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WIRELESS TELEGRAPHY AND TROPICAL REVOLVING STORMS.

In our last Number we stated that it and the next would mainly be devoted to subjects which come under this heading; so we largely devote space to a report upon observations of West Indian Hurricanes which occurred last year.

When we spend the greater part of our time at sea in any particular trade we are apt to confine our interest to the conditions which prevail along our own particular route and so our views may become narrowed;

but we may gain useful knowledge from seamen in other trades. As tropical revolving storms have provided the basis for the development of the "Laws of Storms" in all parts of the World no seaman can afford to neglect what others have experienced in these storms, no matter whether they be on the other side of the Globe or in the immediate vicinity of his customary route.

MARINE SUPERINTENDENT.

WEST INDIAN HURRICANES, AUGUST AND SEPTEMBER, 1924.

By L. A. BROOKE SMITH, MARINE SUPERINTENDENT.

In the late summer and autumn shallow depressions associated with unsettled weather and strong winds move westward from south of the Cape Verde Islands and hurricanes are formed further west.

As long ago as 1878, Captain HENRY TOYNBEE produced convincing evidence that the great hurricane of August, 1873 originated over the sea somewhere to the eastward of the West India Islands and most probably in that part of the sea which lies to the south-westward of the Cape Verdes where the N.E. Trade and S.W. Monsoon meet in August, by drawing synoptic charts of the North Atlantic from the Equator to Latitude 65° N.

Reference to the Chart in Vol. I., No. 8 of this Journal giving tracks of West Indian hurricanes, will show that in the month of August hurricanes first observed to the westward of the Antilles usually travel W.N.W. and cross the Gulf of Mexico, while those first observed north of the West Indies travel north-westward to the

United States coast or recurve and follow that coastline to the N.E. A similar chart for the month of September in Vol. I., No. 9 shows that hurricanes first observed to the westward of the Antilles have crossed the Gulf of Mexico, but they and those first observed to the northward of the West Indies most frequently travel west to N.W. recurving in about Latitude 26° and travelling N.E. pass close to the Island of Bermuda.

It is very important, now that it is possible by means of wireless telegraphy to construct a weather chart at sea, that it should be known more generally amongst seamen that the paths of hurricanes are greatly influenced by the general pressure distribution; their inclination is to follow a direction parallel to the outer isobars of anti-cyclones, that is they curve round the anti-cyclone and do not force through it.

Last year we appealed to Marine Observers to record everything of interest seen in tropical revolving storms or in their vicinity and

we emphasised the fact that as tropical revolving storms always originate over the sea, observations of conditions throughout the season in cyclone areas are necessary to establish origin.

In the course of this investigation we shall see how ships which had received No. 9 of Vol. I. in time have responded; it was despatched to all ships upon our list on the first Wednesday in August, 1924 and so may not have reached many in time. We would remind Marine Observers of this invitation for future seasons.

In Chapter VI. of "Wireless and Weather, An Aid to Navigation," Vol. I., No. 5, and again in Chapter XI., of the same serial, Vol. I., No. 11, it was shown how comparison of the mercurial barometer reduced to sea level at a temperature of 32° F. in latitude 45° and corrected for diurnal range, with the normal, would give the mariner warning of the development or vicinity of a cyclone. For this purpose a table to correct Barometer Pressure for Diurnal Variation, compiled under Captain TOYNBEE many years ago for Latitude 5° N. to the Equator in the North Atlantic, and another recently compiled for the S.E. Trade region within the Tropics, were given.

In this investigation the value of comparison of the barometer with normals within the Tropics gives further proof of the value of a tested mercurial barometer, properly used, for obtaining knowledge of the probability of the existence of hurricanes. In the opinion of the writer, based upon over a quarter of a century's experience at sea and five years spent in investigating marine observations ashore, seamanship and meteorology have both been the losers through the widespread misconception which has undoubtedly come about as to "a cessation of the diurnal range of the barometer within the Tropics being a sign of a hurricane." The diurnal range continues.

We are indebted to Dr. G. C. SIMPSON, C.B.E., F.R.S., Director of the Meteorological Office, for the discovery of our misconception, for he first called my attention to it, pointing out that ashore in India it has been established that the diurnal range did not cease before a cyclone and that he thought this must be the same at sea; we have since found by a great many observations that the diurnal range continues, but there is generally a fall of the barometer below the normal before a hurricane occurs, and other signs may not be observable.

The following table was computed by means of the HOLLERITH sorting and tabulating machine from 30,159 observations of the barometer in the years 1921 to 1924 in Latitude 10° to 20° N. in all Longitudes at sea. It gives a fair average correction to apply to the barometer (absolute pressure) observed at the time of the relief of the watch, when observations are usually made for entry in the log, in the Northern Tropics.

This also affords another example of the saving which may be effected by the use of the HOLLERITH machine and of the value of the new system of data extraction whereby observations from all Ocean routes are extracted as received. The sorting and adding observations and computing the table took only 13 man-hours including re-adding to find an error. It is doubtful if this table could have been made in two months by the old system.

It must be made clear that the absolute pressure should be reported by wireless and logged; the correction by table for diurnal range being applied by the receiver of the report for comparison with the normal. On no account should this correction be applied before entry in the log or for use in a report.

Table to Correct Barometric Pressure for Diurnal Variation.
Latitude 10°—20° N. in all Longitudes at Sea.

Ship's Time.	Northern Spring.		Northern Summer.		Northern Autumn.		Northern Winter.	
	mbs.	ins.	mbs.	ins.	mbs.	ins.	mbs.	ins.
4 a.m.	+0.8	+0.02	+0.7	+0.02	+0.8	+0.02	+0.3	+0.01
8 a.m.	-1.1	-0.03	-0.9	-0.03	-0.9	-0.03	-0.9	-0.03
Noon	-0.9	-0.03	-0.6	-0.02	-0.7	-0.02	-0.6	-0.02
4 p.m.	+1.3	+0.04	+1.2	+0.04	+1.3	+0.04	+1.4	+0.04
8 p.m.	+0.1	+0.00	+0.1	+0.00	-0.1	-0.00	0.0	0.00
Midt.	-0.4	-0.01	-0.3	-0.01	-0.3	-0.01	-0.2	-0.01

Let us see what the observations and remarks returned tell us each day, make weather charts and not only see what deductions we can make now from these, but suggest what might be done with wireless co-operation as advocated in the serial "Wireless and Weather, An Aid to Navigation" of last year.

CHART No. XXIV. gives the tracks made by the centres of two hurricanes which have been numbered I. and II. for clearness. The positions indicated are for 8 a.m. local time. The weather charts are also constructed from 8 a.m. observations.

Hurricane No. 1.

On the morning of August 17th, 1924, observations recorded at Sombrero Lighthouse, Leeward Island, in *Manistee* approaching Mona Passage, *Ormonde* at anchor off Port of Spain, Trinidad, and *Honorius*, West of Trinidad, show that the barometer, reduced to the usual datum and corrected for diurnal range, was within 2 mb. of the normals given in this region on the Meteorological Chart of the North Atlantic for August.

If we compare the barometer readings shown on WEATHER CHART No. XXV. FOR AUGUST 18TH, 1924, with the normal isobars given on the North Atlantic Chart for August it will be found that after applying the correction for diurnal range the barometer at Sombrero was about 5 mb. too low and Cirrus clouds were observed coming slowly from south at 6 a.m. With our general experience in regions of tropical revolving storms in all longitudes north and south of the Equator we should expect that a storm had formed in the vicinity.

Examination of logs and reports soon enables us to locate the storm.

S.S. *Manistee*, Captain J. M. ISAACSON, from Santa Marta to Rotterdam, one of those marine observers who seem to have a propensity for being on the spot when there is trouble brewing in the atmosphere, at noon on August 18th, 1924, when in Latitude 20° 58' N. Longitude 65° 02' W. experienced a steadily increasing N.E. wind which veered to east, a moderate gale, at 3.30 p.m.

By midnight the wind had reached gale force with frequent sharp squalls of the force of a whole gale with heavy rain veering to E.S.E. at 10.15 p.m., by which time there is little doubt that a cyclone had formed which was centred to the westward of *Manistee* and from which she was drawing away on her N.E. course.

WEATHER CHART No. XXVI., AUGUST 19TH, 1924.

H.M.S. *Ormonde*, Commander C. H. KNOWLES, D.S.O., R.N., engaged upon her work of hydrographic survey on the coast of Trinidad, recorded an optical phenomenon after sunset (sketch reproduced in "The Marine Observer's Log") which has been observed in this part of the world before and reported by the Cable ship *Stephan*, Commander G. CARLTON, O.B.E., R.N.R., see East Indian Seas Meteorological Chart, March, 1921.

S.S. *Parima*, Captain P. J. McCOURT, from Barbados to New York, had a moderate wind from south and heavy confused sea at 4 a.m., which backed to S.S.E. force 7 at 8 a.m. as she proceeded on her course N. 19° W. 9 knots, and veered at noon to S.S.W. a fresh gale with heavy rain.

At 8 a.m. the hurricane was centred in the vicinity of Latitude 20° N. Longitude 68° W.

WEATHER CHART No. XXVII., AUGUST, 20TH, 1924.

Comparisons of the barometer readings shown on the charts for the mornings of August 18th and 19th indicate that there was no material departure from the normal at Watling Island. At 4 a.m. on August 20th the barometer at Watling Island was 1013 (29.91) which, corrected for diurnal range, is 2 mb. below normal and at 8 a.m. the departure from the normal was nearly 5 mb.

Parima during the past 24 hours on her course to the N.N.W. at a speed of about 9 knots had followed the hurricane on a course diverging but little from that of the centre, maintaining a position in the rear right hand quadrant of the system, occasionally not far from the trough where she experienced a southerly to S.E. fresh gale moderating to a strong breeze in the morning as the centre drew away on her port bow. At 8 a.m. the centre was in approximately Latitude 23° N. Longitude 70° W. whence it passed eastward of Watling Island, the wind not exceeding force 4 at that station.

Let us place ourselves in the position of R.M.S. *Oriana*, Captain E. KITE, from Vigo to Havana, now entering the hurricane region; and supposing that she had been able to intercept all the reports shown on CHART No. XXVII. and that she had made such a chart, see what we could do in the way of predicting the probable path of the storm.

Our weather chart shows us that with the vortex in about Latitude 23° N. Longitude 70° W., with the barometer steady at Cay Lobos and Abaco, falling slowly at Watling Island, W.N.W. from the centre, and rising slowly in *Parima* to the eastward as she proceeds N. 19° W. 9 knots, the system is probably moving in a N. Westerly direction at

the moment. Further, we know that the paths of hurricanes are greatly influenced by the general pressure distribution.

In this case we see that the North Atlantic anti-cyclone extends westward towards Bermuda, while pressure is comparatively high over the coast line of the United States and there are depressions far to the N.W. and north of the hurricane. We shall therefore expect it to travel N.W. and to recurve before reaching the coast of U.S.A. in about the latitude of Bermuda if there is no material change in the general distribution of high pressure.

WEATHER CHART NO. XXVIII., AUGUST 21ST, 1924.

Parima continued her course and speed, keeping a steady S.S.E. wind of force 6 on the outskirts of the storm field in the right rear quadrant.

R.M.S. *Orita*, Captain R. H. DOMINY, Havana to Vigo, logs that wireless warning was received from Washington of the disturbance at 9 p.m. on August 20th. The warnings received by W.T. are indicated on the storm diagram by Mr. WARDMAN, reproduced in "The Marine Observer's Log."

As she proceeded the wind, at first steady from N.E. a moderate breeze, increased. Her barometer conformed to the diurnal range and the following entry appears in the remarks column of the log. "Noon. Wind steady, clouds high and travelling from N.E., no signs of disturbance and further report on same regarding position very questionable."

The readings of the barometer were as follows and we have reduced them to the usual datum and applied the correction for diurnal range and shown the departure from the normal.

Date.	Time.	Barometer as read.	Barometer corrected for Temp. Height and Gravity.	Barometer corrected for Diurnal range.	Departure from normal.
Aug. 20th	4 p.m.	1017.5	1014.3	1015.5	Normal.
	8 p.m.	1016.4	1013.6	1013.7	-1.8
	Midt.	1016.8	1014.1	1013.8	-2.0
Aug. 21st	4 a.m.	1015.0	1012.2	1012.9	-3.0
	8 a.m.	1016.2	1013.3	1012.4	-3.6
	Noon	1013.1	1010.2	1009.6	-6.4

Thus it will be seen that this tested mercurial barometer, though apparently steady but for the diurnal range up to 8 a.m. on August 21st, 1924, was actually falling from the normal height for position and time of year and that at noon the instrument was showing an almost infallible sign of the vicinity of a hurricane.

Let us see how the normal is obtained in this instance. Referring to the Meteorological Chart of the North Atlantic for August it will be noted that the isobar 1016 (30.00) passes N.W. by W. through *Orita's* 8 a.m. position on August 21st while the 1014 (29.94) isobar passes to the westward just north of Jamaica and across the Mosquito Coast. Thus by interpolation the exact normals may be obtained at each position along *Orita's* track, and under normal conditions the barometer corrected for diurnal range would have risen slowly as she proceeded to the northward, where on the average the barometer is higher.

With Mr. WARDMAN's storm diagram and extract in "The Marine Observer's Log," studied in conjunction with the charts which follow, it will be seen how *Orita* crossed the path of the storm just ahead of the vortex from the navigable semi-circle to the dangerous quadrant.

Oriana experienced light and variable airs in the dog watches on August 20th after which she entered the air circulation of the hurricane at first experiencing a light S. by E. breeze which gradually freshened and backed a little. At 8 a.m. with CHART NO. XXVIII she would have known that the centre was in about Latitude 25° N. Longitude 73° W. and with the barometer steady at Watling Island and Abaco and steady in *Parima* course N. 7° W. 10 knots we should expect the system to be nearly stationary or moving slowly. The general pressure distribution would lead us to expect that the hurricane might take a path lying between the American coast and Bermuda, but the path is doubtful. Had *Oriana* had this information it would have been well to have reduced speed considerably or altered course to the south-westward.

WEATHER CHART NO. XXIX, AUGUST 22ND, 1924.

Parima on her course for New York now forged ahead of the storm centre experiencing a decreasing S.S.E. wind in advance of the

dangerous quadrant. The following is recorded on Form 905: "Arrived New York p.m. August 24th, 1924, apparently just ahead of tropical storm which struck Atlantic coast of U.S.A. and Canada which played so much havoc with shipping in those regions."

S.S. *Moorish Prince*, Captain R. L. W. MASSAM, from Newport News, Va. to Colon, experienced a strong N.E. breeze increasing as she proceeded on her course to the southward, barometer falling.

S.S. *War Nizam*, Captain R. O. PUTT, from Galveston to Gibraltar. From the evening of August 19th, Cirrus is logged with the apparent direction from which it was coming; these directions compare very favourably with the bearing of the vortex at the time. During the night of August 21st the wind increased and there were squalls of great violence. On this day the ship was in the navigable semi-circle a little in rear of the trough.

Oriana continuing on her course S. 75° W. at speed experienced an increasing S.S.E. wind and by 8 a.m. the barometer had fallen 10 mb. in 24 hours. She now had a whole gale with very heavy confused sea and swell, sky overcast, being in the storm field in the rear right hand quadrant.

The storm travelled about 200 miles in a N.E. direction from 8 a.m. August 21st, so that the conclusions of yesterday that it was stationary or moving slowly were incorrect, but had the hurricane not travelled so fast *Oriana* would, on her course at speed, have drawn nearer the centre and therefore encountered worse weather. At 8 a.m. the hurricane was centred in about Latitude 29° N. Longitude 75° W. The tendencies of the barometers reported now indicate that the system is nearly stationary and with the pressure distribution shown we should expect that the hurricane would recurve to the N.E.

At noon *Oriana* altered course to S. 42° W., her speed being much reduced.

WEATHER CHART NO. XXX, AUGUST 23RD, 1924.

War Nizam steaming to the N.N.E. experienced a moderate gale from N.E. in the navigable semi-circle and in the storm front.

Moorish Prince experienced an increasing N.E. gale and though no note is given of the time, it would appear that she was hove to from Noon on 22nd; in the first watch the wind backed to north and a note appears on Form 905, cyclone report, "Heavy sea, being swept along. 1.40 a.m.—Weather moderated, wind N. by E. force 6, moon and stars visible, altered course to south."

Oriana experienced a southerly gale, slightly moderating, with slowly rising barometer up to 8 p.m. 22nd, after which the barometer fell slightly and the wind increased to a whole gale. At midnight course was altered to west, speed 12 knots, and at 4 a.m. the wind veered to S.S.W.

At 8 a.m. the centre was in about Latitude 29° N. Longitude 76° W. and had moved west very slowly.

The barometer tendencies indicate that the system is probably nearly stationary and the pressure distribution favours a path to the N.E. We may expect a continuance of slow movement during recurvature, and that the storm may develop speed to the N.E. after recurring.

WEATHER CHART NO. XXXI, AUGUST 24TH, 1924.

S.S. *Orari*, Captain F. W. ROBINSON, from Newport News to Colon, experienced a S.E. swell on clearing the lee of the land with gentle to moderate S.E. breeze. At 8 a.m. the wind backed to E.S.E. and freshened. A weather report in standard form was broadcast to all ships giving observations made at G.M.T. 16h. 40m. (11.40 a.m. 75th meridian time). The following is entered in the log. "6.30 p.m. ugly threatening sunset. The whole heavens assumed a lurid red colour intermingled with orange and purple lasting for a matter of ten minutes, the sky to windward retaining a dull red glow after sun went down. Huge streamers of kelp stretching across ship's track in a W.N.W. and E.S.E. direction." At this time the routine observations show that the wind was E. by S. a strong breeze, sky overcast, heavy S.S.E. swell.

War Nizam proceeding on her course with the Gulf Stream experienced a strong to fresh breeze backing as she drew across the front of the storm from the navigable semi-circle to the dangerous quadrant, but dropping the centre further astern.

Moorish Prince was hove to again at 9 a.m. on August 23rd and by noon the wind had reached hurricane force still from north, the ship being driven to leeward (no sights possible) her position on this day is doubtful. At 4 a.m. the wind veered to N.W. and decreased

to the force of a whole gale. The barometer, an aneroid, was at its lowest 970.2 (28.65) at 6 a.m., thus *Moorish Prince* had steamed and drifted from the dangerous quadrant across the front of the storm very near the centre into the navigable semi-circle.

Oriana proceeding westward and hove to had a whole gale from S.W. by S. to S.S.W., sky overcast for the most part, but at sunset on the 23rd the sky was "fierce red."

At 8 a.m. the hurricane was centred in approximately Latitude 29° N. Longitude 76° W., having moved little, if at all, during the past 24 hours.

The barometer tendency now reported indicates little movement of the system and the pressure distribution gives poor indication of the probable path of the storm, but in view of the tracks made in the past we shall expect the path to be to the north-eastward.

At this time, Mr. GIBLETT, one of the Forecasters, now Superintendent of the Division for Airship Meteorology, was on a visit to America and by the courtesy of the United States Weather Bureau, was enabled to watch the course of the hurricane as shown by their weather maps. He tells me that the U.S.A. Army "round the World flyers" arrived at Ivigtut, Greenland, on August 24th, 1924, and did not proceed until August 31st probably owing to information of this hurricane.

In passing it may be mentioned that Mr. GIBLETT was enabled to construct weather charts at sea on passage to and from America through the courtesy of Captain DIGGLE and the officers of R.M.S. *Caronia* and Captain HOSSACK and the officers of R.M.S. *Lancastria*, and he is so impressed with the utility of wireless and weather as an aid to navigation that we may expect as airship navigation is developed to be asked to extend our work to give assistance for this purpose. It will be remembered that when the North Atlantic code W.T. weather reporting service to the Meteorological Office was reorganised and started in 1921, we stated on the North Atlantic Ocean Meteorological Chart for June 1921 that it was hoped eventually that there would be a combination of exchange of W.T. weather reports between ship and shore station, ship and ship, and ship and aircraft.

WEATHER CHART No. XXXII, AUGUST 25TH, 1924.

War Nizam steamed to the E.N.E. at speed with a fresh to strong breeze backing to S.S.E. with very slowly rising barometer and drawing away from the centre but into a dangerous position should the storm recurve and travel fast to the N.E., no doubt prompted with the desire for sea room and to continue her passage.

S.S. *Nordfarer*, Captain M. MOLLER, from Rosario to New York, had a gentle to moderate S.E. breeze as she converged with the storm field on a N. 30° W. course at 8 knots.

Orari proceeding on a S. 4° E. course at speed experienced an increasing E. by S. wind with falling barometer and heavy S.S.E. swell until at 6 a.m. the ship was hove to, there being a gale with frequent squalls of hurricane force and very steep sea.

Oriana. The wind moderated to a fresh gale and veered to W.S.W. in the afternoon watch of 24th, course being shaped to pass between the Islands; Abaco Pt. Lighthouse was sighted at 3.42 p.m. after which the weather steadily improved as the ship drew away from the hurricane which was now moving northward.

At 8 a.m. on this day the centre was in Latitude 31° N. Longitude 75½° W., having travelled some 120 miles N. by E. in 24 hours.

With this knowledge, the storm having recurved, the barometer tendencies shown on the chart together with the pressure distribution we should now expect the progressive movement to increase in a north to N.E. direction.

WEATHER CHART No. XXXIII, AUGUST 26TH, 1924.

War Nizam continuing at speed to the N.E. experienced a whole gale from south, which, having at first had a rising and then a falling barometer indicates that although she was in the early part of the day leaving the storm field astern, it overhauled her later; but she had made so much easting that the vortex passed at considerable distance to the westward of her.

Nordfarer continuing on her course N. 27° W. at 9 knots experienced a S.E. wind steady in direction but rapidly increasing in force with falling barometer. At 4 p.m. 25th a W/T warning was received from the shore (presumably Arlington) "Hurricane moving N.E." At 8 p.m. the ship was hove to with head S.E. and oil used. By midnight the wind had reached hurricane force, still S.E. and there was a high sea from every quarter, the ship refusing to steer. At 12.30 a.m. 26th ship took a big sea over the bridge doing much damage. At 4 a.m. the wind was still S.E. hurricane force, and there was a

break in the clouds; the barometer, an aneroid, now registered its lowest, 973 (28.73). After 5 a.m. the barometer rose and wind moderated, veering to S.W. at 8 a.m. force 10. The ship had steamed through the dangerous quadrant, her course converging with the path of the storm, and passed in rear of the centre, but very close to it.

S.S. *Guiseppe Verdi*, Captain G. MANGANARO, from Ponta Delgada, Azores, to New York, experienced a S.E. wind, steady in direction, increasing in force, with falling barometer she hove to on port tack at 9 a.m. contrary to the rules for handling ships, with speed reduced to slow, steering good, in order not to lose time and distance and to avoid the Gulf Stream which they considered might be very dangerous.

S.S. *Arabic*, Captain V. W. HICKSON, from Halifax, N.S., to New York, experienced an increasing E.S.E. wind steady in direction with falling barometer as she steamed S. 69° W. at 15 knots. At 8 a.m. the hurricane was centred in approximately Latitude 39½° N. Longitude 71° W. with New York under its influence. It had travelled some 530 miles N. by E. in the last 24 hours.

With the barometer tendencies reported and the pressure distribution and the high latitude we shall now expect the hurricane to continue on a N.E. course at great speed, but with the proximity of the land the path and rate of progress may become erratic. The hurricane may be expected to lose its tropical characteristics and to spread or coalesce with other depressions which may exist.

WEATHER CHART No. XXXIV, AUGUST 27TH, 1924.

As anticipated, the hurricane travelled very rapidly to the N.E. making some 840 miles in the 24 hours, and was centred near Cape Ray, the S.W. extremity of Newfoundland, beyond the limit of our chart at 8 a.m.

H.M.S. *Curlew*, Captain L. STANLEY HOLBROOK, M.V.O., R.N., at Halifax, reported that the wind increased to force 10 at midnight easing to force 4 to 6 between 3 and 4 a.m. when there was a sudden veer from S.E. to west, increasing to force 8 and dying away. From which it is concluded that the centre passed very close to the northward of Halifax.

Arabic hove to from noon, August 26th, when the wind, still E.S.E., had reached force 9, experienced a long heavy swell gradually increasing. The wind had reached storm force at 2 p.m. and at 3.10 p.m. at hurricane force there was a shift to S.S.W. Barometer at its lowest, 965.4 (28.51). The centre passed very close to the westward of the ship and she encountered very heavy weather as did a number of other ships on the North Atlantic tracks and in the vicinity, including *Guiseppe Verdi*. This ship logged wind S.E. veering to W. at hurricane force for 3 hours in the forenoon and afternoon August 26th.

Hurricane No. II.

It will be seen by WEATHER CHARTS NOS. XXXI to XXXIV, AUGUST 24TH to 27TH, that after No. I Hurricane had passed well clear of the Antilles on August 24th, 1924, the barometer at Sombro did not depart from the normal at 8 a.m. for the time of year more than 1 mb. and that the wind was a moderate breeze from east to north-east.

WEATHER CHART No. XXXV, AUGUST 28TH, 1924.

At Sombro Lighthouse the barometer following its diurnal range showed no material departure from the normal until noon on August 27th when it was 2.6 mb. below normal; at 8 a.m. August 28th it was 6 mb. below normal. Continuing to show the diurnal range it also continued to fall from normal and the wind steadily increased to a moderate gale steady in direction from N.E. until 4 p.m., when the barometer was 1006 (29.71). After which the following remark appears in the register. "Had a strong gale from N.E., east and E. by S., sea very high commencing at about 3 o'clock p.m., all night ugly and blowing strong; rain all the night. At 6 a.m. weather still ugly but not blowing so strong, sea not so high. Having to be on duty in the Lantern all night could not take the barometer, &c."

S.S. *Ovid*, Captain C. B. GROOM, from St. Lucia, Windward Islands, to St. John, N.B., having left the harbour of St. Lucia at 2.30 p.m. on August 27th had an increasing southerly wind which increased as she steamed northward to the westward of the Leeward Islands and in the evening of August 27th she received a W/T. warning from the Island of St. Thomas "Hurricane centred Virgin Island travelling N.W."

Cable Steamship *Henry Holmes*, Captain G. E. GEEVE, at anchor at St. Thomas, on August 27th the wind was N.E'ly. light to a gentle

breeze, which had veered to E.N.E. at 8 a.m. force 3, the barometer having fallen about 1/10th of an inch or 3 mbs. below normal.

Montserrat, Leeward Islands. In a report to the Climatology Division, Mr. C. A. GOMEZ, Curator of the Botanic Station, says that a severe hurricane passed over the Island, centre to the northward, and his observations indicate that the trough passed at about 3.30 a.m. According to "Lloyd's List," the storm burst in Antigua at midnight, where the wind force reached an estimated velocity of 100 miles an hour.

At 8 a.m. the hurricane was centred in the vicinity of Nevis in about Latitude $17\frac{1}{4}^{\circ}$ N. Longitude $62\frac{1}{2}^{\circ}$ W.

Loss of life, damage to property, and great distress was wrought by this hurricane in the Leeward Islands, for which the Lord Mayor of London opened a relief fund last October.

WEATHER CHART No. XXXVI., AUGUST 29TH, 1924.

S.S. *Port Caroline*, Captain F. A. RENAULT, from London to Colon, experienced an increase of the trade wind from S.E. to force 6, at 2 p.m. on August 28th, 1924, the swell increasing slightly and later becoming confused from S.E. and S.S.W. In the dog watches the wind backed to E.S.E. becoming gusty and the swell heavy from East. At 4 a.m. the wind was E. by N. a strong breeze and the barometer showing diurnal range had fallen to 1010.5 (29.84). During the morning watch the wind veered to S.E. by E. with frequent squalls with rain.

Ovid, after passing northward through the Islands, passed through big masses of gulf weed, and the wind backed to E.S.E. a strong breeze, there being continuous rain with hard squalls.

Henry Holmes still at anchor at St. Thomas, at noon recorded a moderate N.N.W. breeze, 4 p.m. sky overcast and threatening, wind increased to a strong breeze. 6 p.m., wind increasing rapidly from N.E. 8 p.m. Gale from N.E., squalls every five minutes with lightning. Midnight, wind constantly changing from N.E. to N.W. and increasing to force 11. 0.30 a.m. Wind shifted suddenly to S.W. 2.00 Barometer 29.15, wind blowing with hurricane force 12. 3.30 Barometer commenced to rise slowly and wind moderating slightly. 5.00 Wind moderating steadily.

Such are the material extracts from Form 911, but probably due to modesty of the Captain and his officers, the following facts only become known to us late through "Lloyd's List."

We would ask that all such feats of seamanship, which are closely allied to meteorology, should be recorded in Meteorological Reports and Logs.

Extract from Lloyd's List, November 21st, 1924.

Presentation to Captain.

Resource during West Indian Hurricane.

Lloyd's Underwriters and the Insurance Companies interested in the cable steamer *Henry Holmes*, owned by the West India and Panama Telegraph Company, Ltd., of London, are presenting to Captain GEO. E. GEEVE a handsome gold watch and a cheque to mark their appreciation of the seamanship displayed when his vessel broke from her anchors in the harbour at St. Thomas during the hurricane on the night of August 28th last. The presentation will be made by Mr. EDWARD G. LARKIN, Lloyd's Agent at St. Thomas, W.I., where the vessel is stationed.

Warning of the hurricane was received during the afternoon of August 28th, and the vessel was moved from the wharf to an anchorage in mid-harbour with both anchors down and full steam up. The glass fell rapidly and by dark a terrific hurricane was blowing. By 9.30 p.m. all the harbour and shore lights had been extinguished, and it was only possible to find the vessel's position by glimpses of buildings caught during flashes of lightning. Although the engines were at full ahead to ease the strain on the cables, it was most difficult to know whether the anchors were holding or not. A large lighter and a floating crane broke adrift and collision was averted by only a few feet, while at one time the port engine refused to work, and it was assumed that the steamer had been driven stern first on a mud bank. Fortunately she got clear again. Both cables were found to have parted, and the vessel was obliged to steam round the harbour all night as best she could. The following extracts from the log are of special interest.

0.30 a.m. Wind shifted suddenly to S.W. Barometer 29.15. Pitch dark. No lights anywhere visible.

1 a.m. Flash of lightning showed up white residence on shore, showing that since the wind veered the ship had dragged

and was almost on shore.

2 a.m. Sent for Chief Engineer and told him to be prepared for the worst, as apparently our anchors must be gone. Ship refusing to head wind, when given chance to do so. Gale now coming down with hurricane force. Barometer 29.15. Force of wind estimated about 90 to 100 miles per hour. Until 3.15 it was absolutely impossible to tell where the ship was. With blinding rain and salt water you could not see more than five feet away. All hands on deck in case ship went on rocks.

3.30 a.m. Starboard chain reported snapped on windlass. Barometer inclined to rise, and gale not quite so fierce.

The centre appears to have passed close to the northward of St. Thomas between 2 and 3 a.m., thus it had travelled some 200 miles N.W. by W. in just over 24 hours or at a speed of about 8 knots. Assuming that it maintained the same progress it was centred at 8 a.m. on this day in Latitude $18\frac{3}{4}^{\circ}$ N. Longitude $65\frac{1}{2}^{\circ}$ W.

With the distribution of pressure shown on this chart we should expect the hurricane to travel in a W.N.W. to N.W. direction for a time.

WEATHER CHART No. XXXVII., AUGUST 30TH, 1924.

Port Caroline had a fresh gale from E.N.E. by noon on August 29th with a heavy E.S.E. swell. At 1 p.m. August 29th, wind N.E. by E. sea increasing, period of swell estimated to be 18 seconds, average 18 ft. high.

According to the table published on page 104, Vol. II., No. 19, this period would be associated with waves of very great length and great velocity and so not be consistent with waves set up by the hurricane winds from E.S.E. in the rear right-hand quadrant of the system now distant less than 100 miles S. by E. Nor had the hurricane originated far to the E.S.E. of its present position; because waves set up in it at a distance advancing at twice the rate of the hurricane would have passed to the W.N.W. long before.

At 2.20 p.m. August 29th, abnormal swell, first seen approaching from E.N.E. estimated height 32 ft. by comparison to ship's bridge. Swell seemed to form half circle of considerable length proceeding in W.S.W.'ly direction. Swell much deeper in rear and followed by comparatively smooth water for period of 35 seconds.

These observation cannot be accounted for by theory or general experience, in the absence of fuller information, but they are of great interest. No doubt with the appeal recently made we shall learn much more of ocean waves than is known at present.

In the first dog watch the wind decreased and backed to N.N.W., the barometer rising. The ship had passed across the path of the storm in front and very near the vortex.

Ovid on her course to the northward had a strong breeze from S.E., rain continued with hard squalls and the barometer rose, the sky still ugly.

S.S. *Camito*, Captain J. H. SCUDAMORE, from Avonmouth to Kingston, in Latitude $25^{\circ} 03' N.$ Longitude $64^{\circ} 55' W.$ at noon, August 29th had a fresh east breeze which had been steady in direction and increasing in force since 8 a.m. 27th. The barometer was 1018.6 (30.08) which, allowing for range as given in our table, is normal. At 4 p.m. some Cirrus was observed, also a high confused E.S.E. swell. During the night the wind remained steady in force and direction until 4 a.m. when it backed to E.N.E. and the barometer had fallen to 1012.6 (29.90) which, allowing for diurnal range, is 2.7 mb. below normal. During the morning watch there were rain squalls and the wind went to N.N.E. At 8 a.m. it was N.E. a fresh breeze. The swell which became heavy from S.E. at 4 a.m. came more from the eastward until it was lost under the lee of the Islands. The ship crossed well ahead of the storm. On this occasion no W/T report is recorded as being sent out, but shortly after this Captain SCUDAMORE gives a complete record of his weather reports broadcast to all ships, giving observations at routine hours, which should have helped many.

At 8 a.m. the hurricane was centred some 200 miles to the S.W. of *Ovid* in about Latitude $21^{\circ} N.$ Longitude $67^{\circ} W.$ In the absence of a barometer report at Bermuda we are in doubt as to general pressure distribution.

WEATHER CHART No. XXXVIII., AUGUST 31ST, 1924.

It will be noted by this chart that the barometer at Watling Island had fallen some 5 mb. since the previous morning when it was about 1 mb. above normal although that station is not yet in the storm field but near the apparent path of the storm, giving another example of the value of a fall from normal as a sign of the vicinity of a hurricane, even a little beyond the Tropics.

Ovid continuing on her course has a slightly rising barometer and the wind draws to E.S.E. the sky covered with dense cloud.

At 8 a.m. the hurricane was centred in about Latitude 24° N. Longitude 69° W.

WEATHER CHART No. XXXIX., SEPTEMBER 1ST, 1924.

As *Ovid* made nothing, she had the wind more easterly due to her drawing ahead of the storm.

At 8 a.m. the centre bore S.W. from *Ovid* at considerable distance in about Latitude 26° N. Longitude 69° W.

WEATHER CHART No. XL., SEPTEMBER 2ND, 1924.

Parima having got into New York ahead of No. I. hurricane proceeded on her return passage to Barbados, and Captain McCourt makes the following note at the foot of his report.

"Hearing reports of this storm being over the British West Indies Islands before leaving New York I decided to keep east of usual track in hope of avoiding contact and would probably have done so but for its recurve to the north-eastward."

At noon on September 1st, ship was in Latitude 30° 20' N. Longitude 68° 09' W. having made S. 27° E. 673 miles from Ambrose Light Vessel, New York. She had a fresh E.S.E. breeze which remained steady in direction but increasing to the force of a gale by midnight, there was a heavy S.S.E. swell which became confused at 8 p.m. Sky clouded with Cumulus and weather appeared unsettled. At midnight overcast with Nimbus and there were rain squalls.

At 4 a.m. the wind veered to S.E. and backed again to E.S.E. at 8 a.m. when it had increased to a strong gale. Courses from S. 13° E. to S. 33° E. had been maintained at speed and the ship was now well in the dangerous quadrant.

S.S. *Culebra*, Commander A. S. MACKAY, R.N.R., arrived at Bermuda at 2.48 p.m. on September 1st when the Meteorological Log was discontinued while in port, but Captain Mackay forwarded an interesting letter from which, and the Log, the following observations are taken.

At noon September 1st in Latitude 32° 44' N., Longitude 64° 32' W. (before arrival) with light and variable airs, barometer 1019 (30.09) Cirro-Stratus from W.S.W. was observed at 5 p.m. in harbour; sky becoming cloudy with Ci-St. and Ci. haze was noted.

On September 2nd at 8 a.m. sky overcast, heavy masses of Roll-Cumulus from S.E., wind S.E., force 3.

At 8 a.m. the vortex bore S.W. from *Parima's* position, being centred in about Latitude 27° N., Longitude 69° W.

Had *Parima* been able to receive the reports, make this chart and form her own conclusions, they would probably have been as follows.

The storm has been moving very slowly for two days and is probably recurring. My own falling barometer with ship steaming southward and making small speed towards the line of trough is an indication that the centre is moving northward and with the general pressure distribution indicated by the weather chart and observing past tracks as given on the chart in Vol. I., No. 9, I may expect the hurricane to recurve and travel more rapidly to the northward and later N.E. In such circumstances *Parima* would have done well to bring the wind on her starboard bow and steam slowly and make such easting as was consistent.

Captain McCourt attached copies of wireless warnings received from the U.S.A. Weather Bureau of which the following is an example for this day.

"In the absence of vessels' reports impossible to locate centre of tropical storm, but best information indicates it continues of hurricane intensity and moving north-west position this morning Latitude 26° N. Longitude 71° 30' W."

Not only does this indicate the need for ships in the vicinity of a hurricane to report to the shore and to all ships, especially at routine observation times, but that the message is worded so clearly and definitely that it could not mislead in the manner some Commanders have complained of in the past.

WEATHER CHART No. XLI. SEPTEMBER 3RD, 1924.

Ovid during September 2nd experienced light to gentle east to S.E. winds, having out-distanced the storm on her course to the northward for St. John, N.B. On September 3rd, the barometer fell and the wind increased somewhat and backed to E.S.E. as the hurricane advanced at greater speed to the northward than the ship. Later the wind increased to a moderate gale and backed to N.E. by E. as the ship drew across the path of the hurricane, travelling apparently at great speed to the N.E. across her wake.

Culebra at Bermuda. 8 p.m. September 2nd. Wind rising in violent gusts from calm to gale force with intermittent rain.

10 p.m. wind S.E. force 4 to 9 sky black with clear patches of blue in zenith. Stars showing brilliantly through. Squalls more heavy and frequent. Midnight, barometer ceased falling, wind S.E. 4 to 9, masses of Cu-Nb. moving rapidly from S.E. South part of Island obscured by rain.

2 a.m. September 3rd. Wind S.S.E. 7 becoming more steady. 8 a.m. weather more settled.

R.M.S. *Orcoma*, Captain H. T. S. PLEIGNIER, from Liverpool to Panama, was in Latitude 32° 12' N., Longitude 59° 15' W. at noon September 2nd, winds S. by W. a light breeze with no swell, barometer a little above the normal. The wind gradually backed all the afternoon watch to S.E. force 3 at 4 p.m. 7.10 to 7.25 Heavy rain squall, wind increasing, threatening appearance. At midnight, wind S.E. 7. Heavy confused S.E. swell. 8 a.m. lowest recorded barometer, 1010 (29.83). Wind, south 8.

Parima continued on her course S. 33° E. making about 6 knots and experienced a whole gale from S.E. at noon with high sea and S.W. swell. At 4 p.m. the wind was south a whole gale with blinding rain and squalls of hurricane force. 8 p.m., wind, S.S.W. 9 after which the wind still veering, moderated to a fresh S.W. by S. wind at 8 a.m. The ship's head appears to have deviated little from her course, thus forcing her way to the southward with the wind on the port bow and heading her, during the worst of the storm, but she does not appear to have been very near the centre and so have entered the ring of hurricane winds.

The position of the vortex at 8 a.m. on this day was in the vicinity of Latitude 34° N., Longitude 66° W. It had travelled some 450 miles to the N.N.E. in 24 hours.

ON SEPTEMBER 4TH, 1924 AT 8 A.M., S.S. *Verbania*, Captain W. H. HATCHER, from London to New York, was in Latitude 40° 56' N., Longitude 63° 17' W., with barometer down to 996 (29.41), wind S.S.E. force 10. There were heavy squalls with rain between 6 a.m. and 8 a.m. and the weather moderated at 11 a.m.

At the same time *Ovid* in Latitude 39° 22' N., Longitude 67° 36' W. recorded wind N.W. 6, barometer 1005 (29.68) from which it would appear that at this time the hurricane was centred in Latitude 40° N., Longitude 65° W.

According to the Weather Map of the Meteorological Service of Canada this disturbance was centred between St. John's, N.F. and Belle Isle at 8 a.m. on September 5th.

Tropical Disturbance in the Gulf of Mexico.

Captain P. J. McCourt of S.S. *Parima* in his valuable report notes that when at anchor in Carlisle Bay, Barbados, on September 10th he experienced very heavy squalls of wind and rain from south and at Dominica (Roseau) on September 12th, there were heavy rain squalls, surf and unsettled weather.

On September 14th, he received warning of a disturbance developing over the Gulf of Mexico moving slowly northward and so wondered if the disturbance was connected with the weather experienced at Barbados and Dominica.

Now a hurricane originating near Barbados or passing near enough to that Island for it to be within the wind circulation of the system would not at the usual rate of progress in low latitudes reach the Gulf of Mexico, distant some 1,600 miles, in four days. There do not appear to have been any regular observing ships in the Gulf of Mexico on September 14th.

From the Daily Weather Map of the United States it would appear that a tropical disturbance developed in the Gulf of Mexico, N.W. of Havana, on September 13th which travelled N.N.W. until the morning of September 14th when it recurved, crossed Jacksonville and followed the western coastline of the United States not far to seaward developing until September 17th when it was centred off Cape Hatteras; thence it travelled rapidly N.E. spreading and losing its intensity.

Comparison gives Verification.

Just as the foregoing was completed we received "Weather of the Oceans," December 1924, issued by the Marine Division of the U.S.A. Weather Bureau, in which is given a chart with Paths of Hurricanes and other Tropical Storms, 1924.

Tracks of both Hurricanes No. I. and No. II. are given and we are in fair agreement.

Mr. W. P. DAY, who plotted the tracks in the U.S.A., fixed the position of the centre both morning and evening each day. Apparently he had weather observations of which the position was known more exactly than those of *Moorish Prince*, which ship, as we have remarked, had been without sights for some time on August 24th 1924. His

chart shows the movement of the centre of No. I. hurricane on August 23rd to 24th and a greater change of direction on the latter day.

General Deductions.

The track of No. I. hurricane was unusual for the month of August in that it curved to the westward before recurving to the N.E.

The track of No. II. hurricane resembles others which have occurred in the month of September.

In summarising the observations with the charts one is struck with what the information before one would have meant to the Commanders who had the responsibility of navigating the ships, and it seems that if observation and communication is developed so that all have essential information that sometimes action might be different. No one knows the meaning of that word responsibility better than the Commander of a ship; his responsibility is great. It is well then that he should be put in possession of the facts which wireless reports from other ships can alone give him.

If correct action is not taken in tropical revolving storms, it is almost invariably through lack of or imperfect information at the time.

The observations before us, without exception, go to prove the soundness of the "Laws of Storms" (rules for handling ships).

Some years ago the Marine Superintendent of a great shipping company had a proposal put before him in which it was suggested that with proper information steamships in the North Atlantic could avoid bad weather by dodging depressions. Often quite impracticable, if not impossible. In middle and high latitudes where intense depressions sometimes have wind circulations of not less than 1,000 miles in diameter and of this diameter (athwart the line of progression) one third the distance has been covered by winds of storm and hurricane force, the whole system advancing eastward at the rate of 800 miles or even up to 1,200 miles in a day.

Generally the rate of progression of cyclonic storms within the Tropics and until after recurving does not exceed 12 knots. The highest rate of progression recorded within the Tropics appears to be 20 knots, but that was a typhoon and very exceptional. Then within the Tropics the cyclonic storm is more compact and the winds of hurricane to gale force cover a much smaller area.

Here with early information by wireless and a weather chart it may often be possible and expedient to avoid the storm field of a hurricane.

Sea room remains the first essential, for even steam or motor power cannot annul the danger of a lee shore in a hurricane. Once a ship has entered the wind circulation of an intense tropical revolving storm there can be no doubt about it, act according to the rule.

It has been put forward more than once of recent years that under certain circumstances it is better to heave to on the port tack in northern latitudes than on the starboard tack in the dangerous quadrant. From the remarks given in his report it would seem that Captain MANGANARO of S.S. *Guiseppe Verdi* had been converted to this view.

The main reason for heaving to in *Guiseppe Verdi* on August 26th, 1924, at 9 a.m., on the port tack, appears to have been in order to head the swell which at this time was S.E.

A glance at WEATHER CHART No. XXXIII will show that at this time with the wind on the port bow the ship's head would be pointed in the direction of the swell caused by the hurricane winds in the rear right hand quadrant of the storm field as it advanced to the N.N.E. A temporary advantage only, for later in this position the heaviest sea and swell would be expected from west caused by the hurricane winds in the rear of the vortex.

Making headway with the wind on the port bow the ship would be drawing nearer the centre if it moved eastward. As the wind veered, if the ship was kept with the wind on the port bow, she would be advancing into the strongest winds and heaviest seas in the rear, if not the vortex itself, and be drawing the swell on to her port beam. A steamship hove to on the starboard tack in this position would be heading away from the vortex (it is still possible that the vortex may pass over her) and if the wind is kept on the starboard bow as it veers she will head the worst swell and the sea.

Use of the Horn card makes this clear.

With regard to the paths of hurricanes. The path is influenced by the general pressure distribution, probably for this reason. From the general pressure distribution we can get a very good idea of the general air circulation. Now a hurricane is an eddying whirl in the general air current and is carried along in much the same way that an eddy is carried along in a stream. If the general air current or general wind moves slowly the hurricane within it is moved slowly, and when the general air current moves swiftly the hurricane moves swiftly. It is well then not to think too much in the terms of pressure, but rather of the winds relating to the general pressure distribution. In the Tropics the drift of air, the trade wind, is mainly to the westward from the surface to a great height, while in middle and high latitudes it is to the eastward, the Brave West Winds, which extend to an even greater height.

Therefore observations of the upper air are of very great importance, and certain of His Majesty's ships are undertaking this work, of which we hope Commander L. GARBETT, R.N., Superintendent, Navy Meteorological Services, will continue to tell us yearly in this Journal.

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.

ATMOSPHERIC CONDITIONS AT WALVIS BAY.

THE following is an extract from the Meteorological Log of C.S. *Cambria*, Captain H. G. E. WIGHTMAN, cable work, based on Cape Town. Observer, Mr. E. N. L. STAPLES.

"From 4th to 10th September, 1924, whilst at anchor in Walvis Bay it was noticed that at about 8 p.m. misty weather would set in, and remain until about Noon or 10 a.m. of the following day. These mists were so thick at times that one could not see more than about 30 yards, accompanied by a heavy dew, which really appeared as very light rain; as soon as the afternoon breeze came up the mist would quickly disappear, but would gradually come along again after sunset. The wind was mainly from the S.W. reaching force 4-5. This wind caused the sand to blow from the surrounding desert so that as the mist cleared during the morning, one could see the alteration of colour in the mist, whereas it appeared white before it now appeared a deep yellow, with dark patches above, which always travelled seawards. The mirage here is tremendous; objects are greatly distorted by refraction. Pelicans and various other kinds of birds look very much like human beings clad in white sheets in the distance. Heavy dews prevail throughout the nights."

NOTE.—The phenomena described above are due to the effect of land and sea breeze. The south-west sea breeze is brought in by the heating up of the desert land eastward of Walvis Bay. At night

as the land radiates its heat and thereby cools the air above it, dew and mist are formed out of the damp air brought in from seaward the day before. As the sea breeze blows over the land surface it stirs up the dust and this dust is seen being borne out seawards by the return current of air which is known to be generated above the sea breeze.

CURRENT.

THE following extract is from the Meteorological Log of C.S. *Stephan*, Commander G. F. CARLTON, O.B.E., R.N.R. Observer, Mr. W. E. ALLEN.

"29th September, 1924. 4 p.m. A.T.S. Latitude 36° 22' N., Longitude 18° 29' W. Laying Cable.

"4 p.m. By means of the angle the cable made with the fore and aft line of the ship, a southerly current was observed, estimated at 0.75 kts.; the current was not noticed a quarter of an hour previously, the wind at the time being W.N.W. At 4.50 p.m. the wind veered to N. by W. force 4. 10 p.m. The current was observed to be decreasing in force and at 4 a.m. on the 30th it had practically ceased, the wind still remaining N. by W. Unfortunately the P.M. star position was unobtainable so that the true direction and rate had to be estimated."

WAVE PATCHES.

THE following is an extract from the Meteorological Report of S.S. *Dromore Castle*, Captain H. LINKLATER, New Orleans to Cape Town. Observer, Mr. S. S. SMITH:—

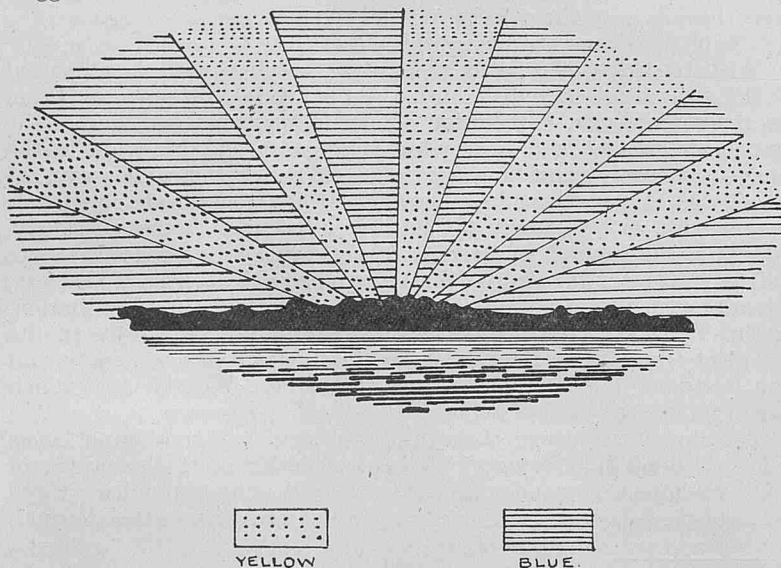
"Latitude 6° N., Longitude 42° W. On September 11th, 1924, 8 a.m.—Noon. Patches of waves about 5 feet high, and running with considerable force from a S.W. direction. About four of these patches were passed. Size: 3 × 1 miles. Had an appearance similar to the sea when struck by a heavy squall.

"Weather at 8 a.m. Wind E.S.E., force 2. Barometer 1015.2 m.b. Air Temperature 80, Sea Temperature 80. Weather c. Waves E.S.E., disturbance 1. Swell S. slight."

SUNSET EFFECT.

THE following is an extract from the Meteorological Log of H.M.S. *Ormonde*, Commander C. H. KNOWLES, D.S.O., R.N., at Brighton, Trinidad. Observer, Lieutenant A. M. HUGHES, R.N.

"19th August, 1924. 6.15 p.m. At time of sunset (about 6.15 p.m.) a series of light yellow rays were observed extending from one point bearing E. This was visible till about 6.30 p.m. and had the general appearance of a sunset. The sketch below is a bit exaggerated."



NOTE.—The effect shown in the sketch contributed by H.M.S. *Ormonde* is due to the setting sun shining through Cumulus or Cumulo-Nimbus clouds on to dust or other particles suspended in the air as was stated in a note in THE MARINE OBSERVER, Vol. I, No. 5, p. 63. The convergence of the rays to the eastward is due to an effect of perspective.

To produce this effect it is essential that there should be an abnormal number of particles in the air. The same condition is essential for the production of the fiery red sunsets which are well known as the precursors of a hurricane, for these latter are produced by the scattering of the sun's rays by minute particles. Hence it is possible that the effect seen by *Ormonde* was related to the hurricane which is reported in full in this Number.

ABNORMAL SET APPROACHING COLON.

THE following note has been received from S.S. *Mahana*, Captain W. KERSHAW, Liverpool to Colon. Observer, Mr. FRANK M. SMITH, 2nd Officer.

"On September 20th at 6.30 p.m. in Lat. 12° 15' N., Long. 76° 20' W. a good stellar fix was obtained. Course was set to pass 5' off Manzanillo Pt. and as previous records showed that the N.W. stream continues for some hours, no allowance was made for the N.E. counter stream. No sights were obtained a.m. on the 21st, but allowing for a N.E. set of 1 knot which has usually been encountered at this time of year between Manzanillo Pt. and 11° 30' N., 77° 30' W. it was expected to sight the Point ahead during the forenoon. Land was sighted ahead at 11 a.m. and was thought to be Manzanillo Pt. but it was later found to be the coast between there and Pt. St. Blas.

The mistake was not discovered until 1 p.m. and as no landmarks could be recognised and the St. Laurent Rock (*E.D.*) prevented any 'hauling in to have a look' the ship was kept away west until Manzanillo Pt. was picked up. A fix by shore bearings was obtained at 5.30 p.m. and it was found that during the 23 hours the ship had been set N. 60° E. 34'."

DISCOLOURED WATER.

THE following is an extract from the Meteorological Log of S.S. *Port Caroline*, Captain F. A. RENAULT, Panama to Suva, Fiji. Observer, Mr. C. CHAMBERLAIN, 3rd Officer.

"September 11th, 1924. Latitude 4° 58' S. Longitude 119° 42' W. At 0.35 p.m. at ship, we passed through what appeared to be long narrow lines of discoloured water at some depth. The surface water apparently not being affected. Foam caused by the ship came up a deep chocolate colour and streaky. By bearings of the lines while passing under the ship they all bore W.N.W. and E.S.E. Ten distinct lines about 12 ft. broad and a quarter of a mile apart were observed until 0.54 p.m. Sky cloudless at the time."

CURRENT.

THE following is an extract from the Meteorological Log of S.S. *Port Pirie*, Captain W. G. HIGGS, London to Melbourne, August 9th to September 19th.

"Entire absence of easterly drift after passing Cape until E. of Longitude 50° E. is unusual. The westerly drift encountered on September 1st, 2nd and 3rd (having passed Good Hope on 31st August) is even more unusual.

Current experienced

"From Noon 31st August, 1924, Lat. 36° 24' S., Long. 22° 31' E. to Noon 1st September, Lat. 38° 08' S., Long. 27° 00' E. Current set N. 63° W. 20 miles.

"From Noon 1st September, Lat. 38° 08' S., Long. 27° 00' E. to Noon 2nd September, Lat. 39° 48' S., Long. 32° 06' E. Current set N. 56° W. 7 miles.

"From Noon 2nd September, Lat. 39° 48' S., Long. 32° 06' E. to Noon 3rd September, Lat. 41° 46' S., Long. 37° 48' E. Current set S. 76° W. 12 miles."

EARTHQUAKE SHOCK.

THE following is an extract from the Meteorological Log of S.S. *Empress of Australia*, Captain A. J. HAILEY, Victoria, B.C. to Yokohama. Observer, Mr. R. A. LEICESTER.

"September 16th, 1924, 3.15 p.m., Latitude 51° 50' N., Longitude 167° W. (approx.). Experienced severe shakes (2) on board. Nothing on board to cause same—thought to be earthquake shocks, being same as felt in Yokohama, September 1st, 1923."

SEA TEMPERATURE CHANGES.

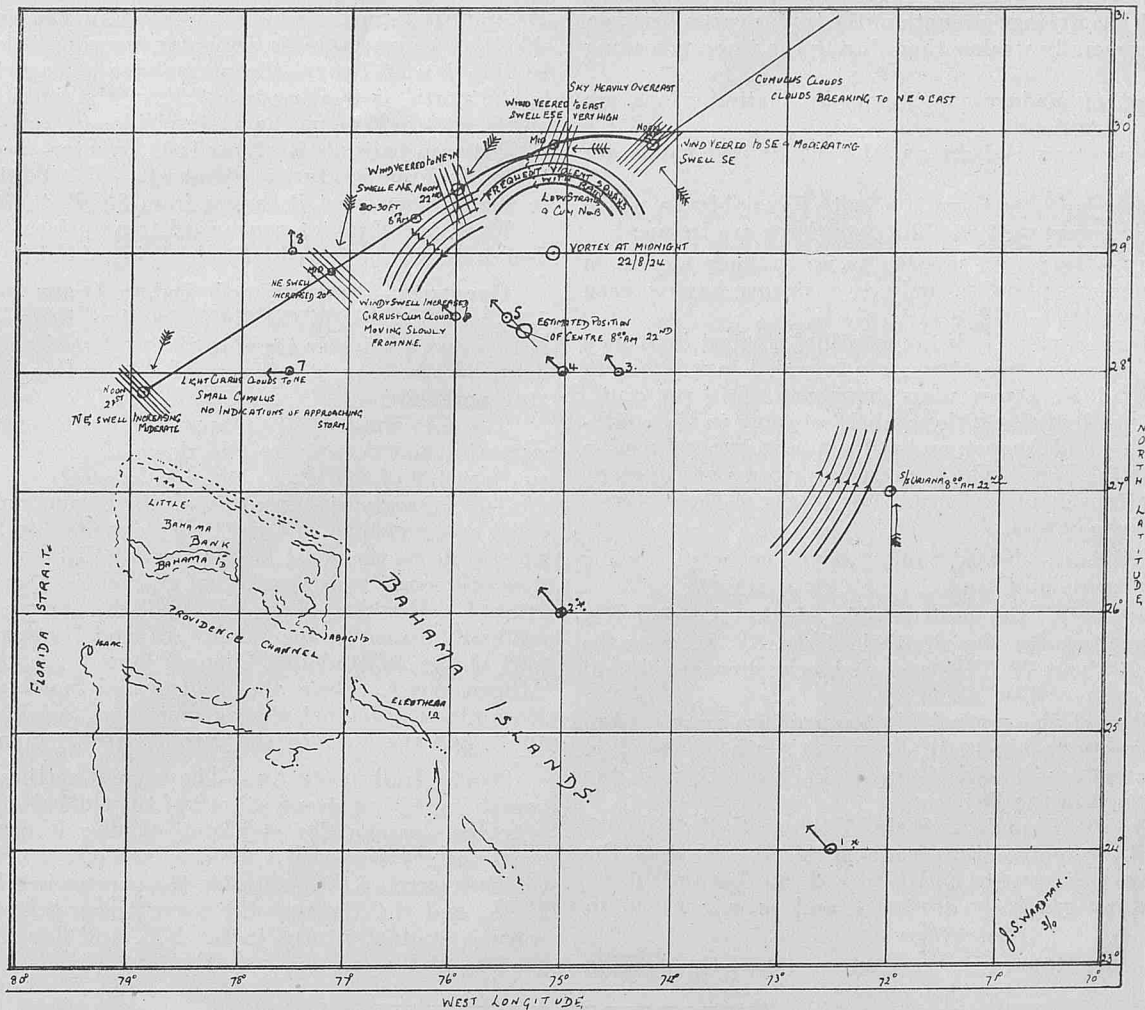
THE following is an extract from the Meteorological Log of S.S. *Kovno*, Commander D. H. CASSON, R.D., R.N.R., Danzig to Hull. Observer, Mr. L. GRIFFITHS, 2nd Officer.

"September 6th, 1924, at about 8 p.m. until 2 a.m. September 7th, a considerable decrease in the temperature of the water was noted, amounting at times to as much as 20° F. During this period fog was encountered rising to a height of only about 7 or 8 feet from the surface of the water, it being perfectly clear above this height.

"We have never experienced a cold stream of water in this locality before and it is thought that the fresh E.N.E. wind which was blowing for some days previously carried a current of cold water down from the Northern Baltic."

S.S. *Kovno* left Danzig at 5.45 p.m. on the 6th.

R.M.S. "Orita." August 21st—24th, 1924. Captain R. H. Dominy.



- | | |
|---|--|
| <ul style="list-style-type: none"> ◎ 1. 9.00 p.m., 20th August. Washington Reports Storm Centre, moving N.W. ◎ 2. 10.00 a.m., 21st August. Washington Reports Storm Centre, moving N.W. ◎ 3. 9.00 p.m., 21st August. Washington Reports Storm Centre, moving N.N.W. ◎ 4. 10.00 a.m., 22nd August. Washington Reports Storm Centre, moving N.N.W. ◎ 5. 9.00 p.m., 22nd August. Washington Reports Storm Centre, moving N.W. ◎ 6. 10.00 a.m., 23rd August. Washington Reports Storm Centre, moving N.W. ◎ 7. 10.00 p.m., 23rd August. Washington Reports Storm Centre, moving West slowly. | <ul style="list-style-type: none"> ◎ 8. 10.00 p.m., 24th August. Washington Reports Storm Centre, moving North slowly. <p>* NOTE.—Pos. 1 and 2 only given approximately and must be in error.</p> <ul style="list-style-type: none"> ◎ Noon, 21st. Ship's Pos. $\left\{ \begin{array}{l} \text{Lat. } 27^{\circ} 52' \text{ N.} \\ \text{Long. } 78^{\circ} 56' \text{ W.} \end{array} \right\}$ Steering N. 57° E. ◎ Noon, 22nd. Ship's Pos. $\left\{ \begin{array}{l} \text{Lat. } 29^{\circ} 32' \text{ N.} \\ \text{Long. } 76^{\circ} 03' \text{ W.} \end{array} \right\}$ $\left\{ \begin{array}{l} \text{Courses steered be-} \\ \text{tween Noon 22nd} \\ \text{and 23rd various} \\ \text{being governed by} \\ \text{direction of sea.} \end{array} \right.$ ◎ Noon, 23rd. Ship's Pos. $\left\{ \begin{array}{l} \text{Lat. } 29^{\circ} 51' \text{ N.} \\ \text{Long. } 74^{\circ} 15' \text{ W.} \end{array} \right\}$ 25th and 26th. Washington Reported Storm moving North and N.N.E., along American Coast from Hatteras to Sandy Hook." |
|---|--|

IX.—September.

In the North Indian Ocean the winds of the S.W. monsoon continue to blow on the western side from the Equator to about the 20th parallel. On the eastern side of the Ocean the average direction is from west to N.W. and at the head of the Sea the wind comes from between S.W. and N.W.

Between the meridians of the west coast of Australia and the east coast of Madagascar the S.E. trades blow from the 25th to the

5th parallel and west of the 65th meridian extend up to the Equator when they become the S.W. monsoon.

During this month the average strength of the trades varies between force 3 and 4, being generally weaker than during the three preceding months.

Off the S.E. coast of Madagascar the predominating winds are from a north-easterly direction.

In the Mozambique Channel light variable winds and calms are prevalent.

South of the trade wind area there is a belt of variables in which winds with a westerly component reaching gale force are frequent.

Cyclonic Storms.—There are practically no cyclonic storms in the Arabian Sea during September, only two storms having been recorded in the 23 years 1890–1912.

In the Bay of Bengal, September is the month of greatest frequency for cyclonic storms. Seventy-two storms are recorded in this month during the years 1877–1923, a percentage frequency of 19 per cent.

The storms form north of the 16th parallel but more to the southward than those of July and August, and move in a westerly direction to the N.W. coast of the Bay. The majority of storms are of small intensity but some attain great violence. For tracks of these storms see Vol. I., No. 9 of this Journal.

South Indian Ocean.—No cyclones have occurred during September in the South Indian Ocean.

Air Temperature.—On the eastern side of the Arabian Sea the normal air temperature for the month is about 81° F., over the centre of the Sea it is about 79.5° F. and on the western side about 78° F.

In the Bay of Bengal the normal air temperature ranges from about 83° F. in the north to about 81° F. in the south of the Bay. The temperature on the eastern side is generally lower than in the central and western parts of the Bay.

Between Latitude 10° N. and Latitude 5° S., east of the 60th meridian, the normal air temperature is about 81° F. West of the 60th meridian it ranges between 80° and 77° F. From Latitude 5° S., southward, temperature gradually decreases and is about 60° in Latitude 35° S.

Sea Surface Temperature.—On the eastern side of the Arabian

Sea the normal sea surface temperature is between 80° and 81° F. Over the central part of the Sea it is 81° F. in the north, between 77° and 81° F. in the middle and 81° F. in the south. On the western side the temperature is irregular, varying between 74° and 79° F. In the Bay of Bengal the normal sea surface temperature is 84° F. in the north, decreasing to 82° F. in the south, and is slightly lower on the eastern than on the western side of the Bay.

Between Latitude 10° N. and the Equator, east of the 60th meridian, the normal temperature is about 81.5° F. West of the 60th meridian to the African coast it ranges from 80° F. to 76° F.

From the Equator southward, sea surface temperature gradually decreases with increased latitude, being about 60° F. in Latitude 35° S.

Currents.—In the South Indian Ocean between the 20th and 35th parallels east of the 70th meridian, there is a general set to the N.E. which gradually turns to the westward and joins the S.E. Trade drift, which flows steadily in that direction between the 10th and 20th parallels.

The S.E. Trade drift on approaching the east coast of Madagascar separates and flowing up and down the coast, rounds the north and south points of the Island.

The current setting north of the Island on striking the African coast in the vicinity of Cape Delgado splits into two and flows steadily up and down the coast keeping parallel with it. The branch flowing down the coast runs steadily on around the Cape forming the Agulhas current. That part of the S.E. trade drift flowing south of Madagascar gradually turns to the northward and flowing across the southern part of the Mozambique Channel joins the current setting down the African coast. Over the centre and north-eastern parts of the Mozambique Channel the currents are variable. Between Latitude 10° S. and the Equator the currents are irregular.

North Indian Ocean.—The current setting up the African coast combining with a strong set out of the Gulf of Aden, spreads fan-shape over the Arabian Sea and south to the Equator. Off the Arabian coast the set is to the N.E., over the centre of the Sea east, and off the west coast of the Peninsula the current is S.E. Between Latitude 10° N. and the Equator the current sets S.E. to the 80th meridian, when it gradually turns to the N.E. and flows in that direction over the Bay of Bengal.

WEATHER SIGNALS.

II.—WIRELESS WEATHER BULLETINS.

UNITED STATES OF AMERICA (ATLANTIC COAST). C.W. Issues.

Washington.—Arlington W/T Station, approximate Latitude 38° 52' N., Longitude 77° 05' W., call sign NAA, broadcasts weather bulletins at 0330 G.M.T. on a wave length of 2,655 metres (C.W.), and at 1530 G.M.T. on a wave length of 5,959 metres (C.W.).

The bulletin is divided into *two parts*, and begins with the letters U S W B (United States Weather Bureau).

Part I. of the 0330 and 1530 G.M.T. transmissions consists of surface weather conditions based upon observations taken at 0100 and 1300 G.M.T. respectively on the date of distribution, at the following stations. Upper air observations are also included in Part I. of the latter transmission.

Indicator Letters.	Station.	Position (Approx.). Lat. Long.	Indicator Letters.	Station.	Position (Approx.). Lat. Long.
J	St. Johns, N.F. ...	47°34'N. 52°42'W.	MG	Montgomery, Ala. ...	32°21'N. 86°23'W.
S	Sydney, N.S. ...	46°10'N. 60°10'W.	VK	Vicksburg, Miss. ...	32°22'N. 90°57'W.
CK	Cochrane, Ont. ...	49°20'N. 81°00'W.	NO	New Orleans, La. ...	29°57'N. 90°02'W.
FP	Father Point, Que. ...	48°31'N. 68°19'W.	LR	Little Rock, Ark. ...	34°45'N. 92°20'W.
ML	Montreal, Que. ...	45°30'N. 73°35'W.	GV	Galveston, Tex. ...	29°19'N. 94°48'W.
E	Eastport, Me. ...	44°53'N. 67°02'W.	NV	Nashville, Tenn. ...	36°10'N. 86°47'W.
N	Northfield, Vt. ...	44°08'N. 72°42'W.	CN	Cincinnati, Ohio ...	39°03'N. 84°24'W.
T	Nantucket, Mass. ...	41°17'N. 70°05'W.	PB	Pittsburg, Pa. ...	40°27'N. 80°01'W.
NY	New York, N.Y. ...	40°28'N. 74°00'W.	F	Buffalo, N.Y. ...	42°52'N. 78°54'W.
AC	Atlantic City, N.J. ...	39°21'N. 74°26'W.	D	Detroit, Mich. ...	42°21'N. 82°45'W.
WA	Washington, D.C. ...	38°52'N. 77°03'W.	L	Alpena, Mich. ...	45°05'N. 83°28'W.
NF	Norfolk, Va. ...	36°50'N. 76°18'W.	M	Marquette, Mich. ...	46°30'N. 87°20'W.
LB	Lynchburg, Va. ...	37°18'N. 79°01'W.	CH	Chicago, Ill. ...	41°53'N. 87°37'W.
AV	Asheville, N.C. ...	35°32'N. 82°28'W.	DU	Duluth, Minn. ...	46°47'N. 92°06'W.
H	Hatteras, N.C. ...	35°14'N. 75°32'W.	LC	La Crosse, Wis. ...	43°45'N. 91°18'W.
C	Charleston, S.C. ...	32°43'N. 79°52'W.	SL	St. Louis, Mo. ...	38°36'N. 90°18'W.
CO	Bermuda ...	32°17'N. 64°46'W.	KC	Kansas City, Mo. ...	39°07'N. 94°38'W.
B	Columbia, S.C. ...	34°02'N. 80°57'W.	O	Omaha, Neb. ...	41°23'N. 96°01'W.
JA	Jacksonville, Fla. ...	30°19'N. 81°51'W.	OK	Oklahoma City, Okla. ...	35°32'N. 97°28'W.
K	Key West, Fla. ...	24°33'N. 81°48'W.	DA	Dallas, Tex. ...	32°46'N. 96°31'W.
AT	Atlanta, Ga. ...	33°42'N. 84°26'W.	EP	El Paso, Tex. ...	31°50'N. 106°30'W.
TA	Tampa, Fla. ...	27°35'N. 82°29'W.	HT	Horta, Azores ...	38°32'N. 28°38'W.
P	Pensacola, Fla. ...	30°21'N. 87°19'W.			

The stations are indicated by the key letters given above and are followed by two or more groups of five figures in each group. The first two groups contain surface observations. Additional groups,

giving upper air data, are only given for the stations marked with a dagger (†), and are represented in the third and succeeding groups.

If upper air observations are not possible these groups will be substituted by the words "foggy," "rain," or "snow," as the case may be.

An X will be substituted for any missing data.

Code used: Special (United States Meteorological).

Explanation of Groups.

First Group.—1st three figures give the barometer reading corrected in inches and hundredths, the initial 2 or 3 being omitted. (To convert to millibars, see Table L.)

4th figure gives the wind direction (Table XLV.).

5th figure gives the wind force by Beaufort scale; 9 is sent for forces 9 and above.

Second Group.—1st figure gives the present weather (State of weather at surface, Table XLVI.).

2nd figure gives the barometric change in hundredths of an inch during the two hours preceding observation (Table XLVII.).

3rd figure gives the cloud amount (number of tenths of the sky obscured, 10 tenths being total cloudiness, Table XLVIII.).

4th figure gives the cloud form and speed (Table XLIX.).

5th figure gives the direction, from, of cloud movement (Table XLV., where 0 in this case means no movement observable).

NOTE.—When both upper and lower clouds are observed, only the amount, kind, and direction of the lower clouds will be sent. In such cases the amount of the upper clouds, if any, can be determined, approximately, by taking the difference between the tenths of cloudiness interpreted from the figures showing "present weather" and "amount of clouds."

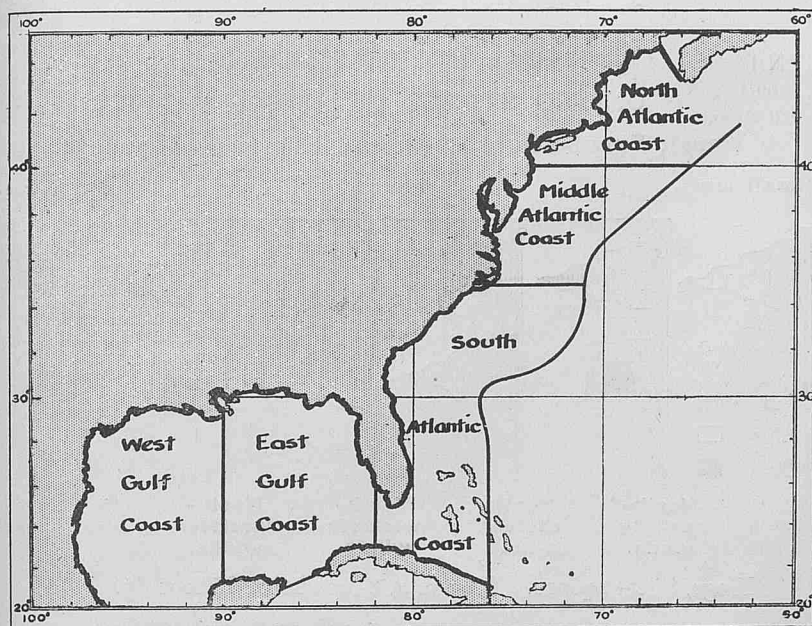
Remaining groups, if sent, refer to upper air observations.

Part II. of the bulletin is in plain language, and consists of a synopsis of general pressure distribution, including the location of

high and low areas, and the barometer readings at their centres; wind and weather forecasts covering a period of 24 hours, commencing at 0500 G.M.T. in the 0330 G.M.T. bulletin, and 1700 G.M.T. in the 1530 G.M.T. bulletin, for the areas shown on the CHARTLET below. Storm and hurricane warnings are also broadcast for these areas, and flying weather forecasts for each of six aviation zones.

A system of local distributions of forecasts and weather messages for various coastal areas of the United States Atlantic Seaboard is maintained by the W/T stations given on page 152.

CHARTLET OF U.S. MARINE FORECAST AREAS.



Weather Information for the benefit of Shipping approaching New York Harbour.

The W/T stations shown below broadcast weather conditions at Sandy Hook from observations made one hour previous to the times of transmission. The information will include barometric pressure, temperature, wind direction and force, state of sky, state of sea, and visibility.

W T Station.	Call Sign.	Position (approx.).		Time G.M.T.	Wave length. Metres.
		Latitude.	Longitude.		
Tuckerton, N.J....	WSC	39° 33' N.	74° 23' W.	1400, 2200	650 (I.C.W.).
Chatham (Marion), Mass.	WCC	41° 43' N.	70° 46' W.	1400, 2200	2,200 (C.W.).

BERMUDA ISLANDS.

Spark Issues.

The W/T Station at Bermuda Dockyard, approximate Latitude 32° 19' N., Longitude 64° 50' W., broadcasts weather conditions prevailing at Bermuda at 0015 and 1215 G.M.T. (civil), on a wave length of 1,600 metres, and at 0020 and 1220 G.M.T. (civil), on a wave length of 600 metres.

SPECIAL WEATHER TELEGRAPHY TABLES, NOT NEW INTERNATIONAL CODE.

Code Tables and their Meanings, used in connection with the "Arlington" Bulletins (U.S.A.).

Table XLV.

Wind Direction True.

Code Figure.	Code Figure.
0 = calm or no movement.	5 = south.
1 = north.	6 = south-west.
2 = north-east.	7 = west.
3 = east.	8 = north-west.
4 = south-east.	

The above table can also be used to decode direction of cloud movement.

Table XLVI.

Present Weather (State of Sky and Weather at Surface).

Code Figure.	Code Figure.
1 = clear (3 tenths or less).	5 = snowing.
2 = partly cloudy (4 to 7 tenths).	6 = thunderstorm.
3 = cloudy (8 to 10 tenths).	7 = sleeting or hailing.
4 = raining.	8 = dense fog.

Table XLVII.

Barometric Change during two hours preceding Observation.

Code Figure.	Code Figure.
0 = change of less than .04 inch.	6 = decrease of .08 inch.
1 = increase of .04 inch.	7 = increase of .10 inch.
2 = decrease of .04 inch.	8 = decrease of .10 inch.
3 = increase of .06 inch.	*9 = increase or decrease of .12 inch or more.
4 = decrease of .06 inch.	
5 = increase of .08 inch.	

Table XLVIII.

Cloud Amount—Number of Tenths of the Sky obscured (10 Tenths is Total Cloudiness).

Code Figure.
0 = 1 tenth or less of sky covered.
2 = 2 to 3 tenths of sky covered.
4 = 4 to 5 tenths of sky covered.
6 = 6 to 7 tenths of sky covered.
8 = 8 to 10 tenths of sky covered.

Table XLIX.

Cloud Form and Speed.

Code Figure.
0 = 1 tenth clouds or less (kind not indicated).
1 = upper clouds (cirrus, cirro-stratus, cirro-cumulus, alto cumulus, or alto-stratus), rapidity not indicated.
2 = strato-cumulus moving slowly.
3 = strato-cumulus moving rapidly.
4 = cumulus moving slowly.
5 = cumulus moving rapidly.
6 = stratus moving slowly.
7 = stratus moving rapidly.
8 = nimbus or cumulo-nimbus moving slowly.
9 = nimbus or cumulo-nimbus moving rapidly.

(See note at end of explanation of "second group," page 150.)

Table L.

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		

* NOTE.—Whether it is an increase or decrease can be determined by barometric tendency shown at surrounding stations.

WIRELESS STORM WARNINGS.

UNITED STATES OF AMERICA (ATLANTIC COAST).

Storm warnings are broadcast when necessary by the following stations, at the times indicated :—

W/T Station.	Call Sign.	Position. (Approx.) Latitude. Longitude.	Time. (G.M.T.)	Wave length. (Metres.)
*Jupiter, Fla. ...	NAQ	26° 57' N. 80° 05' W.	1630†, 2300	1,304 (spark).
*St. Augustine, Fla.	NAP	29° 53' N. 81° 17' W.	1630†	2,098 (spark).
*Savannah, Ga. ...	NEV	32° 05' N. 81° 07' W.	1600†, 2300	1,806 (spark).
Charleston, S.C. ...	NAO	32° 51' N. 79° 58' W.	1530†, 2300	2,607 (C.W.).
*Norfolk, Va. ...	NAM	36° 50' N. 76° 18' W.	0100, 2100 1545†	1,395 (C.W.). 1,363 (C.W.).
Washington (Arlington).	NAA	38° 52' N. 77° 05' W.	0330†, 1655 1530†, 2200†	2,655 (C.W.). 5,959 (C.W.).
Philadelphia ...	NAI	39° 52' N. 75° 11' W.	1545†, 2200	1,300 (C.W.).
New York ...	NAH	40° 28' N. 74° 00' W.	1530†, 2200	1,540 (C.W.).
Boston, Mass. ...	NAD	42° 21' N. 70° 57' W.	1600†, 2200	1,363 (C.W.).
Cape Elizabeth, Me.	NAB	43° 34' N. 70° 12' W.	0100, 1700†	1,900 (spark).

* These stations transmit hurricane warnings, when necessary, which are repeated every two hours until 0500 G.M.T.

The areas to which warnings refer are given in the text of the messages.

† After the weather bulletin.

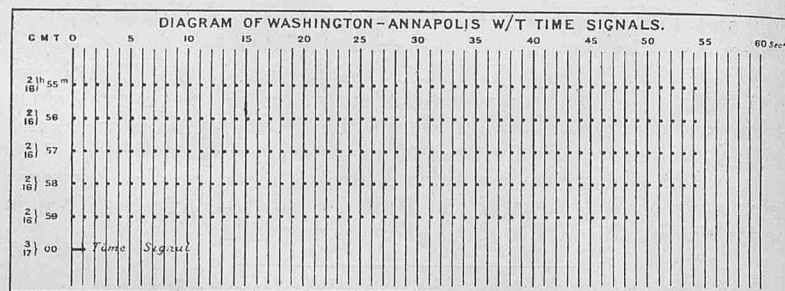
III.—WIRELESS TIME SIGNALS.

UNITED STATES OF AMERICA (ATLANTIC COAST).

All American Time Signals are sent according to the American Code.
(See Diagram of Washington-Annapolis W/T Time Signals.)

Station.	Call Sign.	Wave length.	G.M.T. of Time Signal.	
Washington (Annapolis). Lat. 38° 59' 00" N. Long. 76° 27' 00" W.	NSS	17,130 C.W.	0255-0300 1655-1700	Signals sent daily. The "lag" of the Annapolis T.S. is 0.08 second (constant).
Washington (Arlington). Lat. 38° 52' 05" N. Long. 77° 04' 47" W.	NAA	2,655 C.W.	0255-0300 1655-1700	Daily. Controlled by Naval Observatory, Washington. The "lag" of the Arlington T.S. is 0.09 second (constant). Error generally less than 0.1 second.
Charleston (S = c.)...	NAO	2,607 C.W.	1655-1700	These stations transmit only when Washington (Arlington) (NAA) is out of action.) Sundays and Holidays excepted.
Norfolk (Va.) ...	NAM	1,363 C.W.	do.	
New York ...	NAH	1,538 C.W.	do.	
Newport (R.I.) ...	NAF	2,607 C.W.	do.	
Boston (Mass.) ...	NAD	1,363 C.W.	do.	

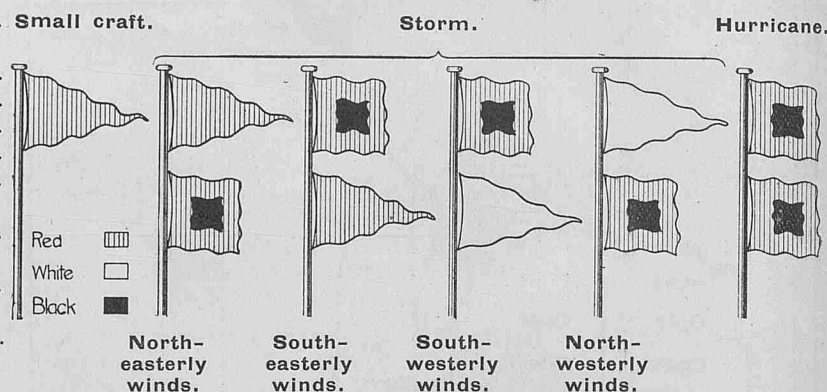
NOTE.—Sharp tuning to the individual wave lengths of the American Stations is required, in order to receive satisfactorily.



IV.—VISUAL STORM WARNINGS.

UNITED STATES OF AMERICA.

Visual, Small-Craft, Storm and Hurricane Warnings.



Flags, 8 feet square. Pennants, 8-foot hoist, 15-foot fly.

Storm warnings are displayed by the U.S. Weather Bureau at some 380 stations on the Atlantic, Gulf and Pacific coasts of the United States, and on the Great Lakes.

Explanation of Warnings.

The Small-Craft Warning.—A red pennant indicates that moderately strong winds that will interfere with the safe operation of small craft are expected. No night display of small-craft warnings is made.

The North-East Storm Warning.—A red pennant *above* a square red flag with black centre displayed by day, or two red lanterns, one above the other, displayed by night, indicate the approach of a storm of marked violence, with winds beginning from the *North-East*.

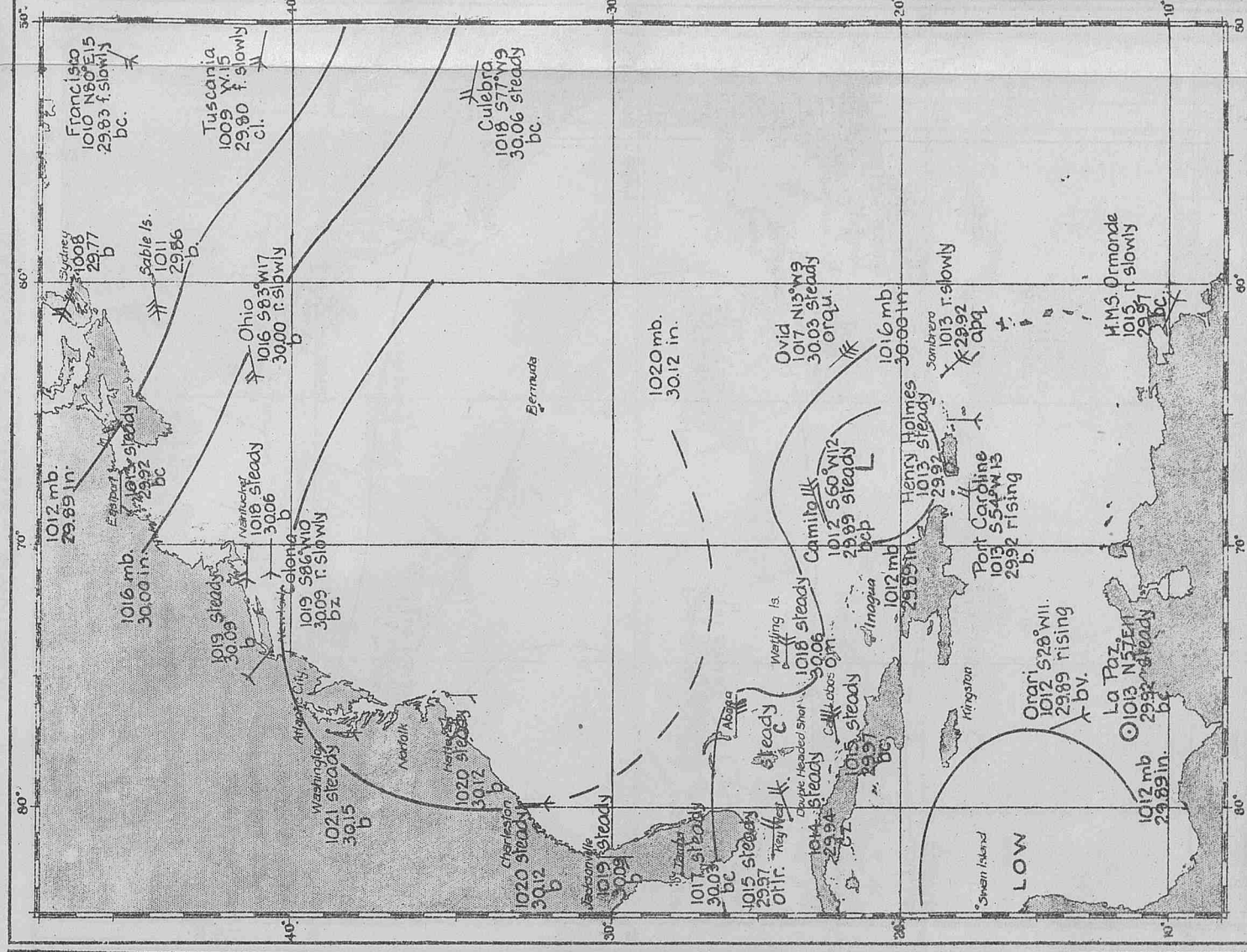
The South-East Storm Warning.—A red pennant *below* a square red flag with black centre displayed by day, or one red lantern displayed by night, indicates the approach of a storm of marked violence, with winds beginning from the *South-East*.

The South-West Storm Warning.—A white pennant *below* a square red flag with black centre displayed by day, or a white lantern *below* a red lantern displayed by night, indicates the approach of a storm of marked violence, with winds beginning from the *South-West*.

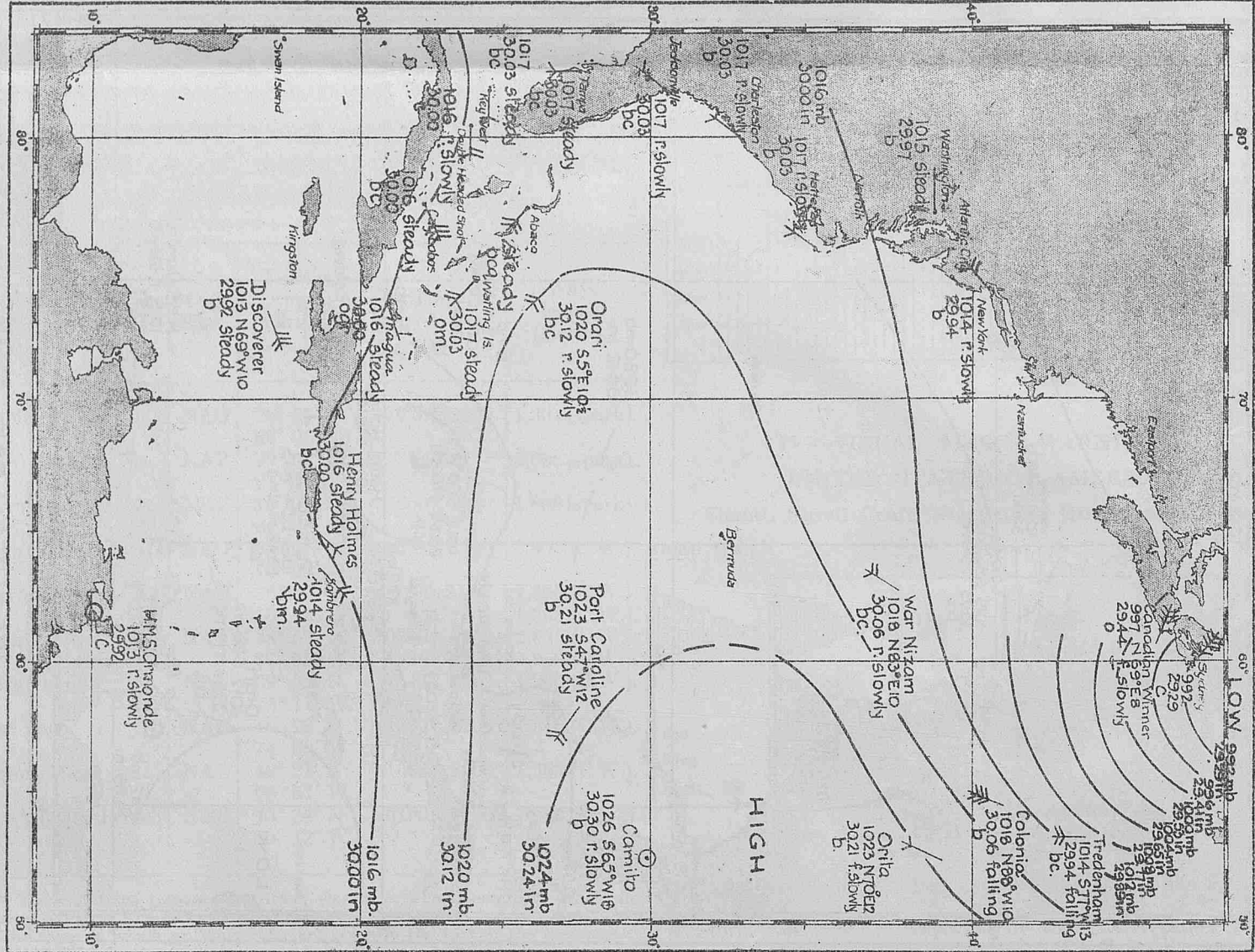
The North-West Storm Warning.—A white pennant *above* a square red flag with black centre displayed by day, or a white lantern *above* a red lantern displayed by night, indicates the approach of a storm of marked violence, with winds beginning from the *North-West*.

Hurricane or Whole-Gale Warning.—Two square flags, red with black centres, one above the other, displayed by day, or two red lanterns, with a white lantern between, displayed by night, indicate the approach of a tropical hurricane or of one of the extremely severe and dangerous storms which occasionally move across the Great Lakes and Northern Atlantic Coast.

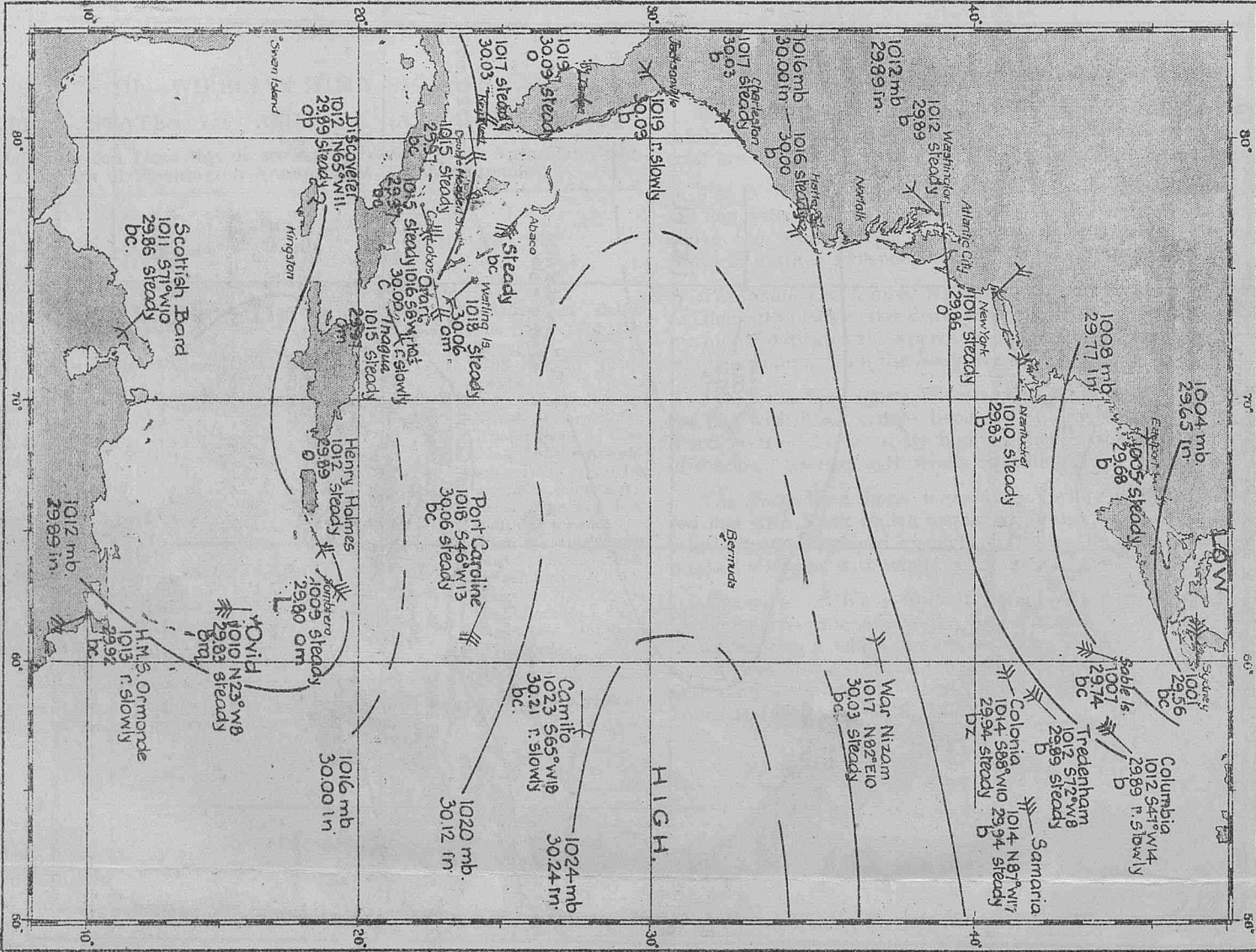
MORNING OF AUGUST 30TH 1924



WEATHER CHART XXXVII.

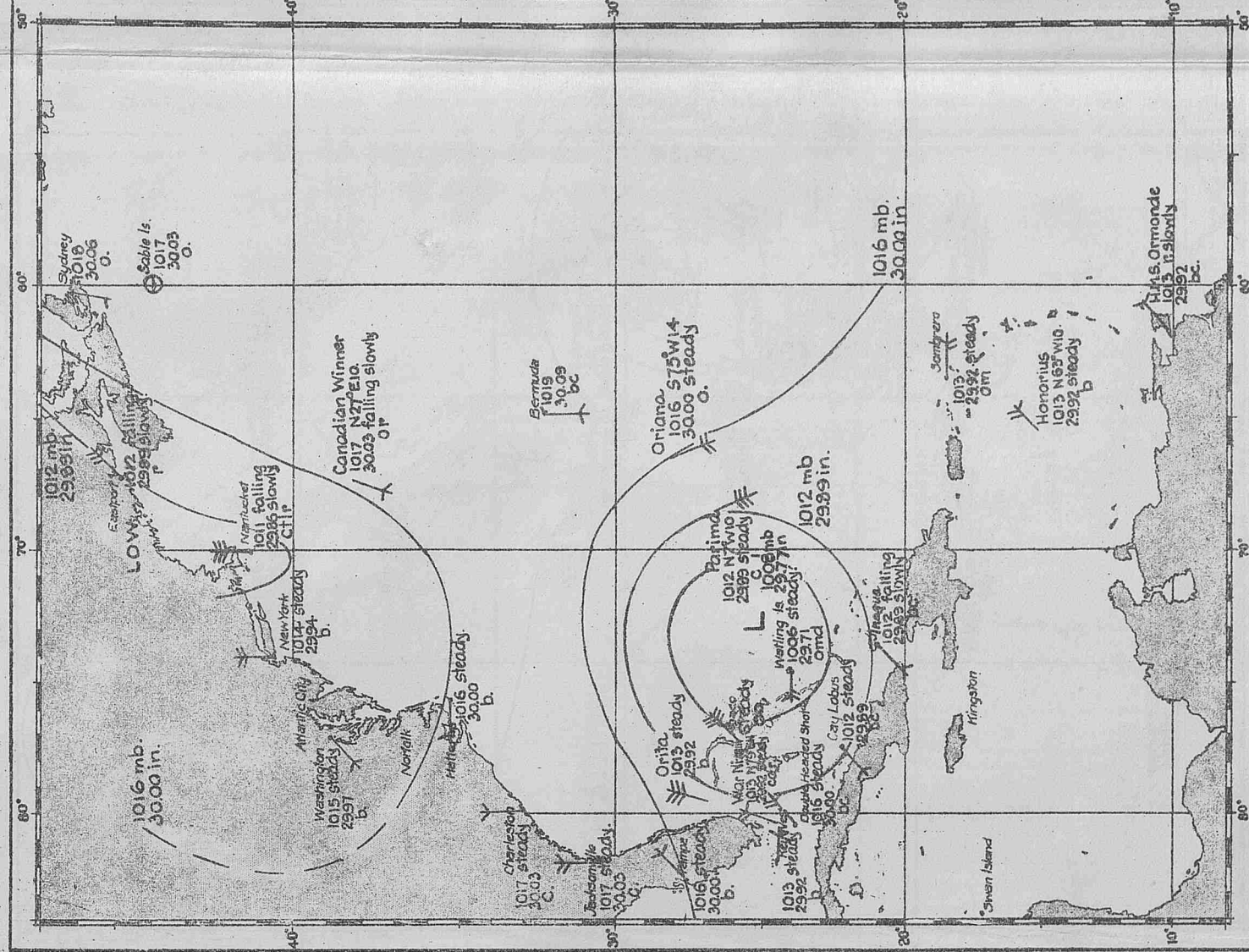


WEATHER CHART XXXIV.



WEATHER CHART XXXV.

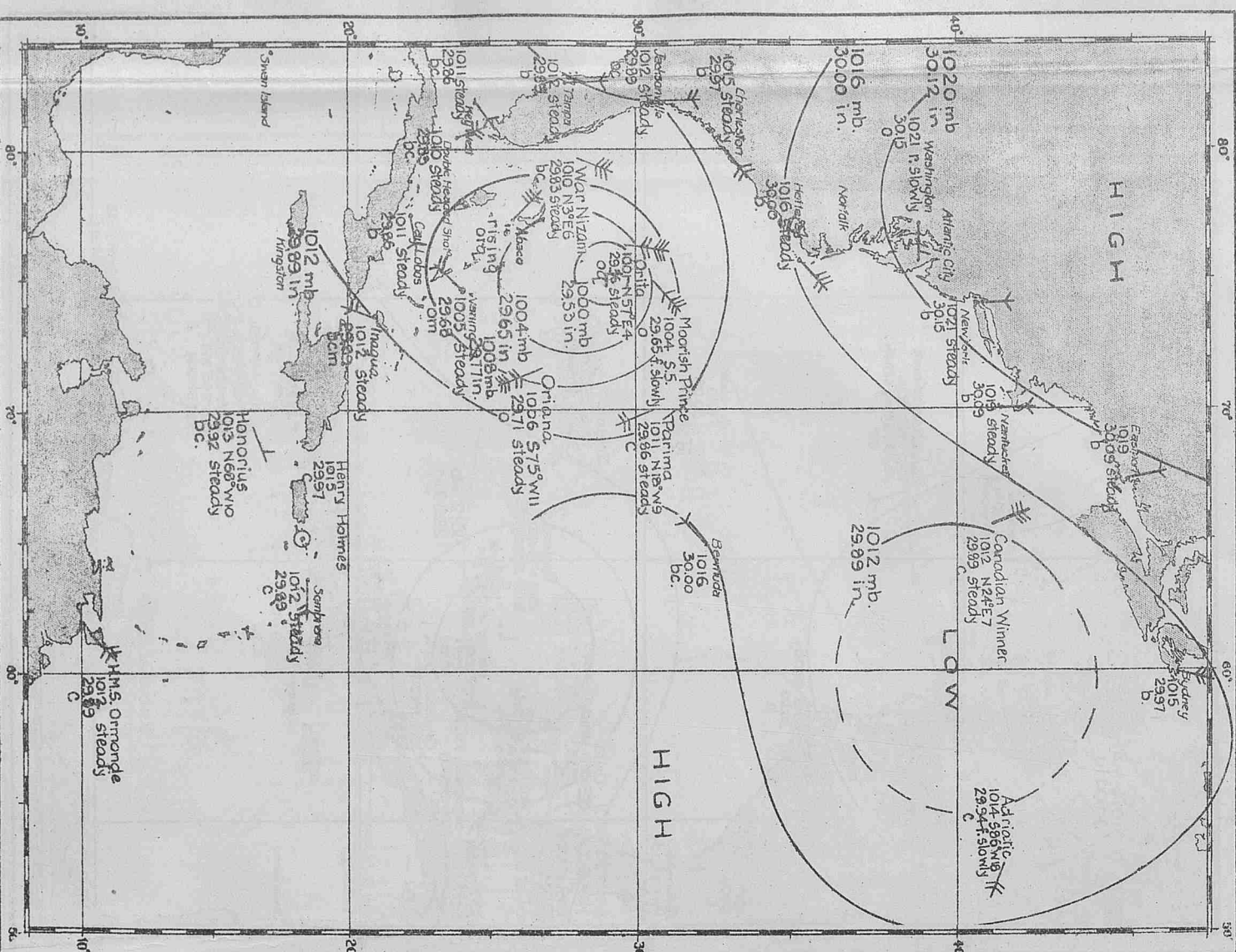
MORNING OF AUGUST 21ST 1924.



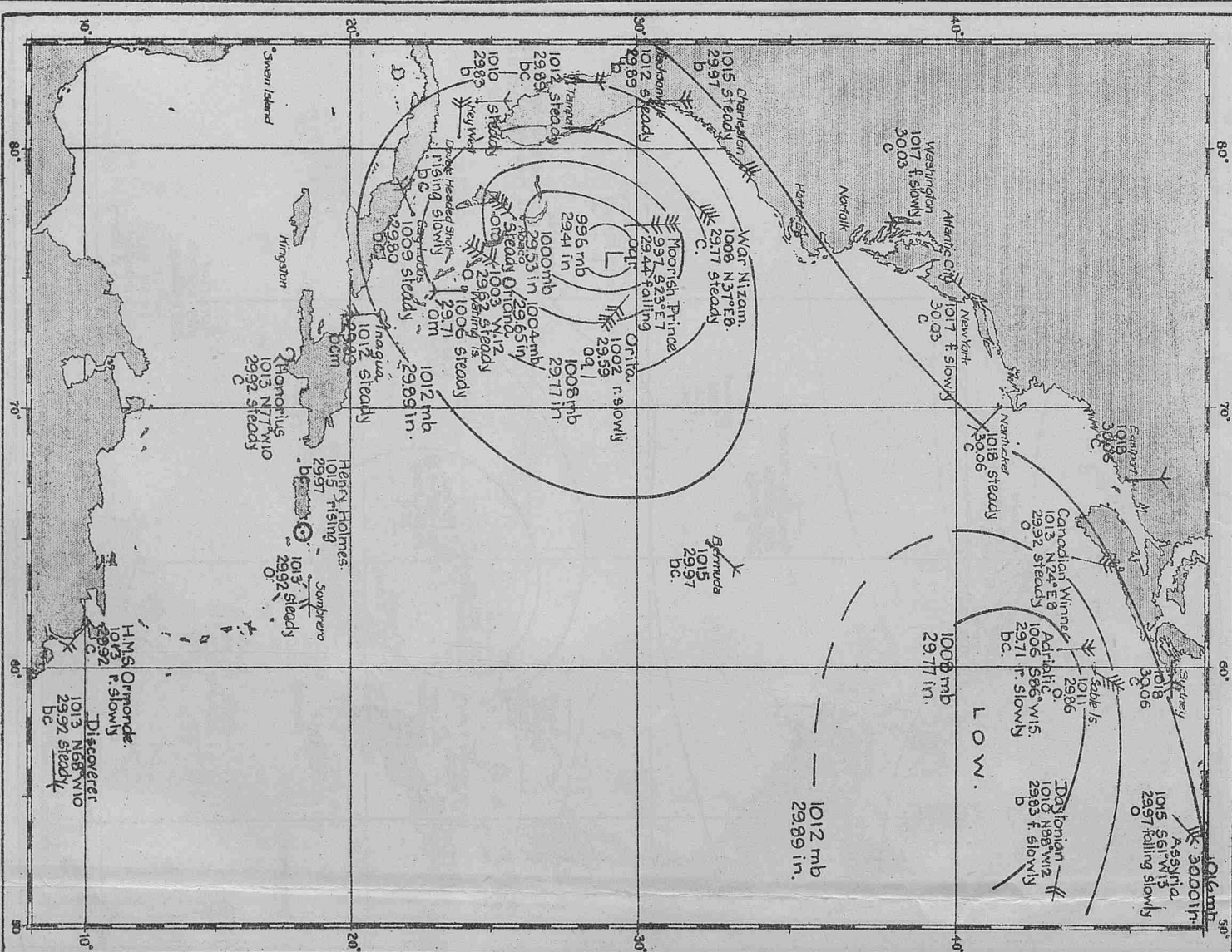
WEATHER CHART XXVIII.

MORNING OF AUGUST 22ND 1924.

MORNING OF AUGUST 23RD 1924.

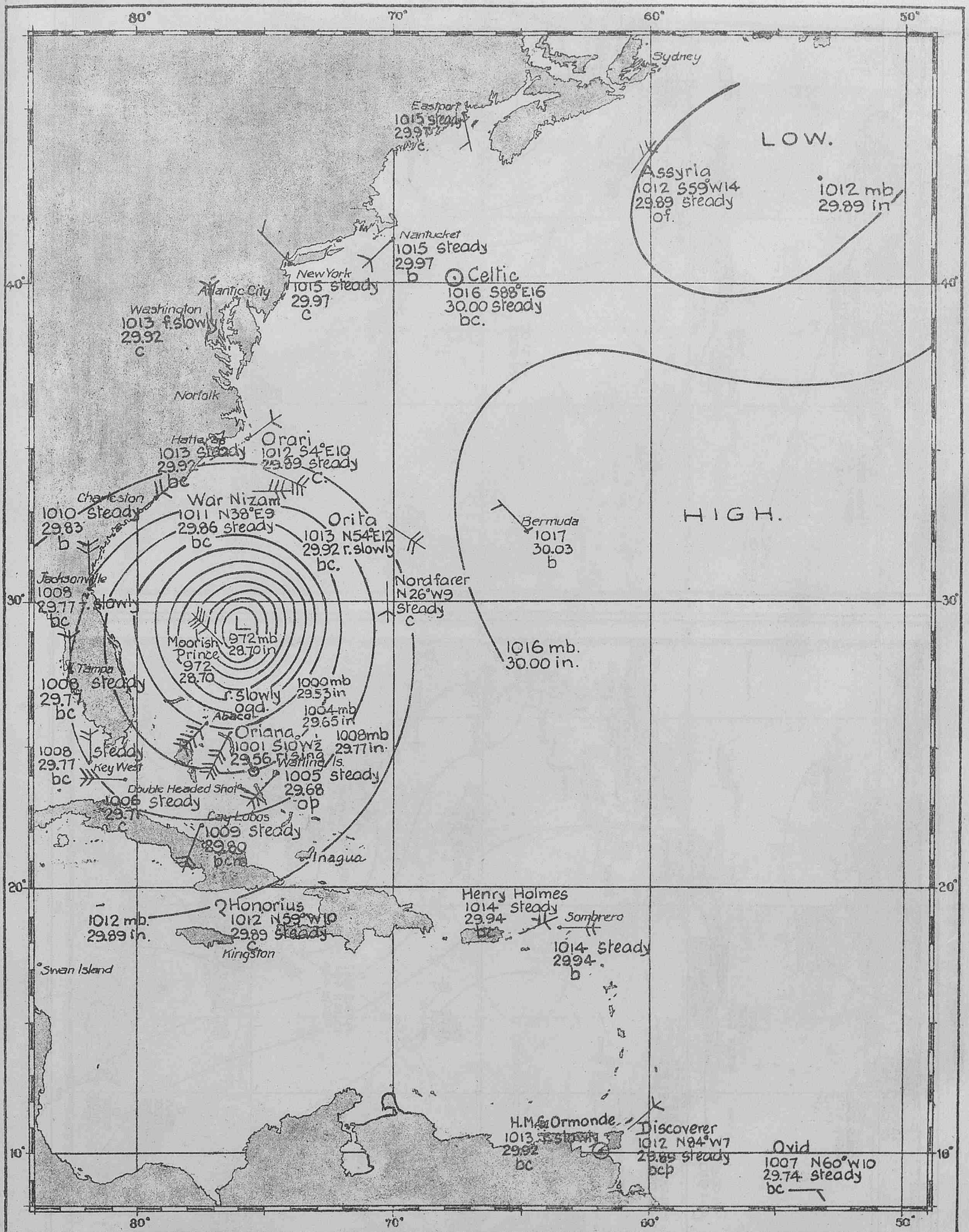


WEATHER CHART XXIX.

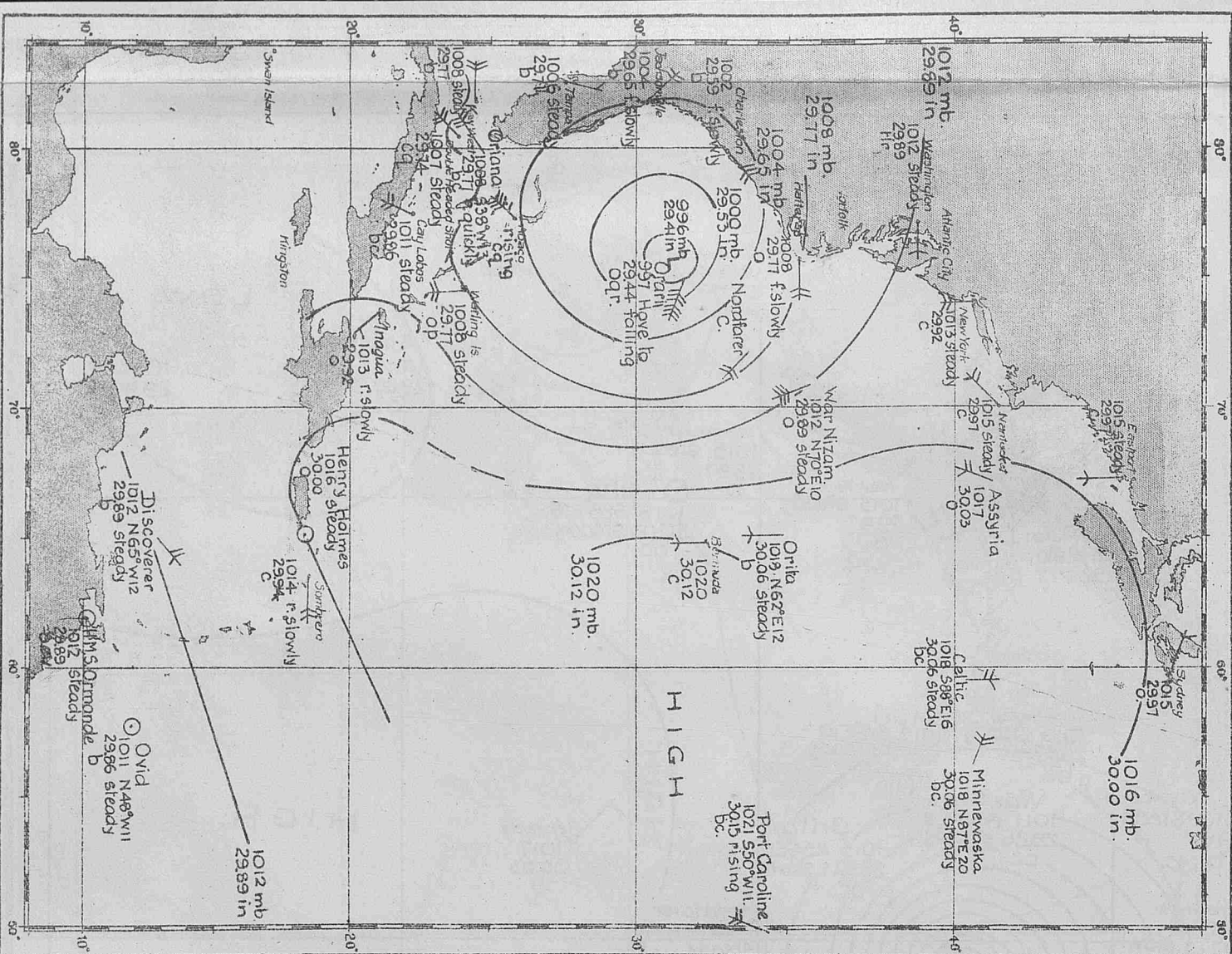


WEATHER CHART XXX.

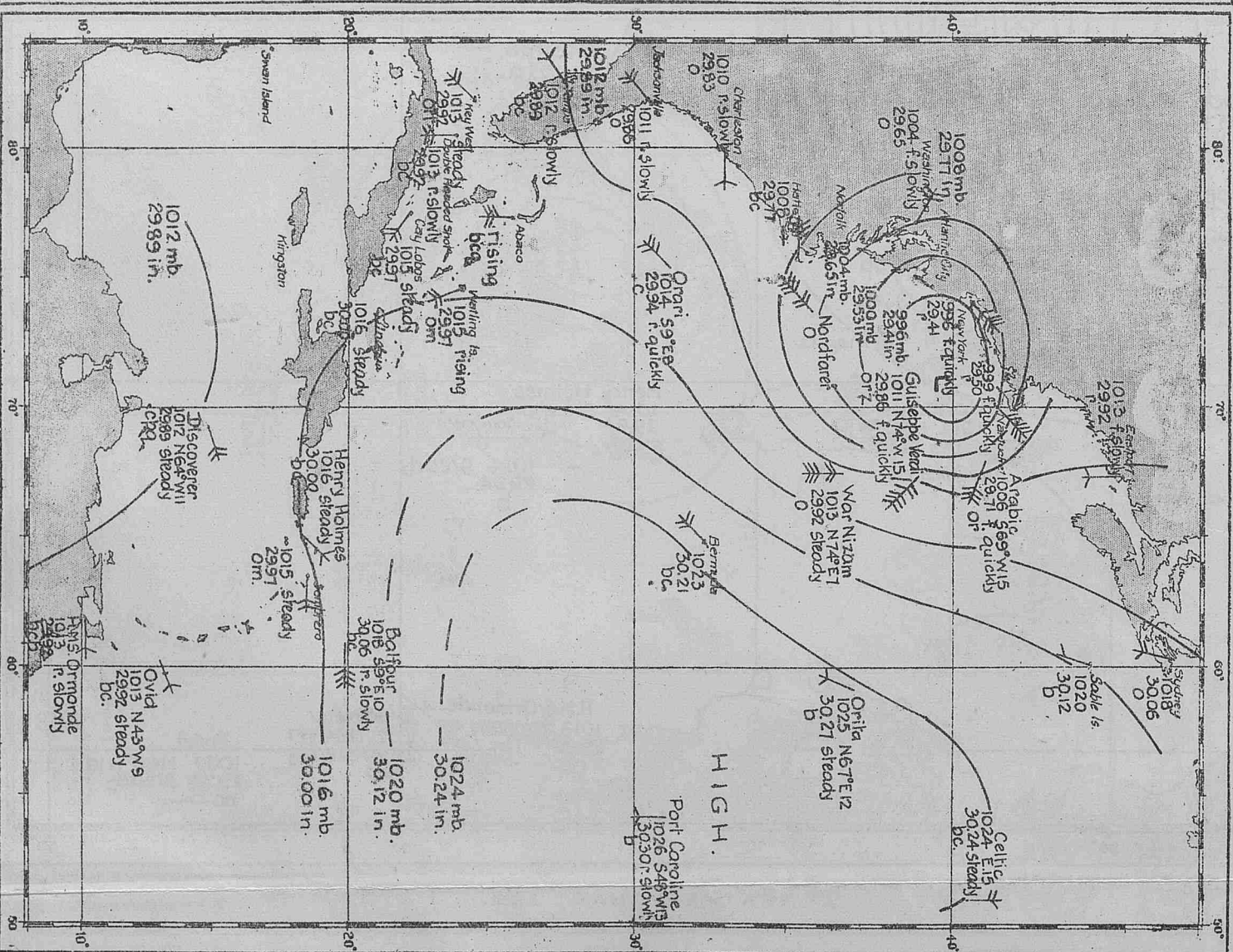
MORNING OF AUGUST 24TH 1924.



WEATHER CHART XXXI.

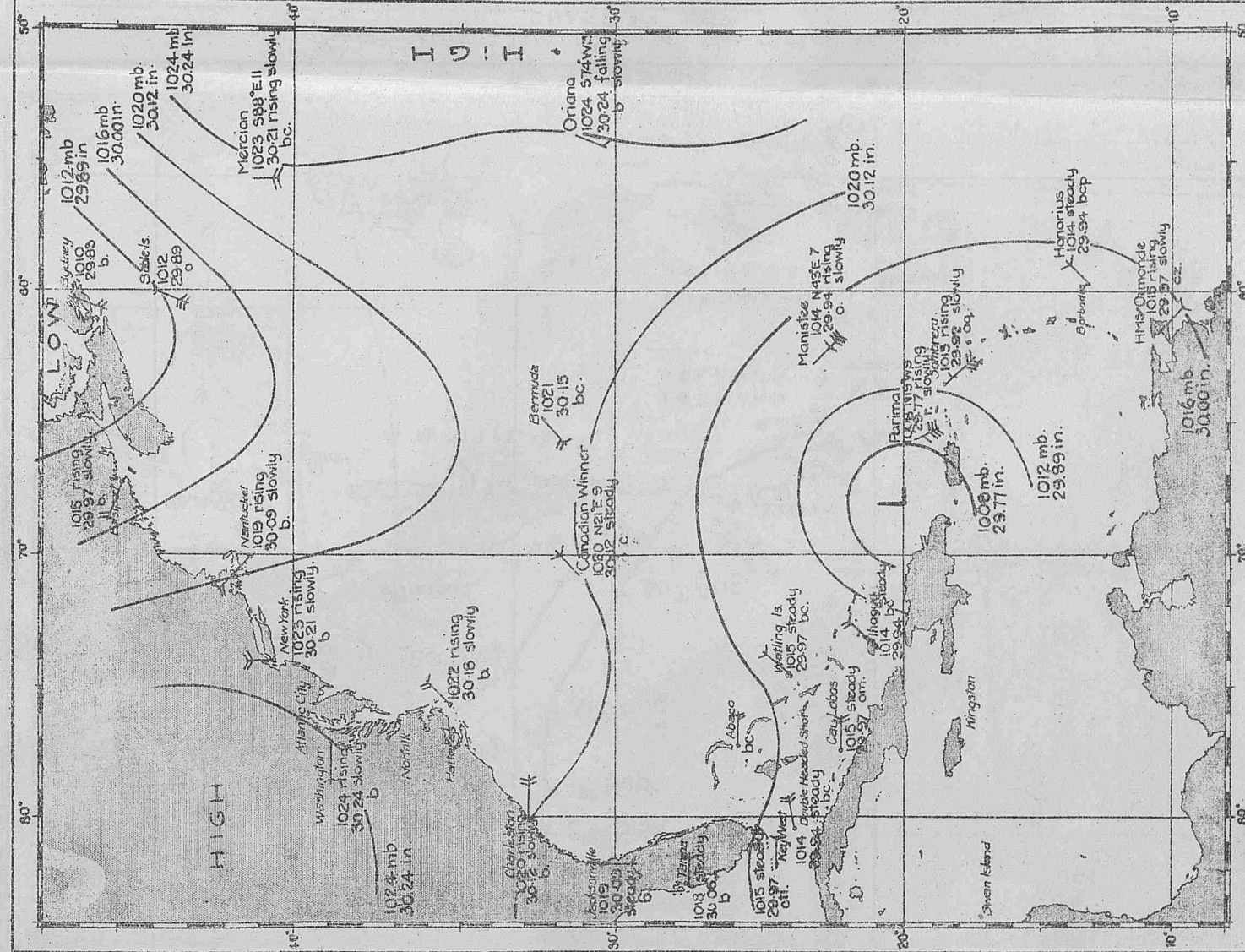


WEATHER CHART XXXII.

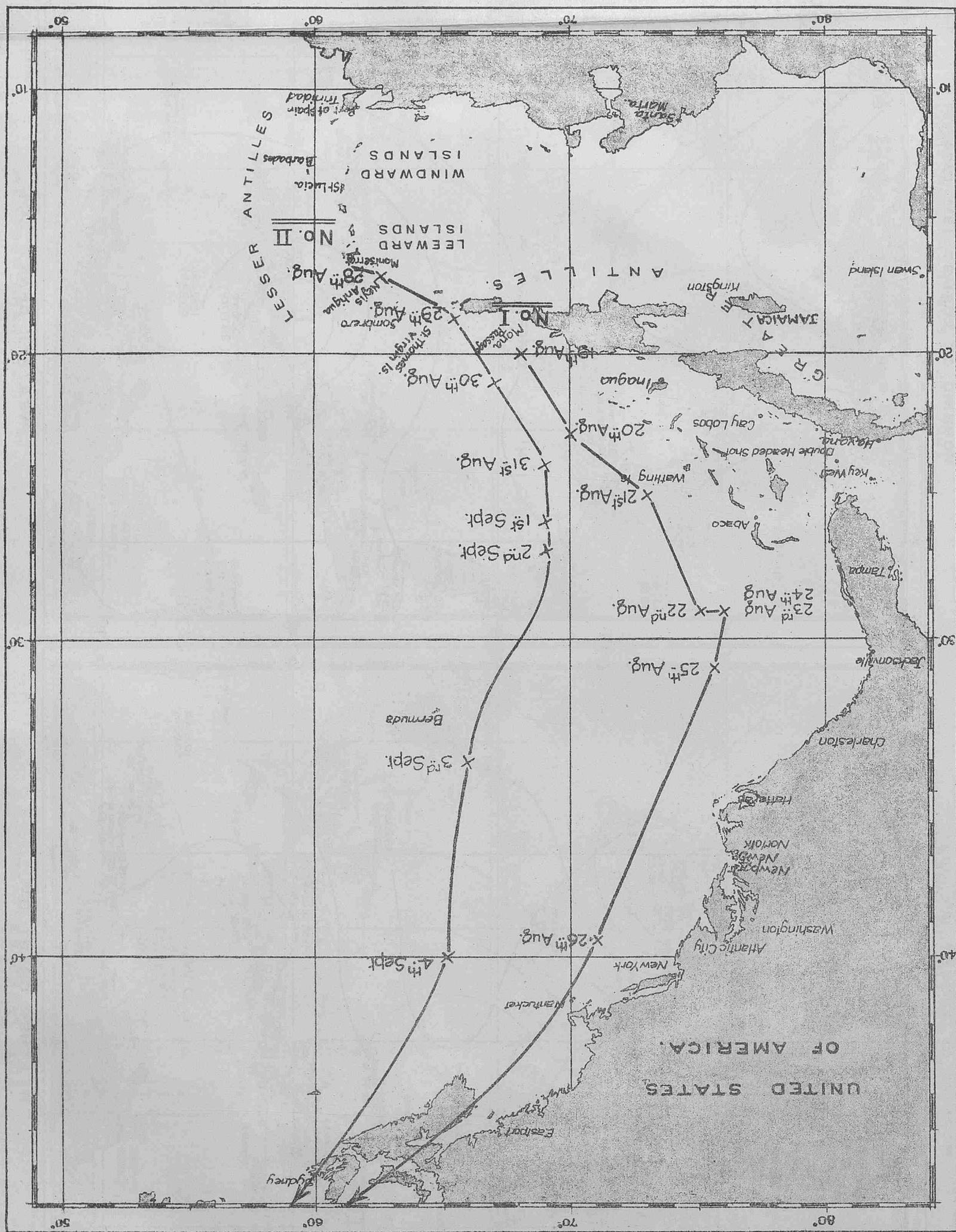


WEATHER CHART XXXIII.

MORNING OF AUGUST 19TH 1924.

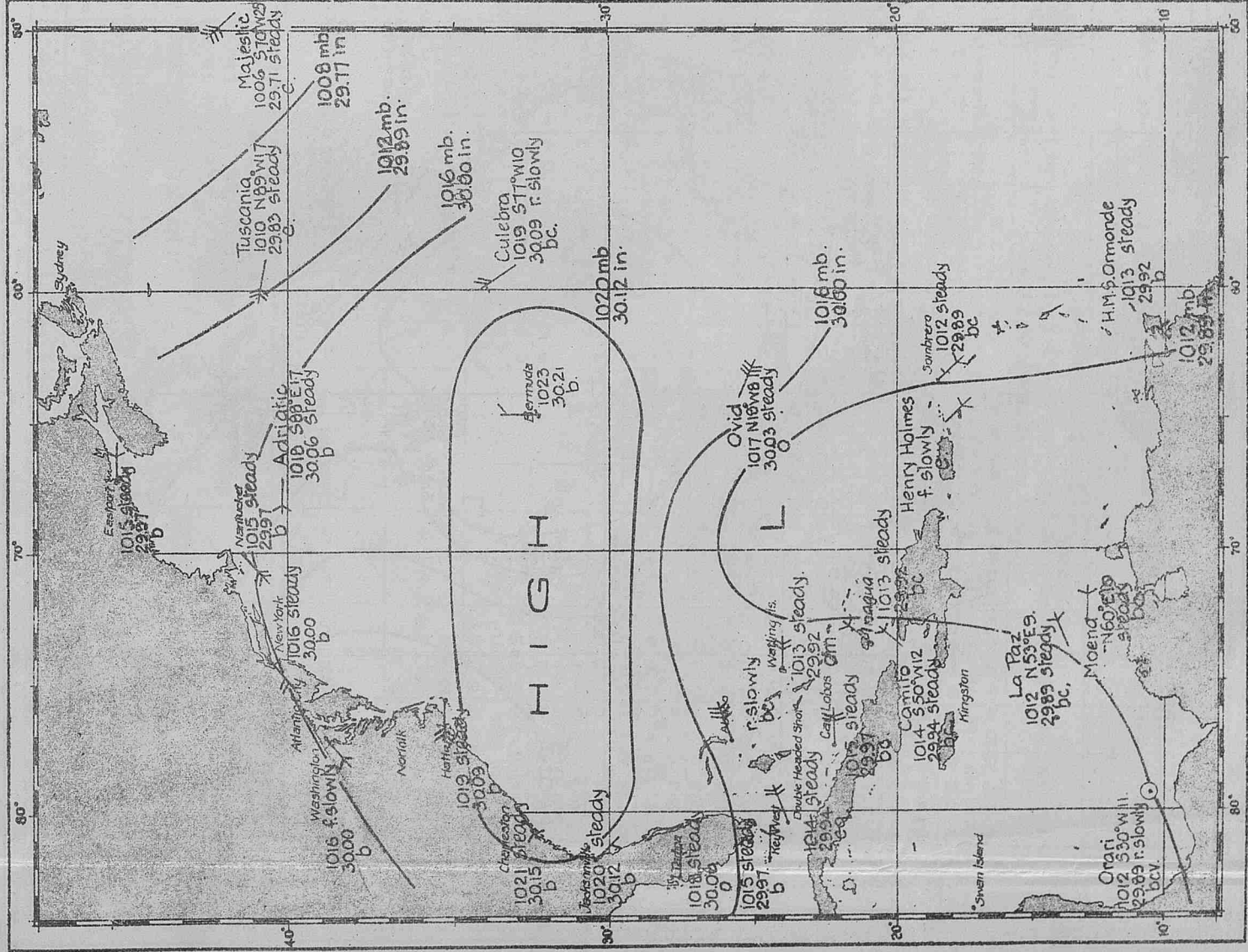


WEATHER CHART. XXVI.



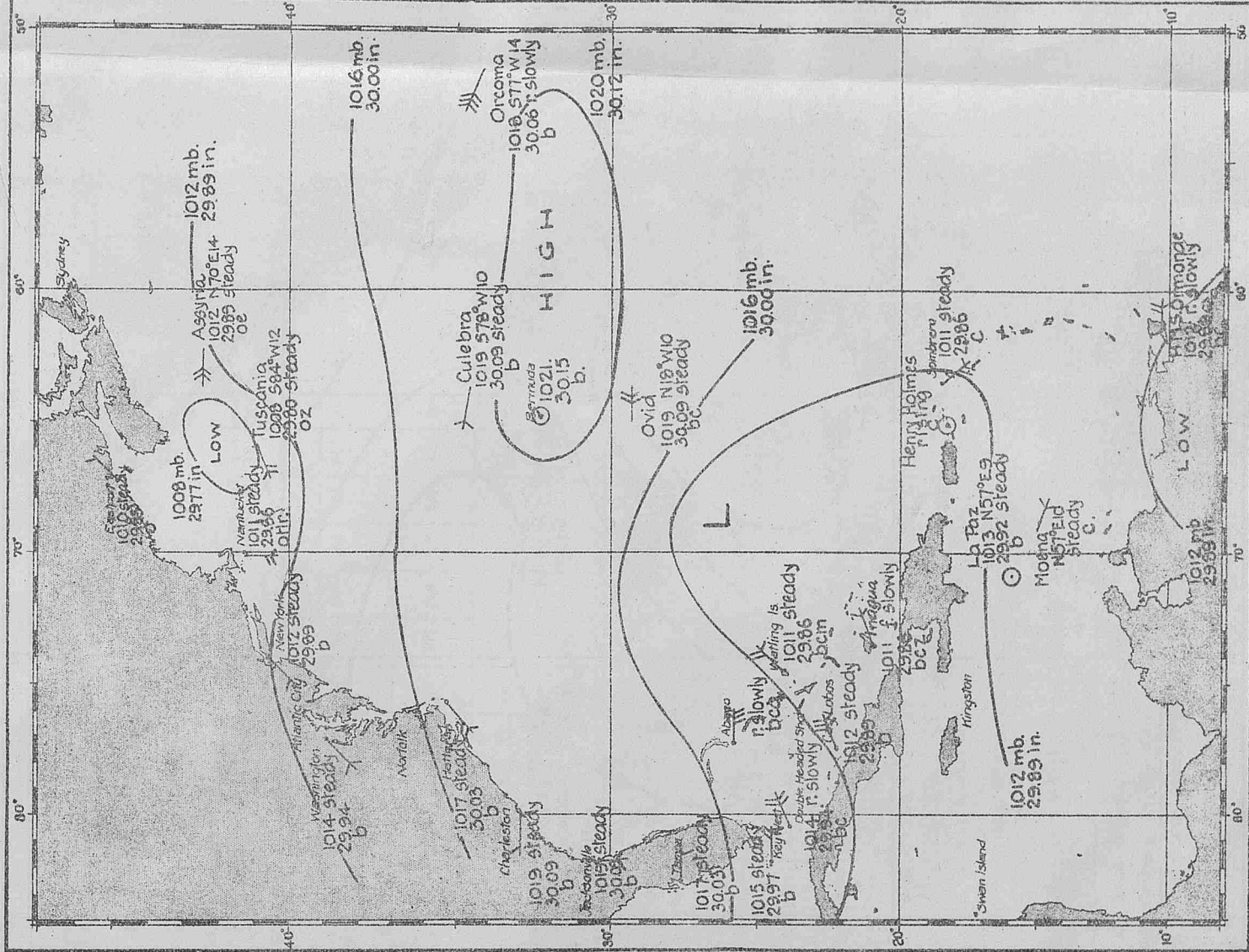
X indicates the position of the centre at 8 am.

MORNING OF AUGUST 31ST 1924.

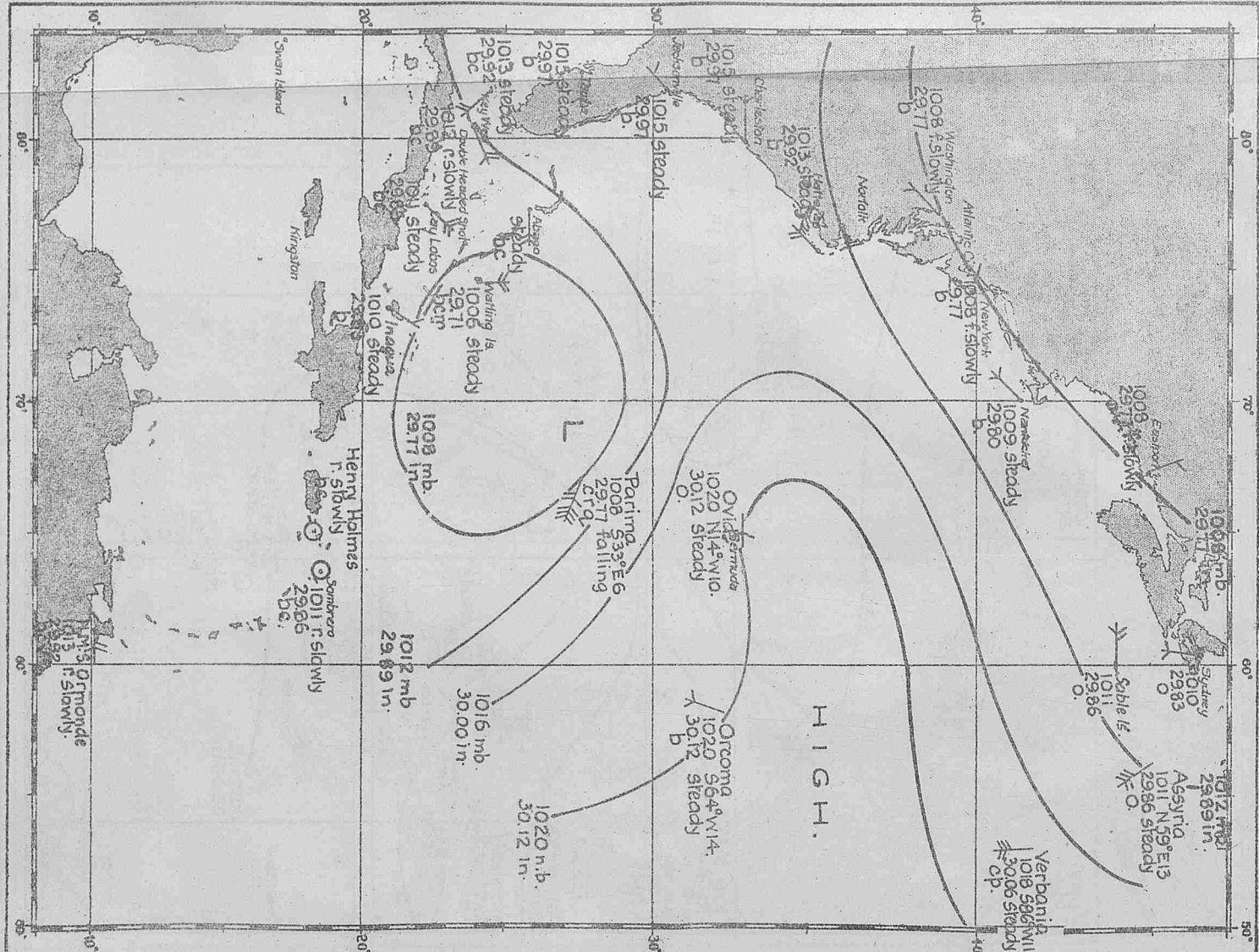


WEATHER CHART XXXVIII.

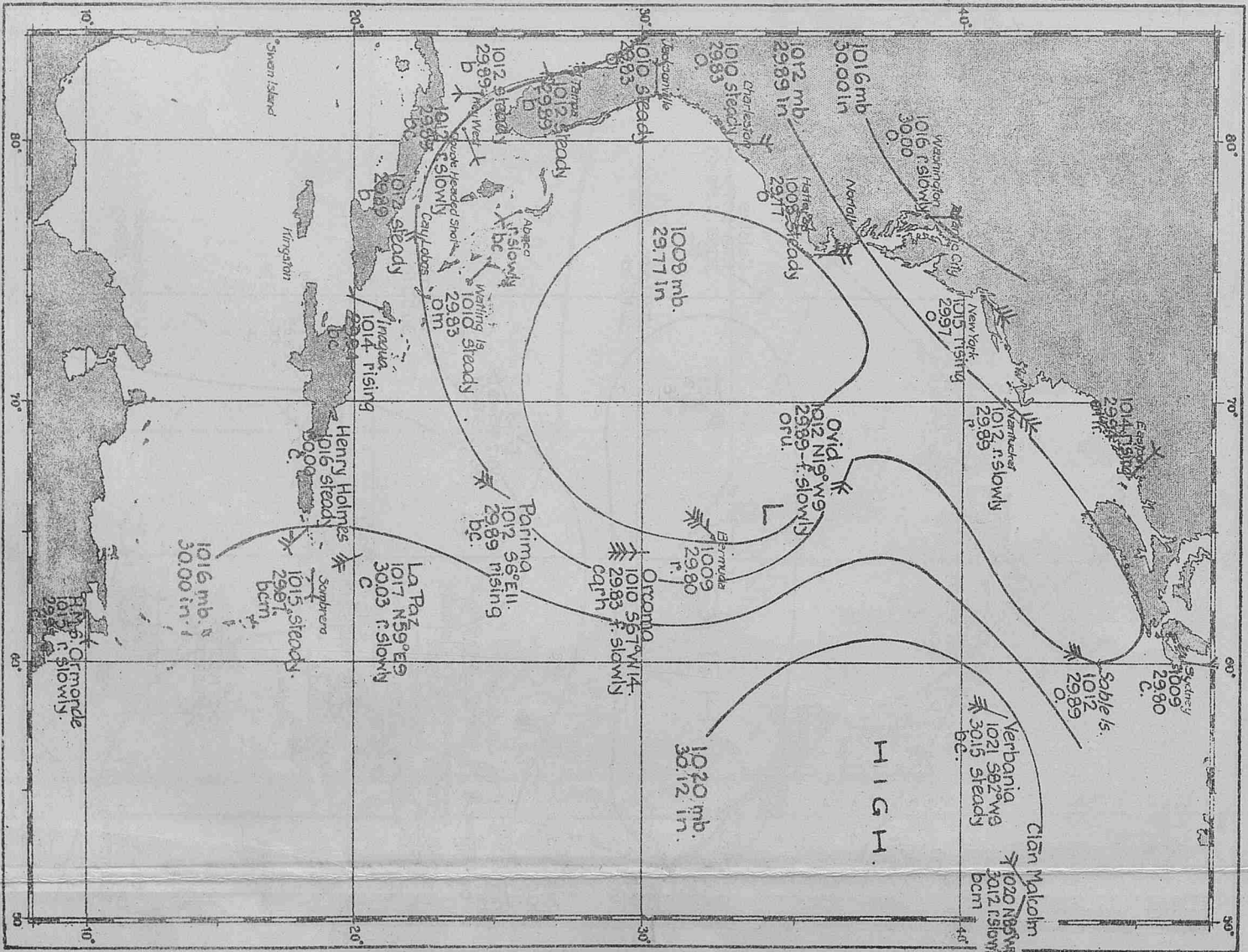
MORNING OF SEPTEMBER 1ST 1924.



WEATHER CHART XXXIX.



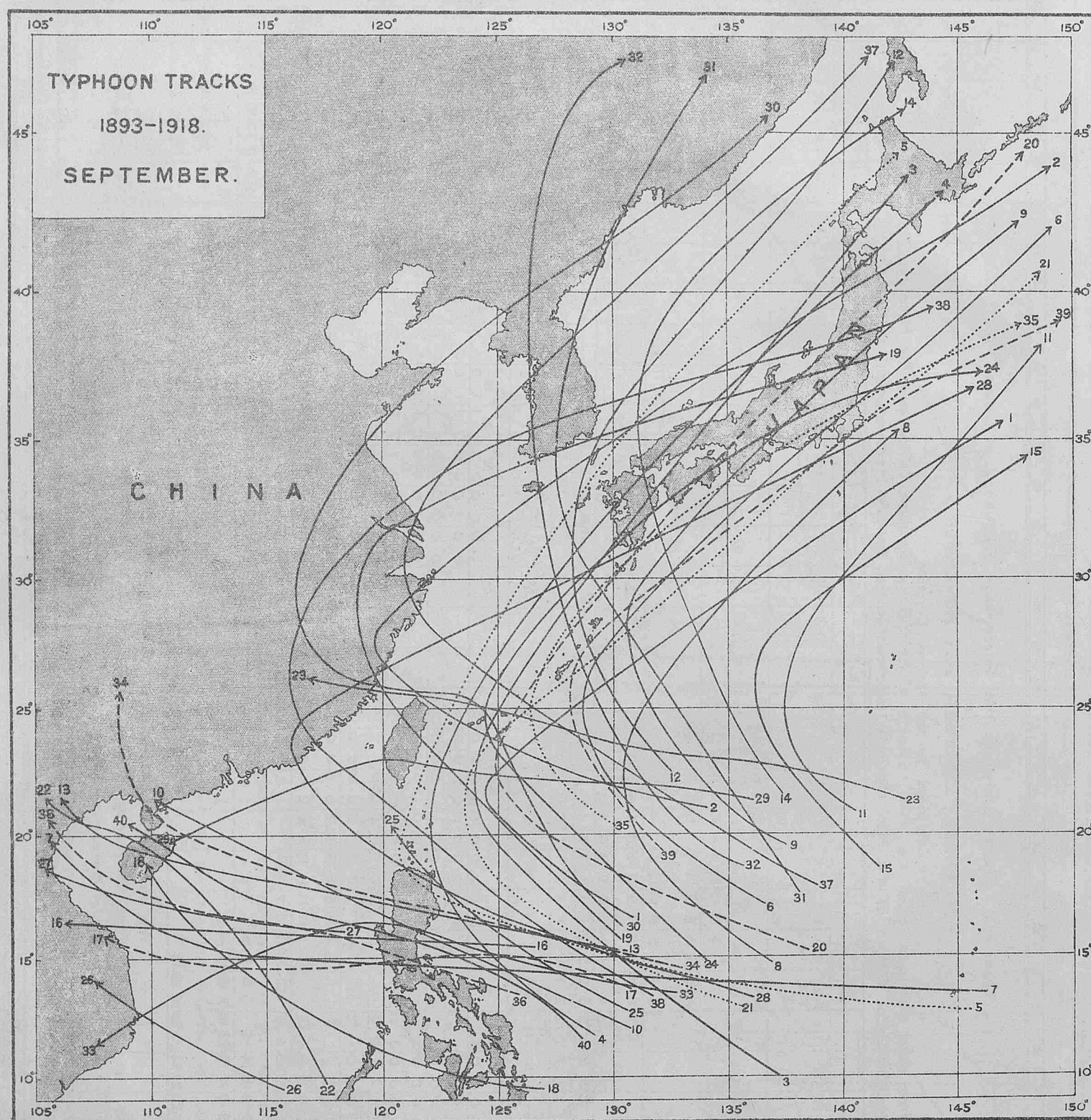
WEATHER CHART XL.



WEATHER CHART XLI.

The numbers in the corners of each square indicate the percentage frequency of Gales. The numbers in the centre of the squares are Marsden's numbers, and form a brief means of location.

TYPHOONS IN THE FAR EAST DURING 26 YEARS.



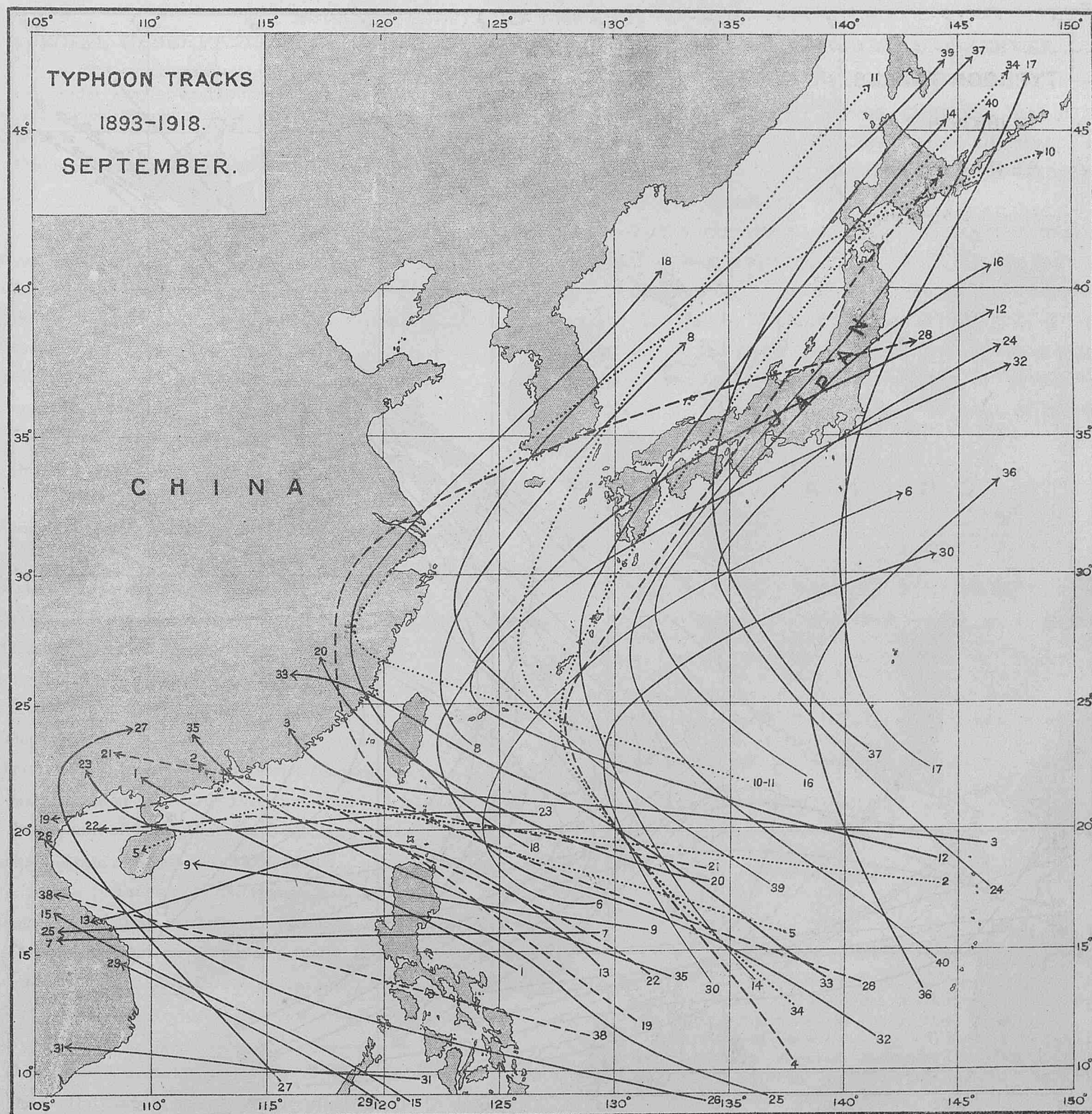
SEPTEMBER. — Three charts: 109 tracks; the maximum of typhoons, a little more than 4 instances every year.

First decade: September 1-10, 40 tracks. — During these ten days the typhoons are more numerous than during the whole of June. However the presence of the asiatic maximum makes itself felt more and more; five storms only have crossed the Yellow Sea and the Formosa Strait becomes less dangerous by degrees. At the same time the two extreme edges of the fan of tracks extend themselves on both sides and show an increasing density of trajectories. On the S.W. side, the centres, advancing straight towards N.W. or W.N.W., rush in increasing numbers towards Tongking and Annam, and the dangerous zone gains ground as far as Palawan and the coast of Cochin-China. In the East, the season is in full swing across Japan and down to the Bonin group. A few cyclones continue to visit the N of Formosa and come to recurve inland near the mouth of the Yangtze.

The apex or turning point of the curves is gradually going down southwards, and the movement occurs frequently, to the S.E. of the Loochoos and the E of the Bashi Channel, between the 122nd and the 130th meridians. The handle of the fan passes close to the eastern coast of Luzon, and not a few centres emanate from latitudes below 10°. The reader will remark at least two tracks running distinctly towards W.S.W. on the China Sea.

[From Atlas of the Tracks of 620 Typhoons, 1893-1918, by Louis Froc, S. J., Director, Zi-ka-wei Observatory, Zi-ka-wei-Chang-hai, 1920.]

TYPHOONS IN THE FAR EAST DURING 26 YEARS.

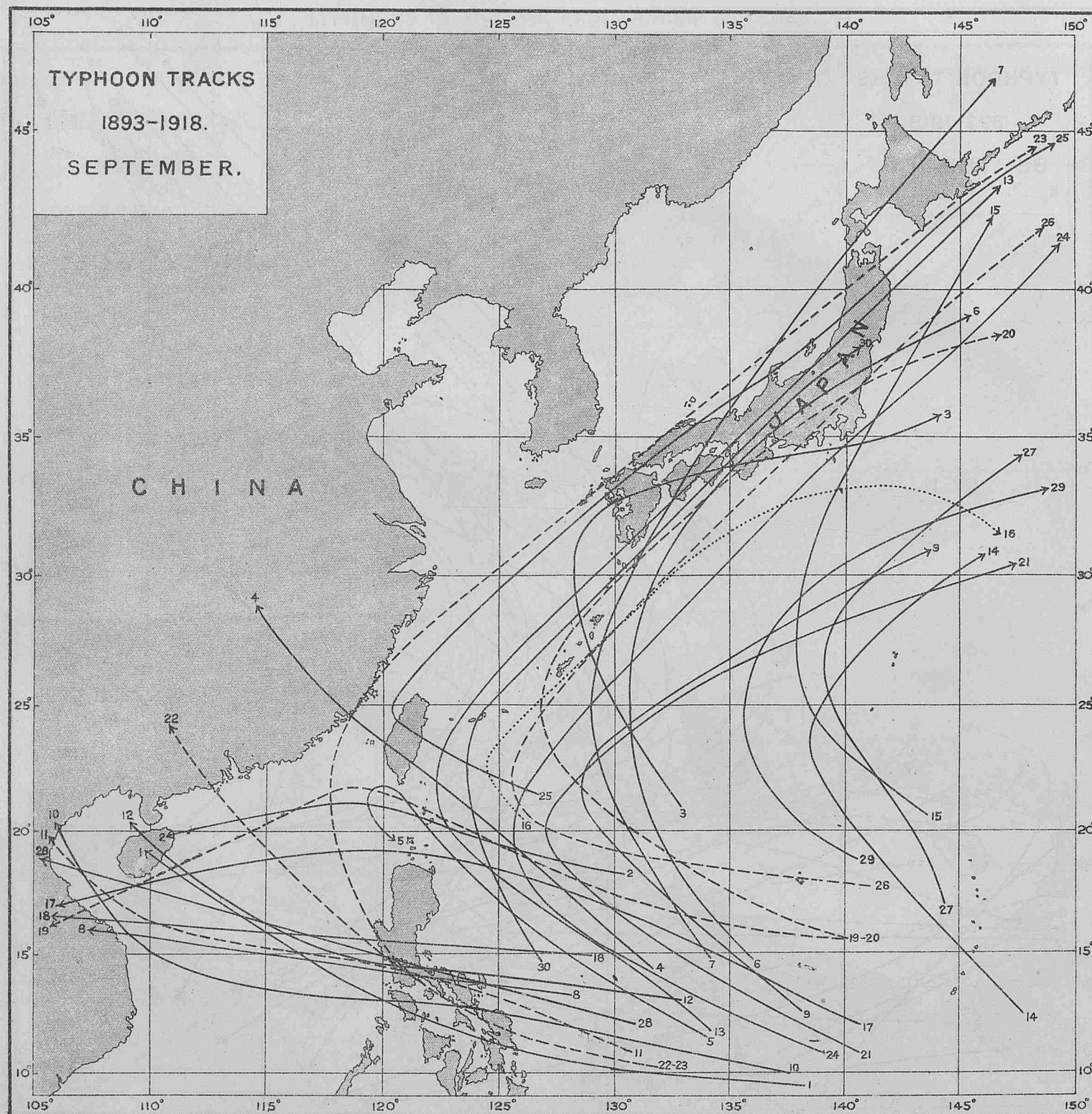


SEPTEMBER — Three charts: 109 tracks; the maximum of typhoons, a little more than 4 instances every year.

Second decade: September 11-20, 40 tracks. — The storms are still more driven both to East and West by the high pressures which are invading the Continent from the NW. No case has been observed, during the 26 years, to the North of a line passing through Chemulpo and the mouth of the Hwangho in Kiangsu. A few ones are still seen on the southern part of the Yellow Sea and in the Formosa Strait, the last ones nearly always bending when they reach the Chinese coast, and coming to pass on the mouth of the Yangtze. But at the same time there is an increasing intensity of cyclones on the whole of the China Sea which becomes full of danger as far as Cape St. James; the Paracels are threatened in a peculiar manner: it is also the season of the Kwangtung typhoons. At least 3 storms have recurved towards WSW to the S of the Pratas.

[From Atlas of the Tracks of 620 Typhoons, 1893-1918, by Louis Froc, S. J., Director, Zi-ka-wei Observatory, Zi-ka-wei-Chang-hai, 1920].

TYPHOONS IN THE FAR EAST DURING 26 YEARS.



SEPTEMBER.— Three charts: 109 tracks; the maximum of typhoons, a little more than 4 instances every year.

Third decade: September 21-30, 29 tracks.— The rent in the central part of the bundle or fan of storms is steadily progressing and broadening. Only two trajectories have ploughed their way across the Eastern Sea from SW to NE, and no case is signalled to the N. of a line joining Wenchow to the SW end of Hokkaido, across the Korea Strait. Japan is still frequently run over from end to end, as well as the Bonin islands. The China Sea has become more calm, but for a short time, to the S of the 15th parallel, while the N part of it is still freely opened to the incursions of the typhoons, which continue, in a few cases, to recurve to WSW between the Ballintang Channel and the coast of Annam.

The birth place of the storms continues to retire southwards, between the Carolines and Mindanao. The recurving points (apex) rather dispersed during the beginning of the month, come close together, to the E of the Bashi and Ballintang Channels, not far from the 20th parallel; a few are rounding the Bonin group.

The few tracks that reach our coasts do not go very far inland, the low centres being soon filled up by the high pressures of the Continent [From Atlas of the Tracks of 620 Typhoons, 1893-1918, by Louis Froc, S.J, Director, Zi-ka-wei Observatory, Zi-ka-wei-Chang-hai, 1920].

NOTICES.

SPECIAL OBSERVATIONS OF SEA AND SWELL.

Marine Observers are invited to make measurements of sea and swell, under varying conditions, upon the lines suggested in the article which was published in Vol. II, No. 19 of "The Marine Observer."

The observations required are as follows :—

S.S..... Captain.....
Observer.....
From To
Date.....
Time of Observation.....
Latitude.....
Longitude.....
True Course.....
Speed in Knots.....
If hove to, True Direction of Ship's Head.....
Wind at time of observation—True Direction.....
Force by Beaufort Scale.....
Depth of Water in Fathoms (Approx.).....
Element observed, Sea or Swell?.....Very important.
Height of Waves in Feet.....
Length of Waves in Feet.....
Period, Trueseconds.
Velocity, True.....
True Direction from which the waves come.....
General State of Sea—True Direction.....
Amount of Disturbance by Scale.....
General State of Swell—True Direction.....
Amount of Disturbance.....
Remarks (including methods of measurement adopted, degree of reliability, number of waves actually measured, variability of dimensions, etc.).....
.....
.....
.....
Note.—Only *actual measured observations* should be entered.

IMPORTANT.

For the information of Marine Observers in London, the telephone call number of the AIR MINISTRY is now **Holborn 3434**, Marine Superintendent, Extension 421.

COVER FOR MARINE OBSERVER.

Marine observers, regular recipients and subscribers to this Journal are hereby informed that a binding cover for Volume I of "The Marine Observer" may be obtained from H.M. Stationery Office, through any bookseller, price 2s.

The arrangement for assembling the numbers for binding was described in Volume I, No. 12, page 156.

It should be clearly understood that this cover is not the cover used for binding "Excellent" awards, which is far superior; but it will be found to be of good quality and a useful means of preserving the yearly numbers, for which a title page is issued with each December number.

CHARTS OF NORMALS AND FREQUENCIES.

Captains of observing ships upon our list can be supplied with reprints of the North Atlantic and East Indian Seas Meteorological Charts, free of charge, upon application to the Director, Meteorological Office. These Charts provide normals which are essential for the practical application of Marine Meteorology at sea.

Applications should state that it is intended to preserve the Charts in the ship.

These Charts may be purchased through the Admiralty Chart Agents.

(See "Aims and Objects," Volume I, No. 1 of this Journal.)

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. LETTERS OF TRANSATLANTIC TRACKS INDICATE

- (C) From 1st September to 31st January, inclusive.
- (F) { Optional, during the operative dates of Track (G) for vessels bound to or from U.S. Ports from or to the North of Ireland.
- (G) From the opening of Straits of Belle Isle to 14th November.

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

ROUTE NOTICES.

For latest information re Tracks see pages 35-36, March, 1925, "Marine Observer."

SYMBOLS USED ON THE CHART.

- Iceberg.
- Floeborg.
- 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.

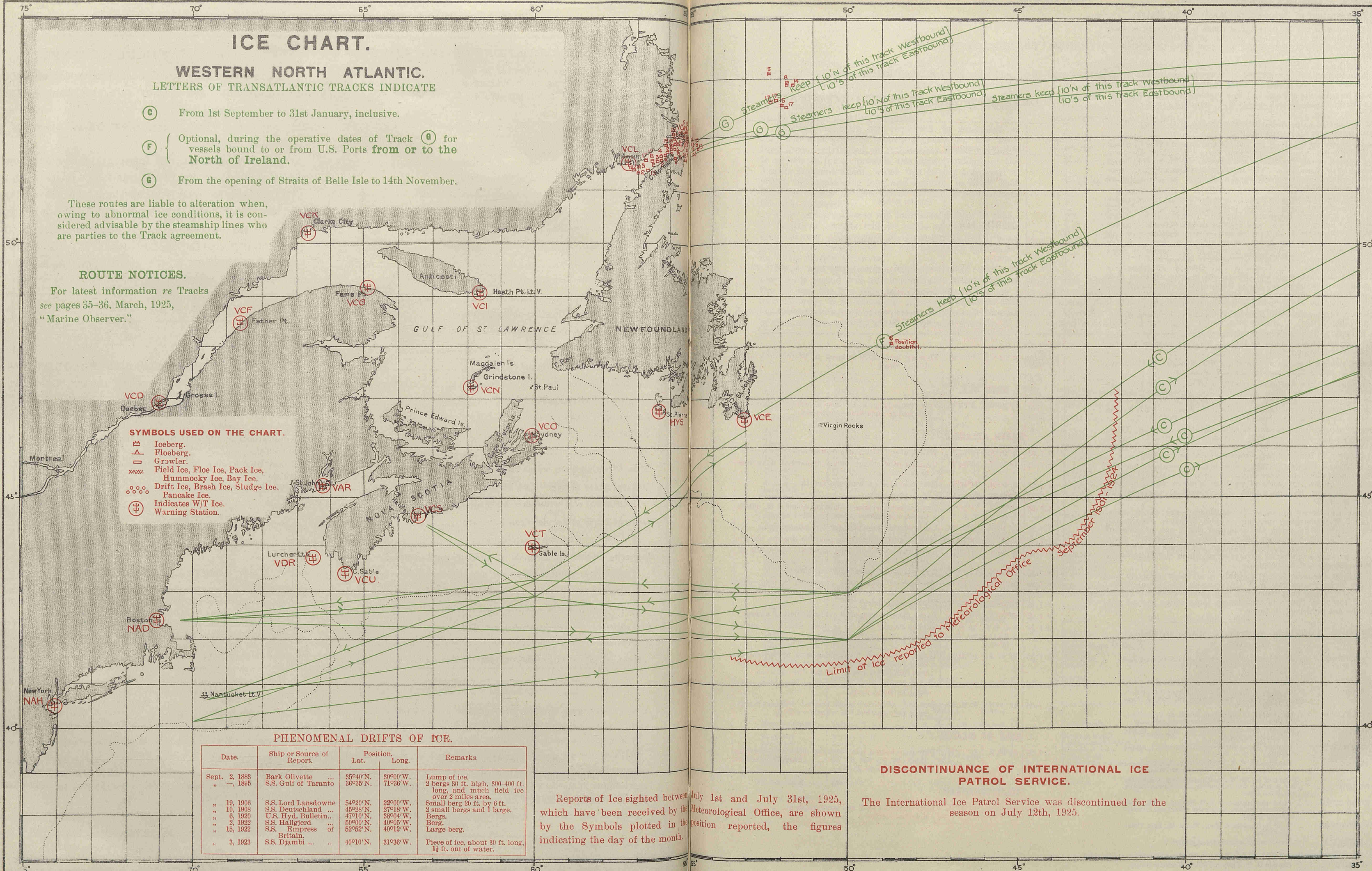
PHENOMENAL DRIFTS OF ICE.

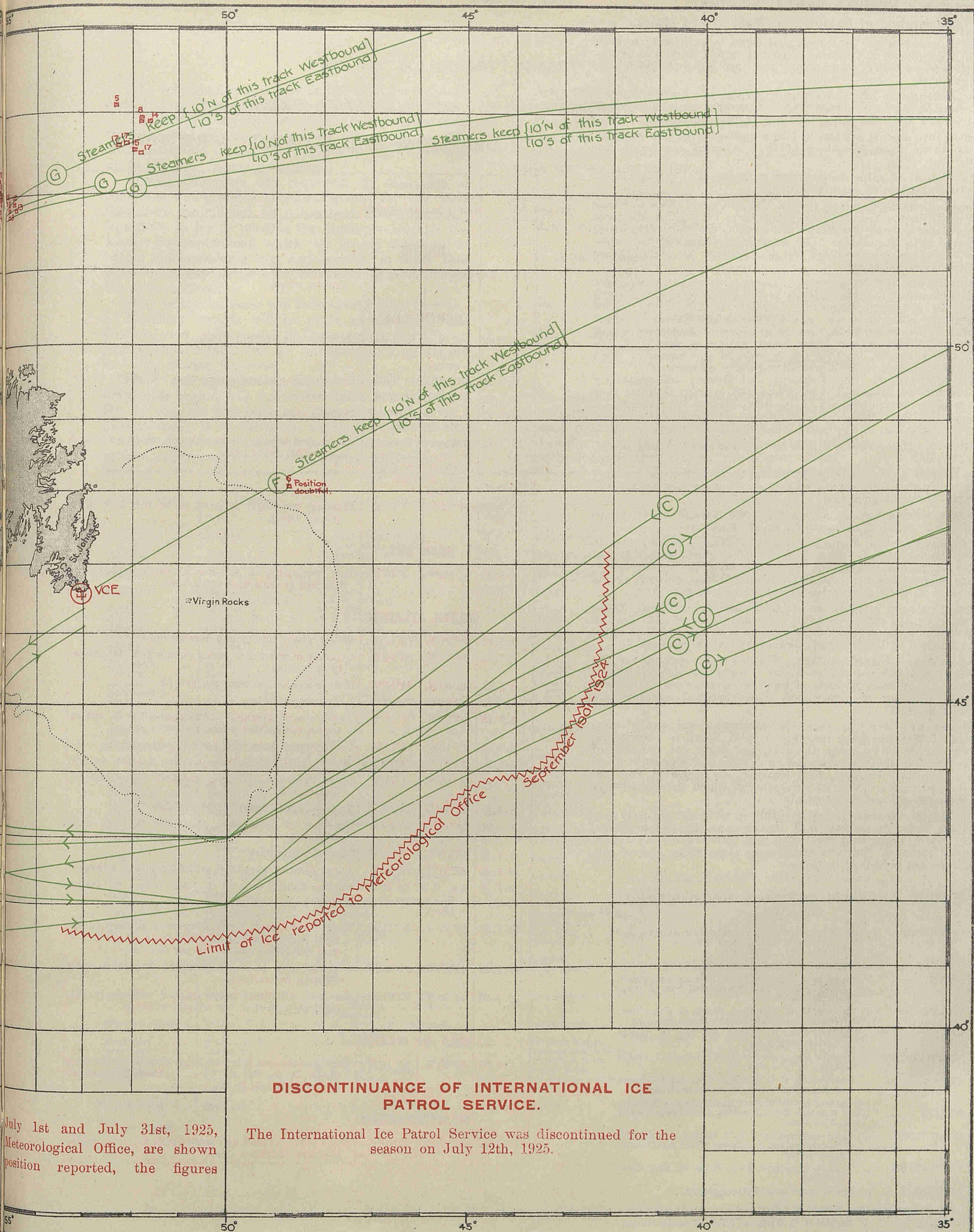
Date.	Ship or Source of Report.	Position. Lat. Long.	Remarks.
Sept. 2, 1883	Bark Olivette	35°40'N. 30°00'W.	Lump of ice.
" 1885	S.S. Gulf of Taranto	36°35'N. 71°36'W.	2 bergs 30 ft. high, 300-400 ft. long, and much field ice over 2 miles area.
" 19, 1906	S.S. Lord Lansdowne	54°20'N. 22°00'W.	Small berg 20 ft. by 6 ft.
" 10, 1908	S.S. Deutschland	46°28'N. 27°18'W.	2 small bergs and 1 large.
" 6, 1920	U.S. Hyd. Bulletin...	47°10'N. 38°04'W.	Bergs.
" 2, 1922	S.S. Hallgjerd	50°00'N. 40°05'W.	Berg.
" 15, 1922	S.S. Empress of Britain	52°52'N. 40°12'W.	Large berg.
" 3, 1923	S.S. Djambi	40°10'N. 31°36'W.	Piece of ice, about 30 ft. long, 1 1/2 ft. out of water.

Reports of Ice sighted between July 1st and July 31st, 1925, which have been received by the Meteorological Office, are shown by the Symbols plotted in the position reported, the figures indicating the day of the month.

DISCONTINUANCE OF INTERNATIONAL ICE PATROL SERVICE.

The International Ice Patrol Service was discontinued for the season on July 12th, 1925.





**DISCONTINUANCE OF INTERNATIONAL ICE
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The International Ice Patrol Service was discontinued for the
season on July 12th, 1925.

July 1st and July 31st, 1925,
Meteorological Office, are shown
position reported, the figures

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, Ships 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.

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.

Masters who wish to assist in developing the rapid interchange of Meteorological information and Weather Forecasting at sea can do so by using the standard form, not in code, of W/T Weather Report suggested in "Weather Signals," given in this Journal, January, 1925 Number (*see* pages 11 and 12). For this purpose a mercurial barometer of which the index error has been ascertained is essential.

The Marine Observer is sent monthly to all ships regularly contributing Logs, Forms and W/T Registers to the Meteorological Office. It is hoped that each ship will preserve *all* her copies. Personal copies of Numbers are sent to those whose special contributions are published in them.

Marine Agencies and Port Meteorological Officers.

LIVERPOOL	..	(Port Meteorological Office), Lieut.-Commander M. Cresswell, R.N.R., Dock Office. Telephone No.: Bank 8959.
CARDIFF	..	Captain T. Johnston, Technical College.
LEITH	..	Captains G. Black and C. G. Bonner, V.C., D.S.C., Leith Salvage and Towage Co., Ltd., 2, Commercial Street.
THE CLYDE	..	Captain M. C. Corrance, Board of Trade Surveyor's Office, 73, Robertson Street, Glasgow.
HULL	..	Captain Geo. B. Sturdy, c/o Mr. W. Hakes, Commercial Road.
SOUTHAMPTON	..	Captain D. Forbes, Nautical Academy, 1, Albion Place.
TYNE	..	Commander E. S. Macleod, R.D., R.N.R., Board of Trade Surveyor's Office, North Shields.
DUBLIN	..	Captain M. H. Clarke, Chief Surveyor, Ministry of Industry and Commerce, Marine Department, 27, Eden Quay.
HONG KONG	..	Lieut.-Commander C. R. H. Harvey, O.B.E., R.N., Superintendent, Admiralty Chart and Chronometer Depot.
VANCOUVER	..	T. S. H. Shearman, Esq., Room 40, Post Office Building.
AUSTRALIA	..	The Commonwealth Meteorologist.

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

SYDNEY	..	Captain G. D. Williams, D.S.O., Customs House.
MELBOURNE	..	Captain L. J. Bolger, Electricity Commissioners Building, 22, William Street.
FREMANTLE	..	Captain J. J. Airey, Dalgety's Buildings.

LATE PRESS.

DERELICTS AND FLOATING WRECKAGE.

Date.	Position.		Description.
	Latitude.	Longitude.	
BALTIC.			
11.7.25	54°39'N.	10°41'E.	Mast with yard and sail, apparently attached to a sunken wreck.
NORTH SEA.			
2.7.25	½ m. N. of N. Cross-Sand Buoy, Yarmouth.		Mast fast to a drifting wreck.
6.7.25	56°40'N.	1°36'W.	Broken stump of mast, projecting 5 ft. above water.
9.7.25	56°45'N.	6°20'E.	Red buoy.
13.7.25	½ m. N.N.W. of Sandette Lt. Ship		Drifting mast.
13.7.25	Abreast of Mundesley, Cromer, about ½ m. N.½ W. of Haisbro' Lt. Vessel.		Submerged wreck, lower mast of which projected about 4 ft. above water.
17.7.25	57°32'N.	8°09'E.	Floating wreckage, believed to be the deck of a fishing vessel.
IRISH SEA.			
4.7.25	54°52'N.	5°15'W.	Spar projecting 4 ft. above water, apparently attached to something submerged.
NORTH ATLANTIC.			
2.7.25	48°24'N.	19°15'W.	Wreck, about 100 ft. long, bottom up.
2.7.25	38°56'N.	36°44'W.	Quantity of wreckage, partly submerged, dangerous to navigation.
3.7.25	30°50'N.	74°40'W.	Red, unlighted gas buoy marked 12.
4.7.25	35°24'N.	75°32'W.	Large red gas buoy.
5.7.25	40°33'N.	71°20'W.	Two pieces of wreckage showing about 6 ft. out of water, one painted white, the other red.
5.7.25	47°46'N.	23°19'W.	Large conical buoy with flat top, painted red.
5.7.25	29°00'N.	79°45'W.	Wooden hull, probably barquentine <i>Amazon</i> , on fire.
7.7.25	45°26'N.	7°47'W.	Large light and bell buoy marked <i>Silvertown 22</i> , painted red.
8.7.25	36°02'N.	75°12'W.	Two schooner's spars lashed together.
8.7.25	24°40'N.	80°39'W.	Schooner on beam ends, about 100 ft. long, with sails set.
9.7.25	46°08'N.	8°05'W.	Conical white buoy.
9.7.25	33°31'N.	76°22'W.	Large piece of wreckage, evidently part of a barge.
9.7.25	4 m. S.W. by S. of Barnegat Gas buoy.		Sunken fishing boat 40 ft. long, bow 4 ft. out of water.
12.7.25	51°07'N.	10°34'W.	Large round iron buoy, dangerous to navigation. Buoy had <i>C4</i> marked in white, chain attached, and iron staff, other letters but not distinguishable.
15.7.25	49°37'N.	11°45'W.	Globular gas buoy in corroded condition with lighting device bent.
18.7.25	47°00'N.	33°41'W.	Gas and whistling buoy, painted red, no marks, light extinguished but whistle working.
GULF OF MEXICO.			
1.7.25	24°55'N.	84°10'W.	Derelict schooner lying on beam ends, hull showing about 20 ft. out of water. (Probably derelict schooner <i>Fannie & Fay</i>).
MEDITERRANEAN.			
13.7.25	36°33'N.	13°54'E.	Buoy carrying staff and large green flag with white diagonal stripes.

LIST OF VOLUNTARY OBSERVING SHIPS.

i

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

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

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

Only in special cases will individual letters be sent.

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

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

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

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

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

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

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

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

No. = Keeps Ship's Meteorological Report Form 911 with ship's instruments.

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

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

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.7.25.	Date Received.
<i>Aba</i> ...	Hughes, J. ...	G. Pugh Williams, R. Wilkinson, W. L. James.	M.L.	Elder Dempster ...	Met. Log. 2.4.25 to 5.7.25 ...	10.7.25.
<i>Abinsi</i> ...	Wright, J. B. ...	W. Borrows ...	No.	Elder Dempster ...	Form 911 15.4.25 to 24.5.25 ...	27.5.25.
<i>Actor</i> ...	Haylett, E. ...	W. Rennie ...	"	Harrison ...	" 22.8.24 to 6.9.24 ...	7.10.24.
<i>Addu</i> ...	Toft, J. T. ...	J. E. Wood, G. A. Boswell, J. R. Jones.	"	Elder Dempster ...	" 13.5.25 to 19.6.25 ...	22.6.25.
50 <i>Adriatic</i> ...	Beadnell, F. E., Commr. R.N.R.	J. Collins, A. C. I. Anson, R. G. Roberts.	W.T.	White Star ...	W.T. Reg. 8.6.25 to 27.6.25 ...	1.7.25.
<i>Agapenor</i> ...	Ramsay, J. ...	A. T. Gillard ...	No.	A. Holt ...	Form 911 7.6.25 to 27.6.25 ...	2.7.25.
<i>Alban</i> ...	Torrible, R. H. ...	G. E. Freeman ...	"	Booth ...	" 13.6.25 to 23.6.25 ...	2.7.25.
<i>Albania</i> ...	Gronow, S. ...	E. W. Connell ...	"	Cunard ...	" 15.6.25 to 28.6.25 ...	3.7.25.
<i>Algerian Prince</i> ...	Shaw, D. C. ...	G. Potts ...	"	Prince ...	" 4.12.24 to 17.3.25 ...	1.4.25.
<i>Alipore</i> ...	Gordon, L. M., R.D., Commr. R.N.R.	F. R. W. Page ...	"	P. and O. ...	" 17.3.25 to 31.3.25 ...	6.4.25.
<i>Almanzora</i> ...	Mackenzie, G. A. ...	E. B. Ingram ...	"	R.M.S.P. ...	" 10.5.25 to 2.6.25 ...	22.6.25.
<i>Alondra</i> ...	J. J. Prendergast ...	H. Peters ...	"	Yeoward ...	" 30.5.25 to 12.7.25 ...	15.7.25.
<i>Ampetco</i> ...	Verstichelen, A. ...	E. Smet ...	"	American Petroleum ...	" 6.6.25 to 23.6.25 ...	30.6.25.
<i>Antiochus</i> ...	Wilkinson, H. ...	A. C. D. Howes ...	"	A. Holt ...	" 31.1.25 to 1.3.25 ...	3.4.25.
<i>Aorangi</i> ...	Crawford, R. ...	R. B. Denniston, D. Rollo, G. Eustace, R. Blampied, A. Lansley.	M.L.	Canadian-Australasian	Met. Log. 30.3.25 to 19.4.25 ...	28.4.25.
<i>Appam</i> ...	Yardley, H. A., D.S.C.	S. C. Fry, G. H. George, P. Marriott.	"	Elder Dempster ...	" 3.1.25 to 28.5.25 ...	27.6.25.
30 <i>Aquitania</i> ...	Charles, Sir J. T., W., K.B.E., C.B., R.D., Commadore, R.N.R.	J. L. Croasdaile, J. Locke, L. T. Simpson.	W.T.	Cunard ...	W.T. Reg. 31.5.25 to 15.6.25 ...	17.6.25.
<i>Arafura</i> ...	Gordon, A. S. ...	R. Lloyd Harry ...	No.	Eastern and Australian	" 21.6.25 to 6.7.25 ...	9.7.25.
<i>Archimedes</i> ...	Taylor, F. C. ...	F. W. Johnson ...	"	Lampart & Holt ...	Form 911 17.8.24 to 18.10.24 ...	15.12.24.
<i>Armada Castle</i> ...	Millard, L. A. ...	M. M. Tomkins ...	"	Union Castle ...	" 7.6.25 to 8.7.25 ...	9.7.25.
<i>Arracan</i> ...	Willis, M. ...	R. McInnes, M. S. Stuart, A. McCullum.	M.L.	P. Henderson ...	" 2.1.25 to 18.1.25 ...	10.2.25.
<i>Arundel</i> ...	Short, H. ...	Mr. Hill ...	C.C.	Southern Rly. ...	Met. Log. 28.2.25 to 30.5.25 ...	4.6.25.
<i>Arundel Castle</i> ...	Hague, J. W., Commr. R.N.R.	G. Blaklock, C. Williams, F. Granger.	M.L.	Union Castle ...	Telegraphic Report 12.6.25 ...	12.6.25.
<i>Assyria</i> ...	Erskine, R., Smart, R. W.	C. Mortimer ...	No.	Anchor ...	Met. Log. 17.1.25 to 10.5.25 ...	20.5.25.
<i>Astronomer</i> ...	Booth, W. M. ...	L. Harriman, H. Thomas, E. Shatton.	M.L.	Harrison ...	Form 911 24.5.25 to 13.7.25 ...	17.7.25.
<i>Athenic</i> ...	Davies, E. ...	W. Hill ...	No.	White Star ...	Met. Log. 11.11.24 to 8.2.25 ...	18.2.25.
<i>Atreus</i> ...	Salter, G. H. ...	W. Anderson ...	"	A. Holt ...	Form 911 29.5.25 to 5.7.25 ...	16.7.25.
<i>Atsuta Maru</i> ...	Furuhashi, M. ...	S. Mizoguchi ...	"	Nippon Yusen Kaisha	" 17.5.25 to 18.6.25 ...	16.7.25.
<i>Auditor</i> ...	Owen, W. F. ...	T. E. Steel ...	"	Harrison ...	" 1.4.25 to 1.5.25 ...	7.5.25.
<i>Auldmuir</i> ...	Ramsay, J. D. ...	J. A. S. Adams ...	"	Glen & Co. ...	" 17.5.25 to 30.5.25 ...	17.6.25.
<i>Ausonia</i> ...	Gibbons, G., R.D., Commr. R.N.R.	E. R. B. Freeman ...	"	Cunard ...	" 11.10.24 to 27.10.24 ...	11.11.24.
<i>Avon</i> ...	Matthews, J. E. P.	R. S. Holland ...	"	R.M.S.P. ...	" 14.6.25 to 5.7.25 ...	15.7.25.
51 <i>Baltic</i> ...	Holme, A. ...	W. Nicoll, J. Law, F. Patchett.	W.T.	White Star ...	W.T. Reg. 15.11.24 to 29.12.24 ...	6.1.25.
<i>Bambra</i> ...	Wyles, W. S. ...	G. Buckeridge, H. W. Norris, W. Walters, V. Denton, G. Simpson.	M.L.	State Service, Australia	" 24.5.25 to 13.6.25 ...	16.6.25.
<i>Bampton Castle</i> ...	Swiney, W. A. ...	A. E. Benn, D. Campbell, S. E. Aldam.	"	Union Castle ...	Form 911 22.6.25 to 10.7.25 ...	14.7.25.
<i>Banffshire</i> ...	Wynne, R. H. ...	J. M. Bowie ...	No.	Turnbull Martin ...	" 24.5.25 to 11.7.25 ...	14.7.25.
<i>Barambah</i> ...	Daniel, F. ...	... ..	"	Commonwealth Govt. ...	Met. Log. 12.11.24 to 28.2.25 ...	16.4.25.
<i>Baron Cawdor</i> ...	Baillie, T. ...	A. Campbell ...	"	Hogarth & Sons ...	" 28.11.24 to 25.2.25 ...	17.3.25.
<i>Barpeta</i> ...	Beeble, T. S. ...	W. G. E. Rawlingson ...	"	British India ...	Form 911 1.6.25 to 20.6.25 ...	14.7.25.
<i>Beaufort</i> ...	Rice, W. V., D.S.O., D.S.C., Commr. R.N.	H. M. S. Forbes ...	M.L.	His Majesty's Ship ...	" 26.3.25 to 6.5.25 ...	14.5.25.
59 <i>Belgenland</i> ...	Bradshaw, J. ...	C. J. Murray, J. M. Appleby, W. E. Hesketh, C. Poters.	W.T.	Red Star ...	" 15.8.24 to 28.8.24 ...	16.10.24.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.7.25.	Date Received.
<i>Bonalder</i> ...	Cole, J. H. D.S.C. ...	W. M. Webster ...	No.	Ben Line ...	Form 911 27.4.25 to 30.6.26 ...	17.7.25.
<i>Bendigo</i> ...	Nicholl, R. N. C. ...	J. K. Crane ...	"	P. & O. Branch ...	" 16.5.25 to 2.6.25 ...	30.6.25.
<i>Bengloe</i> ...	McCorquodale, A. ...	G. M. Duff ...	"	Ben Line ...	" 25.11.24 to 13.12.24 ...	20.12.24.
<i>31 Berengaria</i> ...	Irvine, W. R. D., R.D. Capt., R.N.R.	R. F. Bovey, J. A. Myles, W. C. A. Robson.	W.T.	Cunard ...	W.T. Reg. 7.6.25 to 22.6.25 ...	24.6.25.
<i>Bernini</i> ...	Evans, W. ...	H. L. Rudd ...	No.	Lampart & Holt ...	Form 911 21.11.24 to 31.1.25 ...	16.2.25.
<i>Berrima</i> ...	Townshend, W. P. ...	H. C. Slinn ...	"	P. & O. Branch ...	" 3.4.25 to 25.4.25 ...	15.6.25.
<i>Bintang</i> ...	Morzer Bruyns, M. F. ...	A. A. H. Blankestyn ...	"	Nederland ...	" 21.5.25 to 4.6.25 ...	6.7.25.
<i>Bogota</i> ...	Dunn, R. B., O.B.E. ...	T. R. Thomas ...	"	R.M.S.P. Co. ...	" 20.4.25 to 16.5.25 ...	19.5.25.
<i>Bolingbroke</i> ...	Jones, D. C. ...	C. A. Mott ...	M.L.	Canadian Pacific ...	Met. Log. 19.11.24 to 27.5.25 ...	27.6.25.
<i>Borda</i> ...	Holland, R. ...	S. W. Keay ...	No.	P. & O. Branch ...	Form 911 12.2.25 to 19.6.25 ...	25.6.25.
<i>Bothwell</i> ...	Murray, M. F. ...	A. H. Easton, G. B. Marriott, J. Mackenzie, H. C. Waters, T. J. Webster, D. Durin, N. B. Goater, T. Golby.	"	Canadian Pacific ...	" 11.5.25 to 10.6.25 ...	15.6.25.
<i>Brandon</i> ...	McCombie, G. F. G. ...	A. H. Easton, G. B. Marriott, J. Mackenzie, H. C. Waters, T. J. Webster, D. Durin, N. B. Goater, T. Golby.	M.L.	" "	Met. Log. 9.2.25 to 5.5.25 ...	21.5.25.
<i>Brecon</i> ...	Newman, J. ...	"	"	" "	" 2.12.24 to 24.2.25 ...	4.3.25.
<i>Brenda</i> ...	Murdoch, R. G. ...	F. R. Ness ...	No.	Scottish Fishery Board ...	Form 911 1.6.25 to 30.6.25 ...	9.7.25.
<i>Brighton</i> ...	Hill, A. ...	Mr. Munton ...	C.C.	Southern Railway ...	Telegraphic Report 30.5.25 ...	30.5.25.
<i>British Advocate</i> ...	Taylor, R. J. ...	C. J. Metcalf ...	No.	British Tankers ...	Form 911 6.4.25 to 25.5.25 ...	27.5.25.
<i>British Engineer</i> ...	T. W. Jours ...	M. J. Grieves ...	"	" "	" 13.2.25 to 26.4.25 ...	1.5.25.
<i>Browning</i> ...	Connorton, C. A. ...	W. E. Johnston ...	"	Lampart & Holt ...	" 17.11.25 to 6.2.25 ...	23.2.25.
<i>Bruyere</i> ...	Denson, W. ...	C. E. Legg ...	"	" "	" 8.4.25 to 11.6.25 ...	6.7.25.
<i>Cambria C.S.</i> ...	Wightman, H. G. E., D.S.C.	E. N. L. Staples ...	M.L.	Eastern Tel. Co. ...	Met. Log. 8.7.24 to 5.10.24 ...	27.1.25.
<i>Cambria</i> ...	"	V. S. Phillips ...	C.C.	L.M. & S. Rly. ...	Telegraphic Report 1.6.25 ...	1.6.25.
<i>Cambio</i> ...	Sudamore, J. H. H., D. S. C., R. D., Commr., R.N.R.	D. A. Jack, R. M. Cossantine, S. Borrie, R. Sutherland.	M.L.	Elders & Fyfes ...	Met. Log. 22.12.24 to 3.5.25 ...	18.6.25.
<i>Canada</i> ...	Jones, T. ...	A. Thompson ...	No.	White Star-Dominion Canadian Govt. Mercantile Marine.	Form 911 30.5.25 to 3.7.25 ...	10.7.25.
<i>Canadian Importer</i> ...	"	K. Macleod ...	"	"	"	"
<i>Canadian Miller</i> ...	McConechy, W. T. ...	B. D. Ranns ...	"	"	" 28.3.25 to 28.4.25 ...	20.5.25.
<i>Canadian Raider</i> ...	Dixon, C. C. ...	C. J. Carp ...	"	"	" 8.5.25 to 2.6.25 ...	8.6.25.
<i>Canadian Scottish Skirmisher</i> ...	Forson, A. ...	S. Fieldhouse ...	"	"	" 15.6.25 to 4.7.25 ...	11.7.25.
<i>Canadian Winner</i> ...	Millar, W. H. ...	C. W. Crofts ...	"	"	" 13.6.25 to 5.7.25 ...	10.7.25.
<i>Carlow Castle</i> ...	Hoeking, N. P. ...	R. D. Ranns ...	"	Union Castle ...	W.T. Reg. 31.5.25 to 20.6.25 ...	22.6.25.
<i>35 Carmania</i> ...	Whitfield, G. J. ...	J. W. Kirby ...	W.T.	Cunard ...	Form 911 31.5.25 to 20.6.25 ...	22.6.25.
<i>34 Caronia</i> ...	McNeill, S. G. S., R.D., Capt., R.N.R.	D. S. Kite, W. M. Stewart, T. A. O. Ellis.	"	"	Form 911 8.10.24 to 16.12.24 ...	18.12.24.
<i>Cassandra</i> ...	Hossack, W. H., R.D., Capt., R.N.R.	J. A. Quarrie, R. Campbell, D. M. MacLean.	No.	Anchor Donaldson ...	W.T. Reg. 14.6.25 to 5.7.25 ...	9.7.25.
<i>52 Cedric</i> ...	Mitchell, W. E. ...	G. M. Sime ...	W.T.	White Star ...	Form 911 14.6.25 to 5.7.25 ...	9.7.25.
<i>53 Celtic</i> ...	Hickson, V. W. ...	A. E. Weller, H. J. Yates, W. W. Pearson.	"	"	W.T. Reg. 1.6.25 to 21.6.25 ...	23.6.25.
<i>Centaure</i> ...	Berry, G. ...	R. S. Walker, G. T. Kavanagh, J. W. Allingham.	"	"	Form 911 31.5.25 to 21.6.25 ...	23.6.25.
<i>Ceramic</i> ...	Rose, A. F. ...	L. Johnstone ...	No.	A. Holt & Co. ...	" 28.3.25 to 31.5.25 ...	6.7.25.
<i>Changsha</i> ...	Trant, E. L., R.D., Commr., R.N.R.	A. E. Harvey ...	"	White Star ...	" 9.4.25 to 13.5.25 ...	19.5.25.
<i>China</i> ...	Gambrell, F. C. ...	A. M. Frame, F. G. Stratford, H. Lishman, L. A. Bailie, W. Bailey.	M.L.	Yuill & Co. ...	Met. Log. 25.4.24. to 2.10.24...	10.3.25.
<i>Chindwara</i> ...	Thomas, R. D. ...	"	"	"	"	"
<i>Chindwin</i> ...	Cossey, A. ...	G. W. du Fosse ...	No.	P. & O. ...	Form 911 23.5.25 to 10.6.25 ...	17.6.25.
<i>City of Alexandria</i> ...	Brisley, P. L. ...	F. O. Copeland, W. Welch ...	"	British India ...	" 1.4.25 to 11.6.25 ...	14.7.25.
<i>City of Baroda</i> ...	Esslemont, C. ...	J. Summers, W. Wilson, J. G. Walker.	M.L.	P. Henderson ...	Met. Log. 28.12.24 to 12.3.25 ...	27.3.25.
<i>City of Batavia</i> ...	Bedford, G. B. ...	T. Telleson ...	No.	Ellerman ...	Form 911 14.3.25 to 7.4.25 ...	5.5.25.
<i>City of Benares</i> ...	Houghton, W. ...	A. D. Henderson, H. N. Jones, G. S. Gaylard.	M.L.	"	Met. Log. 18.11.24 to 15.4.25 ...	17.4.25.
<i>City of Brisbane</i> ...	Nancollas, H. E. ...	S. J. Nash ...	No.	"	Form 911 27.12.24 to 25.1.25 ...	9.3.25.
<i>City of Canterbury</i> ...	Wyper, J. ...	C. G. Inglis ...	"	"	" 15.5.25 to 26.5.25 ...	14.7.25.
<i>City of Chester</i> ...	Seaborne, F. O., D.S.C.	W. E. Fletcher ...	"	"	" 11.5.25 to 6.6.25 ...	15.6.25.
<i>City of Edinburgh</i> ...	Bremner, D. M. ...	A. M. Hamilton ...	"	"	" 3.4.25 to 24.6.25 ...	29.6.25.
<i>City of London</i> ...	Letton, F. W. ...	F. C. Wilson, E. Garner, D. B. Carson, J. Shearer.	M.L.	"	Met. Log. 4.12.24 to 27.4.25 ...	4.5.25.
<i>City of Marseilles</i> ...	Spencer, H. ...	E. V. Henday ...	No.	"	Form 911 31.8.24 to 30.9.24 ...	16.10.24.
<i>City of Rangoon</i> ...	Martin, D. ...	J. J. McTigue ...	"	"	" 11.5.25 to 5.6.25 ...	8.6.25.
<i>City of Valencia</i> ...	Brown, G. ...	W. J. Nixon ...	"	"	" 5.12.24 to 28.12.24 ...	6.1.25.
<i>City of Yokohama</i> ...	Dunning, F. W. ...	"	M.L.	"	"	"
<i>Clan Cumming</i> ...	Williamson, W. A., R.D., Lieut.-Commr., R.N.R.	C. C. Duncan ...	No.	"	Form 911 5.3.25 to 3.4.25 ...	2.6.25.
<i>Clan Lindsay</i> ...	McDonald, W. D. ...	R. Moloney ...	"	"	" 1.5.25 to 23.6.25 ...	15.7.25.
<i>Clan Macbeth</i> ...	McLean, J. G. ...	S. M. Werrey Easterbrook ...	"	Clan ...	" 25.12.24 to 29.1.25 ...	9.3.25.
<i>Clan Macgillivray</i> ...	Willits, J., Commr.	C. Davenport ...	"	"	" 1.5.25 to 3.6.25 ...	15.6.25.
<i>Clan Macindoe</i> ...	Young, A. H., R.D., Lieut.-Commr., R.N.R.	J. T. Bell ...	"	"	" 21.4.25 to 1.5.25 ...	6.7.25.
<i>Clan Macintyre</i> ...	West, W. F. ...	P. G. de Gruchy ...	"	"	" 12.4.25 to 8.5.25 ...	2.6.25.
<i>Clan Mackellar</i> ...	Miller, W. ...	F. G. Darnborough ...	"	"	" 24.9.24 to 27.11.24 ...	3.12.24.
<i>Clan Mackenzie</i> ...	Scotland, A. ...	A. V. Howard ...	"	"	" 3.6.25 to 11.6.25 ...	23.6.25.
<i>Clan Mackinnon</i> ...	Young, G. ...	W. G. Arthur, F. B. Fairweather.	"	"	" 7.11.24 to 21.11.24 ...	12.12.24.
<i>Clan Macphie</i> ...	Mackie, R. W. ...	T. V. Wilson, C. Jones, W. F. Isaac.	M.L.	"	Met. Log. 27.1.25 to 9.5.25 ...	15.5.25.
<i>Clan Macnaughton</i> ...	Gourlay, J. B. ...	W. D. E. Campbell, F. Buckley, E. C. Carter.	"	"	" 13.6.24 to 26.12.24 ...	2.3.25.
<i>Clan Macnaghtart</i> ...	W. Thomson ...	A. J. Storkey, F. Barnes ...	No.	"	Form 911 11.4.25 to 3.6.25 ...	6.7.25.
<i>Clan Macneil</i> ...	Gray, J. N. ...	T. Walls, W. J. Henderson ...	"	"	" 5.4.25 to 9.5.25 ...	12.5.25.
<i>Clan Malcolm</i> ...	Phillips, G. P. ...	L. S. Murrin ...	"	"	" 29.4.25 to 3.6.25 ...	14.7.25.
<i>Clan Morrison</i> ...	Higgins, C. J. ...	T. G. Young, R. F. Buckley ...	M.L.	"	Met. Log. 6.10.24 to 30.3.25 ...	6.4.25.
<i>Clan Murdoch</i> ...	Porterfield, W. M. ...	G. Morren ...	No.	"	Form 911 26.5.25 to 21.6.25 ...	14.7.25.
<i>Clan Ranald</i> ...	Pagan, J. C. ...	C. W. Thomas ...	"	"	" 10.1.25 to 5.2.25 ...	2.3.25.
<i>Clan Ross</i> ...	Openshaw, L. G. ...	T. E. Woodall ...	"	"	" 8.6.25 to 18.6.25 ...	24.6.25.
<i>Clan Sinclair</i> ...	Jones, R. C. ...	G. Short ...	"	"	" 25.4.25 to 17.6.25 ...	22.6.25.
<i>Clan Stuart</i> ...	Neill, G. A. ...	F. B. Parker ...	"	"	" 21.12.24 to 31.1.25 ...	5.2.25.
<i>Clan Urquhart</i> ...	Stenson, F. J., R.D., Commr., R.N.R.	R. Silk ...	"	"	" 10.4.25 to 25.4.25 ...	19.5.25.
<i>Colonia, C.S.</i> ...	Gibb, A. F. W. ...	T. G. Mitchell ...	M.L.	Telegraph Construction & Maintenance.	Met. Log. 7.4.25 to 1.5.25 ...	25.5.25.
<i>Colonian</i> ...	Campos, V., O.B.E., Lt.-Commr., R.N.R.	S. A. Garnham, A. S. Muir, J. M. Matthews, W. Sangwine.	"	"	" 26.3.25 to 11.6.25 ...	1.7.25.
<i>Colonian</i> ...	Gittins, R. P. ...	T. A. Schofield-Miller ...	No.	Leyland ...	Form 911 14.5.25 to 10.6.25 ...	15.6.25.

LIST OF VOLUNTARY OBSERVING SHIPS

iii

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment	Line.	Last Log, Register, or Report Contributed. Received up to 17.7.25.	Date Received.
<i>Columbia</i> ...	Gemmell, W. ...	C. L. Seaman ...	No.	Anchor ...	Form 911 13.6.25 to 21.6.25 ...	29.6.25.
<i>Concordia</i> ...	Lowson, P. ...	... ..	M.L.	Anchor Donaldson ...	Met. Log. ...	...
<i>Comino</i> ...	Nuttall, E. L. ...	J. Woodward ...	No.	Furness Withy ...	Form 911 7.1.25 to 4.4.25 ...	20.4.25.
<i>Cooue</i> ...	Festa, M. ...	C. Keen ...	"	Commonwealth Govt. ...	" 9.8.24 to 29.8.24 ...	7.10.24.
<i>Copenhagen</i> ...	Kerr, J. J. ...	... ..	"	Glen & Co. ...	...	...
<i>Corinthic</i> ...	Hart, F. ...	F. Kean, W. Fitzgerald, F. G. Rogers, ...	M.L.	White Star ...	Met. Log. 28.11.24 to 17.3.25...	26.3.25.
<i>Cornwall</i> ...	Haines, F. P. ...	Mr. Maltby, Mr. Ray ...	No.	Dowie, J., & Co. ...	Form 911 10.4.25 to 23.5.25 ...	28.5.25.
<i>Crawford Castle</i> ...	Morgan, A. O., R.D., Commr. R.N.R.	G. Montgomery ...	"	Union Castle ...	" 11.4.25 to 14.6.25 ...	17.7.25.
<i>Culebra</i> ...	Mackay, A. S. ...	C. Wolfenden, J. W. Duncan, R. Hocken, ...	M.L.	R.M.S.P. Co. ...	Met. Log. 10.11.24 to 10.4.25...	4.5.25.
<i>Cuthbert</i> ...	Reynolds, W. H. B. ...	S. G. Edwards, J. Watson ...	No.	Booth ...	Form 911 23.4.25 to 3.6.25 ...	19.6.25.
<i>Cyclops</i> ...	Cosker, W. ...	A. Brotherton ...	"	A. Holt ...	" 10.4.25 to 2.6.25 ...	9.7.25.
<i>Dardanus</i> ...	Williams, D. T. ...	W. K. Kerr ...	"	A. Holt ...	" 16.6.25 to 22.6.25 ...	2.7.25.
<i>Darian</i> ...	Masters, W. ...	A. S. Holland ...	"	Leyland ...	" 27.5.25 to 8.6.25 ...	10.6.25.
<i>Darro</i> ...	Smith, W. E., D.S.O., R.D., Capt., R.N.R.	T. W. Bolland ...	"	R.M.S.P. Co. ...	" 18.4.25 to 14.6.25 ...	16.6.25.
<i>Daytonian</i> ...	Walker, C. J., D.S.C.	... ..	"	Leyland ...	" 30.3.25 to 13.5.25 ...	21.5.25.
<i>Delta</i> ...	Brooks, C., D.S.O., R.D., Commr. R.N.R.	J. O. V. Young ...	"	P. & O. ...	" 28.6.24 to 8.8.24 ...	13.8.24.
<i>Demerara</i> ...	Willan, F. C. L. ...	E. Hewitt ...	"	R.M.S.P. Co. ...	" 31.5.25 to 17.6.25 ...	13.7.25.
<i>Deseado</i> ...	Hannam, F. S. ...	F. G. Dawson, A. H. Phillipson ...	"	R.M.S.P. Co. ...	" 8.5.25 to 23.6.25 ...	4.7.25.
<i>Desna</i> ...	Huff, G. F. ...	A. Hamblly ...	"	" ...	" 8.3.25 to 2.5.25 ...	6.5.25.
<i>Deucalion</i> ...	Findlay, J. ...	P. W. Savery, F. W. Duffy ...	"	A. Holt ...	" 23.3.25 to 26.5.25 ...	5.6.25.
<i>Dieppe</i> ...	Marmery, S. ...	Mr. Parsons ...	C.C.	Southern Railway ...	Telegraphic Report 11.6.25 ...	11.6.25.
<i>Digby</i> ...	Chambers, F. W., D.S.C.	J. Pascoe, J. W. Murphy, W. P. Paterson, W. B. Conn. ...	M.L.	Furness Withy ...	Met. Log. 25.11.25 to 30.5.25...	8.6.25.
<i>Dimboola</i> ...	Roy, C. M. ...	G. A. Molyneux ...	No.	Melbourne S.S. Co. ...	Form 911 8.5.25 to 3.6.25 ...	13.7.25.
<i>Discoverer</i> ...	Ling, J. T. ...	J. Richardson ...	"	Harrison ...	" 30.11.24 to 9.3.25 ...	11.3.25.
<i>Discovery, R.R.S.</i> ...	Stenhouse, J. R., D.S.O., D.S.C., O.B.E., R.D., R.N.R.	... ..	M.L.	Discovery Expedition ...	...	...
<i>Dogra</i> ...	Hartock, L. ...	E. C. Akers ...	No.	Asiatic S.N. Co. ...	Form 911 27.12.24 to 12.1.25...	2.2.25.
<i>Donala, M.V.</i> ...	Buswell, W. ...	C. E. Merchant ...	"	British India ...	" 29.5.25 to 11.6.25 ...	18.6.25.
<i>Doric</i> ...	S. Bolton, D.S.C., R.D., Commr., R.N.R.	W. A. Calway ...	"	White Star ...	" 7.6.25 to 26.6.25 ...	30.6.25.
<i>Doric Star</i> ...	Thomas, R. A. ...	T. Williams ...	"	Blue Star ...	" 28.2.25 to 11.3.25 ...	23.3.25.
<i>Dorington Court</i> ...	Isaacs, W. T. ...	E. V. Quickenden ...	"	Haldin & Co. ...	" 17.8.24 to 8.9.24 ...	18.9.24.
<i>Dorset</i> ...	Kettlewell, C. R. ...	F. G. Capon, L. Cann, D. M. Lambert. ...	M.L.	New Zealand S.S. Co. ...	Met. Log. 24.11.24 to 20.4.25...	27.4.25.
<i>Dorsetshire</i> ...	Adamson, B. W. ...	... ..	"	Bibby ...	...	...
<i>Dromore Castle</i> ...	Vincent, E. S., R.D., Commr. R.N.R.	S. S. Smith ...	No.	Union Castle ...	Form 911 13.3.25 to 1.4.25 ...	19.5.25.
<i>Dryden</i> ...	Knight, R. A. ...	G. D. Oldfield ...	"	Lamport & Holt ...	" 28.9.24 to 7.12.24 ...	6.1.25.
<i>Dundrum Castle</i> ...	Kershaw, H. J. ...	R. May ...	"	Union Castle ...	" 3.5.25 to 28.5.25 ...	12.6.25.
<i>Dundes</i> ...	Pape, E. R. ...	D. P. Morgan ...	"	Pacific S.N. Co. ...	" 22.11.24 to 24.12.24 ...	29.12.24.
<i>Dunfield</i> ...	King A. ...	T. S. Robertson ...	"	Hunting & Sons ...	" 10.11.24 to 9.12.24...	16.12.24.
<i>Dunrobin</i> ...	Ramsay, J. D. ...	M. M. Ramsay ...	"	Glen & Co. ...	" 29.5.25 to 13.7.25 ...	15.7.25.
<i>Duquesa</i> ...	Ellis, F. ...	C. P. Lane, W. Thornton ...	"	Furness Withy ...	" 10.4.25 to 9.6.25 ...	19.6.25.
<i>Durenda</i> ...	Wilson, W. ...	W. H. Creese ...	"	British India ...	" 31.1.25 to 28.4.25 ...	12.5.25.
<i>Edinburgh Castle</i> ...	Strong, H., R.D., Commr., R.N.R.	C. S. Kean ...	M.L.	Union Castle ...	Met. Log. 24.10.24 to 19.4.25...	23.4.25.
<i>Eemland</i> ...	Van Noppen, C. D. ...	C. C. Van Huizen ...	No.	Holland Lloyd ...	Form 911 10.4.25 to 14.6.25 ...	19.6.25.
<i>El Cordobes</i> ...	Noton, F. G. ...	J. W. Ekins ...	"	British & Argentine S.N. Co. ...	" 17.5.25 to 11.6.25 ...	16.7.25.
<i>Elmina</i> ...	Millson, H. E. ...	R. Wilkinson, C. Cryer, R. Griffiths. ...	M.L.	Elder Dempster ...	Met. Log. 10.10.24 to 21.2.25...	11.3.25.
<i>El Paraguay</i> ...	Smith, F. C. ...	W. E. Williams ...	No.	Houlder Bros. ...	Form 911 19.4.25 to 16.6.25 ...	18.6.25.
<i>Elpenor</i> ...	T. W. Hannay ...	P. E. Wright, W. T. Pennington. ...	M.L.	A. Holt ...	Met. Log. 3.11.24 to 18.2.25 ...	23.2.25.
<i>Empress of Asia</i> ...	Douglas, L. D., R.D., Lt. - Commr., R.N.R.	G. H. Blyth, R. H. Foley, R. Dobbin, L. Johnston ...	"	Canadian Pacific ...	Met. Log. 6.2.25 to 18.5.25 ...	26.6.25.
<i>Empress of Australia</i> ...	Hailey, A. J. ...	C. Critchley, R. A. Leicester, A. B. Smith ...	"	" " ...	" 6.11.25 to 10.5.25 ...	3.6.25.
<i>Empress of Canada</i> ...	Robinson, S., C.B.E., R.D., Commr., R.N.R.	W. S. Halliday, L. C. Barry, L. M. Goddard ...	"	" " ...	" 15.11.24 to 11.5.25...	26.6.25.
<i>Empress of France</i> ...	Griffiths, E. ...	O. Pennington, E. Roberts, A. W. Patrick. ...	"	" " ...	" 31.12.24 to 3.6.25 ...	12.6.25.
<i>Empress of Russia</i> ...	Hosken, A. J. ...	J. Reid, D. F. McNeill ...	"	" " ...	" 20.12.24 to 5.6.25 ...	17.7.25.
<i>Empress of Scotland</i> ...	Gillies, J., C.B.E. ...	B. Grant, S. C. Fox, D. Loram, L. W. Akerman, W. J. Phillips. ...	"	" " ...	" 26.4.24 to 29.10.24...	11.12.24.
<i>Endeavour</i> ...	Commr. S. A. Geary-Hill, D.S.O., R.N.	M. L. Harrison, E. V. B. Baker, E. H. B. Baker, J. Torlesse ...	"	His Majesty's Ship ...	" 26.5.25 to 24.6.25 ...	13.7.25.
<i>Essequibo</i> ...	Duncan, E. E. ...	G. Pattison ...	No.	R.M.S.P. Co. ...	Form 911 23.4.25 to 8.6.25 ...	29.6.25.
<i>Eumaeus</i> ...	Read, J. W. ...	E. R. Pritchard, M. B. Glasier ...	"	A. Holt ...	" 7.3.25 to 2.6.25 ...	8.6.25.
<i>Euripides</i> ...	Collins, P. J., O.B.E.	H. S. Cox, G. R. Fisher, A. J. Terry. ...	M.L.	Aberdeen ...	Met. Log. 27.2.25 to 18.6.25 ...	29.6.25.
<i>Eurybates</i> ...	Carnon, C. G. ...	C. Napier ...	No.	A. Holt ...	Form 911 9.5.25 to 24.5.25 ...	9.7.25.
<i>Explorer</i> ...	Lamont, A. ...	Scientific Staff ...	M.L.	Scottish Fishery Board ...	Met. Log. 20.6.24 to 27.9.24 ...	24.10.24.
<i>Fitzroy</i> ...	Silk, H. V., Lt.-Commr., R.N.	C. W. Sabine ...	"	His Majesty's Ship ...	" 24.7.24 to 31.10.24...	11.11.24.
<i>Flandria</i> ...	Veldkamp, G. J. ...	T. Doornbosch ...	No.	Holland Lloyd ...	Form 911 26.4.25 to 11.6.25 ...	15.6.25.
<i>Flinders</i> ...	Henderson, D. A., Lt.-Commr., R.N.	K. F. Boxall ...	M.L.	His Majesty's Ship ...	Met. Log. 26.7.24 to 30.10.24...	18.11.24.
<i>Francisco</i> ...	Wilkins, J., O.B.E.	C. Leonard ...	No.	Ellerman Wilson ...	Form 911 22.3.25 to 28.4.25 ...	4.5.25.
<i>Freya</i> ...	Angus, W. ...	J. H. Hennessey ...	"	Scottish Fishery Board ...	" 28.4.25 to 29.6.25 ...	4.7.25.
<i>Gallie</i> ...	Summers, F. F., R.D., Commr. R.N.R.	W. G. O. Jones ...	"	White Star ...	Met. Log. 3.8.24 to 9.12.24 ...	12.12.24.
<i>Galtymore</i> ...	Ledsome, J. S. ...	N. Goubrough ...	"	Furness Withy ...	Form 911 5.3.25 to 15.3.25 ...	18.3.25.
<i>Garret</i> ...	Visser, C. W. ...	C. J. Vandenboom ...	"	Rotterdam Lloyd ...	" 21.4.25 to 22.5.25 ...	26.5.25.
<i>Gascoyne</i> ...	Mills, A. ...	P. G. Collins ...	"	Dalgaty & Co. ...	" 21.10.24 to 1.2.25 ...	9.3.25.
<i>Gelria</i> ...	Kolkman, J. M. ...	K. H. Schlip ...	"	Holland Lloyd ...	" 10.4.25 to 28.5.25 ...	2.6.25.
<i>Glenamoy, M.V.</i> ...	Angier, J. ...	R. H. Bishop ...	"	Glen Line ...	" 5.4.25 to 3.6.25 ...	8.6.25.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log. Register, or Report Contributed. Received up to 17.7.25.	Date Received.
<i>Glenapp</i> , M.V. ...	Griffith, J. E. ...	S. W. Bell ...	No.	Glen Line ...	Form 911 8.3.25 to 18.3.25 ...	22.6.25.
<i>Glenluce</i> , M.V. ...	Barkley, E. ...	J. D. Richards ...	"	" ...	" 22.2.25 to 24.3.25 ...	30.3.25.
<i>Glenishane</i> ...	Roberts, W. E. ...	H. N. Russell ...	"	" ...	" 3.4.25 to 22.6.25 ...	30.6.25.
<i>Gloucestershire</i> ...	Robin, E. ...	T. E. Field ...	"	Bibby ...	" 10.4.25 to 20.6.25 ...	23.6.25.
<i>Gorgon</i> ...	Hughes, J. W. ...	W. Simpson ...	"	A. Holt & Co. ...	" 26.4.25 to 4.6.25 ...	13.7.25.
<i>Gourko</i> ...	Montgomery, H. ...	N. J. Donovan ...	M.L.	Ellerman Wilson ...	Met. Log. 12.11.24 to 2.4.25 ...	24.4.25.
<i>Haliartus</i> ...	Marsh, L. V. ...	W. H. Upton ...	No.	R. P. Houston ...	Form 911 11.5.25 to 3.6.25 ...	22.6.25.
<i>Harmonides</i> ...	Hughes, W. J. ...	D. L. Roberts ...	"	" ...	" 1.3.25 to 16.3.25 ...	30.4.25.
<i>Harmony</i> , Auxy. ...	Jackson, J. C. ...	A. W. Bush ...	"	Moravian Mission ...	" 4.12.24 to 20.12.24 ...	6.1.25.
<i>Hatarana</i> ...	Woodget, H. T. ...	J. L. Durkee, F. Wells, H. Harrison, H. J. O'Donohoe.	M.L.	British India ...	" 7.10.24 to 22.4.25 ...	4.5.25.
<i>Hauraki</i> , M.V. ...	Frew, J. D. ...	A. K. Champion ...	No.	Union S.S. Co., N.Z. ...	" 30.1.25 to 3.4.25 ...	15.6.25.
<i>Henry Holmes</i> , C.S. ...	Bicker Caarten, A. ...	E. S. C. Hale ...	"	W. I. & Panama Telegraph Co. ...	" 8.5.25 to 27.5.25 ...	17.6.25.
<i>Herald</i> ...	Harvey, J. R., O.B.E., Commr., R.N. ...	W. C. Jenks ...	M.L.	His Majesty's Ship ...	Met. Log. 4.10.24 to 31.1.25 ...	7.4.25.
<i>Herefordshire</i> ...	Stanley, W. ...	R. C. Leitch, G. Whitworth, P. S. Cooner, H. G. Walton ...	"	Bibby ...	" 13.9.24 to 26.2.25 ...	23.3.25.
<i>Herschel</i> ...	Davies, G. W. ...	A. N. Blundell, H. Phillips ...	No.	Lampport & Holt ...	Form 911 30.4.25 to 4.7.25 ...	6.7.25.
<i>Hibernia</i> ...	Tanner, E. B. ...	R. Woodall ...	C.C.	L.M. & S. Rly. ...	Telegraphic Report. 6.6.25 ...	6.6.25.
<i>Highland Enterprise</i> ...	Pond, R. H. ...	J. H. Tilton ...	No.	Nelson ...	Form 911 31.1.25 to 26.4.25 ...	12.5.25.
" <i>Glen</i> ...	Jones, T. J. ...	C. M. Best ...	"	" ...	" 3.2.25 to 20.6.25 ...	24.6.25.
" <i>Heather</i> ...	Powell, G. A. ...	J. H. Cables, F. Jeyes ...	M.L.	" ...	Met. Log. 10.12.24 to 1.6.25 ...	16.6.25.
" <i>Laddie</i> ...	Alford, C. ...	G. L. Goodman ...	No.	" ...	Form 911 16.9.24 to 8.11.24 ...	22.12.24.
" <i>Piper</i> ...	Collings, D. ...	A. S. Jones, J. S. Collins, W. T. Breen. ...	M.L.	" ...	Met. Log. 6.1.25 to 25.5.25 ...	10.6.25.
" <i>Pride</i> ...	Robinson, R. H. ...	H. McKinnon, F. Falconer, R. R. Soanes, G. E. Leech. ...	"	" ...	" 25.9.24 to 17.2.25 ...	3.3.25.
" <i>Rover</i> ...	Ashby Graves, F. ...	F. W. Harvey, H. Thomas, F. Abbott. ...	"	" ...	" 9.4.25 to 9.6.25 ...	25.6.25.
" <i>Warrior</i> ...	Davies, G. O. ...	G. I. Evans ...	No.	" ...	Form 911 6.3.25 to 2.5.25 ...	8.5.25.
<i>Hildebrand</i> ...	Maddrell, J. ...	R. S. H. Goodier ...	"	Booth ...	" 18.3.25 to 1.5.25 ...	4.5.25.
<i>Hobsons Bay</i> ...	Kydd, O. J. ...	J. E. Williams, O. J. Edwards, M. P. Pearce. ...	M.L.	Commonwealth Govt. ...	Met. Log. 2.12.24 to 12.3.25 ...	8.4.25.
<i>Holbein</i> ...	Gough, W. A. ...	G. P. Kitto, D. B. Woods ...	No.	Lampport & Holt ...	Form 911 8.12.24 to 27.12.24 ...	16.2.25.
<i>54 Homeric</i> ...	Roberts, J., C.B.E., D.S.O., R.D., Capt. R.N.R. ...	H. Clark, A. E. Dyer, A. Griffiths, S. A. Jones. ...	W.F.	White Star ...	W.T. Reg. 7.5.25 to 22.5.25 ...	15.6.25.
" ...	" ...	" ...	"	" ...	" 28.5.25 to 11.6.25 ...	15.6.25.
" ...	" ...	" ...	"	" ...	" 18.6.25 to 3.7.25 ...	6.7.25.
<i>Honorius</i> ...	Samuels, C. ...	J. E. Martin, W. G. Iddes ...	No.	R. P. Houston ...	Form 911 7.3.25 to 3.5.25 ...	26.5.25.
<i>Hororata</i> ...	Haines, F. P. ...	" ...	"	New Zealand S.S. Co. ...	" ...	"
<i>Huanchaco</i> ...	Redyard, A. ...	A. G. Litherland ...	"	Pacific S.N. Co. ...	Form 911 15.7.24 to 5.8.24 ...	15.8.24.
<i>Hubert</i> ...	Jones, W. C. H. ...	S. G. Edwards ...	"	Booth ...	" 7.12.24 to 21.2.25 ...	24.2.25.
<i>Hurunui</i> ...	Burton Davies, J. ...	J. C. Tuckett, C. D. Watt, F. Pover, G. R. Hogg. ...	M.L.	New Zealand S.S. Co. ...	Met. Log. 20.11.24 to 17.5.25 ...	9.6.25.
<i>Ibex</i> ...	Langdon, C. ...	" ...	C.C.	G.W. Railway ...	Telegraphic Report. 19.3.25 ...	19.3.25.
<i>Iceland, Auxy. Brigantine.</i> ...	Worsley, F.A., D.S.O., O.B.E., Commr., R.N.R. ...	" ...	M.L.	Algarsson Polar Expedition. ...	" ...	"
<i>Ikala</i> ...	Meetham, J. T. ...	E. Lightfoot, C. W. Smithurst ...	No.	J. H. Welsford & Co. ...	Form 911 22.5.25 to 5.6.25 ...	16.7.25.
<i>Ingoma</i> ...	Barrow, R. K. ...	" ...	"	Harrison ...	" 19.4.25 to 2.6.25 ...	5.6.25.
<i>Intaba</i> ...	Gibbings, W. A. ...	O. Stanhope ...	"	Harrison ...	" 3.8.24 to 19.10.24 ...	22.10.24.
<i>Intombi</i> ...	Sawyer, E. I. ...	J. Richardson ...	"	" ...	" ...	"
<i>Iroquois</i> ...	Tinson, C. W., O.B.E., Commr., R.N. ...	G. A. R. J. Leslie, R. H. Lucy, G. A. Gould. ...	M.L.	His Majesty's Ship ...	Met. Log. 15.7.24 to 7.11.24 ...	3.2.25.
<i>Izion</i> ...	Reed, G. C. ...	A. R. Cook ...	No.	A. Holt ...	Form 911 21.4.25 to 17.5.25 ...	12.6.25.
<i>Jervis Bay</i> ...	Chaplin, W. R. ...	R. W. Laycock ...	"	Commonwealth Govt. ...	" ...	"
<i>John Pender</i> , C.S. ...	Smythe, T. W., O.B.E. ...	A. G. Watts ...	"	Eastern Tel. Co. ...	Form 911 6.5.25 to 12.5.25 ...	8.6.25.
<i>Junin</i> ...	Benson, C. W. ...	A. Beharrel ...	"	Pacific S.N. Co. ...	" 16.5.25 to 5.6.25 ...	17.6.25.
<i>Kaikoura</i> ...	Downton, M. ...	H. E. Reilly, F. T. Bisley, G. T. Webb, F. Vesington. ...	M.L.	New Zealand S.S. Co. ...	Met. Log. 15.7.24 to 19.12.24 ...	29.12.24.
<i>Kaisar-i-Hind</i> ...	Manley G. ...	G. R. Baker ...	No.	P. & O. ...	Form 911 30.4.25 to 18.6.25 ...	6.7.25.
<i>Kamo Maru</i> ...	Okano, Y. ...	F. Takaku ...	"	Nippon Yusen Kaisha ...	" 10.5.25 to 8.6.25 ...	16.7.25.
<i>Kangaroo</i> ...	Norris, H. C. ...	R. J. Sinclair, V. J. Denton, V. Gilbert, J. Egglestone. ...	M.L.	State Service Australia ...	Met. Log. 27.8.24 to 11.3.25 ...	25.5.25.
<i>Kashmir</i> ...	Stringer, R. H., O.B.E., R.D., Commr., R.N.R. ...	F. Hopkins ...	No.	P. & O. ...	Form 911 24.8.24 to 8.9.24 ...	18.11.24.
<i>Kellett</i> ...	Haselfoot, F. E. B., D.S.O., Commr., R.N. ...	E. H. B. Baker, R. A. Stephens ...	M.L.	His Majesty's Ship ...	Met. Log. 30.7.24 to 15.10.24 ...	20.10.24.
<i>Kenilworth Castle</i> ...	Millard, L. A. ...	A. E. Denn, W. M. Torokins ...	"	Union Castle ...	" 16.5.24 to 25.1.25 ...	6.2.25.
<i>Khiva</i> ...	George J., O.B.E. ...	May. ...	"	" ...	" ...	"
<i>Khyber</i> ...	Randall, H.W., R.D., Capt., R.N.R. ...	L. Fraser, K. H. Cummins, G. K. Fox. ...	"	P. & O. ...	" 24.10.24 to 31.1.25 ...	5.2.25.
<i>Kia Ora</i> ...	Collyer, R. M. M., R.D., Commr., R.N.R. ...	J. C. Davies ...	No.	" ...	Form 911 25.3.25 to 10.5.25 ...	14.5.25.
<i>Kildonan Castle</i> ...	McIntosh, A. ...	A. E. Lockhart ...	"	Shaw Savill & Albion ...	" 5.4.25 to 27.4.25 ...	19.5.25.
<i>Kitano Maru</i> ...	Wilford, T.H. ...	G. H. Pickering ...	"	Union Castle ...	" 25.4.25 to 14.6.25 ...	16.6.25.
<i>Knight Companion</i> ...	Gotoh, M. ...	R. Nakane ...	"	Nippon Yusen Kaisha ...	" 11.2.25 to 7.3.25 ...	13.3.25.
<i>Koranna</i> ...	Beale, H. E. ...	J. J. Daniel, A. M. Hunter ...	"	A. Holt ...	" 14.6.25 to 4.7.25 ...	14.7.25.
" ...	Mordue, J. A. ...	" ...	"	Ellerman Bucknall ...	" 20.5.25 to 31.5.25 ...	2.7.25.
<i>Kovno</i> ...	Casson, D. H., R. D. Brown, A. M., Commr., R.N.R. ...	L. Griffiths, J. Sanders, J. Marshall, T. Tindell, N. W. Glendinning, F. T. Shaw. ...	M.L.	Ellerman Wilson ...	Met. Log. 26.7.24 to 20.4.25 ...	24.4.25.
<i>Kyogle</i> ...	Coalstad, C. ...	C. B. Odman, E. W. Hughes ...	No.	Commonwealth Light-house Service. ...	Form 911 13.11.24 to 13.12.24 ...	19.1.25.
<i>Lady Denison Pender</i> , C.S. ...	West, G. W. ...	F. Lawrence ...	"	Eastern Tel. Co. ...	" 21.5.25 to 9.6.25 ...	14.7.25.
<i>Laguna</i> ...	Pape, E. R. ...	W. P. Boon ...	"	Pacific S.N. Co. ...	" 9.6.25 to 4.7.25 ...	6.7.25.
<i>Lalande</i> ...	Taylor, G. C. ...	H. Phillips ...	"	Lampport & Holt ...	" 24.4.25 to 13.5.25 ...	6.7.25.
<i>Lancashire</i> ...	Beckett, F. W. ...	W. M. S. Higginson ...	"	Bibby ...	" 31.1.25 to 10.4.25 ...	17.4.25.
<i>Laomedon</i> ...	Smith, A. H. ...	A. J. Barclay ...	"	A. Holt ...	" 19.11.24 to 23.12.24 ...	5.1.25.
<i>La Paz</i> , M.V. ...	Ross, J. ...	S. T. Gale ...	"	Pacific S.N. Co. ...	" 29.3.25 to 16.4.25 ...	5.5.25.
<i>Laplace</i> ...	Davies, G. W. ...	W. Boyde, R. B. Langley ...	"	Lampport & Holt ...	" 13.12.24 to 30.3.25 ...	3.4.25.
<i>55 Lopland</i> ...	Howell, T. ...	F. T. Good, E. Cornelli, F. G. Edwards, Van Dyck ...	W.T.	Red Star ...	W.T. Reg. 29.5.25 to 16.6.25 ...	18.6.25.
" ...	" ...	" ...	"	" ...	" 25.6.25 to 14.7.25 ...	16.7.25.
" ...	" ...	" ...	"	" ...	Form 911 28.5.25 to 14.7.25 ...	16.7.25.
" ...	" ...	" ...	"	" ...	" 25.6.25 to 14.7.25 ...	16.7.25.
<i>Lassell</i> , M.V. ...	Hickman, V. T. ...	H. G. Cuthill ...	No.	Lampport & Holt ...	" 3.11.24 to 28.11.24 ...	19.12.24.
<i>Leicestershire</i> ...	English, G. L. ...	W. White-side, P. H. Potter, D. Y. Sharrock, J. Trade-well. ...	M.L.	Bibby ...	Met. Log. 14.3.25 to 22.5.25 ...	3.6.25.
<i>Leighton</i> M.V. ...	Lindesay J. M. ...	" ...	No.	Lampport & Holt ...	" ...	"

LIST OF VOLUNTARY OBSERVING SHIPS

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.7.25.	Date Received.
<i>Leitrim</i> ...	Robertson, A. ...	E. F. C. Higgins ...	No.	Dowie, J., & Co. ...	Form 911 26.4.25 to 18.5.25 ...	8.6.25.
<i>Llanstephan Castle</i> ...	Owen, S. H. ...	J. B. M. Reynolds... ..	"	Union Castle ...	" 20.9.24 to 25.11.24 ...	29.11.24.
<i>Loch Katrine</i> ...	Shillitoe B. ...	C. Noakes, C. N. Hatchard ...	"	R.M.S.P. Co. ...	" 15.3.24 to 12.6.25 ...	18.6.25.
<i>London Commerce</i> ...	Young, H. J., D.S.C. ...	P. G. Leverett ...	"	Furness Withly ...	" 9.5.25 to 8.6.25 ...	19.6.25.
<i>Loriga M.V.</i> ...	Barkley, E. ...	W. N. Anders ...	"	Pacific S.N. Co. ...	" 26.4.25 to 19.5.25 ...	8.6.25.
<i>Losada M.V.</i> ...	Meldrum, G. W. ...	A. H. Turner ...	"	" " ...	" 20.5.24 to 8.6.25 ...	6.7.25.
<i>Macedonia</i> ...	Potter, H. W., R.D., Commr., R.N.R. ...	E. R. Bodley ...	"	P. & O. ...	" 29.4.25 to 28.5.25 ...	2.6.25.
<i>Macharda</i> ...	Cochran, G. ...	W. Moore ...	"	Brocklebank ...	" 6.9.24 to 24.11.24 ...	5.12.24.
<i>Mahana</i> ...	Kershaw, W. A. R. ...	F. M. Smith, J. C. K. Rogers ...	"	Shaw Savill & Albion ...	" 14.3.25 to 19.4.25 ...	25.5.25.
<i>Maharaja</i> ...	Perry, C. R. ...	C. B. Miller, D. M. Swaine ...	"	Asiatic S.N. Co. ...	" 18.5.25 to 7.6.25 ...	6.7.25.
<i>Maihar</i> ...	Rowe J. P. ...	C. Shaw, H. T. Scoins, R. G. Widdon. ...	M.L.	Brocklebank ...	Met. Log. 15.8.24 to 29.4.25 ...	7.5.25.
<i>Maimyo</i> ...	Richardson, T. ...	P. Yates ...	No.	" " ...	Form 911 8.5.25 to 29.5.25 ...	15.6.25.
<i>Maine</i> ...	Seymour, H. ...	A. S. Smith ...	"	Atlantic Transport ...	" 20.4.25 to 26.5.25 ...	15.6.25.
<i>58 Majestic</i> ...	Metcalfe, G. R. ...	L. Thompson, A. H. Young, W. T. Poustie, J. A. Macnaughton. ...	W.T.	White Star ...	W.T. Reg. 4.6.25 to 18.6.25 ... 25.6.25 to 8.7.25 ...	19.6.25. 10.7.25.
<i>Makambo</i> ...	Brown, T. M. ...	F. C. Ree, H. Mann, D. G. Irvine, D. Wilson, J. Abbot, K. Thompson. ...	M.L.	Burns Philp ...	Form 911 9.12.24 to 22.12.24... Met. Log. 13.2.24 to 28.8.24 ...	29.12.24. 2.12.24.
<i>Makura</i> ...	Mawson, J. ...	J. D. Lundie, G. H. Kime, N. Archibald, A. R. Noble. ...	"	Canadian-Australasian ...	" 23.10.24 to 6.3.25 ...	30.3.25.
<i>Malancha</i> ...	Whitham, F. ...	A. Hill ...	No.	Brocklebank ...	Form 911 12.3.25 to 8.4.25 ...	27.4.25.
<i>Malda</i> ...	Gray, T. N. ...	R. F. Wetherseed ...	"	British India ...	" 21.3.25 to 18.6.25 ...	22.6.25.
<i>Manchester Corporation.</i>	Everest J. E. ...	W. L. Lavers ...	"	Manchester Liners ...	" 24.5.25 to 21.6.25 ...	26.6.25.
<i>Manchester Importer</i>	Riley, J. E. ...	H. Schofield, G. S. Robertson ...	"	" " ...	" 9.5.25 to 9.6.25 ...	12.6.25.
<i>Manchester Mariner.</i>	Riley, J. E. ...	C. E. Stocker, J. F. Fisher, W. H. Downing. ...	M.L.	" " ...	Met. Log. 23.3.24 to 25.11.24...	5.12.24.
<i>Manchester Merchant.</i>	Barclay J. ...	R. A. Walker ...	No.	" " ...	Form 911 30.5.25 to 12.6.25 ...	24.6.25.
<i>Mandasor</i> ...	Kershaw, R. W. ...	W. Baxter ...	"	Brocklebank ...	" 29.12.24 to 9.3.25 ...	18.3.25.
<i>Manhattan</i> ...	Hutchison J. G. ...	R. Day ...	"	Atlantic Transport ...	" 10.11.24 to 18.12.24 ...	22.12.24.
<i>Manipur</i> ...	Scurr T. W. ...	G. W. Barker ...	"	Brocklebank ...	" 16.2.25 to 11.5.25 ...	15.5.25.
<i>Manistee</i> ...	Isaacson, J. M. ...	S. Browne, J. Blower, F. R. Inch. ...	M.L.	Elders & Fyffes ...	Met. Log. 26.7.24 to 7.12.24 ...	16.12.24.
<i>Manzanares</i> ...	Henderson, J. N. ...	H. E. Lees ...	No.	" " ...	Form 911 26.5.25 to 2.6.25 ...	4.7.25.
<i>Marella</i> ...	Mortimer S. ...	D. Pemberton, W. McBride, A. M. Hill, A. Campbell, W. Middleton. ...	M.L.	Burns Philp ...	Met. Log. 18.4.24 to 18.2.25 ...	11.5.25.
<i>Marengo</i> ...	" " ...	L. T. Hale, F. Elgin, J. E. Stott, W. G. Pearce, E. Wood. ...	"	Ellerman Wilson ...	" 12.9.24 to 21.2.25 ...	25.2.25.
<i>Margha</i> ...	Milne, A. R., R.D., Commr., R.N.R. ...	J. Strachan, P. Wright, H. E. Evans, B. Paul. ...	"	British India ...	" 15.2.25 to 12.5.25 ...	20.5.25.
<i>Marglen</i> ...	Griffiths, J. N. ...	E. Eastley ...	No.	Canadian Pacific ...	Form 911 19.2.25 to 9.4.25 ...	14.4.25.
<i>27 Marloch</i> ...	Hamilton, G. ...	E. V. Glennie, D. I. C. Robertson ...	W.T.	" " ...	W.T. Reg. 23.5.25 to 11.6.25 ... 20.6.25 to 9.7.25 ...	15.6.25. 13.7.25.
<i>Maryland</i> ...	Hutt, F. C. ...	A. C. Clay ...	No.	Atlantic Transport ...	Form 911 9.11.24 to 28.11.24... 16.1.25 to 18.2.25 ...	5.12.24. 24.2.25.
<i>Massilia</i> ...	Henderson, J. L. ...	E. Richardson ...	"	Anchor ...	" 12.9.24 to 20.9.24 ...	22.9.24.
<i>Matakana</i> ...	Thurston, H. P. ...	A. Chrystal ...	"	Shaw, Savill & Albion ...	" 1.2.25 to 30.5.25 ...	5.6.25.
<i>Mataram</i> ...	Brown, A. ...	K. L. Thompson ...	"	Burns Philp & Co. ...	" 29.3.25 to 3.5.25 ...	29.6.25.
<i>Matheran</i> ...	Columbine, F. F. ...	J. A. Embley, J. Robertson, R. E. Gartside. ...	M.L.	Brocklebank ...	Met. Log. 21.3.25 to 13.6.25 ...	16.6.25.
<i>Mathura</i> ...	Hanna, R. G. ...	H. H. Armstrong ...	No.	" " ...	Form 911 15.4.25 to 30.6.25 ...	3.7.25.
<i>Matiana</i> ...	Langlands, D. H. ...	B. Paul, J. H. Fletcher ...	"	British India ...	" 20.3.25 to 10.5.25 ...	2.6.25.
<i>Mauanganui</i> ...	Worrall, L. C. H. ...	D. M. Todd ...	"	Union S.S. Co. of N.Z. ...	" 20.2.25 to 10.4.25 ...	29.6.25.
<i>32 Mauretania</i> ...	Rostron, A. H., C.B.E., R.D., A.-d.-C., R.N.R. Capt.,	R. Allen, E. R. Taylor, A. Mackellor.	W.T.	Cunard ...	W.T. Reg. 14.6.25 to 29.6.25 ...	1.7.25.
<i>Media</i> ...	Maughan ...	" "				

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.7.25.	Date Received.
<i>Moresby</i> ...	Edgell, J. A., O.B.E., Capt. R.N.	...	M.L.	His Majesty's Ship ...	...
<i>Morvada</i> ...	Mills, T. L., O.B.E., R.D., Commr., R.N.R.	J. Norris, D. S. Johnston, J. C. A. Hammond.	"	British India ...	Met. Log. 18.4.25 to 9.7.25 ...	15.7.25.
<i>Mulbera</i> ...	Steadman, W. R. ...	E. Holland, H. W. Norris ...	No.	British India ...	Form 911 30.3.25 to 8.4.25 ...	16.4.25.
<i>Nagara</i> ...	Purvis, A. ...	H. V. Todd ...	"	R.M.S.P. Co. ...	" 11.3.25 to 7.5.25 ...	12.5.25.
<i>Nagoya</i> ...	Cherry, W. G. W. ...	P. Haworth ...	"	P. & O. ...	" 28.3.25 to 23.4.25 ...	2.6.25.
<i>Nardana</i> ...	Moth, F. L. ...	S. C. T. Smith, A. H. Hogge ...	"	British India ...	" 15.5.25 to 26.5.25 ...	8.6.25.
<i>Nariva</i> ...	Buret, T. J. C. ...	E. Delahay, E. I. Fletcher, R. S. Wooley, H. Trenchard, W. Hughes.	M.L.	R.M.S.P. Co. ...	Met. Log. 1.5.25 to 24.6.25 ...	8.7.25.
<i>Nascopie</i> ...	Smellie, T. F. ...	A. S. Watts, T. D. Roseburgh ...	"	Hudson's Bay Co. ...	" 16.6.24 to 17.10.24 ...	23.10.24.
<i>Navasota</i> ...	Willan, F. G. L., R.D., Commr., R.N.R.	W. A. Delap ...	No.	R.M.S.P. Co. ...	Form 911 23.6.24 to 20.8.24 ...	28.8.24.
<i>Nellore</i> ...	Hignett, A. H., R.D., Lt. Commr., R.N.R.	F. Squire ...	"	P. & O. ...	" 11.5.25 to 9.6.25 ...	20.6.25.
<i>Nestor</i> ...	Owen, R. D., O.B.E.	W. H. Newby, C. J. Beasley, F. J. Silva.	M.L.	A. Holt ...	Met. Log. 12.10.24 to 12.2.25 ...	20.2.25.
<i>Nevasa</i> ...	Swanson, C. J. ...	D. Lorie ...	No.	British India ...	Form 911 21.2.25 to 12.5.25 ...	19.5.25.
<i>Newby Hall</i> ...	Kendall, J. W. ...	A. Martin ...	M.L.	Ellerman ...	Met. Log. 12.9.24 to 10.1.25 ...	27.1.25.
<i>Niagara</i> ...	Showman, A. C. ...	T. A. Macpherson, J. V. Bray, J. Dawson, A. P. Cousin.	"	Canadian-Australian ...	" 20.11.24 to 30.4.25 ...	25.5.25.
<i>Ningchow</i> ...	Wilson, C. A. ...	F. A. Brown ...	No.	A. Holt ...	Form 911 6.5.25 to 22.6.25 ...	25.6.25.
<i>Nore</i> ...	Parker, J. W. ...	R. W. Mackie, C. B. Roche, R. H. Turner, G. Haughey.	M.L.	P. & O. ...	Met. Log. 7.3.25 to 3.6.25 ...	15.6.25.
<i>Norman</i> ...	Morton Betts W. ...	D. A. Hodgson ...	No.	Union Castle ...	Form 911 22.3.25 to 10.4.25 ...	8.5.25.
<i>Norna</i> ...	Wright, J. ...	T. Mather ...	"	Scottish Fishery Board ...	" 1.5.25 to 4.6.25 ...	5.6.25.
<i>Norseman, C.S.</i> ...	W. Douglas ...	...	M.L.	Western Tel. Co. ...	Met. Log. 16.8.24 to 30.1.25 ...	3.3.25.
<i>Nortonian</i> ...	McCormick, J. ...	T. Griffiths ...	No.	Leyland ...	Form 911 2.8.24 to 30.9.24 ...	4.10.24.
<i>Nubian</i> ...	Watmough, T. M. ...	H. R. Gaskill ...	"	" ...	" 21.12.24 to 2.1.25 ...	6.1.25.
<i>Nyanza</i> ...	Carpendale, F. W. J.	G. D. Brown, R. H. Hand, A. L. Hill.	M.L.	P. & O. ...	Met. Log. 9.2.25 to 28.4.25 ...	2.5.25.
<i>Oaklands Grange</i> ...	Routledge, R. ...	E. A. Insley ...	No.	Houlder Bros. ...	Form 911 18.10.24 to 2.2.25 ...	19.2.25.
<i>42 Ohio</i> ...	Nicholson, M. S., R.D., Capt., R.N.R.	R. W. Morford, P. M. Burrell, H. F. Woodroffe.	W.T.	R.M.S.P. Co. ...	W.T. Reg. 1.2.25 to 3.4.25 ...	7.4.25.
<i>Olympia</i> ...	Caldwell R. ...	D. R. Urquhart, G. Lynas	M.L.	Anchor ...	Form 911 28.3.25 to 4.4.25 ...	7.4.25.
<i>57 Olympic</i> ...	Marshall, W., C.B., D.S.O., R.D., Capt., R.N.R.	H. J. C. Day, C. J. Warltire, W. Fitzgerald.	W.T.	White Star ...	W.T. Reg. 11.6.25 to 25.6.25 ...	29.6.25.
<i>Orama</i> ...	Staunton, H. G., C.B.E., R.D., Commr., R.N.R.	L. J. Vesty, F. Butler, M. C. Lester, J. S. Metcalf.	M.L.	Orient ...	Form 911 10.6.25 to 26.6.25 ...	29.6.25.
<i>Oranian</i> ...	Hoskins, W. ...	R. H. Theaker ...	No.	Leyland ...	Form 911 27.4.25 to 14.5.25 ...	26.5.25.
<i>Orari</i> ...	Robinson, F. W. ...	R. Newman, T. Breen, F. Longheed, C. Wilkinson, H. Farrant.	M.L.	New Zealand S.S. Co. ...	Met. Log. 9.8.24 to 20.1.25 ...	27.1.25.
<i>40 Orbita</i> ...	Matthews, G. P. ...	B. C. Dodds, H. G. Whittle, H. M. Rennie, R. Wray Hurt, R. H. East.	W.T.	R.M.S.P. Co. ...	W.T. Reg. 1.6.25 to 21.6.25 ...	25.6.25.
<i>Orcoma</i> ...	Dominy, R. H., C.B.E., Commr. R.N.R.	G. B. Wardale, L. Jones, W. Billington.	M.L.	Pacific S.N. Co. ...	Form 911 30.5.25 to 22.6.25 ...	24.6.25.
<i>41 Orduna</i> ...	Le Brecht, H. G. ...	R. W. Sumpton, J. Vivian, G. F. Russell, W. Lowe.	W.T.	R.M.S.P. Co. ...	Met. Log. 19.2.25 to 3.5.25 ...	20.5.25.
<i>Oriana</i> ...	Makin, T. W. ...	R. E. Skellorn, R. D. Eckford, J. Reed.	M.L.	Pacific S.N. Co. ...	W.T. Reg. 15.6.25 to 5.7.25 ...	9.7.25.
<i>Orita</i> ...	Splatt, W. A. ...	J. G. Harvey, T. R. Scott, D. W. Hutchinson, C. P. D. Dean.	"	" ...	Form 911 14.6.25 to 6.7.25 ...	9.7.25.
<i>Ormonde</i> ...	Knowles, C. H., D.S.O., Commr., R.N.	A. M. Hughes ...	"	His Majesty's Ship ...	Met. Log. 19.12.25 to 29.5.25 ...	4.5.25.
<i>Ormonde</i> ...	Shelford, W. S., Lt. Commr., R.N.R.	C. Leatherbarrow ...	No.	" ...	" 19.12.24 to 25.9.25 ...	12.6.25.
<i>Oronsay</i> ...	Coad A. J., Commr., R.N.R.	N. A. Whinfield, W. A. Wickham, A. H. Dyer.	"	Orient ...	" 8.11.24 to 6.12.24 ...	31.12.24.
<i>Oroya</i> ...	Pearce, A. ...	J. C. K. Dowding, P. R. Murphy, R. K. Rogerson.	"	" ...	" 4.1.25 to 7.4.25 ...	15.4.25.
<i>Orsova</i> ...	Matheson, C. G., D.S.O., R.D., Commr., R.N.R.	S. Lewis ...	No.	Pacific S.N. Co. ...	" 8.2.25 to 12.5.25 ...	20.5.25.
<i>Ortega</i> ...	Pleignier, H. S. ...	A. J. Croft Cohen, C. V. Dodgson, C. Fox.	M.L.	Orient ...	Form 911 27.1.25 to 6.4.25 ...	16.4.25.
<i>Orvieto</i> ...	Sinner, G. L., R.D., Commr., R.N.R.	M. Petit Daun, G. E. Martin	M.L.	Orient ...	Met. Log. 5.4.25 to 8.7.25 ...	11.7.25.
<i>Osterley</i> ...	Cameron, E. P. ...	C. Leatherbarrow ...	No.	Pacific S.N. Co. ...	Form 911 9.12.24 to 16.2.25 ...	25.2.25.
<i>Othello</i> ...	Pearson, Z. C. ...	M. Petit Daun, G. E. Martin	M.L.	Orient ...	Met. Log. 9.11.24 to 10.2.25 ...	14.2.25.
<i>Otira</i> ...	Elford, H. E. ...	E. Hatch, H. Tanner, W. J. Rice.	"	" ...	" 7.12.25 to 10.3.25 ...	13.5.25.
<i>Ovid</i> ...	Groom, A. C. B. ...	J. W. Botheroyd ...	No.	Ellerman Wilson ...	Form 911 27.1.25 to 17.3.25 ...	19.3.25.
<i>Oxfordshire</i> ...	Crumplin, W. E. ...	J. H. Fuller ...	"	Shaw, Savill & Albion ...	" 21.5.25 to 12.6.25 ...	30.6.25.
<i>Pacific Shipper, M.V.</i> ...	Newman, G. W. A.	F. C. Brooks ...	"	Shakespear Shipping Co. ...	" 20.4.25 to 20.5.25 ...	23.5.25.
<i>Pakeha</i> ...	W. P. Clifton Mogg	R. S. Smith ...	"	Bibby Bros. ...	" 26.2.25 to 27.3.25 ...	2.4.25.
<i>Paparoa</i> ...	Dowse, F. ...	R. K. Vandervard, E. T. Baker	M.L.	Furness Withy ...	" 25.12.24 to 12.1.25 ...	14.4.25.
<i>Pareora</i> ...	Evans, J. O. ...	C. J. Brewer ...	No.	Shaw, Savill & Albion ...	Met. Log. 7.11.24 to 27.3.25 ...	30.3.25.
<i>Paris</i> ...	Cook, C. L. ...	R. F. Hillings ...	"	New Zealand S.S. Co. ...	Form 911 21.4.25 to 3.5.25 ...	18.5.25.
<i>Patia</i> ...	Bostock, R. J. ...	Mr. Biles ...	C.C.	Hain S.S. Co. ...	" 11.3.25 to 15.4.25 ...	25.5.25.
<i>Patrol, C.S.</i> ...	Welsh, T. K. ...	W. McIlwaine ...	No.	Southern Rly. ...	Telegraphic Report. 6.6.25 ...	6.6.25.
		Albrecht, W. G. MacBryde, A. T. Morrell.	M.L.	Elders & Fyffes ...	Form 911 23.5.25 to 27.6.25 ...	2.7.25.
		H. G. Morgan ...	"	Eastern Extension (A. & C.) Telegraph Co. ...	Met. Log. 1.10.24 to 12.1.25 ...	16.4.25.
<i>Persic</i> ...	Bulman, J. B. ...	D. G. Baillie, E. J. R. North, R. D. Whyte-Mackay.	No.	White Star ...	Form 911 8.2.25 to 19.6.25 ...	23.6.25.
<i>Peshawar</i> ...	Hester, C. W., R.D., Commr., R.N.R.	D. Tullock, A. McLachlan ...	M.L.	P. & O. ...	Met. Log. 22.1.25 to 30.5.25 ...	5.6.25.
<i>Pharos</i> ...	Ewing, T. N. ...	W. Lawton ...	No.	Northern Lighthouse Board. ...	Form 911 13.4.25 to 30.4.25 ...	21.5.25.
<i>Philadelphum</i> ...	Baker, J. A. ...	W. Lawton ...	"	Leyland ...	" 2.10.24 to 20.11.24 ...	26.11.24.
<i>Polycarp</i> ...	Evans, T. G. ...	R. E. Wilkes ...	"	Booth ...	" 1.2.25 to 23.2.25 ...	25.2.25.
<i>Polyphehus</i> ...	Hatfield, J. ...	E. Catchpole, E. Rogerson, C. Hodson.	M.L.	A. Holt ...	Met. Log. 5.2.25 to 11.6.25 ...	17.6.25.
<i>Port Adelaide</i> ...	Hayter, S. W. ...			Commonwealth & Dominion.		

LIST OF VOLUNTARY OBSERVING SHIPS

vii

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.7.25.	Date Received.
<i>Port Albany</i> ...	Robinson, C. A. ...	A. Jenkyns, A. G. Newbury, G. Lovegrove.	M.L.	Commonwealth & Dominion.	Met. Log. 15.11.24 to 1.4.25...	9.4.25.
<i>" Auckland</i> ...	Durham, R. S. ...	G. T. C. Harris, R. C. Carter, C. F. Coate.	No.	" " "	" " " " " " " "	" " " "
<i>" Augusta</i> ...	Sawbridge, I. R. ...	G. T. C. Harris, R. C. Carter, C. F. Coate.	M.L.	" " "	Met. Log. 6.4.24 to 15.10.24 ...	7.11.24.
<i>" Caroline</i> ...	Renaut, F. A. ...	H. Smith, T. Copeland, E. Fenton, C. Chamberlin.	"	" " "	" " " " " " " "	" " " "
<i>" Curtis</i> ...	Van den Bergh, C. ...	W. H. Miles ...	No.	" " "	Form 911 14.12.24 to 25.4.25 ...	2.6.25.
<i>" Darwin</i> ...	Brown, A. H. ...	E. T. N. Lawrey, E. W. R. Young.	"	" " "	" " " " " " " "	" " " "
<i>" Denison</i> ...	Ferris, J. ...	W. H. Sadler ...	"	" " "	" " " " " " " "	" " " "
<i>" Hacking</i> ...	Williams, R. ...	Rowland Hill ...	"	" " "	" " " " " " " "	" " " "
<i>" Hunter</i> ...	Cottell, S. C. ...	A. Cooper, C. F. Post, J. T. Weldin.	M.L.	" " "	Met. Log. 18.10.24 to 2.3.25 ...	9.3.25.
<i>" Melbourne</i> ...	Kearney, F. J. ...	D. G. H. Bradley, J. A. Fairbairn, A. G. Starkey.	"	" " "	" " " " " " " "	" " " "
<i>" Nicholson</i> ...	Hoad, A. C. ...	E. A. Leavett, C. R. Townshend, G. G. Langford.	"	" " "	" " " " " " " "	" " " "
<i>" Pirie</i> ...	Higgs, W. G. ...	H. C. Jeffery, W. G. Jones, J. T. Nicholson, E. G. L. Jones.	"	" " "	" " " " " " " "	" " " "
<i>" Sydney</i> ...	Lea, W. H. ...	A. W. Sams, C. Groves, A. M. Stanton.	"	" " "	" " " " " " " "	" " " "
<i>" Victor</i> ...	Swan, L. H. ...	E. G. Fullick, R. T. R. Tomsett, W. Pickup.	"	" " "	" " " " " " " "	" " " "
<i>President Cleveland</i> ...	Yardley, W. ...	J. E. Murphy ...	No.	La ific Mail S.S. Co....	" " " " " " " "	" " " "
<i>President Jackson</i> ...	Griffith, J. ...	E. E. Henry ...	"	Admiral Oriental Line	Form 911 24.4.25 to 24.5.25 ...	15.7.25.
<i>President Jefferson</i> ...	Nichols, F. R. ...	H. E. Clarke ...	"	" " " " " " " "	" " " " " " " "	" " " "
<i>President McKinley</i> ...	Carey, R. E. ...	L. C. Leeds ...	"	Pacific Mail S.S. Co....	" " " " " " " "	" " " "
<i>President Pierce</i> ...	January, G. T. ...	A. F. Jones ...	"	Pacific Mail S.S. Co....	" " " " " " " "	" " " "
<i>President Wilson</i> ...	Nelson, H. ...	F. J. S. Scott-Stokes ...	"	South African Naval Service.	Form 911 1.4.25 to 30.4.25 ...	22.6.25.
<i>Protea, H.M.S.A.S.</i> ...	Woodhouse, A. F. B., Lt.-Commr., R.N.	W. Owen ...	"	A. Holt ...	" " " " " " " "	" " " "
<i>Pyrrhus</i> ...	Elford, W. J. ...	G. W. Couch ...	M.L.	White Star-Dominion	" " " " " " " "	" " " "
<i>Regina</i> ...	Mulhall, W. ...	W. Heritage ...	C.C.	G.W. Railway ...	Telegraphic Report. 28.5.25 ...	28.5.25.
<i>Reindeer</i> ...	Fowler, W. H. ...	H. Horwood, R. S. Cox, O. M. Watts.	No.	Houlder Bros. ...	Form 911 27.3.25 to 28.6.25 ...	6.7.25.
<i>Rhodesian Transport</i> ...	Heinming, F. A. ...	B. Walsh, P. A. Handforth, T. E. Ward.	M.L.	New Zealand S.S. Co.	Met. Log. 12.10.24 to 1.4.25 ...	6.4.25.
<i>Rimutaka</i> ...	Park, G. ...	W. H. Underhill ...	"	Asiatic S.N. Co. ...	" " " " " " " "	" " " "
<i>Risaldar</i> ...	Syms, G. ...	J. Fraser ...	No.	Lamport & Holt ...	Form 911 20.3.25 to 20.4.25 ...	5.5.25.
<i>Romney</i> ...	Winter, - ...	" " " " " " " "	"	N.Z.S. Co. ...	" " " " " " " "	" " " "
<i>Rotorua</i> ...	Dawson, J. ...	R. Martin ...	"	London & Edinburgh S.S. Co.	Form 911 31.5.25 to 2.7.25 ...	6.7.25.
<i>Royal Fusilier</i> ...	Dove, J. ...	P. J. Connolly, T. N. Bennett, F. Cooke.	"	Houlder Bros. ...	" " " " " " " "	" " " "
<i>Royal Transport</i> ...	McKellar, A. W., R.D., Capt., R.N.R.	C. Waldron, E. Sainty, G. R. Watson.	M.L.	New Zealand S.S. Co.	Met. Log. 25.10.24 to 14.3.25...	23.3.25.
<i>Ruapehu</i> ...	Westgarth, W. A. ...	W. McIntyre ...	"	Furness Withy ...	Form 911 24.12.24 to 20.6.25...	27.6.25.
<i>Sachem</i> ...	Pilcher, E. ...	G. H. Blair, R. A. Edwards	No.	Eastern and Australian Scientific Expeditionary Research Assocn.	" " " " " " " "	" " " "
<i>St. Albans</i> ...	Blair, D., O.B.E., R.D., Commr., R.N.R.	C. Bell ...	M.L.	G.W. Railway ...	Met. Log. 10.9.24 to 18.11.24...	19.1.25.
<i>St. George</i> ...	Mulhall, W. ...	C. Joy ...	"	Rankin Gilmore ...	" " " " " " " "	" " " "
<i>St. Helier</i> ...	Langdon, C. H. ...	J. Hill ...	C.C.	Elder Dempster ...	Telegraphic Report 11.6.25 ...	11.6.25.
<i>St. Julien</i> ...	Bearpark, E. W. ...	G. E. Dutton ...	No.	Cunard ...	Form 911 24.5.25 to 13.6.25 ...	6.6.25.
<i>St. Patrick</i> ...	Sola, P., D.S.O. ...	D. Macmillan ...	"	Union Castle ...	" " " " " " " "	" " " "
<i>Salaga</i> ...	Horsburgh, G., O.B.E. ...	E. H. de Heaume ...	"	Anchor ...	" " " " " " " "	" " " "
<i>Samaria</i> ...	Jackson, C. R. ...	D. Macqueen ...	"	Anchor Donaldson ...	" " " " " " " "	" " " "
<i>Sandown Castle</i> ...	Mitchell, W. ...	B. Johnsen ...	"	Hunting & Son ...	W.T. Reg. 30.5.25 to 19.6.25 ...	23.6.25.
<i>10 Saturnia</i> ...	Biddick, E. ...	F. O. Wilbraham ...	No.	Union Castle ...	Form 911 30.5.25 to 19.6.25 ...	23.6.25.
<i>Saxoleine</i> ...	Owen, S. H. ...	H. A. D. Waterhouse ...	"	Cunard ...	" " " " " " " "	" " " "
<i>Saxon</i> ...	Jones, R. D. ...	J. D. Grieves ...	"	Harrison ...	" " " " " " " "	" " " "
<i>Saxonia</i> ...	McCullum, J. ...	D. G. Russell ...	"	Anchor ...	" " " " " " " "	" " " "
<i>Scholar</i> ...	Hansen, W. A. ...	R. S. Paton ...	"	L.M. & S. Rly. ...	Telegraphic Report 11.6.25 ...	11.6.25.
<i>Scientist</i> ...	Caithness, J. B. ...	O. W. L. Jones ...	C.C.	Tankers Ltd. ...	Form 911 12.4.25 to 16.6.25 ...	9.7.25.
<i>Scindia</i> ...	Telfer ...	S. W. Watts ...	No.	" " " " " " " "	" " " " " " " "	" " " "
<i>Scotia</i> ...	McDonnell, S. ...	W. Black ...	"	" " " " " " " "	" " " " " " " "	" " " "
<i>Scottish Bard</i> ...	French, A. L. ...	T. Parry, E. S. Simmonds, W. B. Tanner.	No.	Cunard ...	W.T. Reg. 6.6.25 to 27.6.25 ...	30.6.25.
<i>Scottish Strath</i> ...	Prothero, W. ...	C. A. Gould ...	"	Souter, W. A. ...	Form 911 6.6.25 to 27.6.25 ...	30.6.25.
<i>33 Scythia</i> ...	Groves, C. V. ...	A. E. Harvey, W. H. Grise-wood.	"	" " " " " " " "	" " " " " " " "	" " " "
<i>Sheaf Mount</i> ...	Whitfield, G. A., O.B.E.	G. C. Bateman ...	M.L.	P. & O. ...	Met. Log. 17.7.24 to 18.11.24...	1.1.25.
<i>Sheaf Spear</i> ...	Davis, H. C., D.S.C., R.D., Commr., R.N.R.	" " " " " " " "	No.	" " " " " " " "	" " " " " " " "	" " " "
<i>Sicilia</i> ...	James, F. R. ...	E. R. Hartley ...	"	Lamport & Holt ...	Form 911 17.2.25 to 16.3.25 ...	21.4.25.
<i>Socrates</i> ...	Lap, J. ...	W. N. de Wijn ...	"	Rotterdam Lloyd ...	" " " " " " " "	" " " "
<i>Soekaboemi</i> ...	Barnett, H. ...	J. J. Youngs ...	"	N.Z.S. Co. ...	" " " " " " " "	" " " "
<i>Somerset</i> ...	De Legh, P. ...	P. Hawkins, R. C. Lietch, M. Simmons.	M.L.	Bibby ...	Met. Log. 20.3.25 to 21.6.25 ...	4.7.25.
<i>Somersetshire</i> ...	Spriddell, F. G. ...	K. W. Simpton, H. Chamberlian, V. Hill, C. C. Prosser.	"	R.M.S.P. Co. ...	" " " " " " " "	" " " "
<i>Somme</i> ...	Miles, F. R., Commr., R.N.R.	W. Weatherall, W. Wilford, L. Bull.	"	Harrison ...	" " " " " " " "	" " " "
<i>Songster</i> ...	Jackson, J. ...	D. Fraser, J. G. F. Betson ...	"	" " " " " " " "	" " " " " " " "	" " " "
<i>Spectator</i> ...	Richardson, R. ...	W. Harbord, R. O. Otley	No.	Ellerman Wilson ...	Form 911 26.1.25 to 9.4.25 ...	16.4.25.
<i>Spero</i> ...	French, H. E. ...	" " " " " " " "	M.L.	" " " " " " " "	Met. Log. 15.8.24 to 16.5.25 ...	12.6.25.
<i>Stephan. C.S.</i> ...	Rowntree, G. ...	F. B. Bolingbroke, W. E. Allen, T. J. Horan.	"	Telegraph Construction & Maintenance	" " " " " " " "	" " " "
<i>Stuart Prince</i> ...	Carlton, G. F., O.B.E., Commr., R.N.R.	G. B. Taylor, W. R. Holt ...	"	Prince ...	" " " " " " " "	" " " "
<i>Surrey</i> ...	Litchfield, E. ...	C. P. Jackson, C. H. Landfield.	No.	Federal ...	Form 911 26.3.25 to 29.5.25 ...	3.6.25.
<i>Sussex</i> ...	Durrant, G. D. ...	" " " " " " " "	M.L.	" " " " " " " "	Met. Log. 2.11.24 to 28.3.25 ...	14.4.25.
<i>Tainui</i> ...	Field, H. E. B. ...	W. A. Ewington ...	"	" " " " " " " "	" " " " " " " "	" " " "
<i>Tairoa</i> ...	Upton, E. C. S. ...	P. S. Horwood ...	No.	Shaw, Savill & Albion	Form 911 28.10.24 to 13.11.24 ...	15.12.24.
	Hartman, W. H. ...	S. A. Bannister ...	"	" " " " " " " "	" " " " " " " "	" " " "
	Summers, W. G. ...	" " " " " " " "	"	" " " " " " " "	" " " " " " " "	" " " "

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 17.7.25.	Date Received.
<i>Tahiti</i> ...	Hamilton, H. E. ...	W. Bainey ...	No M.L.	Union S.S. Co. of N.Z.	Form 911 ...	...
<i>Taiyuan</i> ...	Thomas, R. D. ...	...	...	Yuill & Co. ...	Met. Log. 20.12.24 to 5.5.25 ...	6.7.25.
<i>Talthybius</i> ...	Duggan, C. ...	P. Elder ...	No.	A. Holt ...	Form 911 26.5.25 to 7.6.25 ...	26.6.25.
<i>Tandi</i> ...	Pilcher, E. ...	...	M.L.	E. & A. S.S. Co. ...	...	...
<i>Pambora</i> ...	Huisman, N. ...	H. Van Manen ...	No.	Rotterdam Lloyd ...	27.2.25 to 15.4.25 ...	27.4.25.
<i>Teiresias</i> ...	Holden, W. R. F. ...	R. S. Young ...	"	A. Holt ...	8.1.25 to 28.1.25 ...	2.2.25.
<i>Teucer</i> ...	Hodgson, R. N. ...	G. Lancaster ...	"	...	12.3.25 to 6.5.25 ...	18.5.25.
<i>Themistocles</i> ...	Jermy, W. M. ...	W. F. Sargent ...	"	Aberdeen ...	11.3.25 to 23.4.25 ...	5.5.25.
<i>Theseus</i> ...	Batt, A. E. ...	J. T. Fettes ...	"	A. Holt ...	24.5.25 to 3.6.25 ...	15.6.25.
<i>Titan</i> ...	Wilkinson, T. G. ...	G. Gow, L. Morton, S. C. Timmouth, F. D. Lovewell.	M.L.	"	Met. Log. 12.11.24 to 14.3.25...	11.5.25.
<i>Tolmie, S.F.Bqtn.</i>	Stewart, J. C. ...	E. F. Collins ...	No.	B. C. Mills, Tug and Barge Co.	Form 911 1.11.24 to 24.12.24...	2.3.25.
<i>Tottori Maru</i> ...	Matsukura, B. ...	S. Ibori ...	M.L.	Nippon Yusen Kaisha	Met. Log. 7.9.24 to 13.10.24 ...	20.10.24.
<i>Trematon</i> ...	Hicks, F. H. ...	J. Christopher, D. Thomas, F. J. Webb, S. Smith, C. Mayberry.	"	"	31.3.23 to 24.9.24 ...	14.10.24.
<i>Tuscania</i> ...	Bone, D. W. ...	J. W. Cherry ...	No.	Anchor ...	Form 911 17.5.25 to 6.6.25 ...	12.6.25.
<i>Tyndareus</i> ...	Slater, H. N. ...	C. Broad, A. C. H. Jones ...	M.L.	A. Holt ...	...	...
<i>Ulimaroa</i> ...	Wyllie, W. J. ...	J. Gilbertson ...	No	Huddart Parker, Ltd.	Form 911 17.10.24 to 23.11.24	19.1.25
<i>Ulysses</i> ...	McHutcheon, W. ...	T. R. Phillips ...	"	A. Holt ...	11.3.25 to 23.4.25 ...	30.4.25.
<i>Urvolosi</i> ...	Barnes, E. W. ...	...	"	Bullard King	...	...
<i>Valucua</i> ...	Doyle, M. ...	N. Grayson ...	"	Cunard ...	Form 911 8.6.25 to 7.7.25 ...	13.7.25.
<i>Valdura</i> ...	Mitchell, A. ...	H. J. Maughan, J. Anderson, A. M. S. Well.	M.L.	Gow Harrison	Met. Log. 19.6.24 to 20.11.24...	8.12.24.
<i>Vardulia</i> ...	Murchie, P. A., R.D., Commr., R.N.R.	P. G. Britten ...	No.	Cunard ...	Form 911 10.5.25 to 22.5.25 ...	26.5.25.
<i>Vasconia</i> ...	Inch F. ...	L. Hunter ...	"	"	15.6.25 to 24.6.25 ...	10.7.25.
<i>Vellaria</i> ...	Fear, E. T. C. ...	J. E. Deans ...	"	"	26.3.25 to 6.4.25 ...	14.4.25.
<i>Ventura de Larrinaga.</i>	Keay, W. S. ...	H. J. Kay ...	"	Larrinaga ...	3.12.24 to 28.3.25 ...	19.5.25.
<i>Verbania</i> ...	Pooley, T. S. M. ...	J. G. Wiseman ...	"	Cunard ...	23.5.25 to 26.6.25 ...	29.6.25.
<i>Verentia</i> ...	Jones, R. D. ...	A. F. Watts ...	"	"	18.5.25 to 17.6.25 ...	22.6.25.
<i>Vigilant</i> ...	Simpson, E. S. S. ...	J. Hunter ...	"	Scottish Fishery Board	13.5.25 to 30.6.25 ...	4.7.25.
<i>Waiotapu</i> ...	Davey, A. ...	B. S. Cave, N. M. Boneth, R. N. Turner.	"	Canadian-Australasian	23.10.24 to 30.4.25...	2.6.25.
<i>Walmer Castle</i> ...	Stanley, W. P., R.D., Commr., R.N.R.	C. Aylen ...	"	Union Castle ...	8.5.25 to 29.6.25 ...	30.6.25.
<i>Wangaratta</i> ...	Scutt W. ...	T. W. Wordingham, W. C. Cripps, K. M. Morrison.	M.L.	British India ...	Met. Log. 30.6.24 to 26.11.24...	1.12.24.
<i>Warfeld</i> ...	Steel, R. ...	H. Coffey ...	No.	"	Form 911 16.3.25 to 28.5.25 ...	8.6.25.
<i>War Nizam</i> ...	Putt, R. O. ...	D. Beaumont ...	"	British Tankers ...	20.5.25 to 17.6.25 ...	9.7.25.
<i>Welshman</i> ...	Rollerson, W. ...	W. A. Fletcher ...	"	White Star-Dominion	12.4.25 to 12.5.25 ...	19.5.25.
<i>Winifredian</i> ...	Harrocks W. ...	L. A. Cording ...	"	Leyland ...	20.6.25 to 29.6.25 ...	4.7.25.
<i>Woodarra</i> ...	Reilly, J. V. ...	L. D. Graham, A. V. Fisher, L. C. Comber, J. Wallace.	M.L.	British India ...	Met. Log. 3.4.24 to 22.6.24 ...	2.8.24.
<i>Yorkshire</i> ...	Millson, G. C. ...	F. C. Holdsworth ...	No.	Bibby ...	Form 911 26.3.25 to 23.4.25 ...	4.5.25.
<i>Zeeland</i> ...	Thomas, A. J. ...	W. N. Jenkins, J. N. Lee ...	"	Red Star ...	22.5.25 to 10.7.25 ...	13.7.25.
<i>Conway H.M.S.</i>	Broadbent, H. W., R.D. Capt., R.N.R.	The Senior Cadets...	Cadets' M.L.	...	Cadets' Met. Log. 25.1.25 to 4.4.25	9.4.25.
<i>Pangbourne Nautical College.</i>	Tracy, A. F. G., Commr., R.N.	"	"	...	Cadets' Met. Log. 18.1.25 to 2.4.25	7.4.25.
<i>Worcester, H.M.S.</i>	Sayer M. B., O.B.E., R.D., Capt., R.N.R.	"	"	...	Cadets' Met. Log. 23.1.25 to 16.4.25	20.4.25.
<i>Abaco</i> ...	...	The Keepers ...	Lighthouse Register.	...	Lighthouse Register 7.7.24 to 14.1.25	9.3.25.
<i>Cay Lobos</i> ...	...	"	"	...	Lighthouse Register 1.7.24 to 31.12.24	9.3.25.
<i>Double Headed Shot</i> ...	...	"	"	...	Lighthouse Register 1.7.24 to 31.12.24	9.3.25.
<i>Inagua</i>...	...	"	"	...	Lighthouse Register 11.7.24 to 18.1.25	10.2.25.
<i>Sombrero</i> ...	...	"	"	...	Lighthouse Register 1.7.24 to 31.12.24	9.3.25.
<i>Watling Island</i> ...	...	"	"	...	Lighthouse Register 1.7.24 to 30.12.24	4.3.25.
<i>Cape Pembroke (Falkland Is.).</i>	...	"	"	...	Lighthouse Register 1.7.24 to 31.12.24	...

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 30.6.25.	Date Received.
<i>Herschel</i> ...	...	...	Lamport & Holt	Water Samples ...	...
<i>Hildebrand</i> ...	Maddrell J. ...	R. S. Hulme Goodier ...	Booth ...	" " ...	30.6.25.
<i>Holbein</i> ...	Gough, W. A. ...	G. P. Kitto ...	Lamport & Holt	" " ...	...
<i>Manzanares</i> ...	Henderson, J. N. ...	H. E. Lees ...	Elders & Fyffes	" " ...	27.5.25.
<i>Miami</i> ...	Makepeace, S. ...	H. H. Dunning ...	" " ...	" " ...	13.6.25.

September M.O., 1925.