, Marine Observers will join with the Marine Division in wishing Captain Roberts long life and happiness in his retirement.

Captain George S. Webster.

Captain G. S. Webster, Commander of R.M.S. *Montclare*, retired on December 31st, 1927.

A native of Formby, near Liverpool, he joined the training ship *Indefatigable* at the age of eleven years in July, 1879, and after three years went to the barque *Shakespeare*, thence to the *Ellerslie* and the clipper ship *Genista*.

In March, 1892, he entered the Beaver Line of Elder Dempster & Company, commanding their S.S. *Milwaukee* when employed as a transport during the second Boer War. In this ship he took 900 Boer prisoners of war, including General Cronje and his staff, to St. Helena.

Since the Canadian Pacific Company took over the Beaver Line in 1903 Captain Webster has commanded a number of vessels in that fleet and during the Great War he did much trooping.

Captain Webster is a Lieutenant-Commander on the retired list of the Royal Naval Reserve. He has been a member of the Corps of Voluntary Marine Observers since 1903 and the ships under his command have contributed a large number of Meteorological Logs and Reports and his name has appeared in the list of "excellent" awards on several occasions.

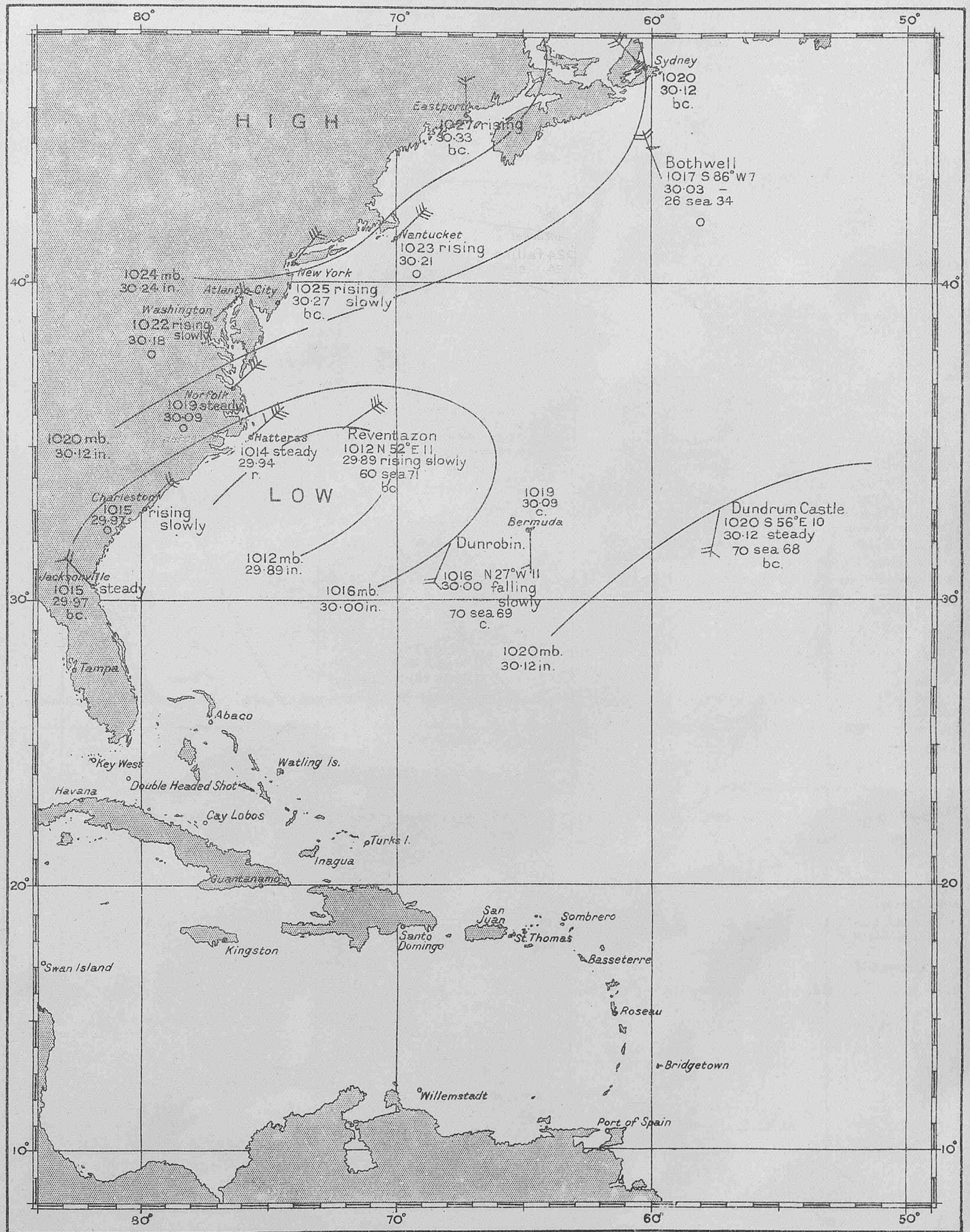
The Corps of Marine Observers and the Marine Division unite in wishing Captain Webster good health and happiness in his well-earned retirement.

Obituary.

The deaths of Captain W. Thomson and Mr. Dishington, Commander and Chief Engineer respectively of S.S. *Clan Macwilliam* are noted with deep regret. Lloyd's report cabled notice received from Suva, Fiji, of the total loss of S.S. *Clan Macwilliam* sunk after being on fire in Vavau harbour, her Captain and Chief Engineer being drowned in an endeavour to take their burning ship clear of the wharf.

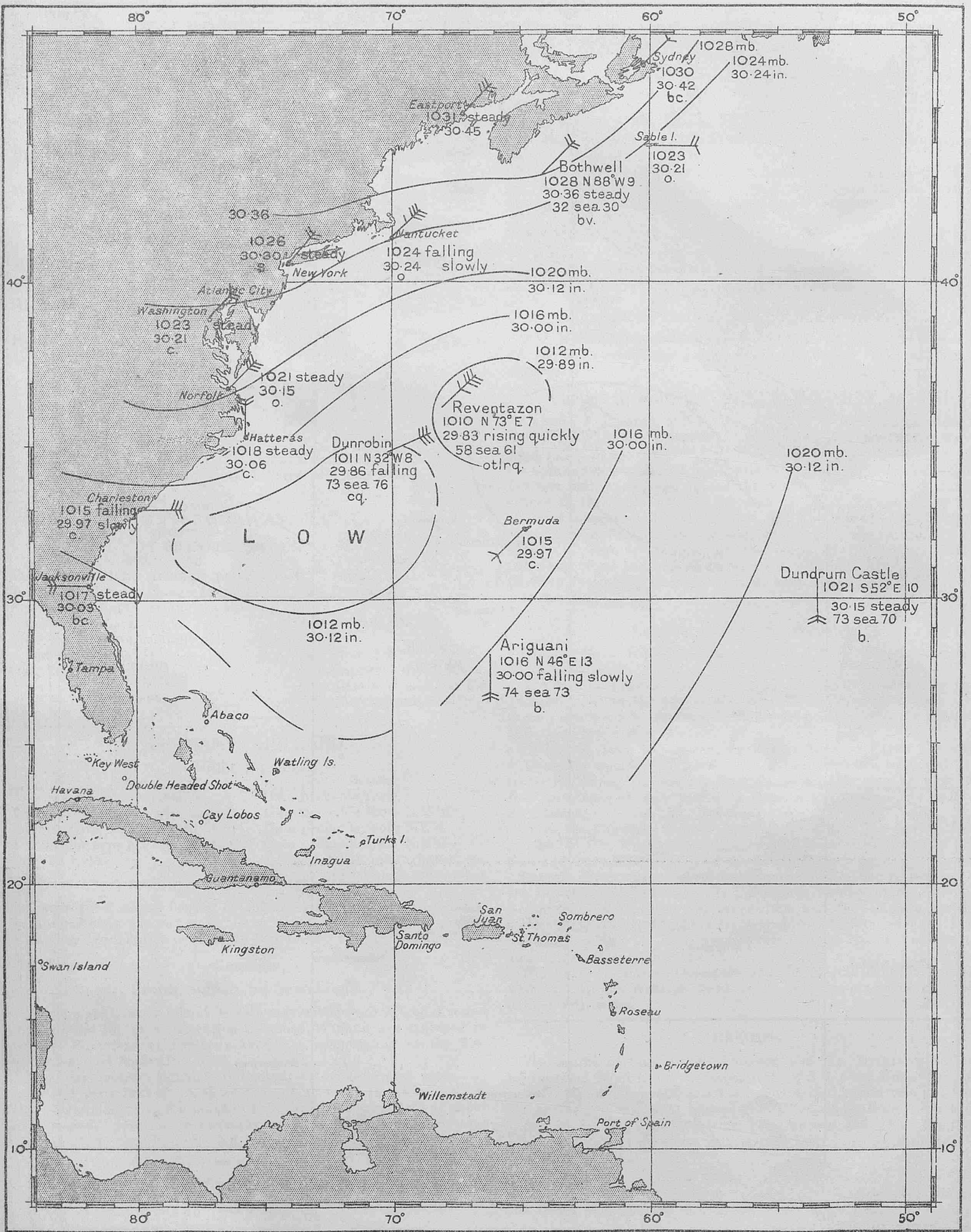
Captain Thomson joined the Clan Line as 3rd Officer in 1901 and had been in command for some 10 years. He had been a member of the Corps of Voluntary Marine Observers since 1921.

MORNING OF MARCH 23RD. 1927.



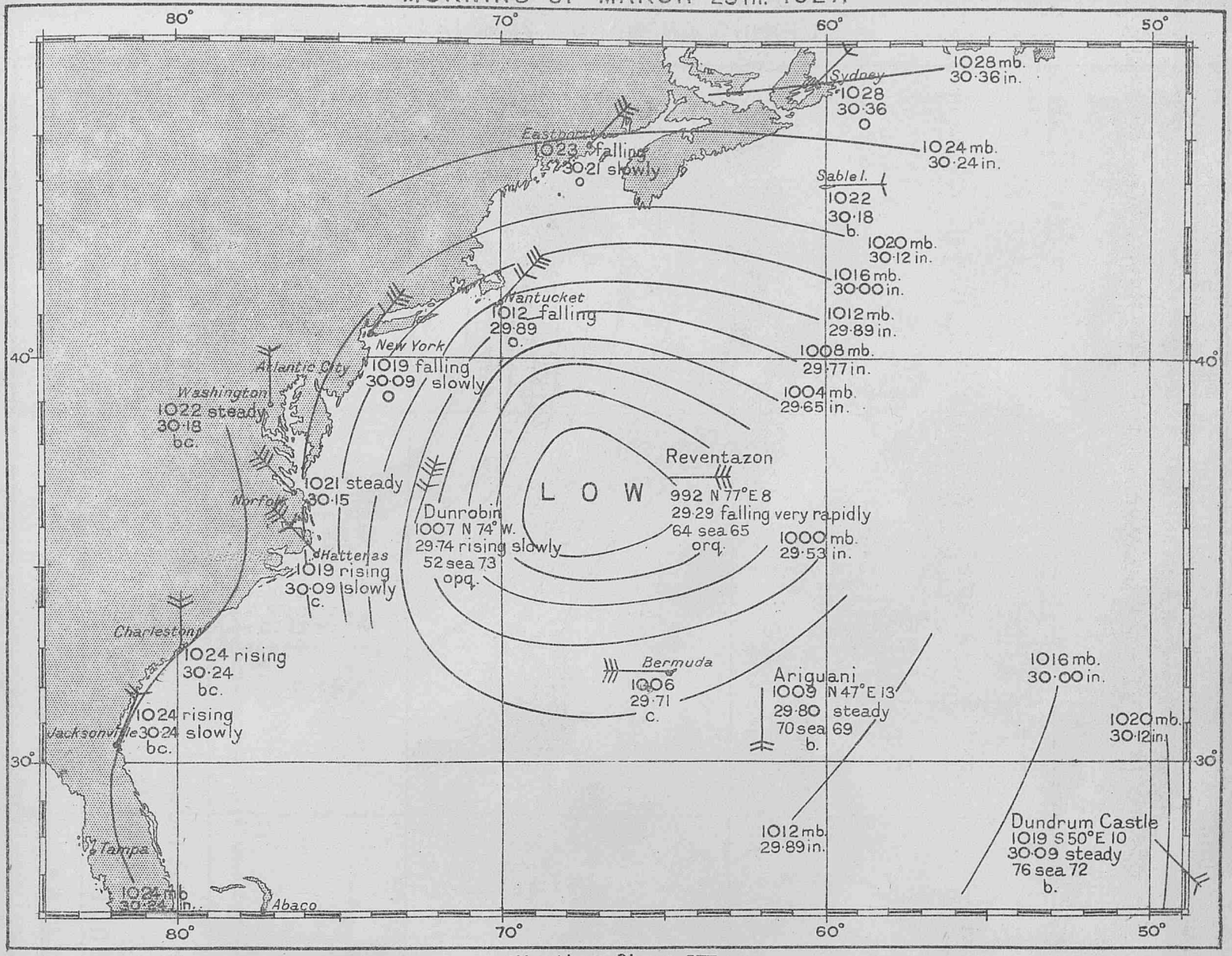
Weather Chart V.

MORNING OF MARCH 24TH., 1927.



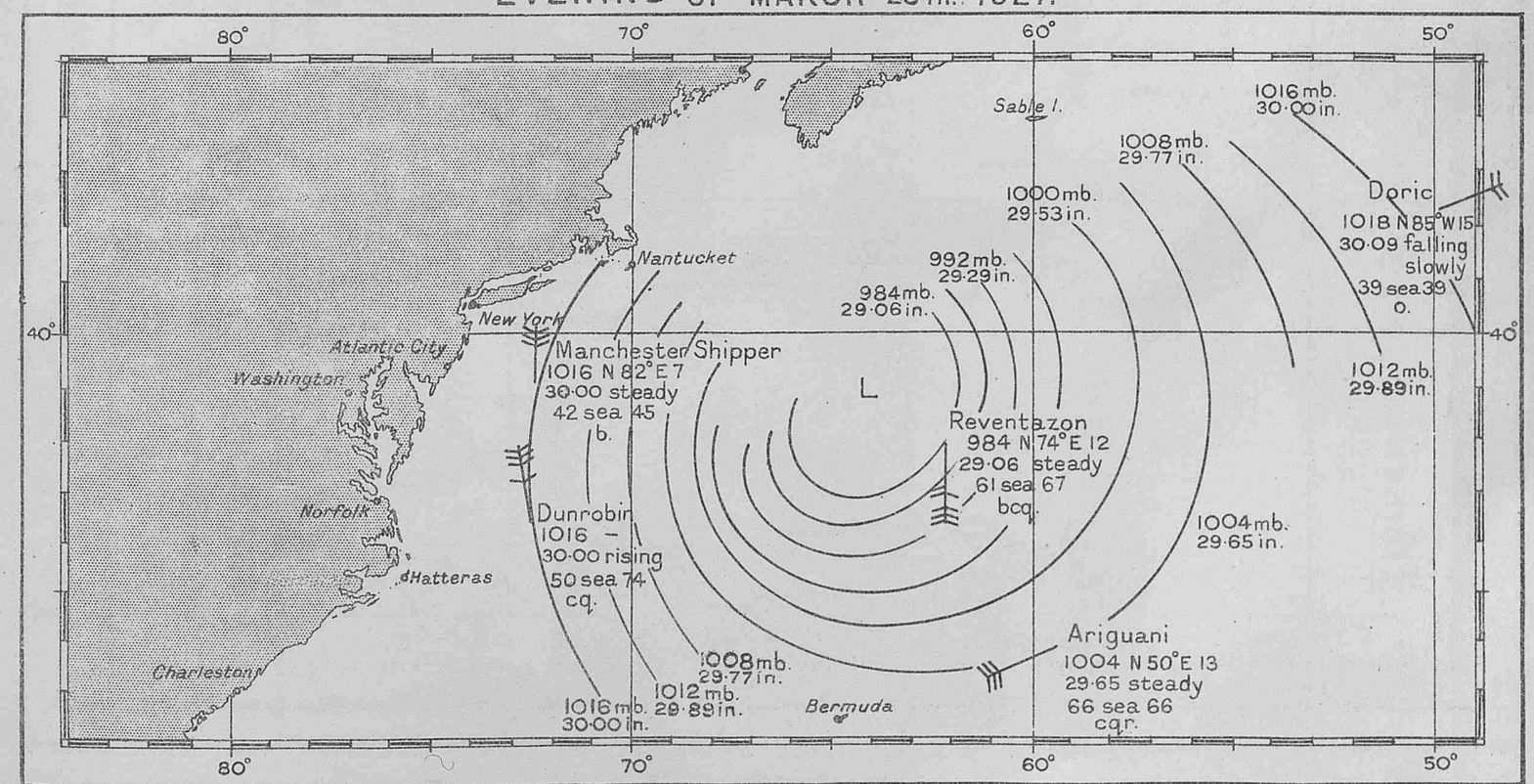
Weather Chart VI.

MORNING OF MARCH 25TH. 1927.



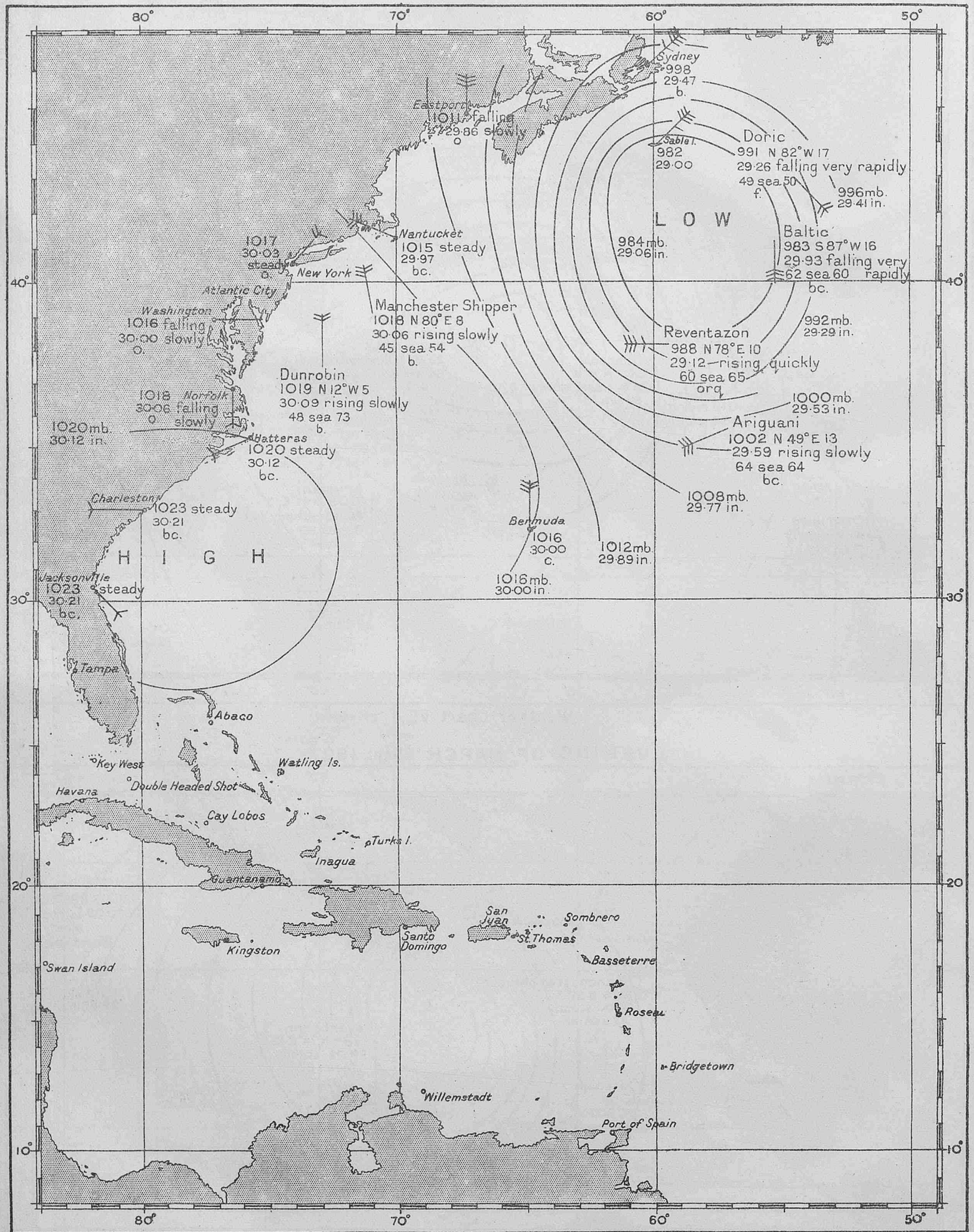
Weather Chart VII.

EVENING OF MARCH 25TH. 1927.



Weather Chart VIII.

MORNING OF MARCH 26TH. 1927.



Weather Chart IX

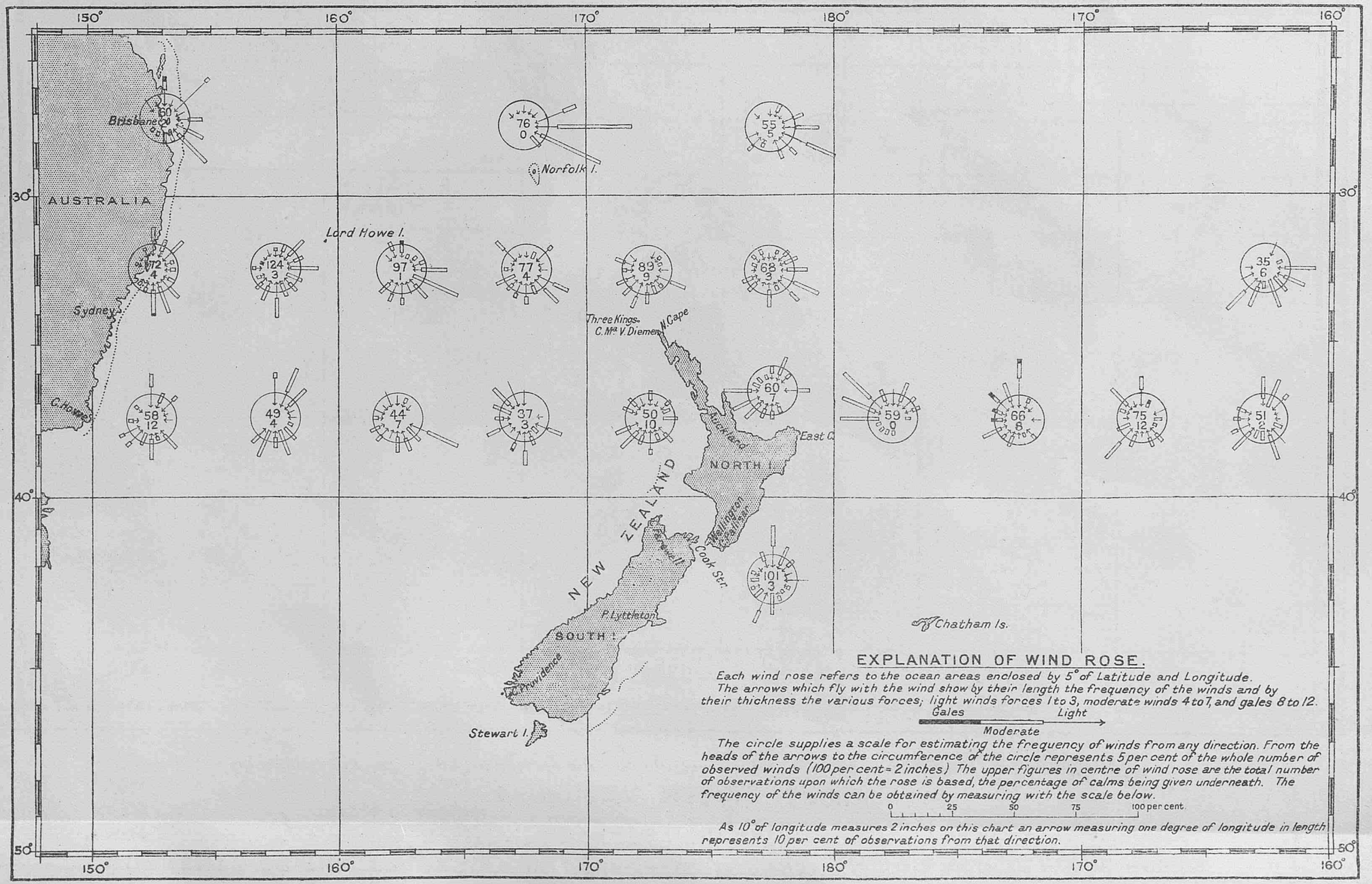
SOUTH PACIFIC.

WINDS ON THE TRACKS FROM PANAMA TO AUSTRALIAN AND NEW ZEALAND PORTS.

(WESTERN PORTION.)

MARCH

Observations of ships regularly observing for the British Meteorological Office 1920-1926.



EXPLANATION OF WIND ROSE.

Each wind rose refers to the ocean areas enclosed by 5° of Latitude and Longitude. The arrows which fly with the wind show by their length the frequency of the winds and by their thickness the various forces; light winds forces 1 to 3, moderate winds 4 to 7, and gales 8 to 12.

Gales — Moderate — Light

The circle supplies a scale for estimating the frequency of winds from any direction. From the heads of the arrows to the circumference of the circle represents 5 per cent of the whole number of observed winds (100 per cent = 2 inches) The upper figures in centre of wind rose are the total number of observations upon which the rose is based, the percentage of calms being given underneath. The frequency of the winds can be obtained by measuring with the scale below.

0 25 50 75 100 per cent.

As 10° of longitude measures 2 inches on this chart an arrow measuring one degree of longitude in length represents 10 per cent of observations from that direction.

SOUTH PACIFIC.

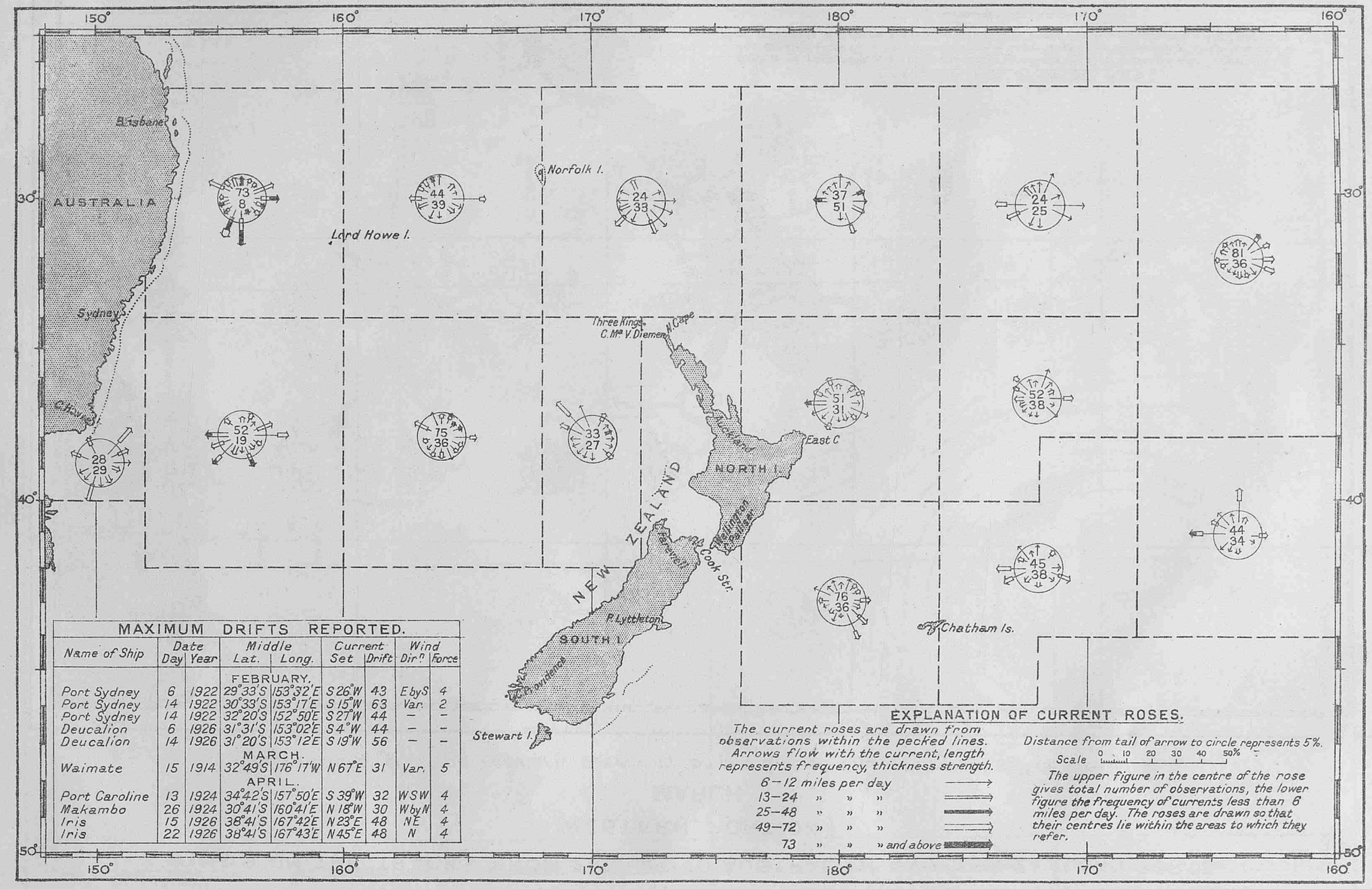
Vol. V. No. 51.

CURRENTS ON THE TRACKS FROM PANAMA TO AUSTRALIAN AND NEW ZEALAND PORTS.

(WESTERN PORTION.)

FEBRUARY, MARCH, APRIL.

Observations of ships regularly observing for the British Meteorological Office 1910-1926.



MAXIMUM DRIFTS REPORTED.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dir?	Wind Force
			FEBRUARY.					
Port Sydney	6	1922	29°33'S	153°32'E	S 26°W	43	E by S	4
Port Sydney	14	1922	30°33'S	153°17'E	S 15°W	63	Var.	2
Port Sydney	14	1922	32°20'S	152°50'E	S 27°W	44	—	—
Deucalion	6	1926	31°31'S	153°02'E	S 4°W	44	—	—
Deucalion	14	1926	31°20'S	153°12'E	S 19°W	56	—	—
			MARCH.					
Waimate	15	1914	32°49'S	176°17'W	N 67°E	31	Var.	5
			APRIL.					
Port Caroline	13	1924	34°42'S	157°50'E	S 39°W	32	WSW	4
Makambo	26	1924	30°41'S	160°41'E	N 18°W	30	W by N	4
Iris	15	1926	38°41'S	167°42'E	N 23°E	48	NE	4
Iris	22	1926	38°41'S	167°43'E	N 45°E	48	N	4

EXPLANATION OF CURRENT ROSES.

The current roses are drawn from observations within the pecked lines. Arrows flow with the current, length represents frequency, thickness strength.

6–12 miles per day
13–24 " " "
25–48 " " "
49–72 " " "
73 " " " and above

Distance from tail of arrow to circle represents 5%.

Scale 0 10 20 30 40 50%

The upper figure in the centre of the rose gives total number of observations, the lower figure the frequency of currents less than 6 miles per day. The roses are drawn so that their centres lie within the areas to which they refer.

H. M. Stationery Office Press, Kingsway, W.C.2.

Ps.71/1622. We.10A. D.1. 1100. 1/28.

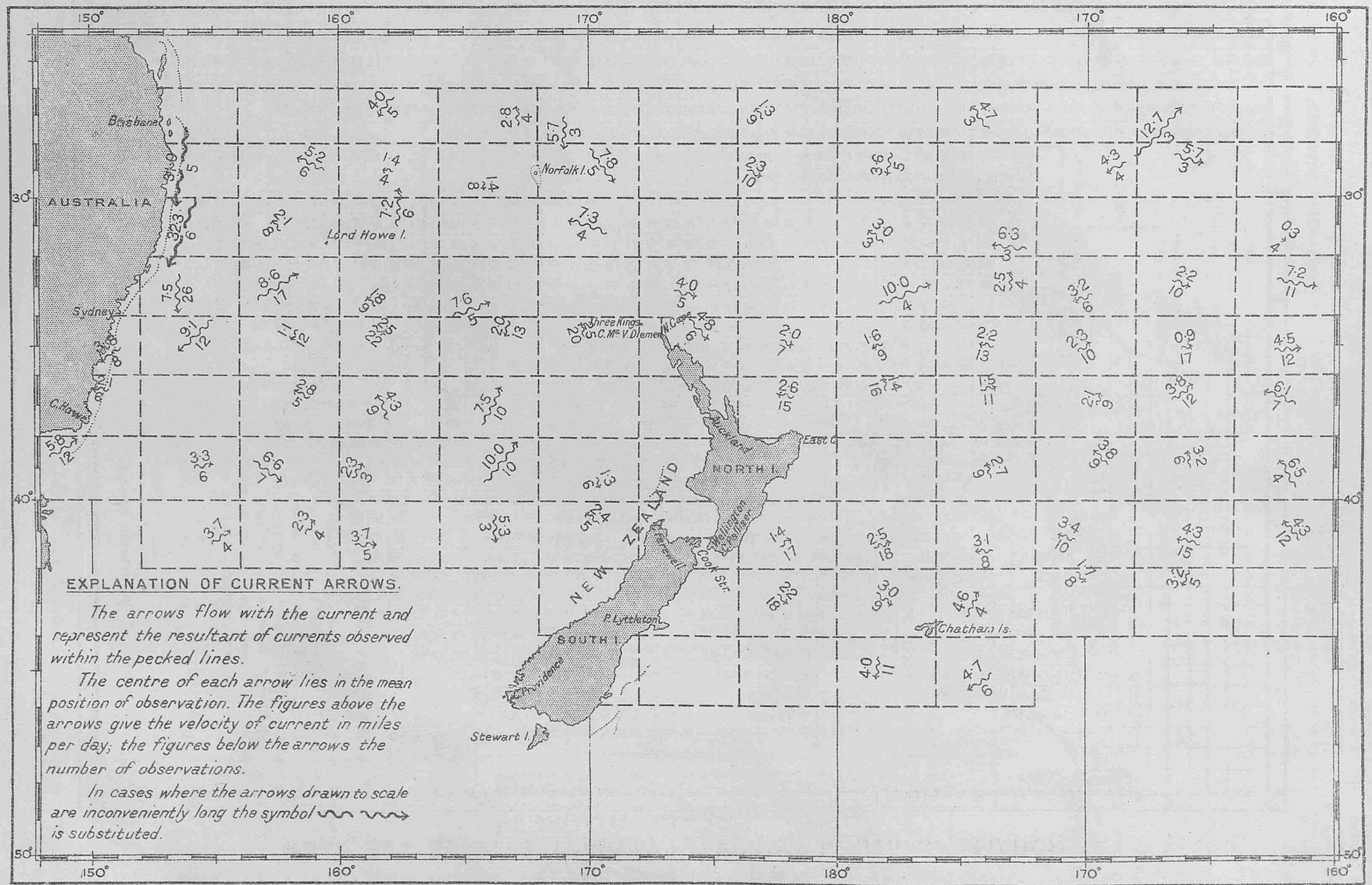
SOUTH PACIFIC.

CURRENTS ON THE TRACKS FROM PANAMA TO AUSTRALIAN AND NEW ZEALAND PORTS.

(WESTERN PORTION.)

FEBRUARY, MARCH, APRIL.

Observations of ships regularly observing for the British Meteorological Office 1910-1926.



EXPLANATION OF CURRENT ARROWS.

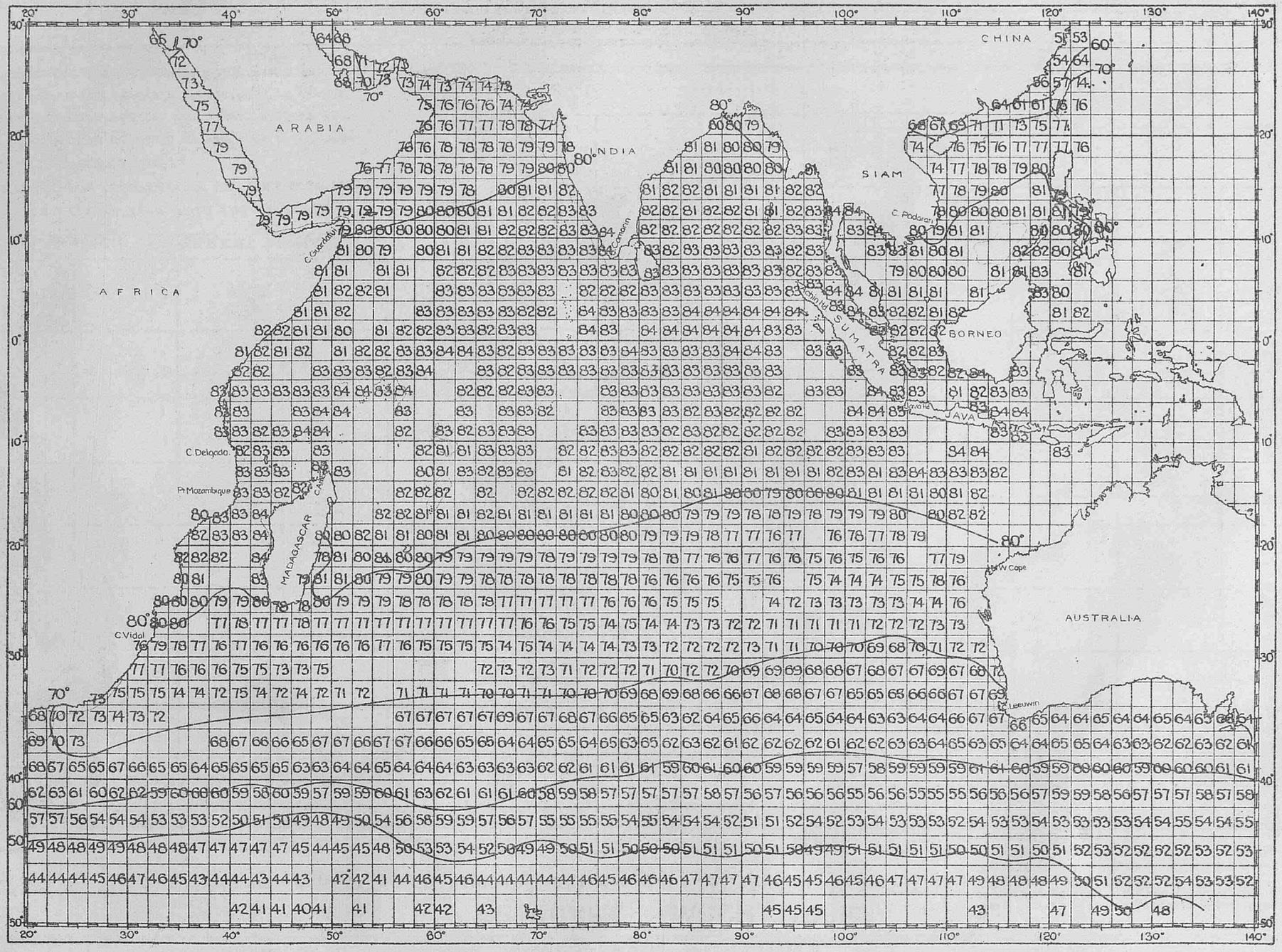
The arrows flow with the current and represent the resultant of currents observed within the pecked lines.

The centre of each arrow lies in the mean position of observation. The figures above the arrows give the velocity of current in miles per day; the figures below the arrows the number of observations.

In cases where the arrows drawn to scale are inconveniently long the symbol ~~~~ *is substituted.*

INDIAN OCEAN.

MEAN SEA SURFACE TEMPERATURES FOR MONTH OF MARCH



Computed from observations of British Ships during the years 1855 to 1917 except south of Latitude 30°S. and eastward of Longitude 40°E. where the observations are for the years 1855 to 1895; and south of Latitude 30°S. and westward of Longitude 40°E., 1855 to 1878.

NOTICES.

IMPORTANT.

Request to return Additional Remarks and supplementary documents with the Meteorological Log and Form 911.

As the interest of the Corps of Marine Observers increases, so more information is returned to the Marine Division, and there is a tendency to send in supplementary documents to the Meteorological Log and Ship's Meteorological Report Form 911.

The strength of the Marine Division is constant, that is to say, the number of assistants in the Marine Division to handle the data received remains the same whatever the amount.

To maintain or increase the output of published information it is necessary to regulate collection.

Marine Observers will greatly assist, and in so doing, help towards publication by making their Logs and Reports when returned as complete as possible.

Information or considered views in reply to the Marine Superintendent's circulars or notes of enquiry in this Journal may be conveniently written on the pages in the Log and Form 911 for "Additional Remarks."

In this space narratives of experiences in storms, accounts of unusual phenomena and abnormal currents experienced should be entered.

A selection of a few of the best weather charts made during the voyage can be appropriately attached to the fly-leaf of the Log. Sketches and photos should be similarly attached.

By forwarding all information which it is intended to return, along with the Log or Form 911, Marine Observers will make it possible to give better acknowledgment for work well done.

The remarks, weather charts, sketches and photos, now being received are greatly appreciated and it is hoped that these may increase, but if justice is to be done to them, it is necessary that they should be properly placed so that they may receive the greatest possible amount of attention.

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 the British Isles 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.
Belfast and 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.

ICE REPORTS.

Commanders of ships in the Trans-North Atlantic and Southern Ocean Trades are earnestly requested to have the Ice Report Form 912 completed and returned at the end of each passage A nil return is desired if no ice is seen.

These forms are supplied with THE MARINE OBSERVER each month to regular observing ships in these Trades.

THE BAROMETER.

Before barometer readings are compared with the normal isobars shown on the Meteorological Ocean Charts, transmitted by W/T or plotted on Weather Charts, mercurial barometers should be corrected for height, gravity, temperature and index error, for which tables are given on pp. 84 to 92 4th edition of "The Marine Observer's Handbook," *see* also pp. 10-12, Vol. IV, No. 37, of this Journal. A table for converting inches to millibars is also given below.

Aneroids require to be corrected for height and index error only. They should be frequently compared, as the mechanism is liable to get out of adjustment without detection.

Readings of the barometer should be entered in the Meteorological Log as read—*i.e.*, uncorrected—and the attached thermometer should also be recorded. A column is now given for the corrected reading, which should also be entered with great care.

It is strongly urged that Marine Observers, whether using Official or Ship's Barometers, for W/T reports, Meteorological Logs or Forms 911, will complete and send in the Blue Post Card, at least once every voyage, so that an effectual check may be kept on the index error.

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		

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.

ICE CHART.

WESTERN NORTH ATLANTIC.

IMPORTANT

ROUTE NOTICES.

For latest information *re* Tracks *see* Copy of Memorandum from Cunard S.S. Co. on this Chart.

LETTERS OF TRANSATLANTIC TRACKS INDICATE.

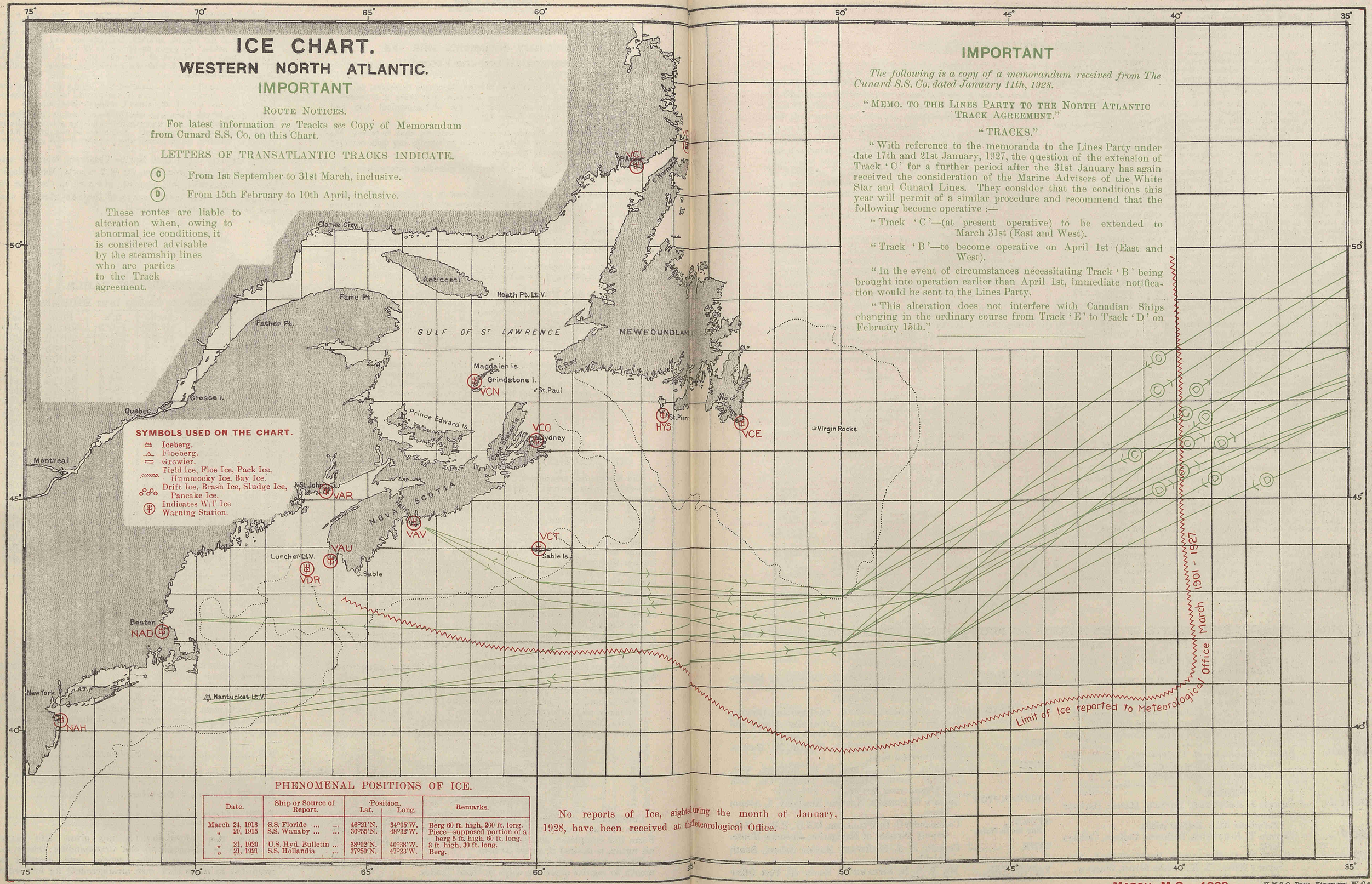
(C) From 1st September to 31st March, inclusive.

(D) From 15th February to 10th April, inclusive.

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.

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 POSITIONS OF ICE.

Date.	Ship or Source of Report.	Position. Lat.	Position. Long.	Remarks.
March 24, 1913	S.S. Floride	46°21′N.	34°05′W.	Berg 60 ft. high, 200 ft. long.
„ 20, 1915	S.S. Wanaby	36°55′N.	48°32′W.	Piece—supposed portion of a berg 5 ft. high, 60 ft. long.
„ 21, 1920	U.S. Hyd. Bulletin ...	38°02′N.	40°38′W.	3 ft. high, 30 ft. long.
„ 21, 1921	S.S. Hollandia ...	37°50′N.	47°23′W.	Berg.

No reports of Ice, sighted during the month of January, 1928, have been received at the Meteorological Office.

IMPORTANT

The following is a copy of a memorandum received from The Cunard S.S. Co. dated January 11th, 1928.

"MEMO. TO THE LINES PARTY TO THE NORTH ATLANTIC TRACK AGREEMENT."

"TRACKS."

"With reference to the memoranda to the Lines Party under date 17th and 21st January, 1927, the question of the extension of Track 'C' for a further period after the 31st January has again received the consideration of the Marine Advisers of the White Star and Cunard Lines. They consider that the conditions this year will permit of a similar procedure and recommend that the following become operative :—

"Track 'C'—(at present operative) to be extended to March 31st (East and West).

"Track 'B'—to become operative on April 1st (East and West).

"In the event of circumstances necessitating Track 'B' being brought into operation earlier than April 1st, immediate notification would be sent to the Lines Party.

"This alteration does not interfere with Canadian Ships changing in the ordinary course from Track 'E' to Track 'D' on February 15th."

PS 71/1622. Wt. 10A. D.I. 1100 1/28.

MARCH M.O., 1928. H.M.S.O. Press, Kingsway, W.C.2.

NOTICES.

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.

Ships on the List of Voluntary Observers to the Meteorological Office which have a mercurial barometer are indicated by the letters M.L., W.T. and M.

These are selected ships for reporting weather observations made at specified times by W/T to "All Ships," and they are *invited* to perform this service, which is for the benefit of all shipping fitted for W/T reception.

For sample weather report message see page 18 of Vol. V., No. 49.

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 2*s*.

LATE PRESS.

DERELICTS AND FLOATING WRECKAGE.

Date.	Position. Latitude.	Position. Longitude.	Description.
	ENGLISH CHANNEL.		
1.1.28	50°30′N.	0°09′W.	Drifting extinguished gas and whistle buoy with black ball, buoy painted red, no other marks seen. Dangerous to navigation.
6.1.28	49°00′N.	4°21′W.	Drifting buoy painted red, two white horizontal lights, top-mark flag.
7.1.28	30 mls. S.40°E. (true) from Newhaven.		Mast slanting at 45° and rising 6 feet from the surface.
14.1.28	11 mls. N.66°W. of Calais.		Buoy marked *Telegraph 6*, no flag and no light.
17.1.28	50°23′N.	0°44′W.	Spherical buoy, white and red vertical stripes.
	NORTH ATLANTIC.		
1.1.28	17°30′N.	71°07′W.	Log, about 35 feet long and 4 feet in diameter.
3.1.28	46°41′N.	6°43′W.	Small conical red buoy.
3.1.28	35°15′N.	55°48′W.	Wreck, bottom up.
3.1.28	42°59′N.	53°39′W.	Spar, projecting about 5 feet out of water, painted black and attached to submerged wreckage.
4.1.28	48°02′N.	5°49′W.	Drifting buoy, black conical, with black and white cage top-mark and "*Lamouroux*" in white letters.
4.1.28	32°28′N.	62°19′W.	Wooden structure, about 45 feet long, 18 feet wide and showing 2 feet out of water.
4.1.28	35°17′N.	53°53′W.	Derelict, bottom up, visible length about 150 feet, and showing about 4 feet out of water, slight set to the northward.
5.1.28	39°33′N.	74°06′W.	Gas and bell buoy showing flashing red light thus, flash 5 secs., eclipse 7 secs.
6.1.28	30°26′N.	58°32′W.	Large piece of wreckage awash, bearing the name *Maurice Thurlow, Boston*, painted in white letters.
6.1.28	43°06′N.	45°20′W.	Piece of wreckage about 30 feet long, awash.
6.1.28	31°40′N.	53°18′W.	Gas buoy showing a flashing red light every five seconds.
8.1.28	38°02′N.	66°20′W.	Conical buoy, painted black and white.
10.1.28	28°15′N.	79°22′W.	Motor boat *V 1314.3*, about 26 feet long, painted white, abandoned.
10.1.28	20°21′N.	61°—′W.	Large red buoy with white horizontal stripe and a white cone, apparently a light buoy.
11.1.28	48°42′N.	20°—′W.	Gas buoy with red lamp mounted on skeleton iron structure, light extinguished, buoy floating normally.
18.1.28	15°24′N.	25°40′W.	S.V. *Joffre*, dismasted, hull about 19 metres long, painted white. Dangerous to navigation.
18.1.28	49°25′N.	18°56′W.	Large black gas buoy. Dangerous to navigation.
	GULF OF MEXICO.		
3.1.28	24°16′N.	84°13′W.	Large schooner, bottom up, floating low in the water, with side cut away. The derelict was about 175 feet long and drifting S.E.'wd. at about 1 knot.
4.1.28	26°14′N.	87°45′W.	Mast, about 40 feet long, attached to submerged wreckage.
5.1.28	28°15′N.	92°—′W.	Large log.
11.1.28	22°21′N.	96°51′W.	Floating wooden wreckage, barely visible. Dangerous to navigation.
	NORTH PACIFIC.		
1.1.28	51°09′N.	141°38′W.	Submerged object.

NAUTICAL OFFICERS AND AGENTS OF THE MARINE DIVISION OF THE METEOROLOGICAL OFFICE, AIR MINISTRY.

LONDON ... ... Captain L. A. BROOKE SMITH, R.D., R.N.R., Marine Superintendent.
Commander J. Hennessy, R.D., R.N.R., Senior Nautical Assistant.
Room 319, Adastral House, Kingsway, W.C.2.
(*Telephone No.: Holborn 3434 Extension 421*).
Nearest station Temple, District Railway.
Mr. W. T. GRIEVES, Visiting Officer for the Port of London.

LIVERPOOL ... Lieut. Commander M. CRESSWELL, R.N.R., Port Meteorological Officer, Dock Office.
(*Telephone No.: Bank 8959*).

Agents.

BELFAST ... ... Captain J. MCINTYRE, Harbour Master, Harbour Office.
(*Telephone No.: Belfast 4090*).

CARDIFF ... ... Captain T. JOHNSTON, Technical College, Cathays Park.

CLYDE ... ... Captain M. C. CORRANCE, Board of Trade Surveyor's Office, 73, Robertson Street, Glasgow.
(*Telephone No.: Central 2283-4*).

Agents (*contd.*).

FREMANTLE, W. Australia. Captain J. J. AIREY, Deputy Director of Navigation, Dalgety's Buildings.
(*Telephone No.: B 1063*).

HONG KONG, China. Lieut. Commander O. C. G. LEVESON-GOWER, R.N., Superintendent, Admiralty Chart and Chronometer Depot, H.M. Dockyard.

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.

SYDNEY, New South Wales. Commander G. D. WILLIAMS, D.S.O., R.D., R.N.R., Deputy Director of Navigation, Customs House.

TYNE ... ... Captain J. J. MCEWAN, Marine School, South Shields.

VANCOUVER, British Columbia. Mr. T. S. H. SHEARMAN, Room 40, Post Office Building.

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 Ships' 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 13.1.28.	Date Received.
Aba ...	Yardley, H. A., D.S.C. / Williams, T. E. ...	S. J. Bristowe, O. E. Jones, E. E. Roberts.	M.L.	Elder Dempster ...	Met. Log. 30.3.27 to 26.8.27	15.9.27
Abinsi	Millson, H. E. ...	C. G. S. Shorter	No. A.	,, ,, ...	Form 911 30.11.27 to 7.1.28	11.1.28
Achilles ...	Wilson, C. A. ... / Dodds, R.	J. Powell, L. Hutchinson, F. B. Allen.	M.L.	A. Holt	Met. Log. 24.5.27 to 18.10.27... ...	28.11.27
Actor	Haylett, E. ...	A. Frew, F. M. Eales, G. Morrice.	,,	Harrison	,, 10.9.27 to 20.12.27... ...	6.1.28
Adda	Toft, J. T.	A. E. Longlen, J. S. Turner, A. Kay.	M.L.	Elder Dempster ...	Form 911 6.7.27 to 3.11.27	14.12.27
50 *Adriatic* ...	Hickson, V. W., Lieut.-Commr. R.N.R.	R. G. Roberts, O. V. Lucas ...	W.T.	White Star	W.T. Reg. 17.10.27 to 5.11.27... ...	8.11.27
Aeneas	Wallace, W. K. ...	E. R. Owen	No. A.	A. Holt	Form 911 27.11.27 to 8.12 27... ...	9.1.28
Agapenor	Ramsay, J. ...	S. G. Ellams	,, A.	,, ...	,, 24.10.27 to 6.11.27... ...	12.12.27
Aidan	Pym, J.	J. S. Thompson	,, A.	Booth	,, 22.10.27 to 8.11.27... ...	8.12.27
Alban	Barlow, F. P.... ...	E. M. Lyons	,, A.	,, ...	,, 4.11.27 to 23.12.27... ...	11.1.28
Aleppo	Leggott, —	... ...	No.	Ellerman Wilson ...	... ...	...
Alipore	Smith, H. E., R.D., Lt.-Commr., R.N.R.	D. A. C. Butler, C. H. Stokes	,, M.	P. and O.	,, 24.8.27 to 24.10.27... ...	14.11.27
Almanzora ...	Clarke, E. C.	D. O. Llewellyn	,, A.	R.M.S.P.	,, 14.5.27 to 27.6.27	29.6.27
63 *Albertic*	Parker, W. H., C.B.E., R.D., Capt. R.N.R.	J. Farrell, R. Hawkins, J. W. Paine.	W T.	White Star ...	,, 5.11.27 to 21.11.27... ... / W.T. Reg. 5.11.27 to 25.11.27... ...	1.12.27 / 1.12.27
Alondra	Scott, L. S.	H. Peters	No. A.	Yeoward	,, 19.11.27 to 8.1.28	11.1.28
Alynbank	Clayton, W. E. ...	R. Ardley	,, A.	A. Weir & Co. ...	,, 13.9.27 to 19.10.27... ...	14.11.27
Ampetco ...	Vandenkerckhove, A.	... ...	,, A.	American Petroleum	Form 911 3.11.27 to 2.12.27	8.12.27
Andalucia ...	Thomas, R. J. ...	C. W. Vaughan...	,, M.	Blue Star	,, 2.10.27 to 12.11.27... ...	22.11.27
Anchises	Woodgett, R. J. ...	... ...	,, A.	A. Holt	,, 1.10.27 to 21.10.27... ...	14.11.27
Andes	Smith, W. E., D.S.O., R.D., Capt. R.N.R.	A. S. Nicholls	M.L.	R.M.S.P. Co.	,, 19.11.27 to 3.1.28	6.1.28
Antilochus ...	Clark, J. W. ...	O. P. H. Wynne	No. A.	A. Holt	,, 13.9.27 to 27.10.27... ...	31.10.27
Aorangi	Crawford, R. ...	G. H. Kime, E. Anderson, E. V. Bilger, D. Richards.	M.L.	Canadian-Australasian	Met. Log. 1.6.27 to 15.9.27	11.10.27
30 *Aquitania* ...	Charles, Sir J. T. W. K.B.E., C.B., R.D., Commodore R.N.R.	J. L. Croasdaile, J. Locke, D. MacLean.	W.T.	Cunard	W.T. Reg. 28.11.27 to 13.12.27 ...	16.12.27
62 *Arabic*	Bulman, J. B. ...	J. M. Appleby, W. Jackman, W. N. Jenkins.	,,	White Star	,, 14.11.27 to 3.12.27... ...	6.12.27
Arafura ...	Gordon, A. S. ... / Diamond, S. L. ...	F. O. Colvin, F. R. Miller, C. Stratford.	M.L.	Eastern and Australian	Met. Log. 29.7.27 to 25.10.27... ...	17.12.27
Arawa	Summers, W. G. ...	D. Aitchison, A. C. Jones, J. Jackson.	,,	Shaw, Savill and Albion	,, 30.3.27 to 28.7.27	11.8.27
Archimedes ...	Downs, E. B. ...	E. R. Hartley	No. A.	Lamport & Holt ...	Form 911 22.8.27 to 12.9.27	22.9.27
Argyllshire ...	Wallace, J. ...	J. M. Crone	,, M.	Federal	,, 26.9.27 to 14.10.27... ...	15.11.27
Ariguani	Scudamore, J. H. H., D.S.C., R.D., Commr., R.N.R.	G. McKee, J. L. Owen, E. W. Jones.	M.L.	Elders & Fyffes ...	Met. Log. 24.5.27 to 17.9.27	9.11.27
Ariosto	Biggins, —	... ...	No.	Ellerman Wilson ...	... ...	...
Armadale Castle ...	Imlah, C. B. ...	A. B. Connon, G. D. Pennick, J. Lecky, H. Bunn.	,,	Union Castle	,, 7.5.27 to 30.10.27 ...	17.11.27
Arracan	Duncan, S. S.	J. Summers, J. Henderson, C. C. Weir.	,,	P. Henderson ...	,, 5.5.27 to 19.9.27	29.9.27
Arundel	Short, H.	Mr. Hill...	C.C.	Southern Rly. ...	Telegraphic Report 9.12.27	9.12.27
Arundel Castle ...	Knight, A.	R. May	No. A.	Union Castle ...	Form 911 25.11.27 to 11.12.27 ...	10 1.28
Astronomer ...	Richards, J. ...	A. Browne, C. C. Heaton, H. M. Fitz-Simons.	M.L.	Harrison	Met. Log. 28.10.27 to 7.1.28	13.1.28
Ascanius	Agnew, J.	C. Houghton, R. Singleton, J. B. Marshall.	,,	A. Holt	,, 22.5.27 to 26.9.27	3.10.27
Athenic	Binks, J. W. ...	W. Hill	No. A.	White Star	Form 911 20.10.27 to 3.11.27... ...	24.11.27
Atreus	Rundle, R. R. ...	H. Nicholas	,, A.	A. Holt	,, 2.12.27 to 14.12.27... ...	2.1 28
Atsuta Maru ...	Narui, N.	K. Fuse	,, A.	Nippon Yusen Kaisha	,, 16.7.27 to 15.8.27	19.11.27
Auditor	Owen, W. T. ...	L. A. Bennett	,, M.	Harrison	,, 13.9.27 to 13.12.27... ...	17.12.27

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro-logical Equipment.	Line	Last Log, Register, or Report Contributed. Received up to 13.1.28.	Date Received.
Autolycus	Dunlop, J. K. ..	T. Bell	No. A.	A. Holt...	Form 911 17.11.27 to 28.11.27 ...	8.12.27
Ausonia	Stafford, W., D.S.C., R.D., Lt.-Commr., R.N.R.	J. J. Wiseman	„ A.	Cunard	„ 21.8.27 to 8.10.27	11.10.27
Avon	Hannam, F. S. ...	E. S. Dunch	„ M.	R.M.S.P.	„ 10.11.26 to 20.1.27... ...	8.2.27
Balranald	Townshend, W. P., Commr., R.N.R.	C. Hannen, F. Ward, R. E., Cowell, J. C. Davis. L. S. Bailey.	M.L.	P. & O. Branch ...	Met. Log. 9.6.27 to 13.10.27	22.11.27
51 *Baltic*	White, E. R., R.D., Commr., R.N.R.	J. Law, N. E. Banks, N. L. Mackie.	W.T.	White Star ...	W.T. Reg. 29.11.27 to 18.12.27 ...	29.12.27
					Form 911 27.11.27 to 21.12.27 ...	29.12.27
Bampton Castle ...	Hutchings, A. H. ...	... ...	No. A.	Union Castle	„ 17.9.27 to 14.10.27... ...	24.10.27
Banbury Castle ...	Swiney, W. A. ...	C. G. Cuthbertson	„ A.	„	„ 21.4.27 to 9.5.27	9.6.27
Banffshire	Wynne, R. H.... ...	W. F. Lockhead	„ A.	Turnbull Martin ...	„ 30.10.27 to 2.12.27... ...	8.12.27
Baradine	Rollo, W.	B. H. Pollitt, E. Bolton-Smith, G. C. Case, C. B. Roche.	M.L.	P. & O. Branch ...	Met. Log. 1.9.27 to 4.1.28	11.1.28
Barpeta	Strachan, J.	B. R. Faithfull	No. M.	British India	Form 911 2.11.27 to 1.12.27	20.12.27
Barrabool	Rhodes, H. R. ...	C. W. Mayne	„ M.	P. & O. Branch ...	„ 18.9.27 to 30.10.27... ...	3.11.27
Baychimo'	Cornwall, S. A. ...	W. H Deans	„ A	Hudson's Bay Co. ...	„ 7.7.27 to 14.9.27	13.10.27
59 *Belgenland* ...	Morehouse, W. A. ...	F. Good, W. E. Hesketh ...	W T.	Red Star ...	W.T. Reg 5.12.27 to 11.12.27... ...	30.12.27
					Form 911 4.12.27 to 11.12.27... ...	30.12.27
Beltana	Allin, C. H. C. ...	D. M. Stafford	No. M.	P. & O. Branch ...	„ 15.10.27 to 17.11.27 ...	9.1.28
Benalder	Fairweather, J. J. ...	A. J. Leckie	„ A.	Ben Line	„ 18.12.27 to 1.1.28	11.1.28
Bendigo	Nicholl, R. N. C. ...	... ...	„ M.	P. & O. Branch ...	„ 14.10.27 to 25.10.27 ...	3.11.27
Benefactor	Jones, C. W.	A. Watson	„ M.	Harrison	„ 17.11.27 to 6.12.27... ...	30.12.27
Bengloe	McCorquodale, A. ...	J. W. Gordon	„ A.	Ben Line	„ 21.9.27 to 10.11.27... ...	28.11.27
31 *Berengaria* ...	Rostron, Sir A. H., K.B.E., R.D., Capt. R.N.R.	J. A. Myles, W. C. A. Robson, S. A. T Bullock.	W.T.	Cunard	W.T. Reg. 8.12.27 to 20.12.27... ...	22.12.27
Berrima	Short, C. E.	A. Hughes	No. M.	P. & O. Branch ...	Form 911 7.10.27 to 12.11.27... ...	16.11.27
Berwyn	McCombie, G. ...	D. Dunn	„ A.	Canadian Pacific ...	„ 23.1.27 to 19.3.27	24.3.27
Bogota	Pape, E. R.	S. E. Ayland	„ M.	R.M.S.P. Co.	„ 9.10.27 to 31.10.27... ...	4.11.27
Bolingbroke ...	Murray, M. F. ...	J. B. Hewson, F. G. Webster, N. Scallon, R. Davidson.	M.L.	Canadian Pacific ...	Met. Log. 16.9.26 to 23.3.27	25.5.27
Borda	Holland, R.	... ...	No M.	P. & O. Branch ...	Form 911 18.2.27 to 28.6.27	7.7.27
Bothwell	Rothwell, A. J. ...	— Biggs	„ A.	Canadian Pacific ...	„ 6.3.27 to 14.4.27	20.4.27
Brecon	Rothwell, A.	E. H. Coleman	„ A.	„ „ ...	„ 5.5.27 to 6.6.27	14.6.27
Brenda	Lamont, A.	N. Ross	„ A.	Scottish Fishery Board.	„ 4.12.27 to 30.12.27	2.1.28
Brighton	Hill, A.	Mr. Munton	C.C.	Southern Railway ...	Telegraphic Report 12.1.28	12.1.28
British Engineer	Joures, F. W.	W. Evans	No. M.	British Tankers ...	Form 911 11.2.27 to 26.2.27	25.5.27
British Progress ...	Putt, R. O.	W. Johnston	„ M.	„ „ ...	„ 30.11.27 to 6.1.28	11.1.28
Bronte	Crapper, J. S.... ...	J. B. Scott	„ A.	Lamport & Holt ...	„ 25.11.27 to 21.12.27 ...	29.12.27
Bulysses M.V. ...	Carey, J.	A. J. Clatworthy	„ M.	Anglo-Saxon Petroleum Co.	„ 7.11.27 to 11.12.27... ...	2.1.28
Cambria C.S. ...	Sherwood, C. A., D.S.C.	A J. English, B. C. Farrow, C. F. St. John.	No.	Eastern Tel. Co. ...	Met. Log. 9.9.26 to 25.1.27	23.2.27
Cambria	Copland, C. P. ...	O. W. Ll. Jones	C.C.	L.M. & S. Rly	Telegraphic Report 8.12.27	8.12.27
Cameronia	Gemmell, W.	... ...	No. A.	Anchor	Form 911 6.11.27 to 27.11.27... ...	1.12.27
Camito	Forrester, W. T., O.B.E.	H. H. Dunning, J. McIntyre, C. M. Schofield.	M.L.	Elders & Fyffes ...	Met. Log. 2.8.27 to 26.11.27	1.12.27
Canadian Importer	Forson, A.	G. R. Randall	No. A.	Canadian Gov. Mercantile Marine.	Form 911 21.10.27 to 9.11.27... ...	12.12 27
Canadian Inventor	Boulton, F. W. ...	O. D. Alcorn	„ A.	„ „ „	„ 17.9.27 to 30.10.27... ...	19.11.27
Canadian Scottish	Wallace, C.	... ...	„ A.	„ „ „	„ 26.5.27 to 11.7.27	19.8.27
Canadian Skirmisher.	Millar, W. H.	... ...	„ A.	„ „ „	„ 19.11.26 to 5.1.27	11.1.27
Canadian Winner	Hocking, N. P. ...	R. J. Watson	„ M.	„ „ „	„ 13.11.27 to 30.11.27 ...	11.1.28
Canonesa	Brodie, W. H. ...	F. W. Kent	„ M.	Furness Houlder ...	„ 20.12.27 to 12.1.28... ...	13.1.28
35 *Carmania* ...	Brown, F. G., R.D., Capt., R.N.R.	W. M. Stewart, P.L. Williams, D. E. Sibson.	W.T.	Cunard ...	W.T. Reg. 30.10.27 to 19.11.27 ...	21.11.27
					Form 911 7.8.27 to 26.8.27	30.8.27
Carnarvon Castle ...	Hague, J.W., Commr., R.N.R. Strong, H., R.D., Commr., R.N.R.	B. Simpson, H. A. Causton, G. Gorringe, H. A. Deller.	M.L.	Union Castle ...	Met. Log. 29.4.27 to 21.8.27	27.8.27
34 *Caronia*	Hossack, W. H., R.D., Capt., R.N.R.	P. F. Collins, H. G. Hayward.	W.T.	Cunard ...	W.T. Reg. 23.9.27 to 4.11.27	17.11.27
					Form 911 24.9.27 to 4.11.27	17.11.27
Casanare	Steidelmann, H. ...	R. O. Jones	No. A.	Elders & Fyffes ...	„ 25.6.27 to 11.9.27	16.9.27
Cavina	Riseley, A. D.... ...	W. J. Dodd, J. W. Kendall, R. M. Cossentine.	„ A.	„ „ ...	„ 22.10.27 to 27.11.27 ...	1.12.27
52 *Cedric*	Smith, R. G.	S. S. Fieldwood, D. W. Chamberlain, J. Smith.	W.T.	White Star ...	W.T. Reg. 5.12.27 to 25.12.27... ...	29.12.27
					Form 911 4.12.27 to 25.12.27... ...	29.12.27
53 *Celtic*	Berry. G.	A. Thompson, J. McCormick	„	„ „ ...	W.T. Reg. 21.11.27 to 11.12.27 ...	15.12.27
					Form 911 20.11.27 to 12.12.27 ...	15.12.27
Centaur	Rose, A. F.	L. Johnstone, E. D. Potts, N. L. Thompson.	No. M.	A. Holt & Co. ...	„ 11.3.27 to 20.8.27	11.1.28
Ceramic	Roberts, J., C.B.E., D.S.O., R.D., Capt., R.N.R.	... ...	„ A.	White Star	„ 20.8.27 to 6.12.27	8.12.27
Changte	Gambrill, F. C. ...	D. D. Tyer, A. Johnston ...	M.L.	Yuill & Co.	Met. Log. 15.4.27 to 9.8.27	5.10.27
Changuinola ...	Thorburn, R. A., R.D., Commr., R.N.R.	C. K. Harrocks...	No. A.	Elders & Fyffes ...	Form 911 16.10.27 to 19.11.27 ...	1.12.27
China	Sudell, F., R.D., Commr., R.N.R.	L. Porter	„ M.	P. & O.	„ 25.7.27 to 11.8.27	8.10.27
Chindwin	Esslemont, C. ...	... ...	„ A.	Henderson	„ 4.9.27 to 16.11.27	5.12.27
Chirripo	McColm, F.	... ...	No.	Elders & Fyffes ...	... ...	...
City of Baroda ...	McMillan, J.	A. Beaton, E. H. Routledge, — Field.	M.L.	Ellerman	Met. Log. 5.7.27 to 29.9.27	10.11.27
City of Benares ...	Anderson, W. W. ...	F. Forsyth	No. A.	„	Form 911 4.8.27 to 3.9.27	26.9.27
City of Brisbane ...	Seaborne, F. O., D.S.C.	D. W. F. Reilly	„ A.	„	„ 28.9.27 to 30.10.27... ...	4.11.27
City of Canterbury	Bremner, D. M. ...	R. H. Hodgson	„ A.	„	„ 18.9.27 to 26.10.27... ...	7.11.27
City of Carlisle ...	Mordue, J. A. ...	... ...	„ A.	„	„ 8.10.27 to 5.11.27	12.12.27
City of Chester ...	Letton, F. W. ...	C. C. Duncan, A. J. Barnett, R. Mowbray.	M.L.	„	Met. Log. 28.4.27 to 22.9.27	28.10.27
City of Edinburgh	Wyper, J.	G. Hummell	No. M.	„	Form 911 25.11.27 to 18.12.27 ...	9.1.28
City of Hong Kong	Walton, H. L., O.B.E., R.D., Commr., R.N.R.	... ...	„ A.	„	„ 6.10.27 to 4.11.27	29.12.27

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 13.1.28.	Date Received.
City of London ...	Parker, F. W., R.D., Commr., R.N.R.	H. D. Asher	No. A.	Ellerman	Form 911 28.9.27 to 22.12.27... ...	29.12.27
City of Rangoon ...	Jones, P.	E. R Wildermoth, R. H. Stewart, G. T. Willet.	M.L.	„	Met. Log. 22.1.27 to 4.6.27	29.12.27
City of Venice ...	Lee, A.	... ...	No. A.	„	Form 911 2.3.27 to 17.3.27	4.5.27
City of Yokohama	Singleton, J. G. ...	... ...	„ A.	„	„ 28.8.27 to 20.9.27	5.12.27
Clan Alpine ...	Lyall, A. B.	H. J. Winchester	„ A.	Clan	„ 11.7.27 to 19.10.27... ...	28.11.27
Clan Lamont ...	Urquhart, P., D.S.C.	P. de Gruchy	„ A.	„	„ 13.9.27 to 14.10.27... ...	21.10.27
ClanLindsay ...	Giles, H. J., R.D., Commr., R.N.R.	E. P. Smith	„ A.	„	„ 8.11.27 to 24.11.27... ...	17.12.27
Clan MacBean ...	Worthington, J. H. ...	... ...	No.	„	... ...	...
Clan Macbeth ...	Pagan, Q. C.	T. A. Watkinson	„ A.	„	„ 17.10.27 to 26.11.27 ...	20.12.27
Clan Macfadyen ...	Stenson, F. J. R.D., Capt. R.N.R.	C. M. B. Cumberlege	„ A.	„	„ 7.9.27 to 23.12.27	4.1.28
Clan Macfarlane ...	Redford, —	... ...	„ A.	. ...	... ...	...
Clan Macgillivray	West, W. F.	R. W. Roberts	„ A.	„	„ 27.4.27 to 24.5.27	20.6.27
Clan Macindoe ...	West, W. F.	D. McAllister	„ A.	„	„ 20.11.27 to 20.12.27 ...	2.1.28
Clan Mackellar ...	Smith, W. P.	G. A. A. Grant	„ A.	„	„ 16.8.27 to 3.11.27	10.11.27
Clan Macphee ...	Gourlay, J. B. ...	D. S. Rae, A. F. Martin, W. A. Shewan.	M.L.	„	Met. Log. 14.5.26 to 2.5.27	9.6.27
Clan Macnaughton	Simpson, A. W. ...	D. D. Ingram	No. A.	„	Form 911 20.10.27 to 4.12.27... ...	9.1.28
Clan Mactaggart ...	Mee. F. T.	E. A. Hewson	„ A.	„	„ 18.10.27 to 22.11.27 ...	28.11.27
Clan Macwhirter ...	Waterhouse, J. ...	W. A. Robbie, E. A. Brown, D. Timms.	M.L.	„	Met. Log. 11.2.27 to 15.8.27... ...	23.8.27
Clan Malcolm ...	Neill, G. A.	D. A. Stark, H. V. Whitman A. R. Macdonald.	M.L.	„	Met. Log. 7.4.27 to 23.7.27	27.8.27
Clan Morrison ...	Porterfield, W. M. ...	H. R. Crosscombe	No A.	„	Form 911 5.9.27 to 5.12.27	12.12.27
Clan Murdoch ...	Miller, W.	H. F. M. Preston	„ A.	„	„ 9.10.27 to 16.12.27... ...	6.1.28
Clan Ranald ...	Laird, C.	F. D. Bonney	„ A.	„	„ 26.11.27 to 8.12.27... ...	29.12.27
Clan Ross	Openshaw, L. G. ...	J. R. Elliott	„ A.	„	„ 14.10.27 to 1.11.27 ...	28.11.27
Clan Sinclair ...	George, L. S.	N. Macleod	„ A.	„	„ 19.10.27 to 18.12.27 ...	10.1.28
Clan Urquhart ...	Baker, E. W.	W. A. Shewan	„ A.	„	„ 24.11.27 to 20.12.27 ...	9.1.28
Colonia, C.S. ...	Carlton, G. F., O.B.E., Commr., R.N.R.	W. E. Allen, W. F. Anderson, F. B. Bolingbroke.	M.L.	Telegraph Construction & Maintenance.	Met. Log. 4.12.26 to 25.2.27	8.3.27
Colonian	Gittins, R. P.	W. J. Wright	No. A.	Leyland	Form 911 2.12.27 to 10.12.27... ...	17.12.27
Comorin	Borland, J. Mc.I., C.B., D.S.O., R.D., Capt., R.N.R.	E. C. White	„ M.	P. & O.	„ 7.10.27 to 17.11.27... ...	29.12.27
Concordia	Telfer, J. H.	T. Philip, W. Law, L. H. Hobson.	M.L.	Anchor Donaldson ...	Met. Log. 5.2.27 to 11.7.27	14.7.27
Corinthic	Hart, F.	I. A. Macnaughton	„	White Star	„ 17.9.27 to 8.1.28	10.1.28
Cornwall	Haines, F. P.	H. S. White	No. A.	Federal	Form 911 26.1.27 to 28.2.27	12.4.27
Crawford Castle ...	Morgan, A. O., R.D., Commr., R.N.R.	J. A. Wilson	„ A.	Union Castle ...	„ 30.10.27 to 1.12.27... ...	15.12.27
Culebra	Rathkins C.E. ...	P. Cooper, R. N. Fletcher, G. Ferguson.	M.L.	R.M.S.P. Co.	Met. Log. 15.8.27 to 17.10.27... ...	4.11.27
Cumberland ...	Macmillan, D. ...	J. D. Marks	No. A.	Federal...	Form 911 13.7.27 to 20.8.27	26.8.27
Cuthbert	Barlow, F. P.	... ...	„ A.	Booth	„ 25.8.27 to 18.9.27	22.9.27
Cyclops	Cosker, W.	J. R. C. Evans	„ A.	A. Holt	„ 26.7.27 to 17.9.27	22.9.27
Dardanus	Williams, D. T. ...	... ...	„ A.	„	„ 20.11.27 to 14.12.27 ...	21.12.27
Darian	Masters, W.	... ...	„ A.	Leyland	„ 12.11.27 to 24.11.27 ...	5.12.27
Darro	Matthews, G. P. ...	... ...	„ M.	R.M.S.P. Co.	„ 21.10.27 to 6.12.27... ...	15.12.27
Demerara	Willan, F. G. L., R.D., Capt., R.N.R.	S. T. Whiteside	„ M.	„	„ 4.10.27 to 24.11.27... ...	1.12.27
Demosthenes ...	Ogilvy, A.	J. Cruickshank	„ M.	Aberdeen	„ 12.7.27 to 31.10.27... ...	2.11.27
Deseado	Hannam, F. S. ...	L. D. Jennings, A. Barff ...	„ M.	R.M.S.P. Co.	„ 20.8.27 to 14.10.27... ...	25.10.27
Desna	Green, J.	L. G. Peterson	„ M.	„	„ 15.11.27 to 5.1.28	11.1.28
Deucalion	Melling, C. F.... ...	R. Wilson...	„ A.	A. Holt	„ 28.11.27 to 7.12.27... ...	17.12.27
Dieppe	Marmery, S.	Mr. Parsons	C.C.	Southern Railway ...	Telegraphic Report 13.1.28	13.1.28
Dimboola	Roy, C. M.	... ...	No. A.	Melbourne S.S. Co. ...	Form 911 28.10.27 to 22.11.27 ...	29.12.27
Discoverer	Ling, J. T.	H. W. Gostage	„ M.	Harrison	„ 8.4.27 to 9.7.27 ...	12.7.27
Domala, M.V. ...	Kitson, A. G.	J. G. Wallace	„ M.	British India	„ 8.7.27 to 18.9.27	10.10.27
Dominia, C.S. ...	Campos, V., O.B.E., Lt.-Commr., R.N.R.	S. A. Garnham, C. Bullock. L. J. Hegarty, R. Johnson.	M.L.	Telegraph Construction & Maintenance.	... ...	...
Dominic	Harris, F. C. P. ...	C. C. Beal...	No. A.	Booth	Form 911 22.7.27 to 5.8.27	5.9.27
61 *Doric*	Bolton, S., D.S.C., R.D., Commr., R.N.R.	B. Harrison, A. E. Dyer, G. T. Kavanagh.	W.T.	White Star	W.T.Reg. 30.10.27 to 19.11.27 ... Form 911 30.10.27 to 19.11.27 ...	24.11.27 1.12.27
Dorington Court ...	Clarke, E. J.	P. Jones	No. A.	Haldin & Co.	„ 19.6.27 to 29.9.27	11.10.27
Dromore Castle ...	MacMahon, J. ...	D. P. Klasen	„ A.	Union Castle	„ 8.10.27 to 20.10.27... ...	12.11.27
Dryden	Major, T. W.	... ...	„ M.	Lamport & Holt ...	„ 11.12.27 to 5.1.28	9.1.28
Dunaff Head ...	Milner, T. F. R.D., Lt.-Commr., R.N.R.	S. Duff	„ A.	Ulster S.S. Co. ...	„ 4.10.27 to 9.11.27 ...	11.11.27
Dundrum Castle ...	Weller, H. E	H. H. F. Trew	„ A.	Union Castle	„ 21.8.27 to 23.9.27	24.10.27
Dunluce Castle ...	Jackson, C. R. ...	F. O. Wilbraham	„ A.	„ „	„ 19.11.27 to 8.12.27... ...	29.12.27
Dunrobin	Ramsay, J. D. ...	C. H. Kendall	„ A.	Glen & Co.	„ 17.9.27 to 21.10.27... ...	3.11.27
Duquesa	Ellis, F., D.S.C. ...	E. W. Denman	„ M.	Furness Withy ...	„ 7.11.27 to 4.1.28	9.1.28
Durenda	Beeching, P. H. ...	... ...	„ M.	British India	„ 19.10.27 to 17.11.27 ...	8.12.27
Edinburgh Castle	Owen, S.	T. N. McAllen	No. A.	Union Castle	„ 5.8.27 to 25.9.27	3.10.27
Egori	Sola, P., D.S.O. ...	F. J. Croft	No. A.	Elder Dempster ...	„ 7.12.27 to 22.12.27... ...	29.12.27
Egyptian Prince ...	Ord, T.	... ...	„ A.	Prince	„ 13.1.27 to 7.3.27	31.3.27
El Paraguayo ...	Fletcher, G.	F. F. Feint, D. Murray ...	„ M.	Houlder Bros. ...	„ 23.10.27 to 15.12.27 ...	20.12.27
Elpenor	Gordon, A. L.... ...	M. Robertson, C. Kavanagh	M.L.	A. Holt	Met. Log. 8.9.27 to 23.12.27	4.1.28
Elysia	Duncan, A. R. ...	A. Laidlaw, H. C. Fry, J. Herbert.	„	Anchor	„ 28.7.27 to 2.10.27	17.10.27
Empress of Asia ...	Douglas, L. D. R.D., Lt.-Commr., R.N.R.	R. H. Foley, L. C. Hogg, T. M.W Golby, M. Fawcett.	„	Canadian Pacific ...	„ 9.6.27 to 1.10.27	4.11.27
Empress of Canada	Hailey, A. J.	A. G. Simmons	„	„ „ ...	„ 30.6.27 to 22.10.27... ...	28.11.27
Empress of France	Griffiths, E.	O. F. Pennington, E. Roberts, W. Ewens.	„	„ „ ...	„ 30.4.27 to 18.10.27... ...	31.10.27
Empress of Russia	Hosken, A. J.	L. C. Barry, R. A. Leicester. J. S. Clarke, J. H. Reich.	„	„ „ ...	„ 19.5.27 to 9.11.27	16.12.27
Endeavour	Commr. S. A. Geary-Hill, D.S.O., R.N.	C. S. E. Lansdown	M.L.	His Majesty's Ship ...	„ 14.3.27 to 11.7.27	19.7.27
Essequibo	Kite, E....	J. H. Lowe	No. M.	R.M.S.P. Co.	Form 911 6.10.27 to 15.11.27... ...	5.12.27
Eumaeus	Read, J. W.	... ...	„ A.	A. Holt	„ 3.6.27 to 1.12.27	8.12.27
Euripides	Collins, P. J., O.B.E.	H. S. Cox, K. D. Fisher, P. Congdon.	M.L.	Aberdeen	Met. Log. 1.1.27 to 8.5.27	14.5.27

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 13.1.28.	Date Received.
Euryades	Stewart, J. R.... ...	... ...	No. A.	A. Holt	Form 911 21.10.27 to 4.11.27... ...	12.12.27
Explorer	Ling, J. T.	A. M. Hughes	„ M.	Harrison	„ 6.8.27 to 4.11.27	15.11.27
Explorer	Allan, J.	A. Stout	„ A.	Scottish Fishery Board.	„ 2.12.27 to 17.12.27... ...	2.1.28
Ferndale	Daniel, F.	D. Jones, A. Kneen	„ M.	Commonwealth Govt.	„ 3.11.27 to 1.12.27	17.12.27
Flandria	Maars, L.	T. Doornbosch	„ M.	Holland Lloyd ...	„ 15.4.27 to 2.6.27	9.6.27
Francisco	Scales, H.	F. Elgin	„ A.	Ellerman Wilson ...	„ 12.11.27 to 23.12.27 ...	2.1.28
Freya	Angus, W.	W. Pirrie	„ A.	Scottish Fishery Board.	„ 1.12.27 to 31.12.27... ...	6.1.28
Gaika	Jackson, C. R. ...	L. G. May	„ A.	Union Castle	„ 11.9.27 to 4.11.27	7.11.27
Galtymore	Yeoman, J. T. ...	... ...	„ M.	Furness Withy ...	„ 25.9.27 to 24.11.27... ...	1.12.27
Garoet	Visser, C. W.	C. J. Vandenboom	„ M.	Rotterdam Lloyd ...	„ 26.6.27 to 15.7.27	25.7.27
Garth Castle ...	Jackson, C. R. ...	W. S. J. Aldous	„ A.	Union Castle	„ 28.5.27 to 18.6.27	22.6.27
Gelria	Veldkamp, C. J. ...	J. Doornbosch	„ M.	Holland Lloyd ...	„ 16.9.27 to 3.11.27	7.11.27
Geranium	Bennett, H. T., D.S.O., Commr. R.A.N.	... ...	„ M.	His Majesty's Australian Ship.	... ...	...
Glamorganshire ...	Spriddell, F. G., R.D., Commr., R.N.R.	T. G. S. Cairns	„ M.	R.M.S.P. Co.	Form 911 21.10.27 to 27.11.27 ...	8.12.27
Glenamoy, M.V. ...	Homan, C. E.... ...	R. H. Bishop	M.L.	Glen Line	„ 17.8.27 to 22.10.27... ...	4.11.27
Glengarry	Angier, J.	C. S. Brewer	No. M.	„	„ 6.9.27 to 30.10.27	2.11.27
Glenluce	Kennett, W. H. ...	H. B. Porter	„ A.	„	„ 24.11.27 to 8.12.27... ...	12.12.27
Glenshane	Beer, E.	... ...	„ A.	„	„ 16.9.27 to 23.11.27... ...	20.12.27
Gloucestershire ...	Robin, E.	C. F. Hicks	„ A.	Bibby	„ 8.10.27 to 16.12.27... ...	20.12.27
Gloxinia	Pool, —	... ...	No.	Stag Line	... ...	...
Grantully Castle ...	Whitfield, G. T. ...	R. Wren	No. A.	Union Castle	Form 911 3.6.27 to 14.8.27	17.8.27
Greenbrier	McColm, F.	J B. Wookey	„ A.	Elders & Fyffes ...	„ 24.7.27 to 28.8.27	5.9.27
Halesius	Samuels, C.	R. W. Cook	„ A.	R. P. Houston ...	„ 20.8.27 to 23.9.27	14.11.27
Haliartius	Marsh, L. V.	... ...	„ A.	„ „ ...	„ 25.6.27 to 19.7.27	15.8.27
Harmonides ...	Hughes, W. F. ...	S. S. Davidson	„ A.	„ „ ...	„ 10.4.27 to 2.5.27	16.5.27
Hatimura	Lane, S. R., R.D., Capt., R.N.R.	F. Dolton, K. G. Pullman ...	No. M.	British India	„ 5.9.27 to 10.10.27	31.10.27
Hauraki, M.V. ...	Frew, J. D.	B. F. Fisher	M.L.	Union S.S. Co., N.Z....	Met. Log. 11.8.26 to 6.3.27	9.6.27
Henry Holmes, C.S.	Bicker Caarten, A. ...	M. A. Green	No. M	W. I. & Panama Telegraph Co.	Form 911 4.11.27 to 13.12.27... ...	9.1.28
Herald	Haselfoot, F.E.B., Capt., R.N.	D. G. V. Williams	M.L.	His Majesty's Ship ...	Met. Log. 21.6.27 to 17.10.27... ...	15.11.27
Herefordshire ...	Mann, R. P.	M. D. Louttill	No. A.	Bibby	Form 911 1.10.27 to 9.12.27	12.12.27
Herminius	Roberts, T. V. ...	O. C. Hayles	„ A.	Shaw, Savill & Albion	„ 24.2.27 to 10.4.27	15.8.27
Herschel	Watson, W. W. ...	J. F. Maurey	„ A.	Lamport & Holt ...	„ 13.4.27 to 3.7.27	25.7.27
Hertford	Urquhart, D.	A. Robertson	„ A.	Federal	„ 22.5.27 to 13.6.27	25.7.27
Hibernia	Roberts, W. Ivor, M.B.E.	R. Woodall, A. Marsh ...	C.C.	L.M. & S. Railway ...	Telegraphic Report 13.1.28	13.1.28
Highland Laddie ...	Jones, T. J.	N. F. Seaton	No. A.	Nelson	Form 911 24.10.27 to 11.12.27 ...	23.12.27
„ *Piper* ...	Collings, D.	S. E. Jackson, R. G. Owen, A. Southgate.	M.L.	„	Met. Log. 13.5.27 to 4.11.27	1.12.27
„ *Pride* ...	Robinson, R. H. ...	... ...	No. A.	„	Form 911 23.9.27 to 21.11.27... ...	28.11.27
„ *Prince* ...	Marshall, J	... ...	„ A.	Prince	„ 5.12.27 to 17.12.27... ...	2.1.28
„ *Rover* ...	Ashby Graves, F. ...	C. C. Legg	„ A.	Nelson	„ 17.7.27 to 3.9.27	22.9.27
Hildebrand ...	Maddrell, J.	A. G. Malcolm	„ A.	Booth	„ 16.11.27 to 30.12.27 ...	2.1.28
Hobson's Bay ...	Kydd, O. J.	R. Pearce, H. Benson, K. McKenzie.	M.L.	Commonwealth Govt.	Met. Log. 4.10.27 to 7.1.28	13.1.28
Holbein	Gough, W. A.... ...	H. L. Rudd	No. A.	Lamport & Holt ...	Form 911 9.7.27 to 26.9.27	18.10.27
54 *Homeric*	Holme, A.	H. G. Morgan, S. B. Morfee, W. T. Poustie.	W.T.	White Star	W.T. Reg. 3.11.27 to 18.11.27... ...	21.11.27
Hororata	Holland, E.	... ...	No. A.	New Zealand S.S. Co.	Form 911 4.6.27 to 6.10.27	17.10.27
Hubert	Evans, L.	W. H. Cross	„ A.	Booth	„ 23.12.27 to 11.1.28... ...	13.1.28
Huntingdon ...	Ashworth, W. ...	H. G. Letts	„ A.	Federal...	„ 13.11.27 to 27.11.27 ...	17.12.27
Huntsman	Russell, H.	J. Richardson	„ M.	Harrison	„ 15.11.27 to 5.12.27... ...	20.12.27
Hurunui	Burton Davies, J. ...	J. Oxnard, F. Longheed, L. Cann, K. Goldsworthy.	M.L.	New Zealand S.S. Co.	Met. Log. 2.1.27 to 23.6.27	28.6.27
Hydaspes	Williams, —	... ...	No. M.	R. P. Houston ...	... ...	...
Ingoma	Barrow, R. K. ...	D. G. Russell	No. M.	Harrison	Form 911 15.10.27 to 27.11.27 ...	5.12.27
Inkum	Meetham, J. T. ...	H. Johnson	„ A.	J. H. Welsford ...	„ 18.11.27 to 5.12.27... ...	20.12.27
Iris, C.S.	Hughes, H. R. ...	W. Oliver, D. Bruce, D. Macdonald, T. Vickers.	M.L.	Pacific Cable Board...	Met. Log. 17.11.26 to 24.3.27... ...	11.10.27
Iroquois	Jackson, A. L. Commr., R.N.	H. L. Jenkins	„	His Majesty's Ship ...	„ 4.4.27 to 1.8.27	13.9.27
Ixion	Reed, G. C.	E. C. Radford	No. A.	A. Holt	Form 911 9.10.27 to 20.10.27... ...	28.10.27
Javanese Prince ...	Naylor, E.	W. Venn	„ A.	Prince	„ 23.9.27 to 25.10.27... ...	12.11.27
Jervis Bay	Chaplin, W. R. ...	R. W. Laycock	„ M.	Commonwealth Govt.	„ 10.12.27 to 19.12.27 ...	9.1.28
Kaisar-i-Hind ...	Morton, A. J.	... ...	„ M.	P. & O.	„ 17.9.27 to 9.11.27	12.11.27
Kalyan	Cornewall Jones, B.	... ...	„ M.	P. & O.	„ 6.11.27 to 25.11.27... ...	20.12.27
Kamo Maru ...	Enya, S.	... ...	„ A.	Nippon Yusen Kaisha	„ 16.9.27 to 19.10.27... ...	25.10.27
Kangaroo	{ Buckeridge, G. ... { Turner, J. E. ...	E. Hutchinson, J. Kavanagh, H Brackenridge.	M.L.	State Service Australia.	Met. Log 4.5.27 to 5.9.27	25.10.27
Kashmir	Mallalue, R., R.D., Lt.-Commr., R.N.R.	A. J. McHattie	No. M.	P. & O.	Form 911 17.9.27 to 29.11.27... ...	8.12.27
Kenilworth Castle	Chave, Sir B., K.B.E.	R. C. Longman, L. A. J. Keeble, W. Dryden, W. Wyeth.	M.L.	Union Castle	Met. Log. 18.4.27 to 8.8.27	19.10.27
Khiva	Cooper, C. P., O.B.E., R.D., Capt., R.N.R.	G. W. Wood, D. Meakle, E. Allen, V. A. Nicolls.	M.L.	P. & O.	„ 8.6.27 to 14.8.27	19.8.27
Khyber	Hester, C. W., R.D., Commr., R.N.R.	C. S. Pirie J. D. Hornidge, H. T. Toon.	„	P. & O.	„ 29.7.27 to 6.11.27	16.11.27
Knight Companion	Cox, B. T.	A. Lamb, D. W. Williams ...	No. M.	A. Holt	Form 911 16.3.27 to 31.7.27	3.8.27
Koolinda, M.V. ...	Norris, H.	J. S. Airey	„ M.	State Service, Australia.	„ 26.8.27 to 26.9.27	31.10.27
Kovno	Dossor, W. A. ...	A. Snowdon, S. N. Stokes, N. W Glendenning, S. Butcher.	M.L.	Ellerman Wilson ...	Met. Log. 18.6.27 to 20.12.27... ...	6.1.28
37 *Laconia*... ...	Britten, E. T., R.D., Commr.. R.N.R.	J. Ashcroft, E. W. Connell, J. O. Chambers.	W.T.	Cunard ... {	W.T. Reg. 13.11.27 to 4.12.27... ... { Form 911 13.11.27 to 3.12.27	8.12.27 20.12.27

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro-logical Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 13.1 28.	Date Received.
Laguna	Mander, T.	R. H. A. Clark	No. A.	Pacific S.N. Co. ...	Form 911 29.11.27 to 14.12.27 ...	2.1.28
Lahore	Pigott, L. D.	E. B. Elcoate	„ M.	P. & O.	„ 10.12.27 to 22.12.27 ...	2.1.28
Lalande	Hamill, H.	A. E. Warburton	„ A.	Lamport & Holt ...	„ 18.7.27 to 18.10.27... ...	3.11.27
Lancashire	Griffiths, C. A. ...	R. Allen	„ A.	Bibby	„ 31.7.27 to 7.10.27	12.10.27
36 *Lancastria* ...	R. G. Malin	R. P. Cambell, L. R. Sharp, F. G. Russell.	W.T.	Cunard ...	W.T. Reg. 16.12.27 to 7.1.28	13.1.28
					Form 911 15.12.27 to 9.1.28	13.1.28
Laomedon	Beswick, W., D.S.C., Lt.-Commr., R.N.R.	H. A. Standfield	No. A.	A. Holt...	„ 17.10.27 to 2.11.27... ...	5.12.27
La Paz, M.V. ...	Benson, C. W... ...	D. Beamer	„ M.	Pacific S.N. Co. ...	„ 30.11.27 to 19.12.27 ...	4.1.28
Laplace	Hickman, V. G. ...	A. L. Murray, R. D. Cottam	„ A.	Lamport & Holt ...	„ 15.4.26 to 28.6.27	30.8.27
55 *Lapland*	Thomas, A. J. ...	C. Cornellie, F. Wills	W.T.	Red Star ...	W.T. Reg. 31.10.27 to 18.11.27 ...	21.11.27
					Form 911 30.10.27 to 19.11.27 ...	21.11.27
64 *Laurentic* ...	Trant, E. L., R.D., Commr., R.N.R.	... ...	„	White Star	... ...	... ...
Lautaro, M.V. ...	Dunn, R. E., O.B.E....	E. Sandon	No. M.	Pacific S.N. Co. ...	„ 29.6.27 to 25.7.27	8.9.27
Leicestershire ...	de Legh. P.	R. S. Evans. H. G. Walton, J. K. Gemmell, G.W. Hunter.	M.L.	Bibby	Met. Log. 10.9.27 to 18.11.27... ...	24.11.27
Leighton, M.V. ...	Lindesay, J. M. ...	J. T. A. Thomson	No. A.	Lamport & Holt ...	Form 911 22.7.27 to 10.8.27	22.8.27
Leitrim	Kemp, E. R.	C. R. Brown	„ A.	Dowie, J., & Co. ...	„ 2.11.27 to 17.11.27... ...	23.11.27
Llandaff Castle ...	Morton Betts, W. ...	R. Bayer, M. J. Castle... ...	„ A.	Union Castle	„ 7.9.27 to 27.9.27	28.10.27
Llandovery Castle	Kerbey, K. H. ...	C. H. Williams, G. Moon, E. M. Betts.	M.L.	„ „	Met. Log. 25.8.27 to 9.11.27	11.11.27
Loch Katrine ...	Buret, T. J. C. ...	W. Gelling	No. M.	R.M.S.P. Co.	Form 911 21.7.27 to 15.10.27... ...	9.11.27
London Commerce	Young, H. J., D.S.C....	W. Edmonds	„ A.	Furness Withy ...	„ 19.8.27 to 19.9.27	26.9.27
London Importer ...	Frost, C. R.	H. J. Anstice, J. H. Metcalfe, J. G. Freeman.	M.L.	„ „ ...	Met. Log. 8.9.27 to 3.12.27	13.12.27
Lord Antrim ...	Jarvis, F E.	L. G. Kirwan	No. A.	Ulster S.S. Co. ...	Form 911 27.4.27 to 10.5.27	23.5.27
Loriga, M.V. ...	Clapham, E. C. ...	R. W. Gill	„ A.	Pacific S.N. Co. ...	„ 27.10.27 to 15.11.27 ...	12.1.28
Losada, M.V. ...	Ross, J....	J. T. Denley	„ M.	„ „ ...	„ 29.6.27 to 1.10.27	13.10.27
Macedonia	Potter, H. W., R.D., Commr., R.N.R.	C. J. L. Hayward	„ M.	P. & O.	„ 2.10.27 to 28.11.27... ...	29.12.27
Macharda	Tyers, W. O.	W. Spencer	„ M.	Brocklebank	„ 10.11.27 to 6.12.27... ...	12.12.27
Maharani ...	Elliott, G. F.	M. Haslett	„ M.	Asiatic S.N. Co. ...	Form 911 7.9.27 to 9.10.27	31.10.27
Maihar	Charlton, W. L. ...	C. Shaw, C. Cadwallader, S. S. Slade.	M.L.	Brocklebank	Met. Log. 1.10.27 to 25.12.27... ...	2.1.28
Maimyo	Smith, G. C.	H. M. Drummond	No. A.	„ ...	Form 911 16.7.27 to 8.10.27	11.10.27
Maiwara	Blain, A. W.	... ...	M.L.	Burns Philp	... ...	... ...
58 *Majestic*	Metcalfe, G. R. ...	W. W. Pearson, L. Thompson, W. T. Fitz Gerald.	W.T.	White Star	W.T. Reg. 15.12.27 to 29.12.27 ...	2.1.28
Makambo	Brown, T. M.... ...	F. C. Vogelmann, R. W. Holmes, T. MacRae.	M.L.	Burns Philp	Met. Log. 15.3.27 to 15.8.27	11.10.27
Makura	Mawson, J.	A. Champion. D. Burgess, W. J. Weber, A. Gell.	„	Canadian-Australasian	„ 16.6.27 to 30.9.27	28.11.27
Malabar	Hillman, E. J. ...	R. Morris	„	Burns, Philp & Co. ...	Met. Log. 6.1.27 to 9.5.27	11.10.27
Malakuta	Adamson, F. L. ...	N. Grayson	No. M.	Brocklebank	Form 911 11.9.27 to 6.11.27	16.11.27
Malancha	Whitham, F.... ...	R. Humble	„ M.	„ ...	„ 10.12.27 to 20.12.27 ...	30.12.27
Malda	Gray, T. N.	S. G. James	„ M.	British India ...	„ 20.10.27 to 25.11.27 ...	5.12.27
Maloja	Warner, S. C.... ...	A. D. Dennis	„ M.	P. & O.	„ 14.11.27 to 27.11.27 ...	9.1.28
Mamari	Falconer, H.	P. Campbell	„ A.	Shaw, Savill & Albion	„ 19.7.27 to 22.9.27	27.9.27
Manchester Brigade	Stott, C. H.	W. S. Eustance	„ A.	Manchester Liners ...	„ 20.11.27 to 23.12.27 ...	2.1.28
Manchester Corporation.	Williams, H.	H. J. P. Nelson	„ A.	„ „ ...	„ 18.9.27 to 30.10.27... ...	8.11.27
Manchester Hero ...	Riley, J. E.	H. Anderton	M.L.	„ „ ...	Met. Log. 16.2.27 to 27.6.27 ...	7.7.27
Manchester Regiment	Foale, J. R.	P. D. Barr	No. A.	„ „ ...	Form 911 1.10.27 to 29.10.27... ...	4.11.27
Manchester Shipper	Raper, E. W.	C. A. Walker, A. Ricketts, L. Southern.	M.L.	„ „ ...	Met. Log. 25.6.27 to 30.11.27... ...	6.12.27
Manipur	Cochran, G. N. ...	R. Penston	No. M	Brocklebank	Form 911 26.11.27 to 5.12.27... ...	17.12.27
Manistee	Steidelmann, H. ...	... ...	M.L.	Elders & Fyffes ...	... ...	... ...
Manora	Hudson, H. T., R.D., Commr., R.N.R.	... ...	No. M.	British India... ...	Form 911 4.11.27 to 28.11.27... ...	6.1.28
Mantua	Randell, G. G. ...	D. B. Leader, H. Tee ...	„ M.	P. & O.	Form 911 6.8.27 to 29.9.27	3.10.27
Marella	Mortimer, S.	A. G. Hill, R. Duddell, A. G. Thomas.	M.L.	Burns Philp	Met. Log. 4.5.27 to 28.9.27	28.11.27
Marengo	Procter, A.	F. Barnard, H. Bryon, J. Ford	„	Ellerman Wilson ...	„ 18.6.27 to 14 11.27... ...	17.11.27
Maresfield	Jones, T. E.	T. Conolly	No. A.	Woods, Tyler & Brown	Form 911 13.11.27 to 7.12.27... ...	9.1.28
Margha	Milne, R. A., R.D., Commr., R.N.R.	P. Wright, H. E. Evans, R. M. Wyatt, D. G. Woods.	M.L.	British India... ...	Met. Log. 2.7.27 to 1.10.27	13.10.27
Marquesa	Smiles, R. S.	... ...	No. M.	Furness Houlder ...	Form 911 8.9.27 to 27.10.27	31.10.27
Matakana	Thurston, H. P. ...	J. Hart, J. Dickson, C. E. Mayer.	M.L.	Shaw, Savill & Albion	Met. Log. 15.4.27 to 1.9.27	5.9.27
Mataram	Voy, W.	V. V. Edmonds...	No. A.	Burns, Philp & Co. ...	Form 911 26.12.26 to 20.1.27... ...	28.2.27
Mataroa	Kershaw, W. A. R. ...	T. T. Oliver, J. J. Nicoll, J. Worrall.	M.L.	Shaw, Savill & Albion	Met. Log. 19.8.27 to 5.12.27	10.12.27
Matheran	Ison, W. A.	L. Jeans, H. Simpson, J. Richardson	„	Brocklebank	„ 7.6.27 to 4.1.28	10.1.28
Matiana	Green, F. V.	... ...	No. M	British India... ...	Form 911 8.9.27 to 26.10.27... ...	5.12.27
Maunganui... ...	Davey, A. H.	F. Gibson, V. Knight, H. Kemp.	„ M.	Union S.S. Co. of N.Z	„ 29.4.27 to 22.7.27	5.9.27
32 *Mauretania* ...	Diggle, E. G., R.D., Capt., R.N.R.	J. A. Quarrie, G. Duguid, C. B. Osborne.	W.T.	Cunard	W.T. Reg. 22.12.27 to 5.1.28	10.1.28
Medic	Jones, W. H.	W. Nicoll...	No. A.	White Star	Form 911 10.3.27 to 18.4.27	21.4.27
Megantic	Trant, E. L., R.D., Commr., R.N.R.	... ...	„ A.	„ „	„ 30.7.27 to 20.8.27	24.8.27
22 *Melita*	Stewart, A.	J. Shearer	W.T.	Canadian Pacific ...	W.T. Reg. 11.12.27 to 28.12.27 ...	9.1.28
Memnon	Dougall, W. T. ...	J. A. C. MacGregor	No. A.	A. Holt...	Form 911 7.11.27 to 26.11.27... ...	2.1.28
21 *Metagama* ...	Freer, A., Capt., R.N.R.	R. Walker, T. Gillette, G. Mowatt.	W.T.	Canadian Pacific ...	W.T. Reg. 16.10.27 to 5.11.27... ...	8.11.27
Middlesex	MacRae, A., D.S.C., Lt.-Commr., R.N.R.	C. Roberts	No. M.	Federal...	Form 911 10.11.27 to 26.11.27 ...	1.12.27
Minna	Mackenzie, G. G. ...	A. M. Campbell	„ A.	Scottish Fishery Board.	Form 911 20.11.27 to 22.12.27 ...	29.12.27
Minnesota	Finch, E.	R. Everard	No M.	Atlantic Transport...	„ 12.12.27 to 31.12.27 ...	4.1.28
Minnetonka ...	Gates, T. F., C.B.E. ...	H. E. Macartney	„ M.	„ „ ...	„ 20.11.27 to 10.12.27 ...	17.12.27
Minnewaska ...	Claret, F. H., C.B.E., Commr., R.N.R.	F. J. Mummery	„ M.	„ „ ...	„ 18.12.27 to 24.12.27 ...	30.12.27
Mirror, C.S. ...	Gibson, L.	A. G. Watts	„ M.	Eastern Tel. Co. ...	„ 8.3.27 to 17.3.27	8.4.27
Mississippi	Wylie, J. T. J.... ...	... ...	„ A.	Atlantic Transport ...	„ 6.11.27 to 15.11.27 ...	26.11.27
Moldavia	Burleigh, C. W., D.S.O., R.D., Capt., R.N.R.	W. L. Dobbin	„ M.	P. & O.	„ 5.11.27 to 25.11.27... ...	20.12.27

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro-logical Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 13.1.28.	Date Received.
Mongolia	Furlong, G. H. S., R.D., Capt., R.N.R.	... ...	No. M.	P. & O.	... ...	... ...
Mongolian Prince	Edwards, W.... ...	V. E. Palmer	„ A.	Prince	Form 911 11.10.27 to 8.11.27... ...	10.1.28
24 *Montcalm* ...	Hamilton, G.	H. McFadyen	W.T.	Canadian Pacific ...	W.T. Reg. 5.11.27 to 24.11.27... ...	28.11.27
25 *Montclare* ...	Webster, G. S., R.D., Lt.-Commr., R.N.R.	F. E. Williams, A. Mansey ...	„	„ „ ...	„ 19.11.27 to 13.12.27 ...	16.12.27
27 *Montnairn* ...	Notley, A. H., R.D., Commr., R.N.R.	N. A. Goater, J. Roche, K. Hutchings.	W.T.	Canadian Pacific ...	W.T. Reg. 5.11.27 to 23.11.27... ... Form 911 1.12.27 to 11.12.27... ...	28.11.27 29.12.27
Montoro	Hillman, E. J. ...	R. M. Blunt	No. A.	Burns, Philp & Co. ...	Form 911 22.9.27 to 25.10.27... ...	5.12.27
26 *Montrose* ...	Landy, E.	A. Watt	W.T.	Canadian Pacific ...	W.T. Reg. 27.11.27 to 15.12.27 ...	20.12.27
20 *Montroyal* ...	Sibbons, H.	R. Antrobus	„	„ „ ...	„ 27.9.27 to 8.11.27	12.11.27
Moresby	Edgell, J. A., O.B.E., Capt., R.N.	W. H. Martin	M.L.	His Majesty's Australian Ship.	Met. Log. 4.4.27 to 14.8.27	4.10.27
Morvada	Mills, T. L., O.B.E., R.D., Commr., R.N.R.	D. S. Johnston	No. M.	British India	Form 911 20.7.27 to 16.10.27... ...	24.10.27
Mulbera	Steadman, W. R. ...	S. Broomhead	„ M.	„	„ 5.10.27 to 10.11.27... ...	16.11.27
Nagara	Foster, E.	J. Watson	„ M.	R.M.S.P. Co.	„ 15.1.27 to 24.5.27	1.6.27
Nagoya	Bedwell, L. A. ...	T. A. Sergeant	„ M.	P. & O.	„ 5.11.27 to 4.1.28	9.1.28
Naldera	Dayas, C.	C. H. Hand, W. T. Banks, H. M. Askin.	M.L.	„	Met. Log. 21.9.27 to 3.11.27	7.11.27
Nardana	Moth, F. L.	J. N. McMillan	No. M.	British India	Form 911 9.9.27 to 18.10.27	17.12.27
Nellore	Hignett, A. H., R.D., Lt.-Commr., R.N.R.	A. J. Brown	„ M.	P. & O.	„ 29.9.27 to 30.10.27... ...	1.11.27
Nerbudda	Williams, B. N. ...	P. Harrison	„ M.	British India	„ 31.10.27 to 18.11.27 ...	29.12.27
Nestor	Houghton, G. K. ...	J. Milhench, G. Shennan, N. Anderson.	M.L.	A. Holt	Met. Log. 16.7.27 to 5.11.27	10.11.27
Newby Hall ...	Storey, J. K.	... ...	„	Ellerman	„ 16.4.27 to 14.10.27... ...	1.12.27
Newfoundland ...	Westgarth, W. A., D.S.C.	R. F. Handley, E. Sainty, S. Moore, E. B. Burke.	„	Furness Withy ...	„ 20.5.27 to 29.9.27	5.10.27
Niagara	A. C. Showman, T. V. Hill.	R. N. Turner, D. Rollo, V. Knight.	„	Canadian-Australasian	„ 24.8.27 to 9.12.27	10.1.28
Ningchow	Beale, H. E.	M. H. Vincent	No. A.	A. Holt...	Form 911 24.12.27 to 4.1.28	12.1.28
Norfolk	Robinson, F. W. ...	J. W. Thompson, A. M. Downan.	„ A.	Federal	„ 3.10.27 to 18.10.27... ...	7.11.27
Norna	Wright, J. W.... ...	T. R. Ness	„ A.	Scottish Fishery Board	„ 29.11.27 to 23.12.27 ...	29.12.27
Norseman, C.S. ...	Barter, H. O., R.D., Commr., R.N.R.	R. W. Greenfield	„ M.	Western Tel. Co. ...	„ 28.11.27 to 4.12.27... ...	29.12.27
Northumberland ...	Upton, H. L.	... ...	M.L.	Federal	... ...	... ...
Nova Scotia ...	Furneaux, S.	... ...	No. A.	Furness Withy ...	Form 911 21.9.27 to 17.10.27... ...	18.10.27
Nowshera	Schleicher, J. W. ...	W. D. L. Reeves	„ M.	British India	„ 16.10.27 to 26.11.27 ...	8.12.27
Nubian	Watmough, T. M. ...	... ...	„ A.	Leyland	„ 19.8.27 to 30.10.27... ...	11.11.27
Oaklands Grange	St. Clair, C., D.S.C. ...	C. F. Foxwell	„ A.	Houlder Bros. ...	„ 13.12.27 to 11.1.28... ...	13.1.28
57 *Olympic*	Marshall, W., C.B., D.S.O., A.D.C., R.D., Commodore, R.N.R.	A. Fisher, H. J. C. Day, A. E. Weller.	W.T.	White Star ...	W.T. Reg. 1.12.27 to 14.12.27... ... Form 911 1.12.27 to 15.12.27... ...	19.12.27 17.12.27
Orama	Matheson, C. G., D.S.O., R.D., Capt., R.N.R.	W. Elliot, C. K. Blake, H. Tanner.	M.L.	Orient	„ 24.7.27 to 25.10.27... ...	1.11.27
Oranian	Hoskins, W.	W. R. Atkinson...	No. A.	Leyland	„ 22.7.27 to 19.10.27... ...	25.10.27
Orbita	Dominy, R. H., C.B.E. Commr., R.N.R.	J. Lloyd Jones	„ M.	R.M.S.P. Co.	„ 9.8.27 to 17.10.27	28.10.27
Orcoma	Pearse, A. W.	T. Naylor, G. Gerety, R. T. Hales.	M.L.	Pacific S.N. Co. ...	Met. Log. 17.2.27 to 4.5.27	24.8.27
Orduna	Daniel, T.	R. D. Eckford	No. M.	R.M.S.P. Co.	Form 911 11.10.27 to 22.12.27 ...	29.12.27
Orestes	Flynn, G. A.	... ...	„ A.	A. Holt...	„ 5.10.27 to 20.10.27... ...	14.11.27
Orita	Duncan, E. E. ...	D. W. Hutchinson, F. Carter, H. D. Griffiths.	M.L.	Pacific S.N. Co. ...	Met. Log. 20.6.27 to 1.12.27	8.12.27
Ormonde	Rice, W. V., D.S.O., D.S.C., Commr. R.N.	H. P. Price	„	His Majesty's Ship ...	„ 2.7.27 to 29.10.27	28.11.27
Ormonde	Sarson, M. J.	... ...	No. M.	Orient	Form 911 8.10.27 to 30.10.27... ...	5.12.27
Oronsay	Owens, A. L., R.D., Commr., R.N.R.	R. K. Rogerson, R. S. Hawker, J. D. Archer.	M.L.	„	Met. Log. 22.5.27 to 30.9.27	6.10.27
Oroya	Ridyard, A.	S. Lewis	No. M.	Pacific S.N. Co. ...	Form 911 28.8.27 to 31.10.27... ...	7.11.27
Orsova	Cameron, E. P., R.D., Commr., R.N.R.	H. Schofield, L. J. Vesty, A. Croft Cohen, H. A. Whittle, A. Addison.	M.L.	Orient	Met. Log. 21.8.27 to 23.11.27... ...	26.11.27
Orvieto	O'Sullevan, F. R. ...	G. L. Carter, T. Fox Russell, R. C. Warner.	„	„	„ 4.9.27 to 6.12.27	29.12.27
Osterley	Hayes, I. J., R.D., Commr., R.N.R.	R. J. Galpin	No. A.	„	Form 911 13.11.27 to 28.11.27 ...	2.1.28
Otaki	McNish, R.	J. McBulloch	„ A.	New Zealand S.S. Co.	„ 27.11.27 to 16.12.27 ...	10.1.28
Otira	Wood, C., D.S.C. ...	D. N. MacGregor	„ M.	Shaw, Savill & Albion	„ 18.7.27 to 30.9.27	6.10.27
Otranto	Staunton, H. G., C.B.E., R.D., Commr., R.N.R.	O. C. Davies	„ M.	Orient	„ 18.9.27 to 20.12.27... ...	23.12.27
Oxfordshire ...	Foster, W. L.	... ...	„ A.	Bibby Bros.	„ 22.10.27 to 31.12.27 ...	12.1.28
Pacific Shipper, M.V.	Campbell, H.... ...	... ...	„ A.	Furness Withy ...	„ 12.10.27 to 25.11.27 ...	5.12.27
Pacuare	Sapsworth, S. A. ...	V. R. Watkins	„ A.	Elders & Fyffes ...	„ 8.11.27 to 10.12.27... ...	2.1.28
Pakeha	W. P. Clifton Mogg ...	E. T. Baker, R. E. Nicholson, G. Lindsay	M.L.	Shaw, Savill & Albion	Met. Log. 23.7.27 to 17.12.27... ...	23.12.27
Pancras	Peregrine D.	... ...	M.L.	Booth	... ...	... ...
Pareora	Evans, J. O.	A. J. Ellis...	No. A.	Hain S.S. Co.	Form 911 6.7.27 to 2.8.27	15.9.27
Paris	Cook, C. L.	Mr. Biles	C.C.	Southern Rly. ...	Telegraphic Report. 31.7.27 ...	31.7.27
Patia	Makepeace, S. ...	J. Kinsley	No. A.	Elders & Fyffes ...	Form 911 19.6.27 to 23.7.27 ...	3.8.27
Patrol, C.S. ...	Welsh, T. K.	J. S. Browne	No.	Eastern Extension (A. & C.) Telegraph Co.	Met. Log. 18.10.26 to 15.11.26 ...	9.2.27
Peisander	Slater, H.	D. L. Hoare	No. A.	A. Holt...	Form 911 19.10.27 to 21.12.27 ...	29.12.27
65 *Pennland*... ...	Harvey, H.	C. J. Murray, E. Cornellie ...	W.T.	Red Star	„ 21.11.27 to 9.1.28	11.1.28
Peshawur	Wilding, H. G. ...	J. C. Mellonie. J. K. Crone, R. G. Wood.	M.L.	P. & O.	Met. Log. 27.4.27 to 28.9.27	5.10.27

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro-logical Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 13.1.28.	Date Received.
Piako	Kettlewell, C. R. ...	P. J. Connolly, T. K. McDonald, H. N. Lawson.	M.L.	New Zealand S.S. Co.	Met. Log. 3.7.27 to 5.12.27	12.12.27
Polycarp	Jackson, T. H. ...	C. W. Smethurst	No. A.	Booth	Form 911 27.11.27 to 8.12.27... ...	29.12.27
Port Adelaide ...	Williams, R.	E. N. Rogerson	M.L.	Commonwealth & Dominion.	Met. Log. 13.1.27 to 20.6.27	12.7.27
Fort Albany ...	Needham, R.	G. W. Horton	„	„ „ „	„ 1.6.27 to 25.11.27	8.12.27
„ *Auckland* ...	Durham, R. S. ...	G. L. Hazlewood, C. F. Post, J. H. Sloan, H. E. Braine.	„	„ „ „	„ 4.3.27 to 31.7.27	10.8.27
„ *Bowen* ...	Hearn, G. W.	W. R. Johnston	No. A.	„ „ „	Form 911 28.10.27 to 15.12.27 ...	6.1.28
„ *Campbell* ...	Reynolds, P. J. ...	G. T. C. Harris	„	„ „ „	... ...	...
„ *Caroline* ...	Hoad, A. C.	A. E. Fishwick, C. A. Hodson, J. Stannard.	M.L.	„ „ „	Met. Log. 6.7.27 to 5.11.27	10.11.27
„ *Darwin* ...	Sawbridge, I. R. ...	S. Hearn, E. M. Fenton, J. S. Moate.	„	„ „ „	„ 13.8.27 to 9.1.28	13.1.28
„ *Denison* ...	Ferris, J.	P. J. Howe	„	„ „ „	Form 911 25.5.27 to 7.7.27	9.7.27
„ *Dunedin* ...	Farmar, F.	E. G. Jones, H. M. Post, N. M. Muzzell.	M.L.	„ „ „	Met. Log. 20.5.27 to 25.9.27	28.9.27
„ *Fremantle* ...	Kearney, F. J. ...	A. G. Rhind	No. A.	„ „ „	Form 911 8.10.27 to 11.11.27 ...	20.12.27
„ *Gisborne* ...	Hutchinson, T. ...	... ...	No. A.	„ „ „	„ 21.8.27 to 23.12.27 ...	2.1.28
„ *Hobart* ...	Craven, R.	R. Carter, L. Copeland, G. G. Langford, C. L. Webb.	M.L.	„ „ „	Met. Log. 22.7.27 to 6.11.27	14.11.27
„ *Hunter* ...	Cottell, S. C.	A. Cooper, A. McClounan. J. T. Weldin.	„	„ „ „	„ 22.6.27 to 6.10.27	11.11.27
„ *Huon*	Compton, J.	J. A. Fairbairn	No. A.	„ „ „	... ...	...
„ *Melbourne* ...	Brown, A. H.	D. G. H. Bradley, L. H. B. Bloye, P. H. Pedrick, C. J. Galey.	M.L.	„ „ „	Met. Log. 31.3.27 to 12.10.27... ...	19.10.27
„ *Napier* ...	Jones, C. N.	... ...	No. A.	„ „ „	Form 911 25.2.27 to 12.4.27	21.4.27
„ *Nicholson* ...	Jack, J.	J. G. Lewis, G. L. H. Dean, P. A. Munday, C. Jolly.	M.L.	„ „ „	Met. Log. 26.2.27 to 24.7.27	11.8.27
„ *Pirie*	Kippins, T.	... ...	„	„ „ „	„ 26.3.27 to 2.9.27	13.9.27
„ *Sydney* ...	Higgs, W. G.	H. G. Boys Smith, E. E. Roswell, K. D. Morgan.	„	„ „ „	„ 1.4.27 to 17.8.27	1.9.27
„ *Victor* ...	Williams, R.	R. Stannard, J. B. Watson, A. Brown.	„	„ „ „	„ 16.7.27 to 28.11.27... ...	15.12.27
„ *Wellington* ...	Jones, C.	D. F. Morgan	No. A.	„ „ „	Form 911 19.10.27 to 22.11.27 ...	9.1.28
President Jackson	Griffith, J.	P. Treanor, J. A. Cartwright.	„ A.	Pacific Mail S.S. Co...	„ 26.7.27 to 12.10.27... ...	23.11.27
President Jefferson	Nichols, F. R	C. Hansson, C. H. Moen ...	„ A.	Admiral Oriental Line	„ 12.10.27 to 27.11.27 ...	23.12.27
Protea, H.M.S.A.S.	Woodhouse, A. F. B., Lt.-Commr., R.N.	R. J. Whitley	M.L.	South African Naval Service.	„ 30.7.27 to 7.11.27	20.12.27
Protesilaus	Nelson, T. B.	... ...	„	A. Holt	Met. Log. 8.4.27 to 7.9.27	11.10.27
Pyrrhus	Elford, W. J.	R. E. Wilks	No. A.	„	Form 911 6.11.27 to 15.11.27... ...	24.11.27
Rancher	Gibbings, W.	... ...	No.	Harrison	... ...	...
Ranpura	King, A. M., D.S.C. ...	E. J. Spurling	„ M.	P. & O.	„ 12.11.27 to 1.12.27 ...	20.12.27
60 *Regina*	Davies, E.	F. W. Laws, V. Evans, R. C. Cochrane.	W.T.	White Star - Dominion	„ 13.11.27 to 3.12.27... ...	7.12.27
					W.T. Reg. 13.11.27 to 3.12.27... ...	8.12.27
Reindeer	Langdon, C.	... ...	C.C.	G.W. Railway ...	Telegraphic Report 12.1.28	12.1.28
Remuera	Cameron, J. J. ...	D. Hughes, P. L. Shakespear	No. A.	New Zealand S.S. Co.	Form 911 6.5.27 to 20.8.27	24.8.27
Rhexenor	Stout, G. I.	... ...	„ A.	A. Holt...	... ...	...
Rhodesian Transport.	Bullock, F. W. H. ...	F. D. Betts	„ A.	Houlder Bros. ...	„ 16.7.27 to 29.10.27... ...	3.11.27
Rimutaka	Hemming, F. A. ...	H. A. Fryer, M. A. D. Stewart, G. O. Saul, H. Vernon.	M.L.	New Zealand S.S. Co.	Met. Log. 10.6.27 to 19.10.27... ...	25.10.27
Risaldar	Matthews, E. G. ...	R. H. Friedlander	No. M	Asiatic S.N. Co. ...	Form 911 4.11.27 to 19.11.27... ...	12.12.27
Rotorua	Hunter, J. L. B. ...	E. Lawrence, F. Cooke, H. Cockerill.	M.L.	New Zealand S.S. Co.	Met. Log. 3.9.27 to 15.12.27	19.12.27
Royal Fusilier ...	Dawson, J.	J. Fraser	No. A.	London & Edinburgh S.S. Co.	Form 911 19.5.27 to 7.7.27	11.7.27
Royal Transport ...	Dove, J.	R. W. Wass	„ A.	Houlder Bros. ...	„ 7.5.27 to 15.8.27	19.8.27
Ruapehu	McKellar, A. W., R.D., Capt., R.N.R.	A. Landles, W. J. Glassborow, W. J. Newton.	M.L.	New Zealand S.S. Co.	Met. Log. 9.9.27 to 5.1.28	10.1.28
St. Albans	Smith, G. L., Commr., R.A.N.R.	R. S. Millington, J. Kavanagh, R. L. Harry.	„	Eastern and Australian.	„ 1.7.27 to 27.9.27	17.11.27
St. Helier	Mulhall, W.	C. Bell	C.C.	G.W. Railway ...	Telegraphic Report 25.10.27... ...	25.10.27
St. Julien	... ...	C. Joy	„	„ „ ...	„ „ 7.1.28	7.1.28
St. Andrew ...	Bearpark, E. W. ...	... ...	No. A.	Rankin Gilmour ...	Form 911 24.10.27 to 22.11.27 ...	1.12.27
Salaga	Jones, W.	C. V. Evans	„ A.	Elder Dempster ...	„ 19.3.27 to 4.6.27	15.6.27
38 *Samaria*	Malin, R. G., Lieut.-Commr., R.N.R.	C. S. Williams, A. B. Fasting, W. B. Tanner.	W.T.	Cunard	„ 31.10.27 to 20.11.27 ...	24.11.27
					W.T. Reg. 31.10.27 to 20.11.27 ...	24.11.27
Samarinda ...	Flack, Z. W.	K. F. Kikhert	No. M.	Rotterdam Lloyd ...	Form 911 5.7.27 to 2.8.27	10.11.27
Sardinian Prince ...	Brown, J. F.	J. F. Wedgwood	„ A.	Prince	„ 7.9.27 to 7.10.27	20.10.27
Saxon	Gardner, G. F., O.B.E.	G. H. Pickering	„ A.	Union Castle	„ 19.11.27 to 8.1.28	10.1.28
Scholar	Egerton, J. J.	... ...	„ M.	Harrison	„ 17.9.27 to 28.11.27... ...	5.12.27
Scotia	Prichard, S. D., M.B.E.	W. T. Griffith	C.C.	L.M. & S. Railway ...	Telegraphic Report 9.1.28	9.1.28
33 *Scythia*	Prothero, W.	G. Overton, G. H. Morris, J. G. Bradley	W.T.	Cunard	W.T. Reg. 5.12.27 to 22.12.27... ...	31.12.27
Sheaf Mount ...	Groves, C. V.	W. Thomson	No. A.	W. A. Souter	„ 5.6.27 to 14.7.27	20.7.27
Sheaf Spear ...	Whitfield, G. A., O.B.E.	S. J. Dring, T. B. Fishley ...	M.L.	„	Met. Log. 4.2.27 to 25.7.27	17.9.27
Shropshire, M.V. ...	Adamson, B. W. ...	W. L. Whiteside, R. V. Brown, W. H. Brittain, P. F. Fullerton.	„	Bibby	„ 23.9.27 to 3.12.27	7.12.27
Socrates	Taylor, F. C.	W. E. Jordan	No. A.	Lamport & Holt ...	Form 911 2.7.27 to 14.9.27	26.9.27
Somerset	Howell Price, J. ...	W. Redwood	„ A.	Federal...	„ 16.11.27 to 20.12.27 ...	11.1.28
Spero	Montgomery, H. ...	D. Millward	M.L.	Ellerman Wilson ...	Met. Log. 9.7.27 to 31.12.27	6.1.28
Stephen	Evans, L. G.	... ...	No. A.	Booth	... ...	...
Stockwell	Thowless, E.	R. A. Kneen	„ A.	Brocklebank	Form 911 27.11.27 to 9.12.27... ...	2.1.28
Surrey	Lamb, C. B.	S. C. Bradley	„ A.	Federal...	„ 28.3.27 to 15.8.27	19.8.27
Suwa Maru	Gotoh, M.	... ...	„ A.	Nippon Yusen Kaisha	„ 27.11.27 to 25.12.27 ...	30.12.27
Sylvafield	Biddick, E.	A. A. Tully	„ A.	Hunting & Son ...	„ 24.11.27 to 31.12.27 ...	6.1.28
Tainui	Elford, H. C.	P. S. Horwood	„ A.	Shaw, Savill & Albion	„ 4.10.27 to 9.11.27	14.11.27
Tahiti	Aldwell, B. M. ...	G. M. Coote, H. A. Litchfield.	„ A.	Union S.S. Co. of N.Z.	„ 5.10.27 to 24.11.27... ...	8.12.27
Taiping	Frame, A. M.	F. Stratford, S. Moore, A. C. Kennedy, R. Bargent.	M.L.	Yuill & Co.	Met. Log. 11.6.27 to 4.11.27	4.1.28
Talthybius	Hatfield, J.	G. D. Jones	No. A.	A. Holt	Form 911 19.10.27 to 19.12.27 ...	9.1.28
Tamaroa	Hartman, W. H. ...	F. W. Lutyens	„ M.	Shaw, Savill & Albion	„ 27.8.27 to 2.10.27	6.10.27
Tanda	Pilcher, E. T., Lieut.-Commr., R.N.R.	G. C. Smith, H. Munday, H. E. Nuzum, J. Heddle.	„ M.	E. & A. S.S. Co. ...	„ 3.6.27 to 30.8.27	26.10.27
Tarantia	Upton, —	... ...	No.	Anchor	... ...	...
Teiresias	Wilkinson, W. H. ...	... ...	„ A.	A. Holt & Co.	10.9.27 to 1.1.28	6.1.28

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 13.1.28.	Date Received.
Tekoa	Barnett. H.	D. J. Murray	No. M.	New Zealand S.S. Co.	Form 911 18.11.27 to 7.12.27	9.1.28
Telamon	Willcox, J. H.		„ A.	A. Holt	„ 4.8.27 to 16.8.27	23.11.27
Tetela	Bostock, R. J.	F. L Brealy	„ A.	Elders & Fyffes	„ 13.11.27 to 19.12.27	29.12.27
Teucer	Hodgson, R. N.	R. N. Inksterl	„ A.	A. Holt	„ 24.8.27 to 12.11.27	14.11.27
Themistocles	Young, A. D.	H. C. Howe	„ M.	Aberdeen	„ 31.7.27 to 9.9.27	21.11.27
Theseus	Jones, E.	W. A. Fyffe	„ A.	A. Holt	„ 27.11.27 to 15.12.27	30.12.27
Titan	Power, J.	D. MacTavish, G. W. Best, C. F. Bailey.	M.L.	„	Met. Log. 4.4.27 to 10.8.27	5.9.27
Tongariro	Williams, J. M.	E. A. Quick	„	New Zealand S.S. Co.	Form 911 7.6.27 to 12.7.27	21.7.27
Transylvania	Bone, D. W.	P. Middleton	No. A	Anchor	„ 30.10.27 to 20.11.27	24.11.27
Traveller	Worthington, B.	E. L. Stockley, R. L. Williams	„ M.	T. & J. Harrison	„ 31.7.27 to 29.10.27	1.11 27
Trematon	Evans, B.	J. Jenkyn, C. Warren, L. Griffin.	M.L.	Hain S.S. Co.	Met. Log. 16.9.27 to 20.12.27	13.1.28
Turakina	Hamilton, E. S.		No. M.	New Zealand S.S. Co.	Form 911 19.9.27 to 10.10.27	25.11.27
11 *Tuscania*	Smart, R. W.	J. Hamilton	W.T.	Anchor	„ 24.9.27 to 15.10.27	19.10.27
Tyndareus	Williams, R. J., Williams, D. H., Christie, W.	A. G. Phillips, T. R. Phillips, F. H. Gray.	M.L.	A. Holt	Met. Log. 14.6.27 to 7.11.27	16.12.27
Ulimaroa	Wylie, W. J.	C. Rasmussen	No. M.	Huddart Parker, Ltd.	Form 911 30.9.27 to 31.10.27	12.12.27
Ulysses	Owen, R. D., O.B.E.	R. Blakey	„ A.	A. Holt	„ 22.12.27 to 9.1.28	13.1.28
Umvolosi	Barnes, E. W.	R. A. Dyns	„ A.	Bullard King	„ 3.11.27 to 15.12.27	9.1.28
Valacia	Inch, F.	G. Meggitt	„ M.	Cunard	„ 28.7.27 to 26.8.27	1.9.27
Vardulia	Robinson, F.W., D.S.O., R.D., Commr., R.N.R.	L. D. W. Rand	„ A.	„	„ 27.10.27 to 15.11.27	1.12.27
Vigilant	Simpson, E. S. S.	J. Hunter	„ A.	Scottish Fishery Board.	„ 1.12.27 to 31.12.27	4.1.28
Waiotapu	Todd, D.		„ M.	Canadian - Australasian.	„ 2.11.27 to 11.12.27	2.1.28
Wairuna	Ryan, J.	C. C. Waters, G. H. George L. B. Ehlert.	M.L.	Union S.S. Co. of N.Z.	Met. Log. 24.4.27 to 13.9.27	28.11.27
Walmer Castle	Lang, T. W. Stuart, C.B.	A. E. Denn	No. A.	Union Castle	Form 911 30.9.27 to 20.11.27	22.11.27
Wangaratta	Scutt, W.	T. W. Wordingham, S. R. Millard, A. G. Brooks, J. E. Rigden.	M.L.	British India	Met. Log. 3.4.27 to 27.8.27	3.9.27
Warfield	Steel, R.	C. M. Quick	No. A.	„ „	Form 911 9.9.27 to 23.9.27	3.10.27
War Nizam	Moncrieff, T.	B. Kieran	„ A.	British Tankers	„ 5.11.27 to 14.12.27	29.12.27
Westmoreland	Gardner, H. W.	C. P. Jackson, A. L. Warren, G. A. Shepherd.	M.L.	Federal	Met. Log. 11.7.27 to 16.11.27	22.11.27
William Scoresby, R.S.S.	De la Motte, J. B. B., Lieut., R.N.		„	Falkland Islands Government.		
Windsor Castle	Stanley, W. F., R.D., Commr., R.N.R.	A. J. Tweddell, F. Norfolk, — Montgomery.	„	Union Castle	„ 11.6.27 to 2.10.27	17.10.27
Winifredian	Harrocks, W.	A. Crone	No. M.	Leyland	Form 911 30.10.27 to 22.12.27	6.1.28
Wonganella	Suffern, H.	G. F. Phillips	„	W. Crossby & Sons	„ 26.9.27 to 8.11.27	20.12.27
Woodarra	Reilly, J. V.	H. Goater, B. W. Smith D. B. Lattin, G. F. Alexander.	M.L.	British India	Met. Log. 26.6.27 to 18.11.27	24.11.27
Yorkshire	Millson, G. E.	W. M. C. Higginson, R. Allen	No. A.	Bibby	Form 911 23.4.27 to 4.7.27	9.7.27
Zent	Roberts, —		„	Elders & Fyffes		
Conway H.M.S.	Richardson, F. A., D.S.C., Commr., R.N.	The Senior Cadets	Cadets' M.L.		Cadets' Met. Log. 18.9.27 to 10.12.27	17.12.27
Pangbourne Nautical College	Tracy, A. F. G., Commr., R.N.	„ „	„		Cadets' Met. Log. 28.9.27 to 15.12.27	23.12.27
Worcester, H.M.S.	Sayer, M.B., C.B.E., R.D., Capt., R.N.R.	„ „	„		Cadets' Met. Log. 23.9.27 to 14.12.27	19.12.27
Abaco		The Keepers	Lighthouse Register.		Lighthouse Register 1.7.26 to 20.10.26	20.4.27
Cay Lobos		„	„		Lighthouse Register 1.1.27 to 11.7.27	29.9.27
Double Headed Shot		„	„		Lighthouse Register 1.7.26 to 31.12.26	20.4.27
Inagua		„	„		Lighthouse Register 24.1.27 to 3.7.27	29.9.27
Sombrero		„	„		Lighthouse Register 1.1.27 to 30.6.27	10.8.27
Watling Island		„	„		Lighthouse Register 10.9.26 to 30.6.27	29.9.27
Cape Pembroke (Falkland Is.).		„	„		Lighthouse Register 1.1.27 to 30.6.27	18.10.27

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 31.12.27.	Date Received.
Casanare	Steidelman, H.	R. O. Jones	Elders & Fyffes	Water Samples	15.9.27
Darro	Matthews, G. P.	W. F. Walker	R.M.S.P. Co.	„ „	16.12.27
Deseado	Hannon, F. S.	J. N. Duncan	„	„ „	20.10.27
Hildebrand	Maddrell, J.	A. Allan	Booth	„ „	5.11.27
Tetela	Bostock, R. J.	J. S. Bell	Elders & Fyffes	„ „	24.12.27
Zent	Roberts, —		„	„ „	

March, M.O., 1928.

LIST OF SOME OF THE PUBLICATIONS PUBLISHED BY THE AUTHORITY OF THE METEOROLOGICAL COMMITTEE AND BY THE HYDROGRAPHIC DEPARTMENT OF THE ADMIRALTY.

MARINE METEOROLOGY, ATLASES AND MEMOIRS.

CHARTS :—

ATLANTIC :—

Monthly Current Charts for the Atlantic Ocean, from information collated and prepared in the Meteorological Office. (No. 132, 1897) (22½ × 18 in.) (Published by the Admiralty.)

Charts of Meteorological Data for the Nine 10° Squares of the Atlantic which lie between 20° N. and 10° S., and extend from 10° to 40° W., with accompanying Remarks, ending with the Best Routes across the Equator. (No. 27, 1876) 24*s.* (17 × 20 in.)

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