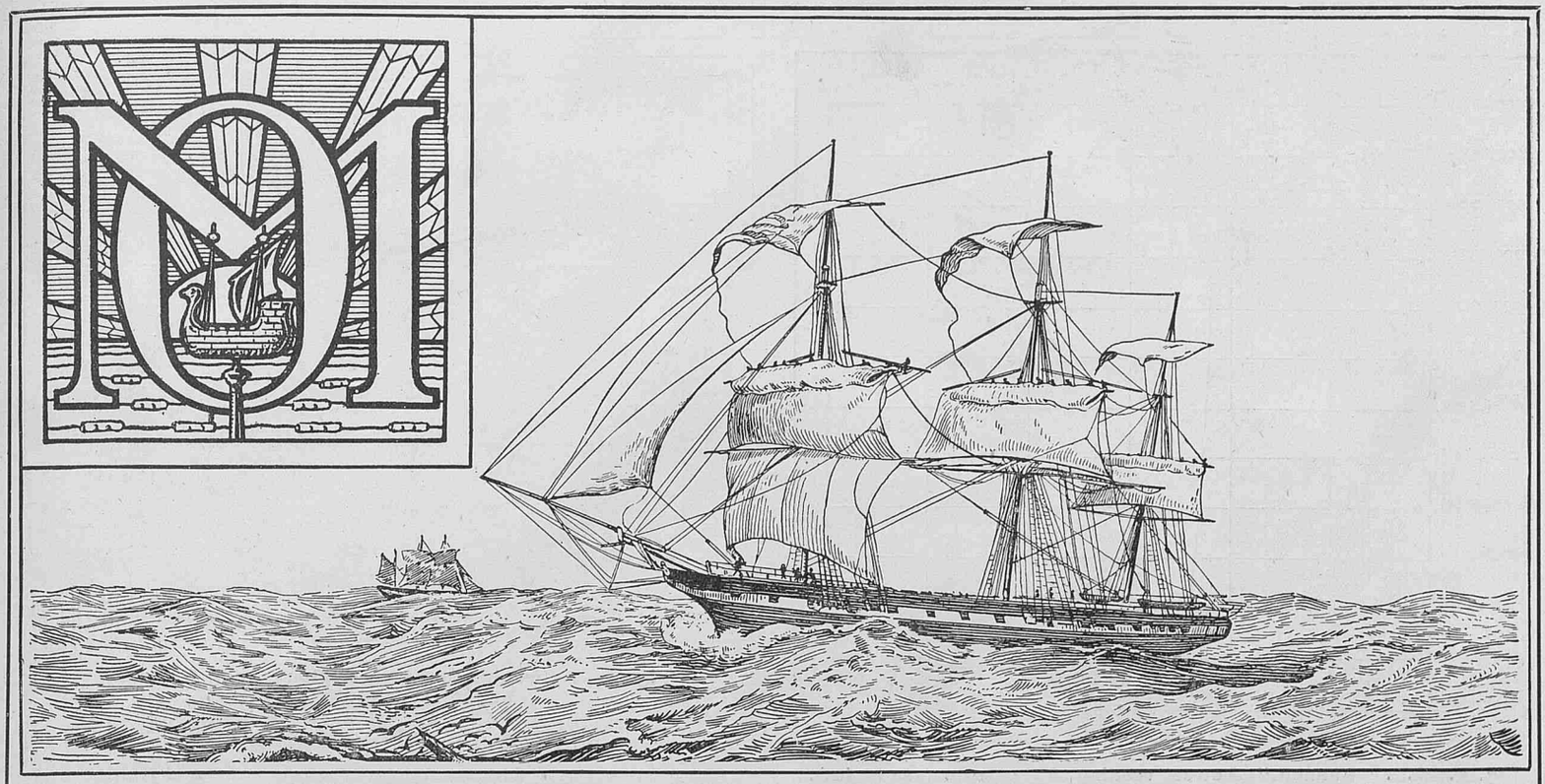

VOL. I. No. 8. THE MARINE OBSERVER. AUGUST 1924.

HONG KONG TYPHOON, AUGUST 18th, 1923.

Compiled in The Marine Division by J. Hennessy,

Nautical Senior Professional Assistant.

Threatened by typhoons of a minor character during the previous four succeeding week-ends, Hong Kong was, on Saturday, August 18th, 1923, visited with an intense storm which is recorded as the most violent typhoon experienced in that Colony during the past seventeen years.

Happily the diameter of the storm field containing winds of full hurricane force was small, while its rate of progression was above the average for this section of the China Sea. Otherwise the damage caused by the passage of the storm, although heavy both in loss of life and property afloat and ashore, would have been much greater.

The existence of this storm was first indicated by the weather map of the Manila Weather Bureau for 2 p.m. on the 11th, when its centre was situated S.S.W. of Guam in about Latitude 11° N., Longitude 143° E. Its movement from then until 6 a.m. of the 16th is somewhat uncertain, when its centre at that time was clearly shown by the weather map to be situated between Latitude 20° and 21° N., Longitude 127° E. Between this position and the China coast we are able to trace the progress of the storm from the reports of three steamers, all of which passed through the calm centre.

From 8 to 10 p.m. on the 16th the American s.s. *Steel Traveler* in Latitude 21° N., Longitude 123° 20′ E., was in the calm centre of the storm, recording a steady barometer at 946·5 mb. (27·95 in.).

The s.s. *Chenan*, Captain Rees Lewis, on passage from Swatow to Hong Kong, first came under the influence of the storm at midnight on the 17th, when in Latitude 22° 32′ N., Longitude 115° 32′ E. With the wind from N.E., force 7, barometer 997·9 mb. (29·47 in.), the storm's centre was then approximately bearing S. 56° E. distant 83 miles from ship. The ship steering S. 70° W. and the storm's centre were moving on converging courses. At 6 a.m. on the 18th, with Waglan Light bearing N. 80° W., distance 5 miles, wind backed to north, increasing to force 9, the barometer then reading 992·9 mb. (29·32 in.) and storm's centre bearing approximately S. 72° E. 53 miles. Between 6 and 7.30 a.m. the wind, gradually backing, increased to force 12. Ship became unmanageable, falling off into trough of high towering seas, dangerously shipping water fore and aft. Speed was increased to full and wind and sea kept on port quarter. The rain at this time was torrential. Ship was now steaming directly towards the storm centre. At 8 a.m. the wind came from N.W., force 12, barometer 972·2 mb. (28·71 in.); and at 8.40 the ship, in Latitude 22° N., Longitude 114° 34′ E. entered the calm centre. The sky remained completely overcast with yellowish haze, and the sea towering and broken came from all directions while in centre of storm.

At 9.10 a.m. the wind came with full hurricane force from S.E., barometer reading 954·3 mb. (28·18 in.). At noon the wind veered to south, decreasing to force 10, while the barometer had risen to 998·3 mb. (29·48 in.), and at 1.30 p.m. with wind S. by E. force 8, barometer 1000·3 mb. (29·54 in.), ship was able to proceed on her course towards Hong Kong.

The s.s. *Yunnan*, Captain J. D. Milne, also encountered the full force of the typhoon when on a passage from Hoihow to Hong Kong. At 4 a.m. on the 18th in Latitude 21° 44′ N., Longitude 113° 25′ E., the barometer stood at 998·6 mb. (29·49 in.), having gradually fallen from 1001·3 mb. (29·57 in.) at midnight. The wind was then N. by W., force 3, with slight sea and easterly swell, the sky being one third covered with Cu. and Cu.-Nb. clouds. The barometer continued to fall slowly, and the wind gradually backed and increased in force until 8 a.m., when in Latitude 22° 04′ N., Longitude 113° 54′ E., with barometer at 993·9 mb. (29·35 in.), the wind was N.W. force 9 with heavy squalls.

By 9 a.m. the barometer had fallen to 971·9 mb. (28·70 in.) and the wind, remaining steady in direction, had increased to force 11. The vessel came to an anchor in Latitude 22° 06′ N., Longitude 114° 05′ E., off Ling Ting Island, and the centre of the typhoon passed at 10.30 a.m. The ship experienced absolute calm until

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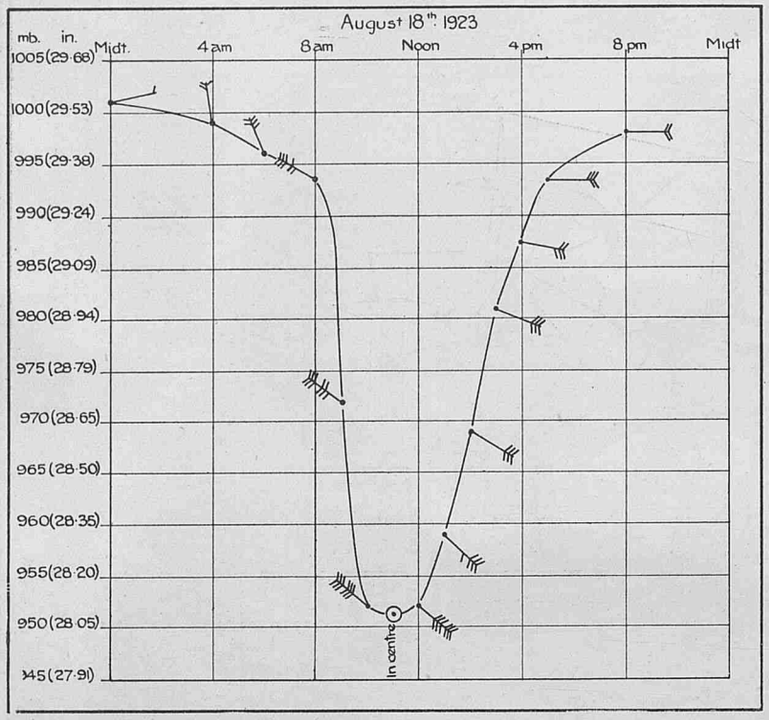


Fig. 1.—S.S. "Yunnan." Lowest reading, 951·6 mb. (28·10 in.).

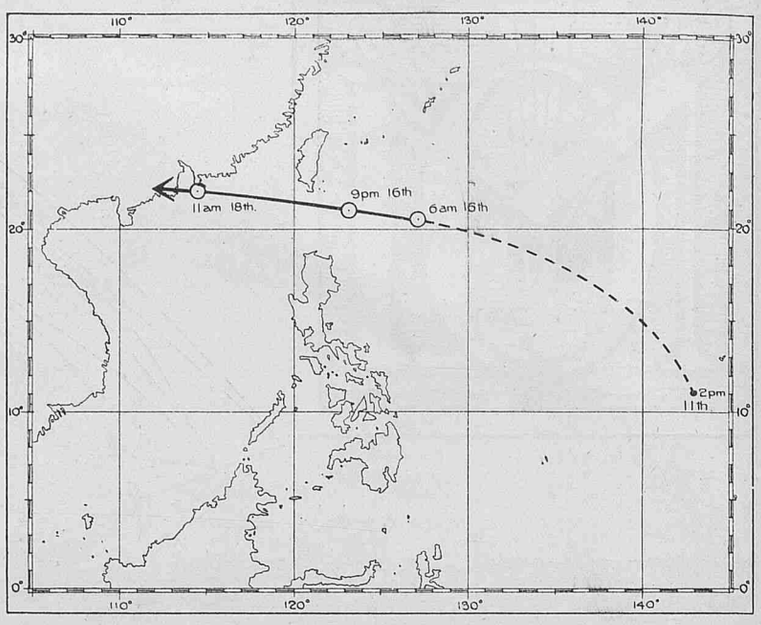


Fig. 2.—Approximate Track of Hong Kong Typhoon, August 11th—18th, 1923.

11.10 a.m., during which blue patches of sky were discernible. The barometer reading in centre of storm was 951·6 mb. (28·10 in.).

At 11.10 a.m. the wind came away from the S.E., force 12, with torrential rain and heavy squalls, these conditions obtaining until 1 p.m., when the wind, steady in direction, decreased to force 7, barometer standing at 959·7 mb. (28·34 in.). At 1.20 p.m. ship weighed and proceeded on her course. FIGURE 1 graphically shows the movement of the barometer with direction and force of wind experienced by the *Yunnan* during the passage of the storm.

The *Steel Traveler* was in the calm centre from 8 to 10 p.m. on the 16th, in Latitude 21° N., Longitude 123° 20′ E. Taking 9 p.m. as the time the exact centre passed over the vessel, its course from

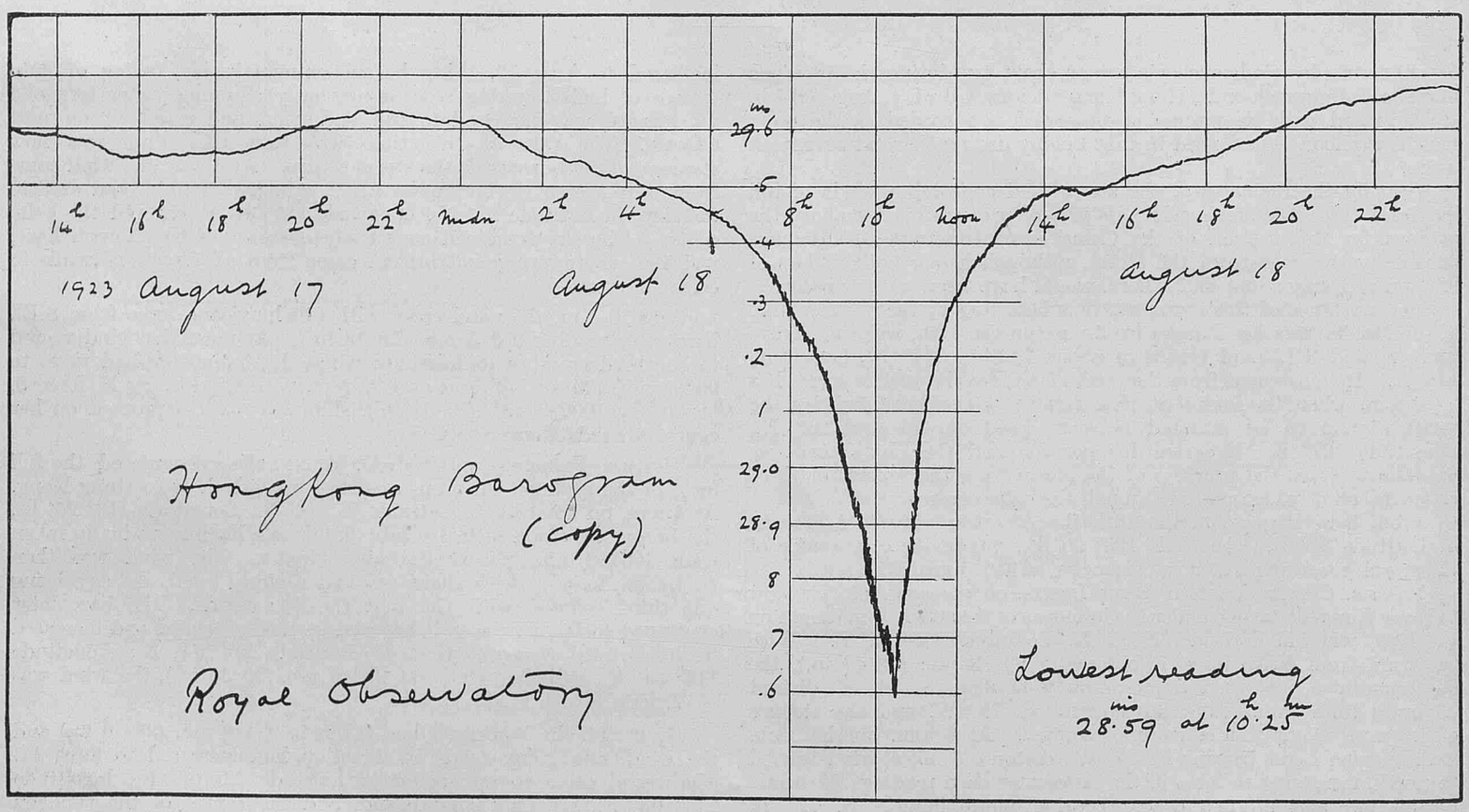


Fig. 3.

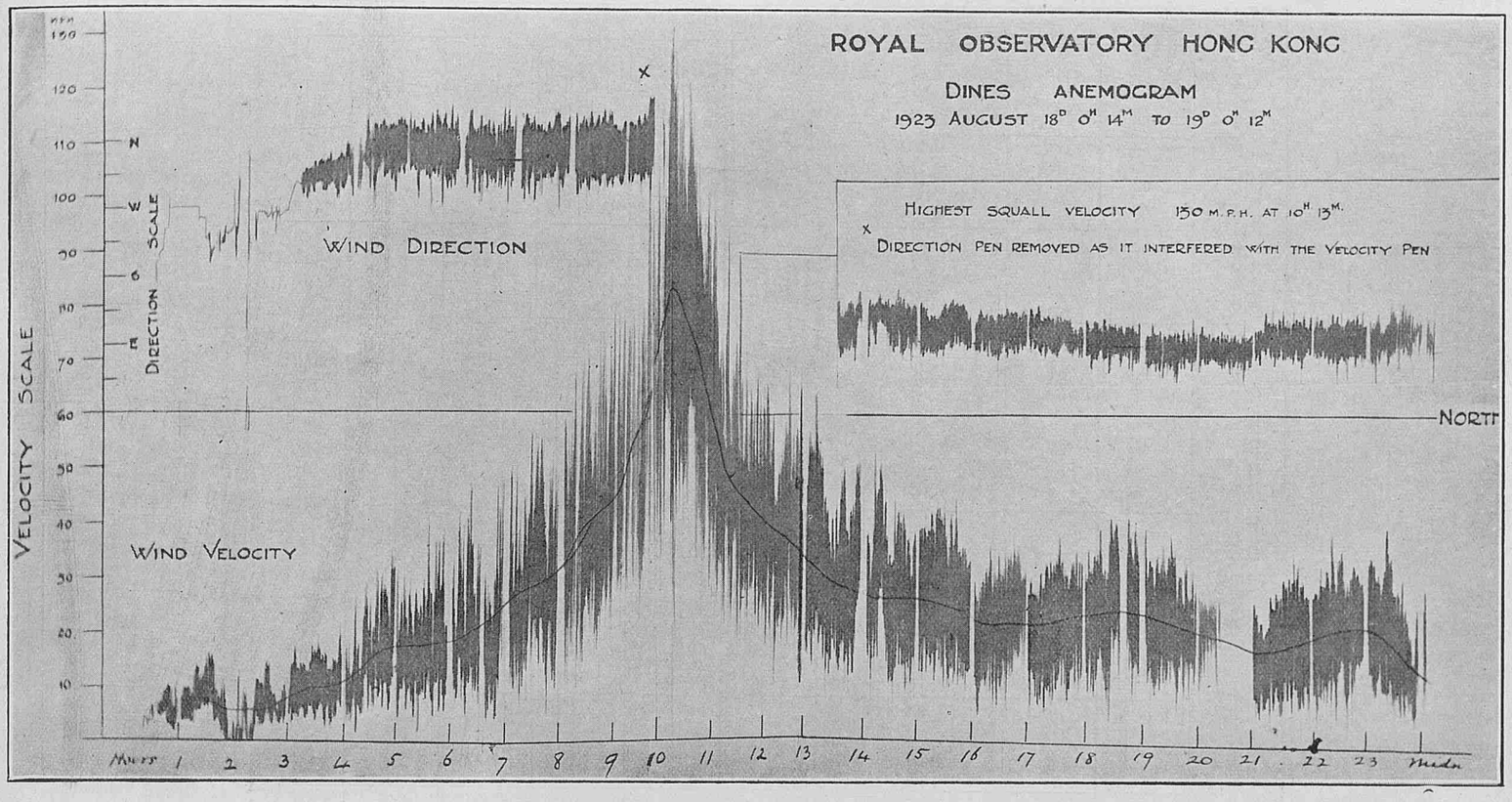


Fig. 4.

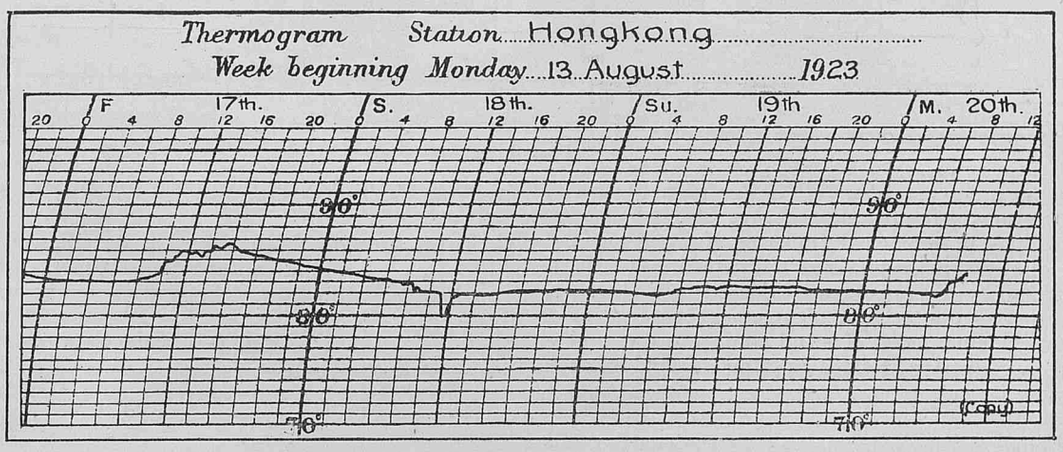


Fig. 5.

the position given by the Manila Weather Bureau at 6 a.m. on this day was N. 82° W. and its rate of progression 13·9 knots.

From *Steel Traveler's* position to that of the *Chenan* when she passed through the centre at 9 a.m. on the 18th, the storm travelled N. 83° W. at 13·7 knots, and this is verified by its course and speed between *Steel Traveler* and *Yunnan*, which was also N. 83° W., 13·7 knots. FIGURE 2 shows the approximate track of the storm from 2 p.m. on the 11th until it crossed the China coast, p.m. on the 18th.

From the observations supplied by these ships it seems that the calm centre of the storm was, at 9 p.m. on the 16th, roughly 28 nautical miles in diameter, taking two hours to pass over *Steel Traveler*, whereas on the 18th both *Chenan* and *Yunnan* were only in the calm for approximately 30 minutes. *Yunnan*, at anchor and situated on the line of progression must have passed directly through the centre of the calm, the diameter of which at this time could not therefore be greater than seven miles. The three ships report absolute calm in the centre of the storm, and in the case of *Chenan* and *Yunnan* the transition from the region of hurricane winds into the calm was sudden. The lowest barometer recorded is that of *Steel Traveler* at 9 p.m. on the 16th, 946·5 mb. (27·95 in.), while *Yunnan* at 11 a.m. on the 18th records a minimum pressure of 951·6 mb. (28·10 in.), both ships being at the time in the centre of the storm. The lowest reading obtained by *Chenan* was 954·3 mb. (28·18 in.), which was recorded at the first burst of the wind after the passage of the calm.

From the *Yunnan's* observations it appears that the body of the typhoon was rather small, the gradient near the centre was considerably steep, and the low isobars of small diameter.

This ship steaming on the line of progression, making approximately 4 knots, first encountered a wind of force 8, at 8 a.m., which did not increase to hurricane force until an hour later. With storm travelling approximately 14 knots, the area extending in front of centre covered by winds of gale force and above was therefore about 44 miles, of which 27 miles were winds of full hurricane force. In rear of the calm centre the extent of winds of hurricane and gale force were roughly 12 and 14 miles respectively. The centre of the typhoon passed 14 miles south of Hong Kong, Royal Observatory, at about 10.20 a.m. The lowest pressure recorded there was 968·1 mb. (28·59 in.), while the wind commencing at north gradually veered to E.S.E., attaining a maximum average velocity of 83 miles per hour

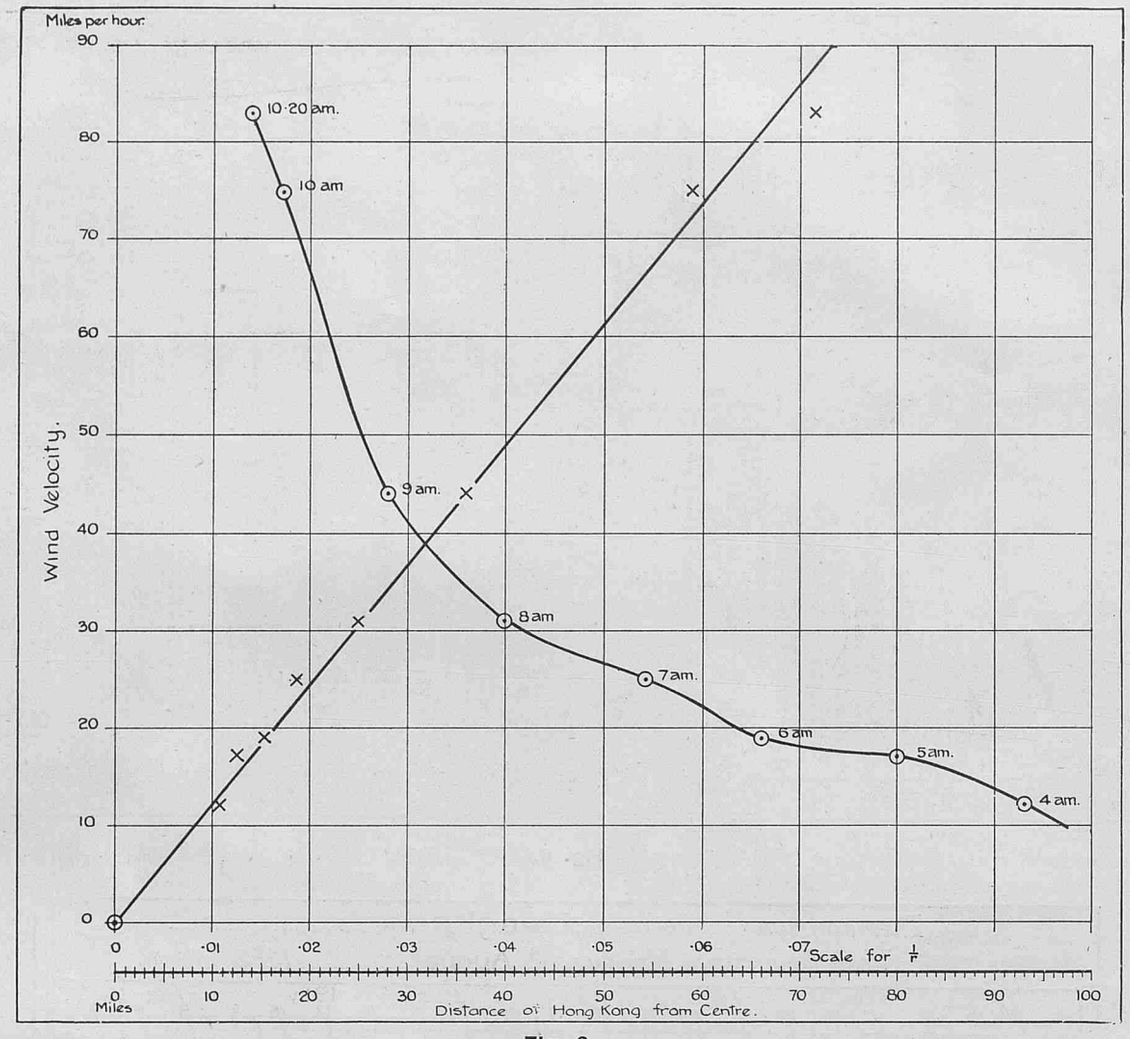


Fig. 6.

(72·2 knots), rising to 130 miles per hour (113·1 knots) in the gusts. We are indebted to Lieutenant-Commander P. W. S. HENDERSON, R.N., Marine Agent for the Meterological Office at Hong Kong, for obtaining the records of pressure, wind, and temperature shown in FIGURES 3, 4 and 5. These records are of particular interest, showing, in addition to the normal characteristics of the near passage of a tropical cyclone, a general symmetry of wind and pressure, and a curious fall of temperature occurring at the same time as wind reached its maximum and pressure its minimum.

The accurate knowledge of the path followed by the centre while it was approaching Hong Kong and the definite information derived from FIGURE 4 enables the relationship between the velocity of the wind and the distance from the centre to be worked out. FIGURE 6 and table shows that the velocity is roughly inversely proportional to the distance, or, in other words, the velocity multiplied by the distance is constant from the outer boundary of the storm to within at least 14 miles of the centre, this being the nearest approach of the centre to Hong Kong Observatory.

Table showing Relationship between Wind Velocity and Distance from the Centre.

Time.	Wind Speed (statute miles per hour).	Distance from Centre.	$\frac{1}{r}$	Velocity × Distance.
Aug. 18th—				
4 a.m.	12	93 miles.	·0108	1116
5 ,,	17	80 ,,	·0125	1360
6 ,,	19	66 ,,	·0152	1254
7 ,,	25	54 ,,	·0185	1350
8 ,,	31	40 ,,	·0250	1240
9 ,,	44	28 ,,	·0358	1232
10 ,,	75	17 ,,	·0590	1275
10.20 ,,	83	14 ,,	·0714	1162

FOG.

PREPARED IN THE MARINE DIVISION BY H. KEETON, PRINCIPAL CLERICAL ASSISTANT.

FOG at sea consists of fine particles of water suspended in the atmosphere; over and near the land it may also be caused by the accumulation of smoke and dust in the atmosphere, but we are chiefly concerned here with true water fogs.

Fog is perhaps the most variable of the meteorological elements, and consequently very difficult to forecast. While there is a simple and definite relationship between atmospheric pressure and wind, there is a marked absence of *definite* rules to guide us in the prediction of fog. We know that when it is foggy, on land or sea, the pressure distribution is often anticyclonic; but when the pressure distribution is anticyclonic it is not by any means necessarily foggy. Fog requires something in addition to a suitable pressure distribution for its production, and it is proposed to describe below some of the physical conditions and processes under which it is formed.

Humidity.—The first of these conditions is humidity. Air, as we find it in nature, is always more or less moist; but it can only hold a certain amount of water vapour, the amount being dependent on its temperature. The higher the temperature of the air, the greater is its capacity for holding water vapour. When a mass of air contains the maximum amount possible at any given temperature, it is said to be saturated; and should the mass of air then be cooled below this temperature, called the *dew point*, condensation will take place. If at the surface, this will be in the form of either dew or fog,

according to the process of cooling; or, if aloft, the water vapour will condense as cloud.

Temperature.—Next to the state of humidity of the air, changes in its temperature are the most important factor in the production of fog.

Changes in the temperature of the air may be brought about by two methods: (1) by taking up heat from, or giving up heat to other surrounding bodies; and (2) without any actual transference of heat, but simply on account of its changes of pressure. It is probably difficult to find in nature an illustration of one without complication by the other, but often the one cause or the other may be seen to be clearly predominant.

Air is warmed by taking up heat when it passes over warmer ground or warmer water; and conversely it is cooled when it passes over colder ground or colder water. There is a great difference, however, between the land and sea with regard to the manner and extent in which these changes take place.

Out at sea the surface temperature only changes very slowly by heat given to or taken from the atmosphere, and there is practically no daily range in the sea surface temperature. Fluctuations in the temperature of the air above it are consequently limited, and the air temperature seldom differs by more than a few degrees from that of the sea.

Ashore, however, the temperature of the ground surface may be subjected to very rapid and irregular changes through a large range, due amongst other causes to heating from the sun's rays by day, or cooling through radiation at night. The consequent changes in the temperature of the surface air above it are, therefore, large and irregular.

It will thus be seen that the conditions which determine the formation of fog at sea, though far from simple, are less complicated than those on land.

Dynamical Cooling.—The second process by which changes of temperature occur is that solely due to changes of pressure.

When air is compressed, for example, by pushing a piston into a cylinder, the compression itself will produce a warming of the air, without any transference of heat from outside. Similarly, expansion of air, without communication of heat, will produce cooling.

Thus, as atmospheric pressure decreases with height, an ascending mass of air will expand, and in so doing will be automatically or, as it is termed, dynamically cooled. Conversely, a descending current of air will be subjected to increasing pressure, and will automatically become warmer. Normally, therefore, the temperature of the air decreases with height above sea level, the amount of this decrease being called the "lapse rate."

This decrease of temperature, due to decrease of pressure, has been calculated and amounts to 5½° F. in 1,000 feet for *dry* air; it is less in moist air, dependent on the amount of moisture present.

It is rare, however, that the lapse rate actually existing in the atmosphere in any locality reaches this maximum (or adiabatic) rate of 5½° F. for each 1,000 feet, owing to the fact that the air is generally subjected to changes of heat from other sources.

Convection.—Convection may be simply described as the ascent of locally-warmed air or the descent of locally-cooled air. It must be remembered that for heated air to rise there must be cooler air to take its place, so that every place where air is being warmed is not *necessarily* a place where air is ascending, although generally this is the case.

Another effective cause of ascending currents of air is the convergence of surface air currents from different sides towards a centre, where there must be an upward current to take off the air.

At the surface when convection is operative and vigorous, water particles and any atmospheric pollution, such as smoke or dust, are rapidly dispersed and the formation of fog thus prevented.

Lapse rate and Convection.—The lapse rate of temperature has a most important influence on convection, for it is the lapse rate which decides how far warmed air will rise before finding its level. As an illustration, if we imagine a mass of thoroughly mixed air 10,000 feet high, with a *maximum* lapse rate, its temperature at 10,000 feet would be 55° F. less than the temperature at the surface (that is, 5½° F. for each 1,000 feet). Above this 10,000 feet mass, let there be layers of air with smaller lapse rates.

Now, if a part of the air at surface be only slightly warmed, say, 2° F., it will rise, and as it will be dynamically cooled at the rate of 5½° F. for each 1,000 feet of ascent (which is the same rate as the air it is displacing), it will go on rising until, at 10,000 feet, it will still be 2° F. warmer than its surroundings.

Above 10,000 feet, with a diminishing lapse rate, the fall of temperature with height of the mass of air is smaller, say, 3½° F. for each 1,000 feet. The warmed rising air will, however, still cool at the same rate as before (5½° F. for each 1,000 feet), so that the 2° difference of temperature will gradually get less and less, until the warmed air will eventually stop rising where its temperature coincides with that of the surrounding air mass, in this case 11,000 feet.

FIGURE 1 (*a*) illustrates such a lapse rate; the dotted line (*b*) denoting the change of temperature of the warmed air as it rises.

With a large lapse rate, therefore, convection is strong, and the formation of fog is prevented.

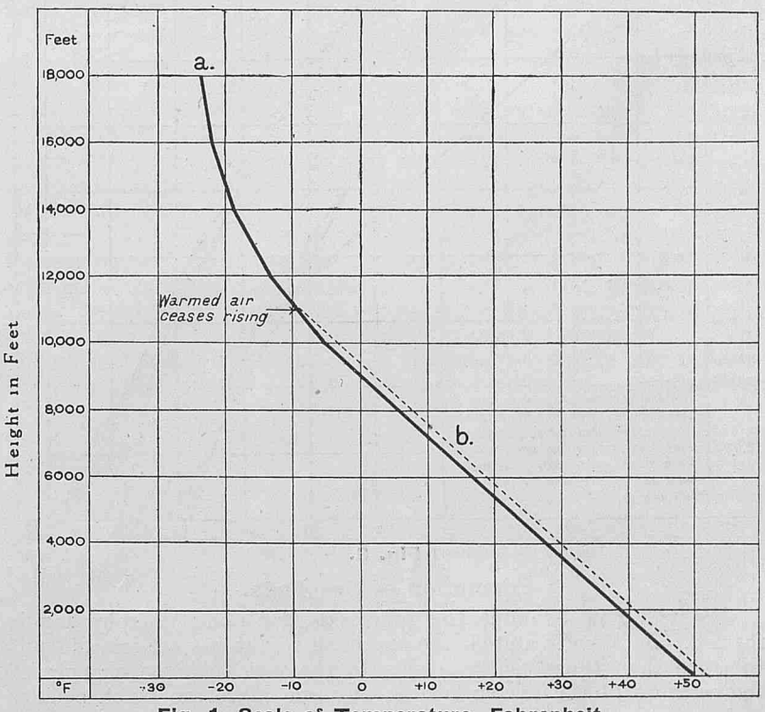


Fig. 1. Scale of Temperature, Fahrenheit.

Reversed Lapse Rate.—From time to time there are formed in the atmosphere, especially near the earth's surface, layers of air in which the lapse rate is reversed, that is, the air is warmer up aloft than at the surface. These conditions effectually prevent convection, and are very favourable for the formation of fog. A familiar example of the absence of convection is when the smoke from the funnel remains in layers close to the sea surface; this is often regarded as a sign of fog.

Such an inversion of temperature occurs very frequently at sea in regions where a warm current of air passes over cold water.

FIGURE 2 illustrates this condition during a fog which extended to a height of 1,000 feet.

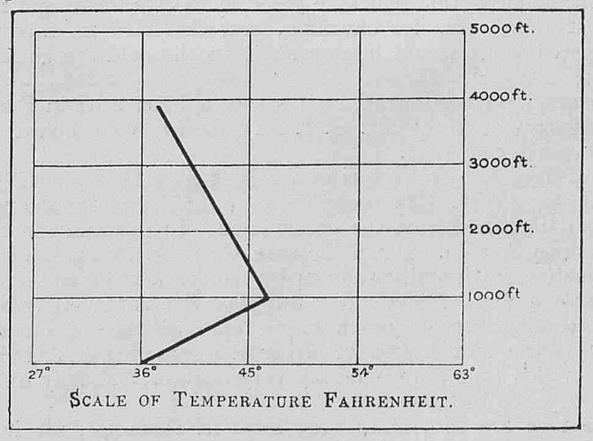


Fig. 2.

Average Lapse Rates.—The lapse rate in the atmosphere of a cyclone is, as a rule, very close to the limit, while in an anticyclone it is often far from it. Very little warming, therefore, is necessary to produce great convective motion in the air of a cyclone, but a great deal is required in an anticyclone.

FIGURE 3 represents a series of *average* lapse rates from observations made ashore in the British Isles. The plain lines from left to right show the *maximum* or adiabatic lapse rate for perfectly dry air, the average lapse rates for winter and summer, respectively. The pecked lines show the average lapse rate in a cyclone and an anticyclone.

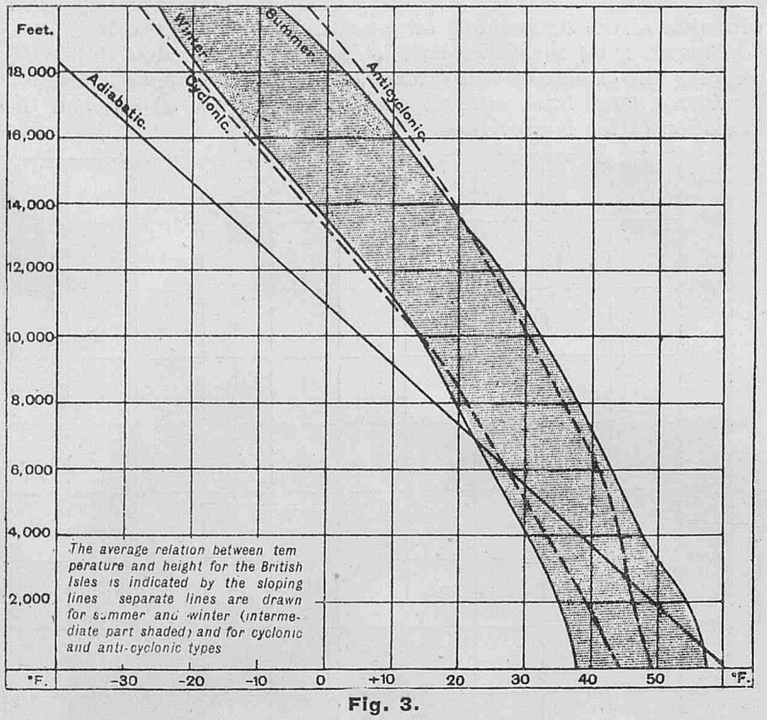


Fig. 3.

Formation of Sea Fogs.

We will now examine the processes of cooling whereby fog is formed. As already stated, the causes of fog at sea are less difficult to trace than those ashore, owing to the fact that the changes of temperature of the sea surface at any one place are much smaller and more gradual than those of land surfaces. An additional reason is that the sea surface offers less obstruction to surface winds than do the irregular land masses.

Owing to the friction of the sea surface, the action of the wind, however light it may be, causes turbulence or eddy motion of a very irregular character in the lowest layers of the atmosphere. This eddy motion causes a mixing of the lowest layers of the atmosphere, and is an essential part of the process whereby 80 per cent. of sea fogs are formed, that is, by the passage of warm moist air over relatively cold water. The cold sea chills the surface layer of air; this chilled air is churned up and mixed with the warmer air above it, this process sometimes extending to a considerable height. If the sea can chill the air sufficiently so that its temperature falls below the dew point, condensation will take place in the air itself, and fog will result. If there were no churning, and therefore no mixing, the moisture in the air would be deposited on the cold sea surface like dew.

An example of fog formed in this way is illustrated in FIGURE 4, and was investigated by Mr. G. I. TAYLOR when on board the Ice Patrol *Scotia* during 1913.

On 3rd May, the *Scotia* was in a thick fog in Latitude 47° 36′ N., Longitude 44° 25′ W. The probable course of the air for the previous days was determined from the observations of ships and the maps of the American Service. It will be seen that the air on the 1st May was travelling North and, as shown by the sea surface isotherms was being slowly cooled. From 2nd to 3rd May, it was travelling N.N.W., and the cooling became much more rapid as the air crossed the boundary of the Gulf Stream, resulting in a dense fog on 3rd May.

Fogs of this type are frequently very shallow, but may extend to a height of 2,000 to 3,000 feet.

These fogs are sometimes very local in character, for instance, where offshoots from the cold Labrador current penetrate the region of the Gulf Stream, and form lanes of cold water between areas of warmer water. An example of this is given in the meteorological log of the s.s. *Port Augusta*, Captain G. W. HEARN, while on passage from London to New York. At midnight on 23rd April, 1923, in Latitude 41° 32′ N., Longitude 47° 10′ W., the wind was S.S.E. force 5; air

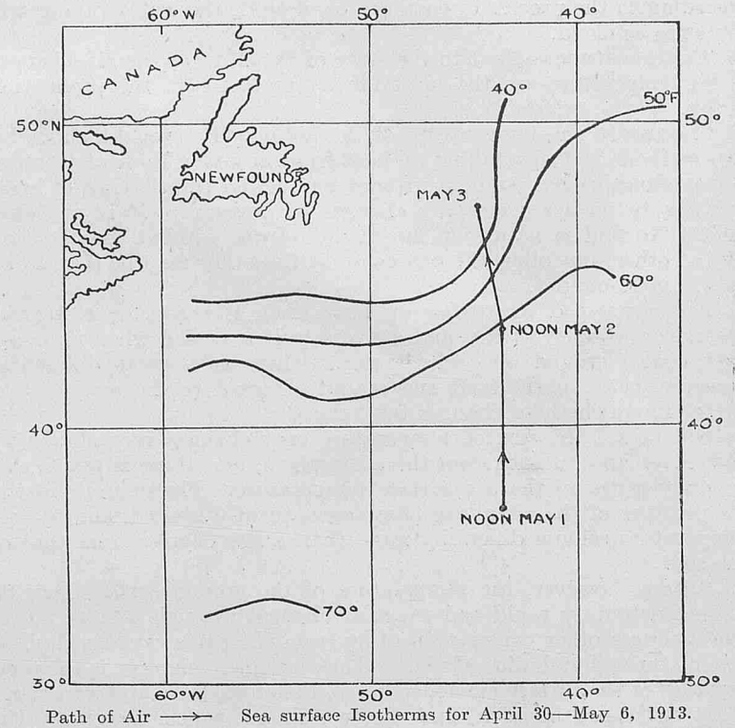


Fig. 4.—Probable path of Air previous to thick fog, May 3rd, 1913.

temperature, 61° F.; sea temperature, 60°·5 F.; weather, sky half clouded, misty and damp. At 2.5 a.m. of 24th, the "ship entered a thick fog bank; the temperature of the air and sea water commenced to fall rapidly. The lowest temperatures reached were at 3.30 a.m., when the air was 42° F. and the sea 35°. At 5.20 a.m., the fog suddenly cleared and temperatures quickly returned to normal (8 a.m.—air temperature, 63°; sea temperature, 60°; weather, bc). The fog was only low on the water, as blue sky was visible overhead"

A similar experience occurred between 3.15 p.m. and 4.30 p.m. of the same day, the temperatures at 4 p.m. being: air, 50°·1; sea, 40°·5.

Fog is also observed at sea, but far less frequently, when the opposite conditions prevail—that is, when cold air flows over warm water. Here the physical process is not so obvious. The lowest layers of the air would be warmed by contact with the sea and mixed with the colder air above, partly by convection and partly by turbulence; but we should expect that this warming of the lower layers would result in the air affected rising by convection out of the reach of further warming and, when it had become sufficiently cooled by elevation, to condense and be observed as *cloud*.

The probable explanation is that, in the instances when fogs are formed under these conditions, the lapse rate of the air current is so small that the warmed air would not rise far before it had become dynamically cooled to the temperature of its surroundings; the effect of the warming would be limited, therefore, to a comparatively thin layer. The surface layer would gradually become saturated by evaporation from the warm water surface, after which any further mixing with the colder air above would result in condensation as fog.

The meeting of the Labrador current and the Gulf Stream is a favourable ground for the development of such fogs. An example is given on the back of the U.S.A. Weather Bureau chart of the North Atlantic for April, 1913, from a report by Captain W. G. S. DE CARTERET, of the Cable Steamer *Minia*, who has kept many meteorological logs for this Office.

Captain DE CARTERET says: "I was in about Lat. 41° 30′ N. and Long. 48° 13′ W. on 30th April, 1912, when I saw a wall of fog to leeward in a south-east direction. I realised that it was caused by the Gulf Stream.

"The trend of the cold water was S. 60° E. (true) and of the warm water N. 65° E.

"As the ship's bow was about to enter the fog the sea temperature was 35°, and as her stern entered it the temperature was 56°. As the fog was too dense to see anything, I returned to the cold water and repeated the tests with the same results. It was clear to the north-west of the Stream. The colour of the cold water was a greyish blue, and in the Stream a purple blue.

" I found that with a south or south-east wind there was little or no fog, but the cold north or north-west winds brought down the fog at once."

Another process which sometimes produces fog is condensation resulting from the mixture of two currents of air of different temperatures. The capacity of air for moisture increases numerically faster than its temperature, and thus it may occur that two masses of air of different temperatures, neither of which is saturated, will give a mixture at their mean temperature which is more than saturated. Part of the water vapour will therefore condense and if sufficient, produce fog. This mixing is a frequent cause of fog at the boundaries of contrary winds of different temperatures.

Of these three sources of fog over the open sea, the first-named is by far the most important, and accounts for 80 per cent. of the fogs observed at sea. The conditions of its formation, that is, warm air flowing over cold sea, are *most* frequent in the spring and summer, when the normal seasonal increase of sea temperature lags behind that of the air. Hence sea fogs may generally be regarded as summer fogs.

Banks of fog frequently drift bodily, under the influence of wind, for a considerable distance from the region of their formation; and thus make their appearance in places where the conditions would not of themselves produce fog. An instance of this is given in the meteorological report of the s.s. *Batsford*, Captain W. HENDERSON, while on passage from London to Halifax, in June, 1919. Mr. R. A. LEICESTER, the observer, in forwarding a photograph of a thick fog bank observed by him on 30th June, says that " it stretched from Cape St. Mary, N.F. (Lat. 46° 50′ N., Long. 54° 12′ W.) in a west-south-westerly direction as far as the eye could see. It appeared like a solid wall, not more than 130 feet high, and came creeping towards the ship at the rate of 5 miles an hour. We were in this fog-bank about 12 hours, and steamed out of it at about 6.30 p.m."

The wind at the time was south-westerly, light, while the temperature of both the air and sea was 44° F.

Formation of Land Fogs.

Over the land in middle latitudes the conditions most favourable for fog formation are usually associated with autumn and winter anticyclones, wherein the winds are generally light or calms prevail. Under these conditions, if the sky be clear, the cooling of the ground by radiation at night will chill the layer of air on the surface, and, if sufficient, will cause condensation whereby fog may be formed.

Another cause of fog over the land is the slow drift of cold air over moist and relatively warm ground; this cold air mixing with and chilling the air which has been warmed and moistened, perhaps saturated, by contact with the ground.

Under suitable conditions, land fogs, once formed, may persist for several days; for much of the sun's heat which would otherwise reach the ground and set up convection is reflected from the upper surface of the fog layer.

Generally speaking, land fogs may be termed *winter* fogs.

Fog in Coastal Waters.

Fogs are very frequently formed on coasts. The main cause of these fogs appears to be a warm humid light wind from seaward blowing over colder air on the coast; less frequently the reverse conditions are the cause, viz., a cold wind from seaward blowing over a warm coast line.

In " Forecasting Weather," Sir NAPIER SHAW says, " Any notable change in the air current is apt to produce fog over the coastal regions. If, after a spell of warm weather, the air supply becomes cold, fog is generally experienced at some point or other of the coast; and still more frequently the replacement of a cold current of air by a warm one, after a spell of cold weather, shows itself as coastal fog."

In narrow waters, the fogs experienced may be either sea fogs, coast fogs or land fogs, and may be met with at any time of the year. Those experienced off our coasts in spring and summer have their origin chiefly over the neighbouring seas and channels, their formation being mainly due to the causes which operate over the ocean; while the autumn and winter fogs are mainly land fogs which have spread seaward. There are, however, other causes which produce conditions favourable for the formation of coastal fogs, as, for instance, the mixing of warm and cold surface currents; the cold under-currents being forced to the surface in passing over shoals or approaching a coast; these conditions are common in many countries. Off the United States Atlantic Coast, a cold current creeps southward between the coast and the Gulf Stream, the marked difference in temperature of these adjacent streams being a fruitful cause of fog. Similar fogs are also caused off the South African Coast by the Agulhas and the Antarctic currents.

Prediction of Fog.

From what has been said, it will be seen that the formation of fog depends on the temperature of the air being reduced by cooling to below the dew point.

For the successful prediction of fog, therefore, it is desirable to know the humidity of the air in the first place, and the amount of cooling it is likely to undergo.

We may have the conditions which tend to produce fog, on land or sea, but the fog may not be there. The air may undergo considerable cooling, but, if it is too dry to start with, the saturation point may not be reached. The air may be moist to start with, but the cooling it undergoes may fall short of that necessary to produce condensation. These changes do not depend entirely on the atmospheric conditions at the time of the forecast, but to a large extent (especially over the land) on the conditions prevailing during the previous days.

Over the open ocean, fog, though still erratic in its occurrence, is more amenable to forecasting.

THE MARINE OBSERVERS' 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.

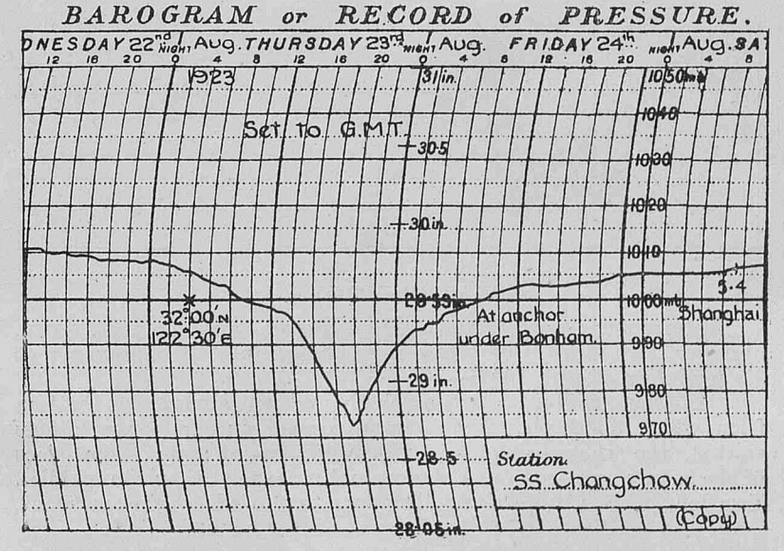
TYPHOON IN NORTH CHINA SEA.

AUGUST 23rd, 1923.

S.S. *Changchow*, Captain G. BYERS, when on passage from Chingwangtao to Shanghai encountered a Typhoon on August 23rd 1923, the same as that in which the s.s. *Mylie* was lost, there being only one survivor.

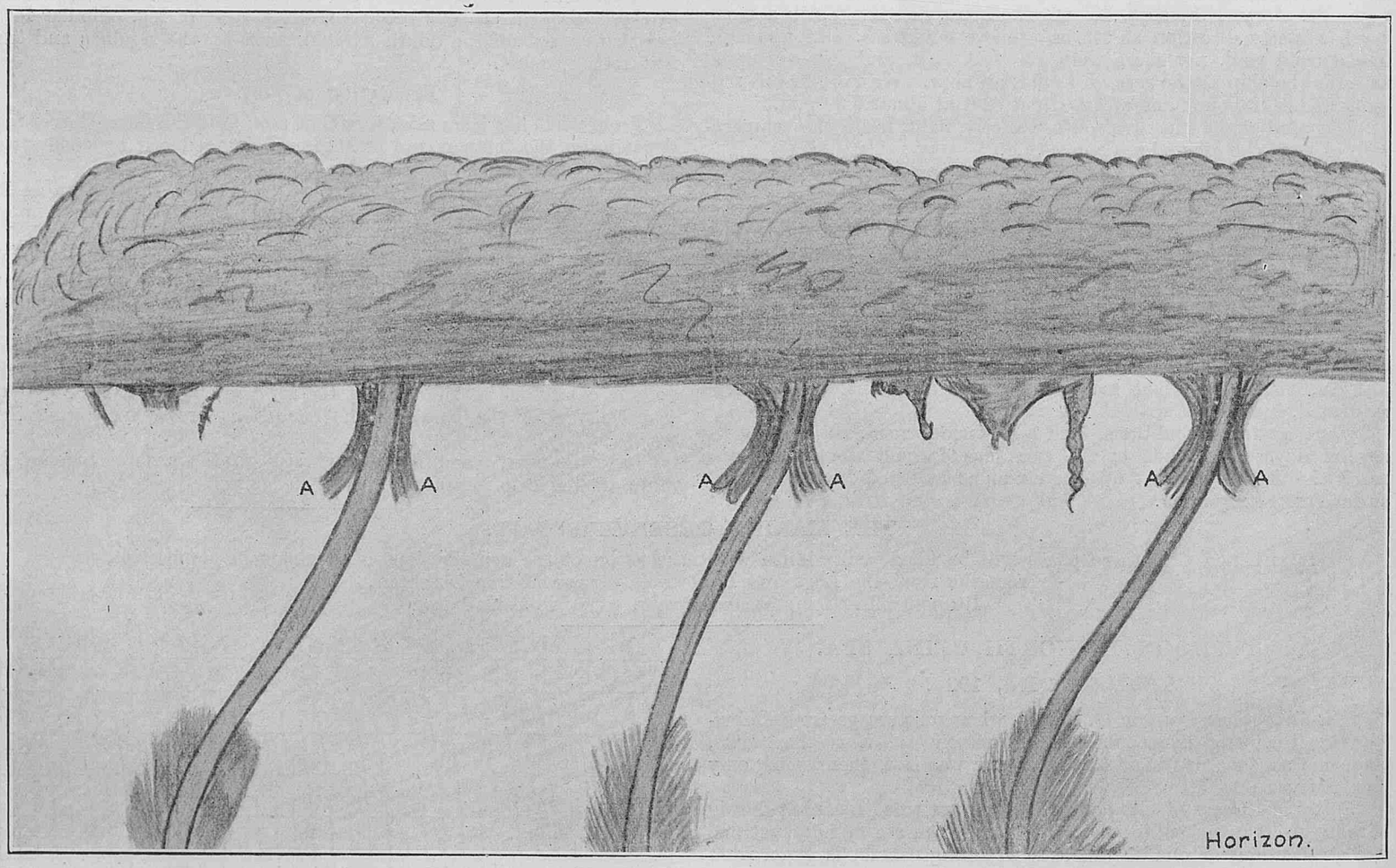
Below is a copy of *Changchow's* barogram trace recorded during storm. As it is not possible to investigate the storm fully with so few observations at our disposal, the following extract is given from Captain BYERS' meteorological log.

" S.S. *Mylie* left Chingwangtao same date as we did for Shanghai, at noon. We sighted s.s. *Mylie* through the rain; when we hove to she appeared to be hove to also. She was close to us and astern about 9 p.m., when we could see her lights; after this we did not see her any more. The Chinese messroom boy was picked up six days later on a life raft near Patahekok, also a lifeboat awash containing the dead body of the Chief Engineer; the messroom boy stated the *Mylie* foundered about 9 p.m. on the 23rd. He was the sole survivor. Sorry there are so many blanks in this report, but owing to a damaged knee during the typhoon I was not able to get about much. As we



were deep laden with coal it is a marvel we ever came through it. One lifeboat was smashed and washed overboard, two other boats damaged, and much other damage about the decks. Luckily, the steering gear and chains held out, also the hatches."

Date.	Time.	Lat. N.	Long. E.	Corrected Bar.	Wind.	Force.	Weather.	Remarks.
"Aug. 23rd	4	32°·54′	122°·42′	1005·0	N.N.E.	4	b	9 a.m. Heavy bank from S. to N.E.
	8	32°·21′	122°·36′	1004·2	N.E. by N.	5	bc	Heavy E.S.E. swell.
	Noon	32°·00′	122°·30′	1001·8	N.E. by N.	6	o	1 p.m. Confused swell E. and S.E.
	4	31°·37′	122°·30′	1007·6	N.E. by N.	7	or	6 p.m. East swell too heavy to run across.
	8	Hove to somewhere between Amherst Rocks and Saddle Isles.		993·6	N.E. by N.	10	or	Hove to, head, East. Weather continues to get worse through the night. Terrific squalls of wind from N. by E., blinding rain and abnormal East swell. Vessel shipping heavy seas fore and aft.
	Midt.	Hove to		985·0	North	12	or	
"Aug. 24th	4	Hove to		970·6	North	12	or	3·30. Easterly swell decreased. A little after 4 a.m. sighted North Saddle light on Starboard bow; just managed to clear the rocks; a/c to N. and with wind ahead. 6·50 sighted rocks (later found to be Outport Rocks) close on port beam,
	8			982·7	W. by N.	10	or	a/c N. by E. then S.E 7 a.m. sighted high land on Starboard bow. A/c to N.N.W. again.
	Noon	30°·47′	122°·35′	992·4	W. by S.	10	or	Got a position at noon when rain eased up a bit, found ship one mile North of Cairnsmore Rock; proceeded to other side of Channel, but found vessel was not stemming the current, so turned round and ran under Bonham at 3·35 p.m.
	4	South of Bonham Isle		997·2	W. by N.	5	c	5·25 a.m., 25th, proceeded for Shanghai."



WATERSPOUTS.

Waterspouts observed from s.s. *Port Hunter*, Captain S. C. Cottell, observer, Mr. W. R. Johnston, 2nd Officer, in Gulf of Panama at 3.0 p.m. August 29th 1923:—

"The heavy Nimbus (Stratus) showed an almost flat bottom from which 3 complete spouts were formed and numerous others started, the whole being in a violently agitated state. The edges of the spouts appeared much darker and more solid than the middles. Two long whisps quite distinctly clung to top edges of each spout, see *A.A.* A gentle N.N.W. wind was blowing and the spouts were deflected as shown and swaying about. Heavy rain squall thinly covered everything.

TROPICAL SQUALL.

The following report was contributed by s.s. *Clan Ross*, Captain W. G. M. Christian, observer, Mr. S. M. W. Easterbrook, 3rd officer, Sabang to Sebu:—

"August 9th, 1923, in Lat. 7° 24′ N., Long. 116° 18′ E., Time—

1 20 p.m. to 2.30 p.m. A heavy squall overtook s/s moving to westward. It was of great intensity, with wind sufficiently strong to tear the tops of waves into very fine spray. A rough sea rose in a few minutes and a fine driving rain began to fall, which increased in volume until by 1.50 p.m. it was a very heavy downpour, which lasted until 2.10 p.m., when it began to decrease, both in volume of rain and force of wind, and by 2.30 p.m. the squall had passed to the eastward. The Cumulo-Nimbus and nimbus clouds were very black and heavy and seemed to be flying exceedingly low. The barometer which had dropped in the forenoon watch, did not exhibit any downward tendency beyond the normal diurnal range, and remained steady throughout the squall. The temperature, which was 86° at 1.00 p.m., fell to 80° by 1.30 p.m., and 78° at the worst part of the squall, but rose again to 82° immediately the squall had passed."

EXCEPTIONAL CURRENTS.

THE following exceptional currents in the West Indies are reported by Captain A. BICKER CAARTEN, of C.S. *Henry Holmes* :—

" On August 31st, 1920, while repairing the Trinidad–Grenada cable (in the Cable-Ship *Viking*, Captain DANIEL), we experienced a westerly set of seven knots. This lasted from about 8 a.m. until 4 p.m. on the same date, gradually slowing down during the night to about three to three and a half knots. The speed of the current was estimated by two sets of bearings over a period of half an hour, the engines being stopped at the time." (Lat. 11° 08′ N., Long. 61° 35′ W.).

Captain CAARTEN gives the following table of currents experienced in August 1923, and adds :—

" From September 1st, noon, to anchorage off Grenada at 6 a.m. September 2nd, we experienced the ordinary westerly set natural to these waters.

" Looking back through past records I am unable to find any trace of easterly currents experienced to the south and east of Alta Vela. You will notice that we carried the easterly set almost to within sight of Grenada, the wind during this passage being light north-easterly with smooth sea."

Current Observations.

Date.	From.	To.	Set True.	Drift n.m.	Time. hrs.	Remarks.
1923. "Aug. 21/22	Frenchman's Cap.	16° 47′ N. 63° 31′ W.	S. 64° W.	15·5	18	Strong easterly wind and rough sea.
Aug. 24/25 -	13° 47′ N. 61° 06′W.	12° 25′ N. 60° 31′ W.	N. 7° W.	25	16	Gentle easterly winds and fine weather.
Aug. 25/26 -	12° 25′ N. 60° 31′ W.	14° 07′ N. 64° 07′ W.	N. 66° W.	14	24	Similar weather. Strongest when passing Grenadines.
Aug. 26/27 -	14° 07′ N. 64° 07′ W.	15° 38′ N. 67° 42′ W.	S. 64°W.	8	24	Light easterly winds and fine weather.
Aug. 27/28 -	15° 38′ N. 67° 42′ W.	16° 58′ N. 71° 10′ W.	S. 19° W.	12	24	Light easterly and north-easterly winds. Fine weather.
Aug. 29/30 -	Off Alta Vela Id.	16° 34′ N. 69° 59′ W.	S. 84° E.	12·5	12½	Light easterly winds and fine weather.
Aug. 30/31 -	16° 34′ N. 69° 59′ W.	14° 41′ N. 67° 00′ W.	S. 16° E.	11	24	Moderate easterly winds and fine weather.
Aug. 31 } Sept. 1 } -	14° 41′ N. 67° 00′ W.	13° 11′ N. 63° 59′ W.	S. 76° E.	4	24	Similar weather."

TYPHOON.

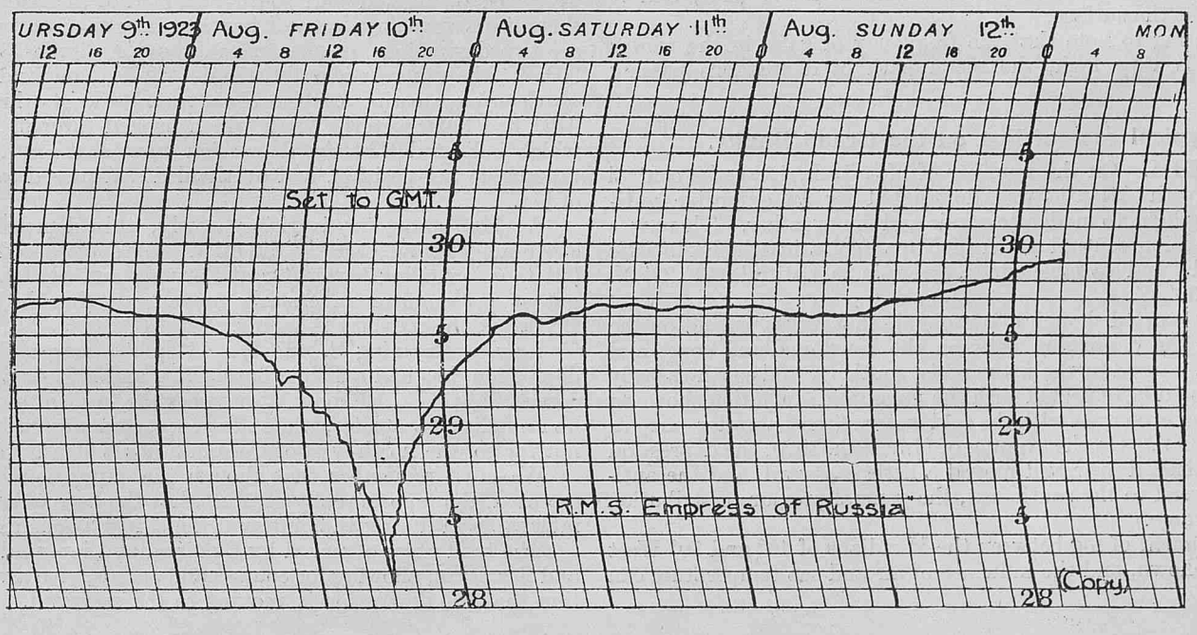
THE following report has been received from R.M.S. *Empress of Russia*, Captain A. J. HOSKEN, Hong Kong to Wusung :—

Narrative of Typhoon Experienced by R.M.S. *Empress of Russia*, August 10th–11th, 1923.

" This report begins at noon on August 10. Up till this time we had experienced very fine weather, although the typhoon was reported as being about three hundred miles distant. From midnight on the 9th the barometer had been dropping at a steady rate, the wind increasing from the N.E., and every indication of a typhoon was present. At noon the ship's position was Lat. 25° 49′ N., Long. 120° 16′ E. Weather, ' Moderate gale, rough confused sea and swell, cloudy and hazy.' The storm centre was about 214 miles to the E.S.E'ward (Tokyo Obsy.).

" From noon onwards the weather got steadily worse. Throughout the afternoon watch there were occasional heavy rain squalls, with a moderate N.N.E. gale and an increasing confused sea. At 6.45 p.m. speed was reduced. At 8 p.m. the weather was, ' Strong gale, high confused sea, vessel spraying and labouring heavily.' The position by D.R. was Lat. 27° 30′ N., Long. 121° 28′ E. At 10.45 p.m. the vessel was hove to, heading S.E. At midnight the weather was ' Typhoon wind, vessel labouring and straining to high confused sea, shipping water fore and aft, heavy continuous rain with terrific squalls ; barometer, 952·2 m.b. (28·12) ; wind, N.E. by N.' At 1.30 a.m. on the 11th the barometer reached its lowest, 943·7 m.b. (27·87) ; the wind was N.W. and backing. At about this time speed was slightly increased, but it soon had to be reduced again. At 4.0 a.m. the weather was similar to midnight, but with the wind S.S.W. and not so fierce.

" From this time onward the weather moderated. At 8 a.m. the weather was ' Fresh to moderate gale, high sea, vessel labouring and straining heavily, rain.' And at noon it was, ' Moderate gale, heavy confused sea and swell, overcast and hazy,' with the ship on her course, and speed set at 17·5 knots."



WIRELESS AND WEATHER, AN AID TO NAVIGATION.

CHAPTER VIII.

TEMPERATURE AND FOG OR CLEAR WEATHER.

In middle and high latitudes it is frequently found that the slow passage of air from a region of warmer sea surface to one of cool sea surface is associated with fog at the latter. Also that air passing from colder sea surface to warmer sea surface is frequently associated with good visibility.

With reports from distant ships, if they include the elements suggested in "Ships' Wireless Weather Signals," page 12, January Number, not only may charts be made which give the pressure distribution and therefore wind circulation, but the changes of temperature which the air is suffering in its passage to a region may be ascertained, which knowledge may give an idea of the conditions of visibility which may be expected.

It is not the purpose of this chapter to explain in detail the process of fog formation. Mr. Keeton has done that in his article "Fog," but to continue as tersely as possible to show how application of Wireless and Charting may give the fore-knowledge desired.

There is probably no region on the trade routes of the world where fog is more prevalent than on the Grand Banks, and where the conditions causing fog are more pronounced. We therefore cannot do better than use experience gained in that region as a preliminary.

General Conditions in the vicinity of the Grand Banks.

The Labrador Current brings cold water from the Arctic by way of Smith Sound, Baffin Bay, and Davis Straits, which expands over the northern part of the Grand Banks, spreading eastward and dividing. One branch setting S.W. flows past Cape Race; the other flows south along the eastern edge of the Grand Banks until it meets the northern edge of the Gulf Stream forming the Cold Wall.

The Gulf Stream brings warm water from the Gulf of Mexico by way of the Strait of Florida, following the coast of the United States to Cape Hatteras, expanding and inclining eastward.

Thus, over the Grand Banks, the sea surface temperature is cold, while to the southward it is warm, there being a steep Sea Isothermal gradient running from weat to east to the southward of the Grand Banks. Figure 29, Mean Sea Temperatures in the Western North Atlantic for the month of May, illustrates this.

Now, if the barometer is high at the Azores and low at Halifax with an even and shallow gradient, it follows by Buys Ballot's Law that the wind will be light from the southward over the region of the Banks and the drift of air will be coming across the warm waters of the Gulf Stream where it will pick up moisture. On reaching the Cold Wall, the air at the surface will be rapidly chilled, if it contains sufficient moisture this will condense as fog. The lower layers of the air, having been chilled, rapidly become colder than those above them, so that convective currents fail to take the moisture aloft, and it remains as fog at the surface.

It is interesting to note that the frequency of gales in the winter in this region is very high, the mean path of depressions passing hereabouts.

A Typical case of Fog on the Grand Banks.

Chart XXXIII. On the morning of May 19th, 1920, the central part of the North Atlantic was dominated by an extensive anticyclone, causing light to moderate winds and fine weather. There was a shallow depression centred south of Nova Scotia in which *Adriatic* experienced light and variable winds, and rain in Latitude 40° 29′ N. Longitude 56° 30′ W.

No fog was reported though it is probable that it was present on the eastern side of the depression between the Newfoundland coast and Latitude 42° N., caused by the warm moist southerly and south-easterly winds which would be expected with the pressure distribution shown in this area, coming in contact with the cold water of the Labrador current.

Chart XXXIV. On the evening of May 19th, 1920, the depression had become a little deeper and moved a little eastward, and the anticyclone had spread to the south-east, the general pressure distribution remaining the same.

The development of fog between the Meridians of 40° and 50° West is now clearly shown, and the influence of air and sea temperature can be traced.

At 8 a.m., Chart XXXIII., *Finland* and *Mississippi*, both homeward bound, were in the Gulf Stream, both having sea temperature 67°—*Finland* 66° air, and *Mississippi* 68° air.

At 8 p.m. *Finland* got into cold water, sea temperature 46° and had fog. *Mississippi*, 160 miles ahead, was still within the boundary of the Gulf Stream, with sea temperature 66° and air 65°, recorded exceptional visibility.

The warm southerly wind, chilled considerably in its passage, had extended its influence northward to *Minnedosa* and produced fog; *Melita*, in Latitude 49° 53′ N., Longitude 44° 34′ W., experienced fog from similar cause.

From a study of the general conditions of currents with mean sea temperature, together with the pressure distribution existing on the evening of May 19th, 1920, it may be inferred that fog probably existed over the stippled area on Chart XXXIV. Of course, it will be realised that the limits of the currents and cold and warm water vary considerably at short intervals.

In all probability fog was prevalent on the Grand Banks in the south-east quadrant of this depression until it moved East or filled in.

Prediction of Fog or Clear Weather in the Eastern North Atlantic.

For this purpose a number of standardised reports over a considerable area are necessary for success. On several occasions within the last few years, when a large number of ships forwarded copies of Wireless Weather Reports, made and sent during exceptional weather conditions, it was apparent that better results had not been obtained owing to insufficient range, traffic interference, observations not synchronising, and uncorrected barometers. In short, experience shows that popular organisation is required if Wireless and Weather is to prove the aid to navigation hoped for. The following examples give an idea of what is aimed at, and are based on the supposition that a limited number of ships broadcast standard reports of observations taken at the standard times laid down, by long range Wireless Telegraphy, at arranged times for transmission, thus tending to reduce the traffic difficulty but increasing the value of information, and providing synchronised data over a great area to all ships who can intercept it.

Visibility.

On the morning of August 5th, 1922, S.S. *Catalina*, Captain R. Collins, from St. Domingo to Havre, distant some 480 miles from Scilly, her point of land fall, would like to know if she may expect clear weather along her route, and particularly when approaching the land.

Chart XXXV. shows that there are anticyclones to the north-westward of Ireland and south-westward of the Azores, and between them lies a very large area of low and intermediate pressure in which are two depressions, one centred in about Latitude 53° N., Longitude 30° W., the other in about Latitude 47° N., Longitude 13° W.

Catalina steering east-north-east at 10 knots throughout August 4th, had light easterly winds which backed through N.E. to N.N.W. which indicated that the depression now east-south-east some 200 miles from her position, had overhauled and passed to the southward of her.

As her barometer is rising slowly, this depression is probably continuing in an easterly direction at greater speed than her own, but the slow-rising barometer at Corunna and St. Mathieu, Brest, do not as yet confirm an easterly movement, though further east at Bordeaux the mercury is falling.

Losada, steaming S. 48° W., 11 knots, across the front of this depression, has had a falling barometer, and *Aba* on a nearly opposite course, N. 27° E., 13 konts, also across the front of the depression, has had a falling barometer, while *Matheran*, steaming S. 19° W., 11 knots, not far to the north-west of Corunna, has a steady barometer.

We must remember that though the expressions rising or falling are used, the reports really give us what the barometer has done in an interval, and during that interval the ship was changing her position.

The tendencies observed by *Catalina*, and reported by *Losada*, *Aba* and *Matheran*, allowing for courses and speeds, give a very good indication that the depression is moving to the eastward.

Catalina is, however, more concerned with the depression to the north-west which, with the distribution of pressure existing, is most likely to follow in the wake of the last, though it should be noted that the barometer is falling slowly at Malin Head and Wick, while it is steady, or rising slowly, at Valencia, Holyhead, Dungeness and Spurn Head.

Now *Vellavia* in rear of this depression steering N. 88° E., 11 knots, has barometer steady, an indication that the depression may be moving eastward at about her own speed.

Alpine Range to the southward of the depression steering N. 67°E., 10 knots, has barometer falling slowly, and *Menominee* to the south-east of depression, has barometer falling slowly when steering N. 78°E., 16 knots; and *Melita* steering N. 78°W., 18 knots, still under influence of eastern depression and approaching the position of the westerly **Low**, has barometer steady.

From all these tendencies, allowing for the effect of course and speed upon each, it is indicated that the western depression is moving in a direction to the southward of east.

Catalina may therefore expect, steering N. 70°E., 10 knots, to maintain a position between the two depressions where she may expect light winds from the northward or southward according to which depression the wind circulation is due, and the weather is likely to remain clear in the rear of the eastern **Low**.

If the western depression overhauls her, it is probable from the wind circulation and temperatures reported by *Vellavia* and *Alpine Range*, that the visibility will remain good because the air will have come from over cold water to warmer water, and so have been gradually warmed in its passage. The sky is likely to be cloudy or overcast.

It must be clearly understood that the passage of air from cold to warmer water under all circumstances will not produce good visibility, indeed there are conditions when this process may actually produce fog, but, generally speaking, when associated with the rear of a depression, such a circulation and temperatures may often bring clear weather, while the passage of air from warm to colder water is often associated with fog.

According to the log, *Catalina* was in Latitude 48° 10′ N., Longitude 18° 15′ W., at noon on August 5th, and there were light and variable airs with sky $\frac{8}{10}$ths covered with Strato-Cumulus; the barometer fell very slowly.

At 4 p.m. light N.E. airs, clouds practically stationary. In the first watch Cumulus and Strato-Cumulus moved slowly from west. Light airs and calms, with overcast sky, continue until 4 a.m., when the wind is south, force 2, and the barometer has fallen to 1010 mb. (29·83 in.); the ship is now under the influence of the westerly depression.

On the morning of August 6th, Chart XXXVI, which, when compared with that of the previous day, will be of more value. It will be seen that the eastern depression travelled E. by N. $\frac{1}{2}$ N. some 400 miles, and is now centred between Brest and Jersey. The western depression has moved about 250 miles east-south-east.

Catalina is shown by the Chart to be in front of the western depression, which is advancing at greater speed than her own. With exceptional visibility reported by *Kroonland*, 140 miles N.W. by W., and temperatures with wind favourable to good visibility reported by *Melita*, *Alpine Range* and *Aquitania*, the prospects of the weather remaining clear, though there will probably be showers, as the right semi-circle of the depression passes over her, are excellent, and clear weather is forecasted for the following morning in the vicinity of the Bishops.

According to the log the weather remained fine until 8 a.m. on August 7th, when for an hour there were passing showers of light rain. The visibility was 8 or 9 by scale throughout.

Chart XXXVII is made in the forenoon of August 7th; the western depression has travelled east-south-east, 350 miles, and spread, and is dominating the weather from the western coasts of the British Isles to 30° W. and as far south as Latitude 40° N. The barometer tendency of stations from Brest, northward, indicate that the depression is still moving eastward.

The report of visibility at St. Mary's, Scilly at 7 a.m. G.M.T., indicated 7 by scale, *i.e.*, good, or about 10 miles; at this time there was rain at the station.

At 10.30 a.m. the Bishop Lighthouse was sighted bearing N. 53° E., distant 20 miles.

Fog, when will it lift ?

On the morning of August 6th, 1922, R.M.S. *Ormonde*, Commander H. G. Staunton, C.B.E., R.N.R., from Gibraltar to Plymouth, was in fog off the Portuguese Coast and would like to know when it will lift, and if, when it has cleared, it will remain so, along her route ?

All who have navigated the West Coast of Portugal are familiar with fog in patches during the summer months, when the ship may be enveloped in a dense fog bank at one moment, and in the next there may be extreme visibility, conditions which are most dangerous for collision.

A glance at Figures 30, 31, 32, 33 and 34, mean sea surface temperature for every two degrees of Latitude and Longitude, will give an indication of a frequent cause.

Close in to the coast the water is colder than to seaward under average conditions, and on occasions this is even more marked.

Now if the drift of the air is from the west over warm water gradually becoming cooler, it will become saturated, so that on reaching the coastal region, where the fall in sea temperature is steep, not only will condensation take place, but the air near the surface will be so quickly cooled, that convective currents will fail to take the moisture aloft, and it will remain in fog banks at the surface.

Ormonde arrived at Gibraltar at 6.12 a.m. and left again at 9.48 a.m. August 5th. Supposing that she had been able to intercept the reports, and had made Chart XXXVI, although there are no observations off the West Coast of Portugal, she would have known from the general pressure distribution shown that light airs and calms might be expected, with conditions favourable for the formation of fog.

In the middle watch there was extreme visibility, and Cape Roca Light was sighted, distant 47 miles. At 6.22 a.m., when Cape Roca was abeam, dense fog set in.

From the reports on the morning of August 6th, Chart XXXVI, it will be noted that S.W. of St. Vincent, *Deseado* reports exceptional visibility, light S.W. airs, air temperature 72°, and sea 65°. *Matheran*, some 60 miles North of *Ormonde*, has fog, light S.W. airs, air temperature 66°, and sea 65°. All over the region off this Coast very similar conditions are probable, while the wind reported by *Losada*, and the Azores indicates that the air supply is coming from the westward.

It has been shown that the westerly depression is moving east-south-east, and as it advances the wind will freshen from the westward off the North-West Coast of Spain, and there any fog which may exist will be dispersed. *Ormonde* may therefore expect fog as far north as Cape Finisterre, thence to the Channel the visibility is likely to be good.

According to the log, *Ormonde* had fog in patches throughout the forenoon of August 6th, and clear weather from Latitude 40° N., when there was a light N.N.W. breeze which backed to W.S.W. after passing Cape Finisterre, when the shore lights were visible outside their range. Ushant Light was sighted at 11.30 p.m. on August 7th, visibility very good, there being a gentle S.W. breeze with blue sky and cloudy.

Fog, associated with Mixing of Cold and Warm Winds, or Light Airs.

Fog may frequently occur near the boundary between contrary winds, and this is sometimes seen in the North Sea when a depression over England causing southerly winds in its front is accompanied by a secondary, bringing light and relatively cold northerly airs in rear; the mixing of these winds often taking place at the coast, where they produce a fog of short duration.

A **Col** frequently produces conditions which cause fog. The fog which prevailed from May 18th to 20th, 1922, when R.M.S. *Egypt* was sunk in collision with the S.S. *Seine*, off Ushant, originated in the air circulations meeting in a **Col** off the coast of Portugal, lying between two anticyclones.

Chart XXXVIII, morning of May 19th, 1922, shows the conditions. From this it will be seen that air drawn from the eastward of the Azores was blowing from warm to cooler water round a **High**, and meeting air coming over from Spain, and Southern France, to the south-east of another **High**, in the **Col** where *Hororata* and *Desna* were in fog. The mist and fog further northward are probably more due to the usual cause of sea fog.

Local Fogs.

Chart XXXIX, morning of August 8th, 1923, shows that there was a large shallow depression centred to the northward of Latitude 57° N. near the 28th meridian of West Longitude. A **wedge** of High pressure extended northward of Madeira to latitude 45° N. and there was an **anticyclone** over France, with a **col** over the Bay.

The tendencies of the barometer at British stations, and those of ships to the westward, allowing for their courses and speeds indicate

that the depression is probably moving to the N.E. or filling up, while those reported at Portuguese stations, and by ships in the vicinity of the **Wedge**, indicate that it (the wedge) is probably spreading north and intensifying.

Fog is reported at Corunna, in the **Col**, probably due to radiation during the night.

Clan Sinclair, off Lisbon, with a light westerly air, has mist, and *Bosworth*, to the westward of Scilly, with a fresh S. by E. breeze, haze; there is fog at Holyhead; no other reports indicate the presence of obscurity other than that caused by rain.

The conditions are such from Madeira to the Channel, that fog may occur if the wind comes light from the southward, and morning fog may spread in the vicinity of Corunna should light airs off the land continue. Let us continue our deductions from the point of view of an individual ship. S.S. *Woodarra*, Captain J. V. REILLY, from Las Palmas to Dublin, provides an example. She had a light N.N.E. air in the **Col**, with sea temperature one degree higher than air. *Bosworth*, some 260 miles ahead, and to the westward of Scilly, in haze, with a fresh S. by E. breeze, reports air temperature 62° and sea 61°. Here, if the wind falls light, it is highly probable that fog will form. Now with the depression moving to the N.E., or filling in, and the **Wedge** spreading northward, pressure is generally rising over the Eastern North Atlantic; a shallower barometric gradient may be expected near Scilly, and the isobars may be expected to trend more east and west which will result in the wind falling light and coming more from the westward; thus, the air at Scilly to-morrow morning will probably have come a considerable distance over a sea surface in which the isothermal gradient may be expected to lie more or less athwart its course. The air will become saturated with moisture followed by condensation. According to *Woodarra's* log, the wind became southerly at noon, a light air, at 4 p.m. it was S.S.W. force 3, at midnight S.W. by S. force 3, and at 1.20 a.m. they ran into thick fog; at 2.30 a.m. a light drizzle commenced which ceased at 3 a.m., when the visibility slightly improved, and at 4.5 the fog thickened again

CHART XL, for morning of August 9th, 1923, indicates that there is low pressure to the northward of the Trans-North Atlantic tracks; the **Wedge** has spread to the northward, and depressions appear to the N W. and S.E. of it. The fog experienced by *Woodarra*, with the conditions shown, we should expect not to cover an extensive area, and it will be noted that good visibility is reported at St. Mathieu, Brest, and at Jersey.

For the prediction of wind and general weather conditions, southern trading vessels look for reports from ships to the westward along the Trans-North Atlantic routes. By this example it will be seen that reports of these vessels will be of considerable value to Western Ocean ships.

When we were collecting views for framing the " Weather Shipping Bulletin " so that it might fulfil as many purposes as possible, the Commodores of two great Atlantic services pointed to the need for visibility reports at the Scillies and Channel Islands. *For*, said they, *when bound for Cherbourg, we could shape a course to make a landfall at the Bishops or Casquets, according to what visibility there was on either side of the Channel.*

Oriana, off Vigo, has fog with a light N.E. breeze, but ships further off the land, and to the southward, are reporting clear weather, there being fresh north-easterly winds along this part of the Madeira route.

The observations of *Manchester Corporation*, *Metagama*, and *Montrose*, all on the Tory Island route, afford a good example for tracing the passage of air, and in this case it is passing from cold to warmer water; there is cloud but no fog. Further south, the passage of air cannot be so well traced, and it will be evident how this is complicated by the movement of weather systems.

At 9.30 a.m. *Woodarra* was N.W. of Scilly, the wind veered more to the westward, and the fog lifted; it appears to have been quite local.

S.S. *Traveller*, Captain E. W. JONES, from Liverpool to Kingston, Jamaica, reported heavy rains, calms and variable airs, accompanied by waterspouts and violent whirlwinds in the morning watch, on August 9th, 1923. At this time *Traveller* was in the centre of the depression, indicated close to the eastward of her on CHART XL. Here, convective currents would be strong, and the conditions would be unfavourable for fog formation.

It will often be found that though conditions which might be expected to produce fog at a place or over an area are present, fog is not present. Enough has been said in this Chapter to show how necessary observations of humidity are for fog prediction.

The humidity of the air is found by calculation from the difference between the temperature observed by the dry bulb and wet bulb thermometers, for which purpose there are tables. A small error in reading, or a false temperature, even though slight, may result in an entirely erroneous humidity.

In CHAPTER II, it was mentioned that until air temperatures were accurately obtained, we cannot measure the humidity: for this reason in this Chapter we have not attempted to find the humidity from the observations of dry and wet bulb thermometers recorded in logs, nor have we suggested including humidity in ship's wireless weather reports.

The standard form of hygrometer screen at present supplied to ships was intended to be fixed in one position, but to obtain accurate temperatures of the air, it is necessary that the screen should be to windward of all sources of artificial heat.

When portable screens become more generally used, it may be possible to obtain the humidity more accurately; meanwhile the need for obtaining as accurate temperatures as possible, of air and sea will be apparent.

By having several positions on or about the bridge for the screen which was made to be fixed, better air temperatures may be obtained.

On several coasts it has been observed that when the prevailing wind drops the current changes; for example, in the July number, in his article accompanying the " Current Charts for the Direct Cape Route," Mr. DURST proved by worked up observations, that off the West Coast of Cape Colony the current normally sets N.W., while the prevailing wind in summer is S.E. Observations throughout all months of the year showed that when the wind fell light or was from the westward, the current frequently sets more towards the land.

Now hereabouts the sea surface temperature is cold, while it is warmer to seaward, so that a surface set towards the land may possibly often be concurrent with fog; thus, just as the navigator is deprived of means of fixing his position by terrestrial bearings, his ship may be being set into danger.

It will be noted that current arrows are plotted in CHARTS XXXV, XXXVI and XXXVII; in a future chapter we hope to be able to show some advantage in charting current reports with weather.

(To be continued.)

WEATHER SIGNALS.

II.—WIRELESS WEATHER BULLETINS.

ARABIA.

Aden W/T Station, approximate Latitude 12° 49′ N., Longitude 45° 02′ E., call sign BZF, broadcasts weather bulletins, en clair, at 0945 and 1745 G.M.T. daily, on a wave length of 2,000 metres (i.c.w.). The bulletins refer to the weather conditions in the eastern portion of the Arabian Sea and are prefixed by the words " East Arabian Sea." They are specified as " daily one " and " daily two " respectively. (*See* " Note " under Ceylon, p. 111, and under W/T Storm Warnings.)

BRITISH INDIA.

Meteorological messages are broadcast *en clair* from stations in India at the following times. The transmitting station will signal the " All Station " call five times before sending the messages, so that ships can correctly adjust their instruments.

Time G.M.T.	Stations.	Position (approx.) Latitude.	Position (approx.) Longitude.	Call Sign.	Wave-length Metres. (spark)	—
0830 and 1630	Karachi -	24° 51′ N	67° 03′ E	VWK	2,000	Specified as " Daily."
	Calcutta* -	22° 34′ N	88° 20′ E	VWC	2,000	
0900 and 1700	Bombay -	18° 57′ N	72° 54′ E	VWB	2,000	Specified as " Daily."
	Madras -	12° 59′ N	80° 11′ E	VWM	1,000	
	Rangoon -	16° 46′ N	96° 12′ E	VTR	1,200	

* After the time signal.

During disturbed or stormy weather additional messages specified

as " Extra " will be broadcast, if necessary, on 600 metres (spark) at the following times :—

0030 G.M.T.; by Karachi, and Calcutta W/T Stations.
0100 G.M.T.; by Bombay, Madras, and Rangoon W/T Stations.

The foregoing messages are also supplemented when necessary by further reports specified as " Storm " during stormy weather. (*See* " Note " under Ceylon and under W/T Storm Warnings.)

CEYLON.

Matara W/T Station, approximate Latitude 5° 59′ N., Longitude 80° 32′ E., call sign BZE, broadcasts weather bulletins, *en clair*, at 0945 and 1745 G.M.T. daily, on a wavelength of 2,000 metres (i.c.w.). They are specified as " daily one " and " daily two " and refer to the Bay of Bengal and Arabian Sea, being prefixed accordingly. (*See* following " Note " and under W/T Storm Warnings.)

NOTE.—The bulletins broadcast by Aden, Indian Stations, Matara and Rangoon emanate in the first place from the Indian Meteorological Department, Simla. Frequently the phrase " Weather normal " is used in the bulletins, and may be preceded by " Arabian Sea " or " Bay," according to which is referred to. It means " as far as coast observations and available ships' reports indicate, there is no reason for thinking that a storm has formed or is forming."

WIRELESS STORM WARNINGS.

ARABIA.

Aden W/T Station, call sign BZF, broadcasts a report specified as " extra," at 0145 G.M.T. on a wavelength of 600 metres, only when disturbed or stormy weather is expected. A further report specified as " immediate " is broadcast on 600 metres wavelength immediately on receipt, on rare occasions only. The warnings refer to the East Arabian Sea.

BRITISH INDIA.

The following stations broadcast messages containing cyclone warnings specified as " Storm," each transmission being preceded by the W/T Danger Signal (TTT). Wavelength used, 600 metres spark, in all cases :—

Karachi,	call sign VWK	at 0430, 1230 and 2030 G.M.T.
Calcutta,	,, ,, VWC	
Port Blair, (Andaman Is.)	,, ,, VTP	
Bombay,	call sign VWB	at 0500, 1300 and 2100 G.M.T.
Madras,	,, ,, VWM	
Rangoon,	,, ,, VTR	

CEYLON.

Matara W/T Station, call sign BZE, broadcasts a report specified as " Extra " at 0145 G.M.T. on a wavelength of 600 metres, only when disturbed or stormy weather is expected. A further report specified as " immediate " is broadcast on 600 metres wavelength immediately on receipt, on rare occasions only. Storm warnings refer to the Bay of Bengal and Arabian Sea.

III.—VISUAL STORM WARNINGS.

BRITISH INDIA.

The undermentioned storm signals known as general, general with additional daily signals, and brief systems have been adopted at the various ports of British India.

Port Officers are kept informed, by the Indian Meteorological Department, of the latest information concerning all disturbances, and application can be made to them for information to supplement the storm signals.

General System.

Distant Signals.

To indicate danger to vessels after they have left the harbour :—

I. Cautionary.—There is a region of squally weather, in which a storm may be forming.

NOTE.—This signal will be hoisted at ports situated with reference to the disturbed weather such that a vessel leaving the port might run into danger during her voyage. It will also be hoisted at Arabian Sea ports when a disturbance is crossing the peninsula which may develop into a cyclone after entering the Arabian Sea.

II. Warning.—A storm has formed.

NOTE.—This signal will be hoisted when there is no immediate danger of the port itself being affected, but vessels leaving the port might run into the storm.

NOTE.—Night Signals { *white* light represented by / *red* light represented by

Local Signals.

To indicate that the port and vessels in it are threatened :—

III. Cautionary.—The port is threatened by squally weather.

IV. Warning.—The port is threatened by a storm, but it does not appear that the danger is as yet sufficiently great to justify extreme measures of precaution.

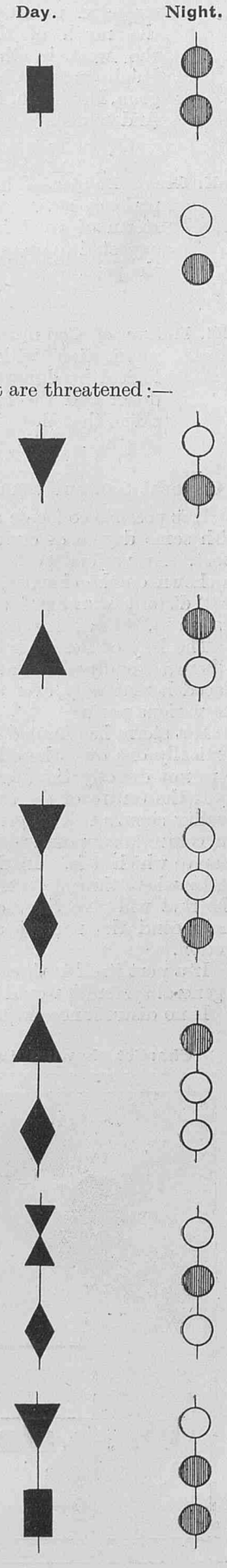
The existence of a storm can often be determined before the direction of its movement can be fixed. In this case all those ports which the storm could possibly strike will be warned by this signal.

V. Danger.—The port will experience severe weather from a storm of slight or moderate intensity that is expected to cross the coast to the south of the port (or to the east in the case of Veraval, the Húgli ports, Diamond Island, Bassein, Rangoon, and the Andamans).

VI. Danger.—The port will experience severe weather from a storm of slight or moderate intensity that is expected to cross the coast to the north of the port (or to the west in the case of the Húgli ports, Chittagong, Rangoon, Moulmein, Karachi, and the Andamans).

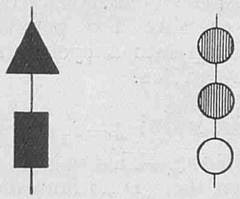
VII. Danger.—The port will experience severe weather from a storm of slight or moderate intensity that is expected to cross over or near to the port.

VIII. Great Danger.—The port will experience severe weather from a storm of great intensity that is expected to cross the coast to the south of the port (or to the east in the case of Veraval, the Húgli ports, Diamond Island, Bassein, Rangoon, and the Andamans).

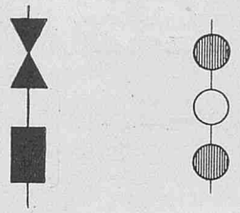


Day. Night.

IX. Great Danger.—The port will experience severe weather from a storm of great intensity that is expected to cross the coast to the north of the port (or to the west in the case of the Húgli ports, Chittagong, Rangoon, Moulmein, Karachi, and the Andamans).



X. Great Danger.—The port will experience severe weather from a storm of great intensity that is expected to cross over or near to the port.



XI. Failure of Communications.—Communication with the Meteorological headquarters has broken down and the local officer considers that there is danger of bad weather.

General System with Additional Signals, Bay of Bengal.

It is possible to locate an area of bad weather in the Bay of Bengal with some degree of certainty, even though it may be far from the coast. At various ports a " Section " signal for the area affected, as shown on the chartlet, is hoisted *under* the " distant cautionary " or " distant warning " signals (Signals I and II of the " general system ").

The Bay of Bengal is divided into six sections, see Chartlet, thus, if there is squally weather in Section 5 of the Bay the signal, a cylinder placed horizontally over a cone, point upwards, would be hoisted at the various ports.

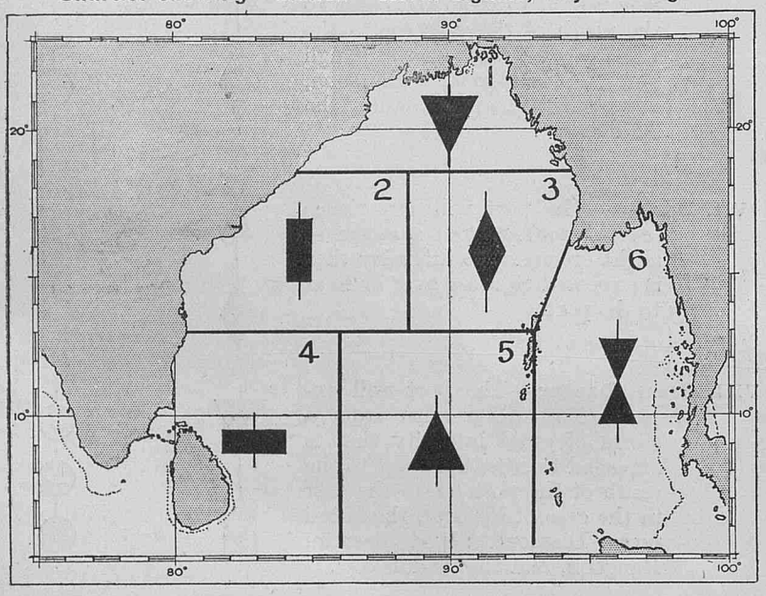
If a storm has formed in Section 2, the signal, two cylinders placed vertically one over the other, would be hoisted at all the ports which were not directly threatened.

If the centre of the storm is near the boundary of a section, two locality signals will be given, the first indicating the section in which the centre is supposed to be, and the second the neighbouring section near to which it is. In the event of a storm centre being near to the angles where three sections meet, three locality signals will be hoisted. The first will give the section in which the storm is supposed to be, the second the nearest adjoining section, the third the remaining section.

If a port itself is threatened the appropriate " local " signal of the " general system " would be hoisted.

If no disturbance exists in the Bay of Bengal a *ball* will be hoisted.

Chartlet showing " section " storm signals, Bay of Bengal.



This system is in force at the following ports :—

Negapatam, Porto Novo, Cuddalore, Madras, Cocanada, Sagar Island, Chittagong, Akyab, Bassein, Diamond Island, Elephant Point, Rangoon and Table Island.

The signals are not exhibited at the Sandheads, but information is available for passing vessels.

Brief System.

In the brief system only the four following signals will be hoisted, but the Port officers will be kept informed of the progress of bad weather for the general information fo shipping :—

Signal No. III. Cautionary
Signal No. IV. Warning
Signal No. VII. Danger
Signal No. X. Great Danger

} Meaning day and night signals as in the General System.

Special Signals used on the Rivers of the Ganges Delta, and River Húgli.

These signals are the same as those mentioned in the " general system," but a more detailed signification of certain of the signals is as follows :—

Signal V. indicates that a storm of slight or moderate severity will probably cross the coast to the eastward of Sagar Island and westward of Chittagong. Vessels may proceed to sea if the height of the barometer, state of the sea, and weather, are such as to lead masters and pilots to infer that there is no danger. The wind at the mouth of the Húgli will probably haul from north-east, through north, to north-west or west.

Signal VI. indicates that a storm of slight or moderate severity will probably cross the coast to the westward of Sagar Island and northward of False Point. The wind at the mouth of the Húgli will probably veer from north-east, through east, to south-east or south. As these easterly winds will raise a heavy swell and produce a strong westerly set in the channel at the Sandheads, it is advisable that none but fast steamers in light trim should put to sea, and those only if the weather appearances and state of the sea are not too unfavourable.

Signal VII. indicates the approach towards Sagar roads of a storm of slight or moderate intensity. It is advisable that no vessels, except fast vessels in light trim, should put to sea until the wind direction and force, the state of weather and sea, and the rise of the barometer indicate that the storm has either broken up or passed inland. It should be remembered that cyclonic storms of small extent in the Bay of Bengal sometimes blow with hurricane force, and raise a high sea near their centres.

Signal VIII. indicates that a storm of great intensity will cross the coast to the eastward of Sagar Island and westward of Chittagong. No sailing vessels, nor deep-laden, nor slow-steaming vessels should go to sea. The wind at the mouth of the Húgli will probably shift from north-east to north, north-west, etc.

Signal IX. indicates that a storm of great intensity will cross the coast to the westward of Sagar Island and northward of False Point. No vessel should go to sea, and masters and pilots of vessels outward bound should be guided by the appearance of the weather and height of the barometer in deciding whether it is advisable to proceed below Diamond Harbour or Mud Point. The wind at the mouth of the Húgli will probably veer from north-east, through east, to south-east or south.

Signal X. indicates the approach of a storm of great instensity towards the mouth of the Húgli, and Calcutta. No vessels should go to sea from Sagar Island, or proceed down from Diamond Harbour, and all vessels should be properly secured.

The above signals are exhibited at Barisal, Goalunda, Noakhali, Narayanganj, Chandpur, Khulna, Sagar Island, Mud Point, Diamond Harbour, Calcutta (Port Commissioner's Office), Kidderpur Docks (Clock Tower), Budge Budge (Assistant Harbour Master's House).

Instructions to hoist the signals are sent by telegram from the Meteorological Department, Calcutta.

WEATHER CHART, MORNING OF 19TH. MAY, 1920.

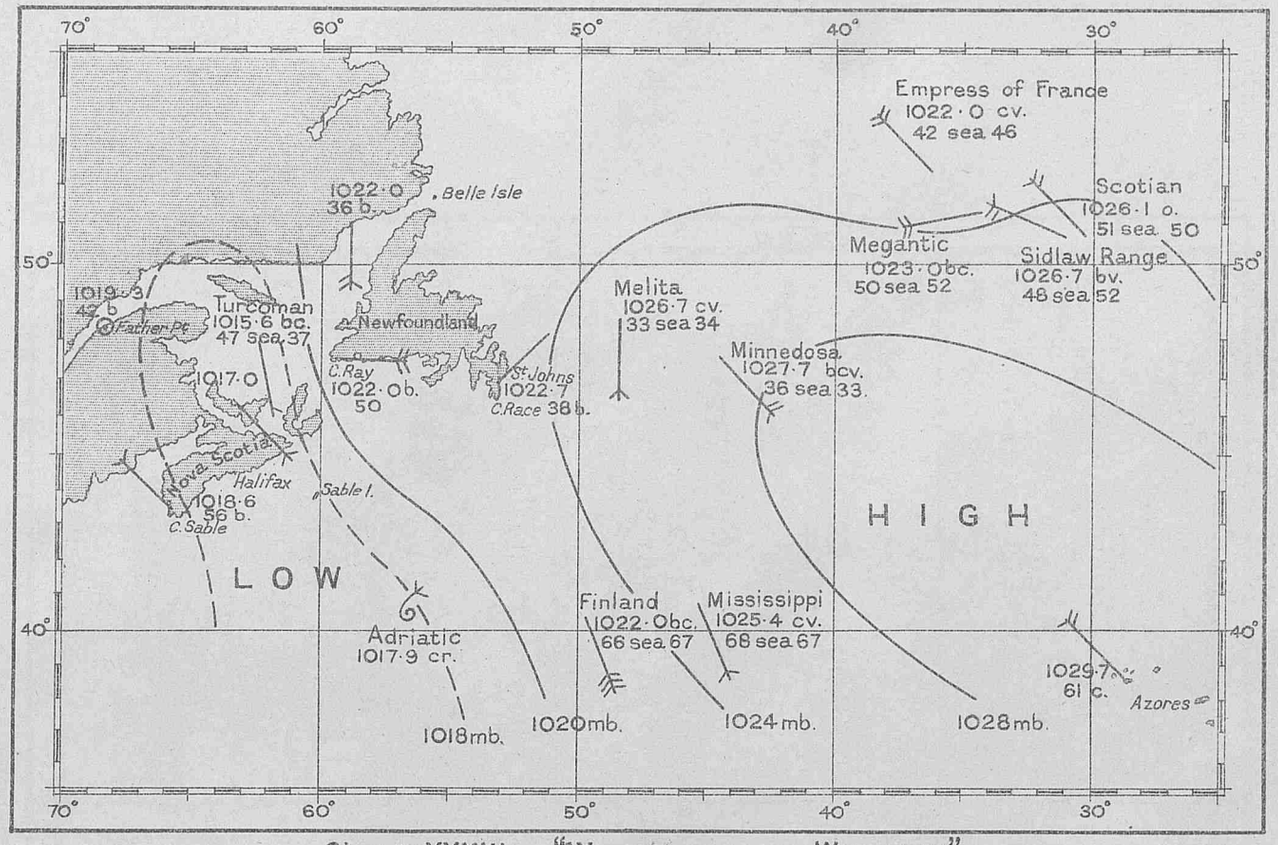


Chart XXXIII — "WIRELESS AND WEATHER."

WEATHER CHART, EVENING OF 19TH. MAY, 1920.

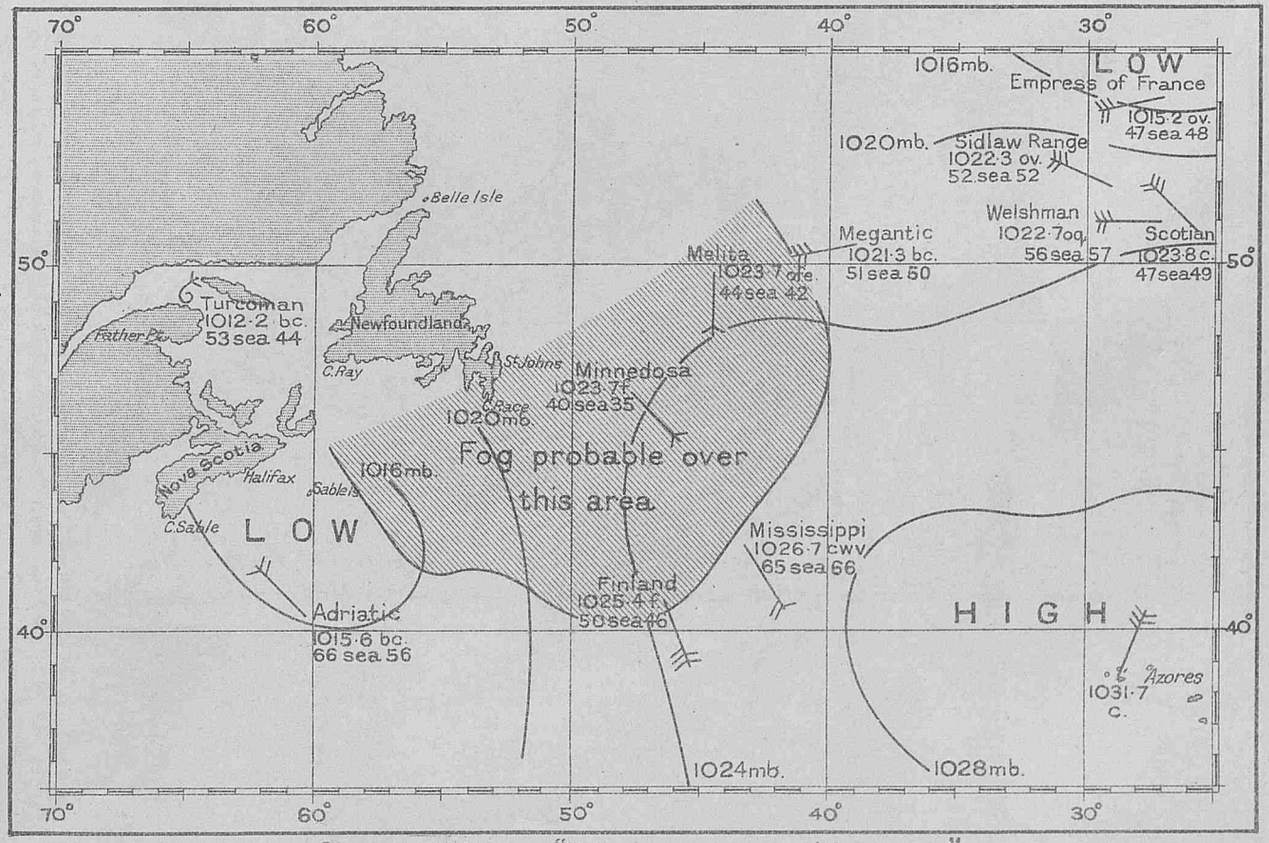


Chart XXXIV — "WIRELESS AND WEATHER."

Morning of 5th August, 1922.

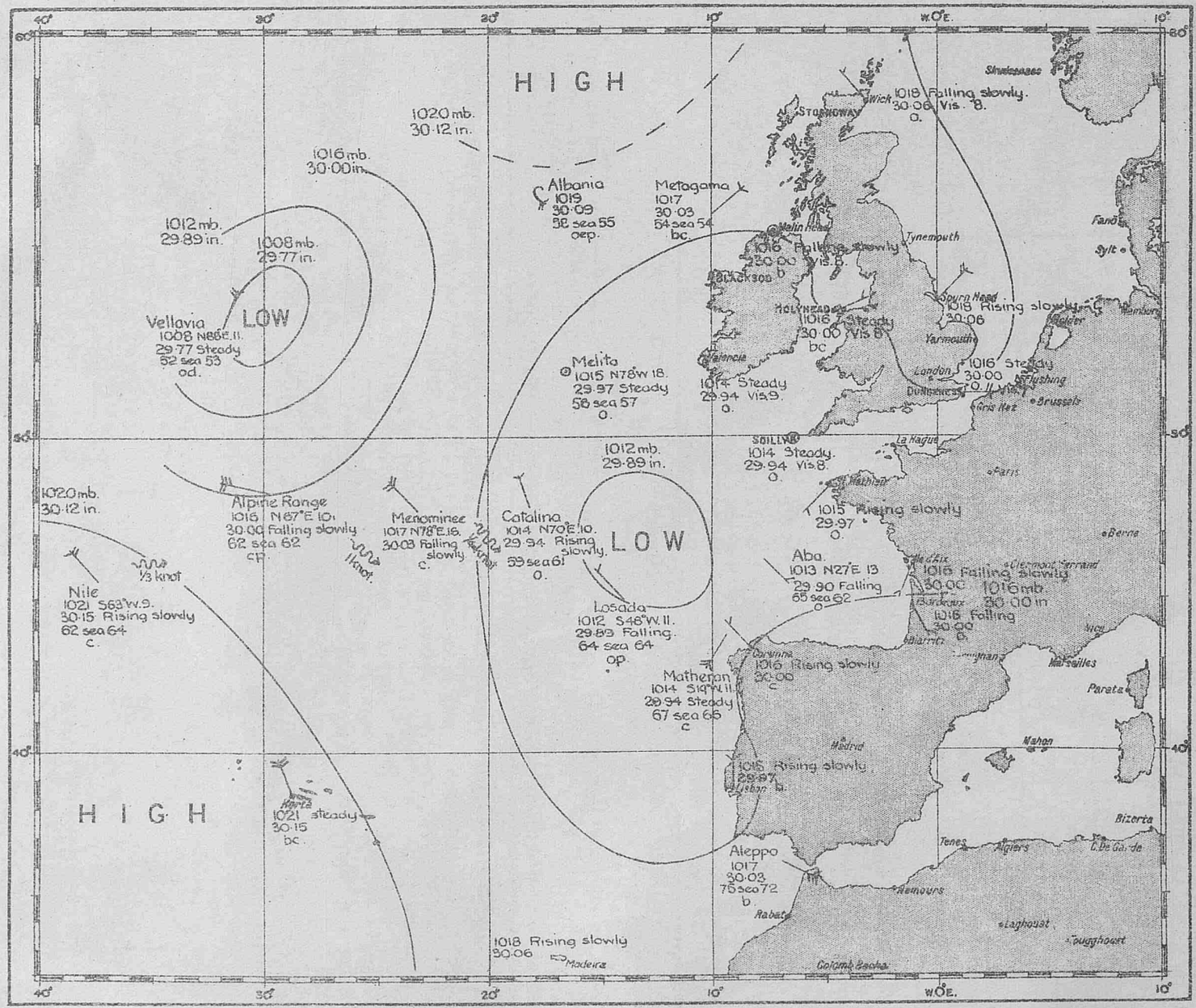


Chart XXXV—"WIRELESS AND WEATHER."

Morning of 6th August, 1922.

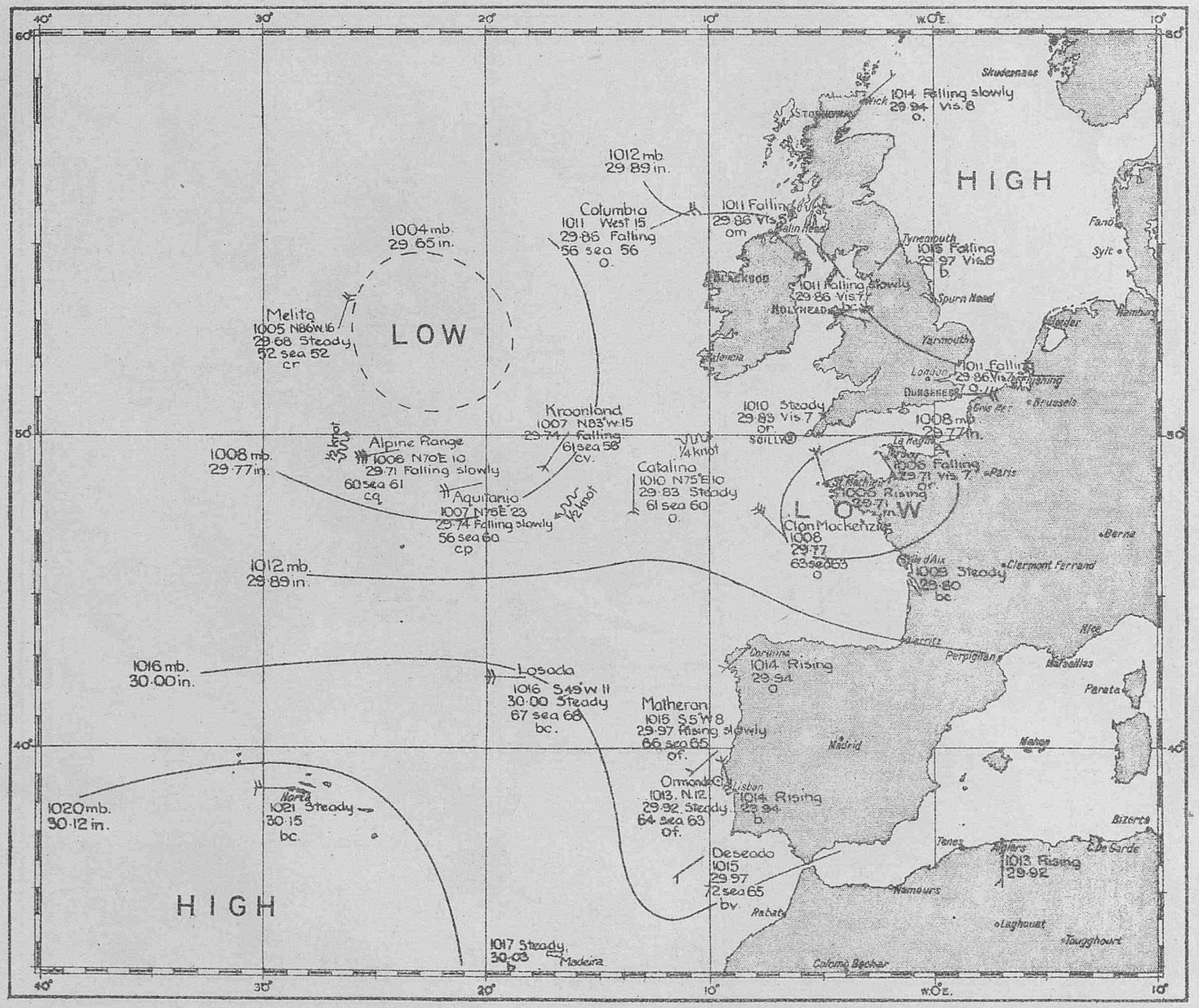


Chart XXXVI — "Wireless and Weather."

Morning of 7th August, 1922.

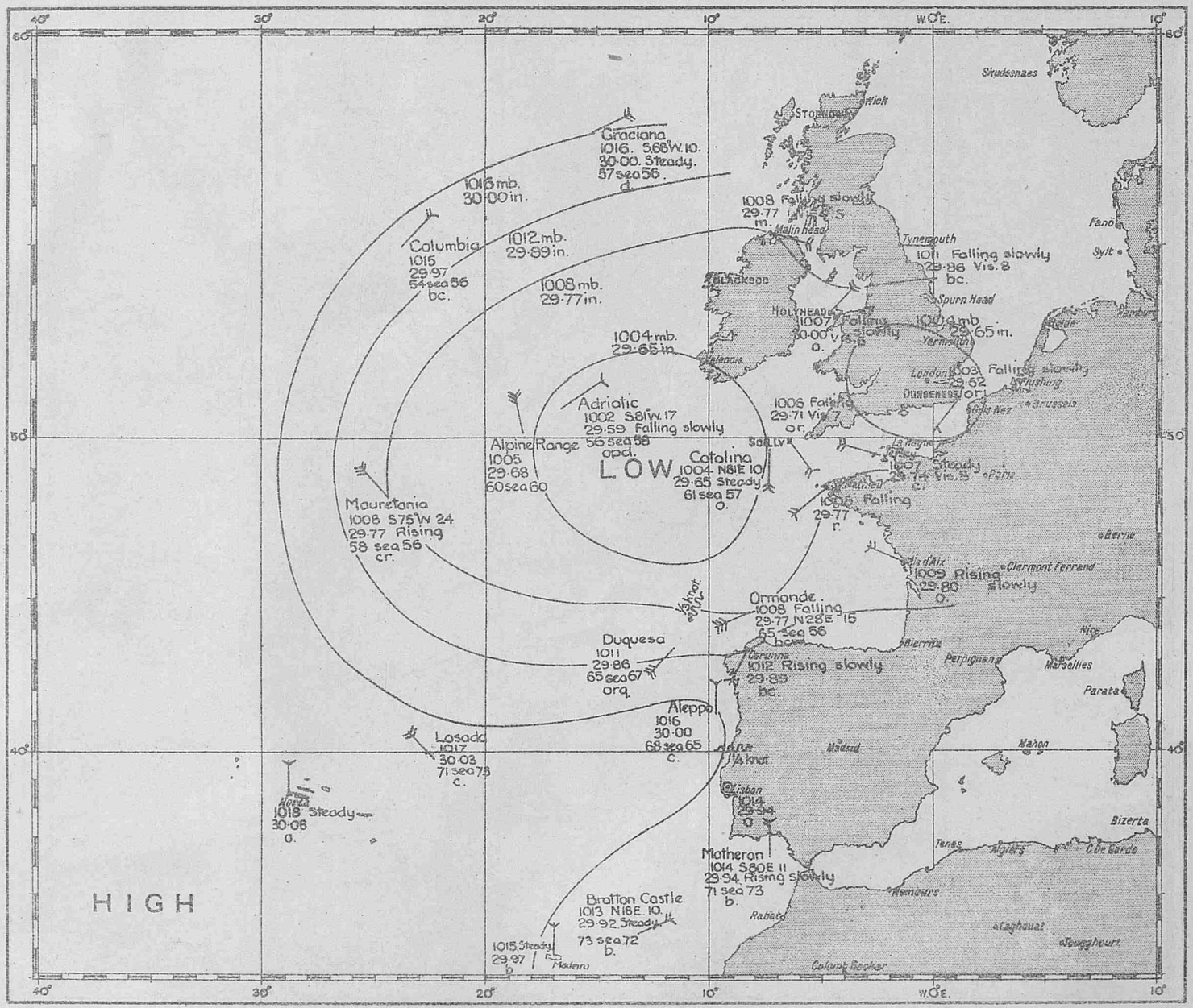


Chart XXXVII — "WIRELESS AND WEATHER."

Morning of 19th May, 1922.

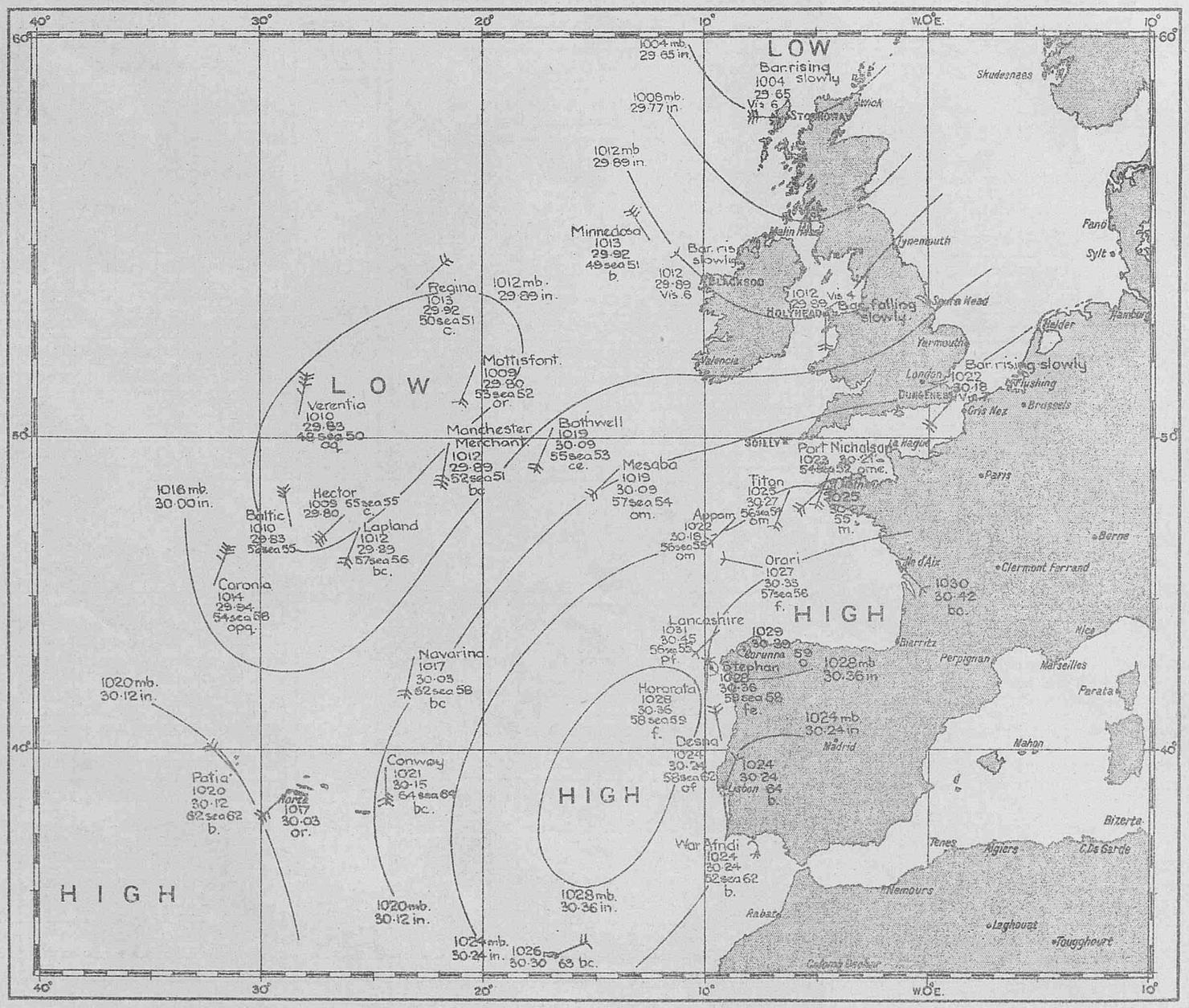


Chart XXXVIII — "Wireless and Weather."

MAY.
Mean Sea Temperatures. Western North Atlantic.

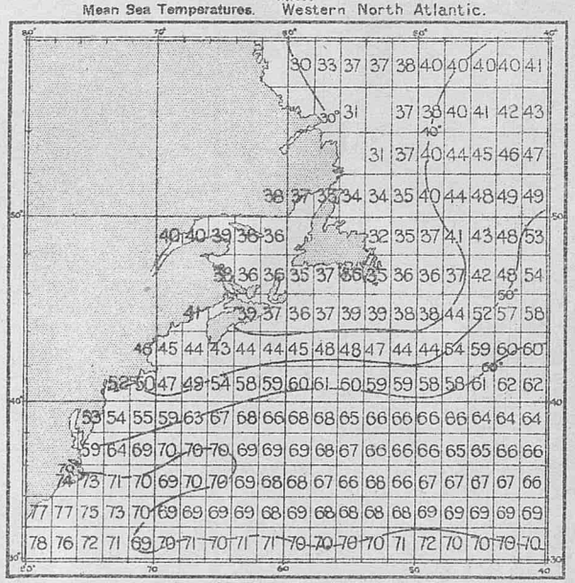


Fig. 29.

MAY.
Mean Sea Temperatures.

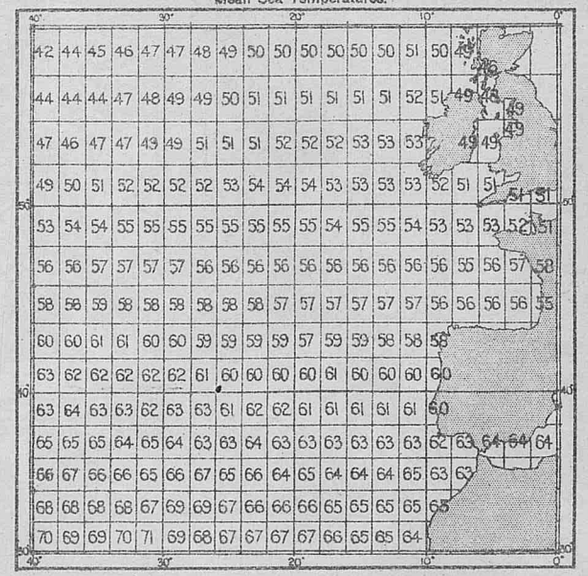


Fig. 30.

JUNE.
Mean Sea Temperatures.

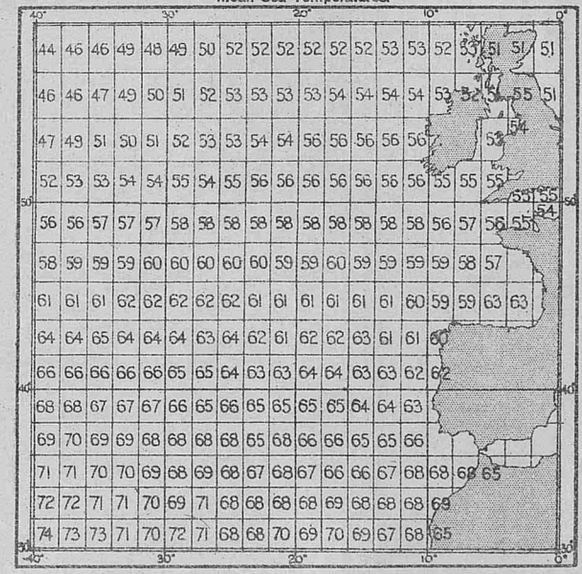


Fig. 31.

JULY.
Mean Sea Temperatures.

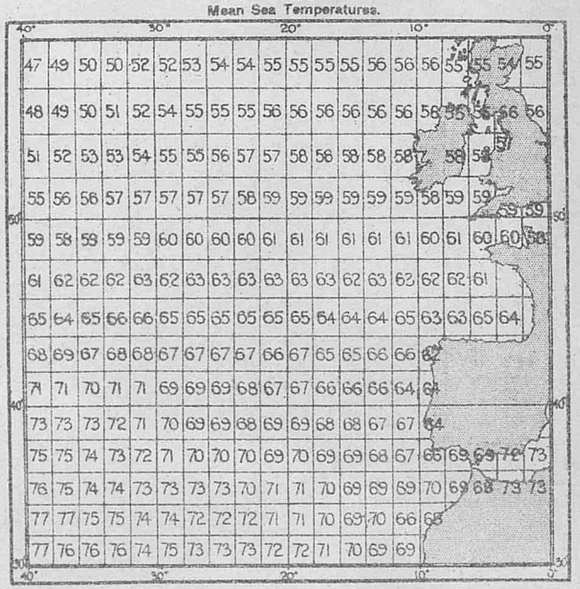


Fig. 32.

AUGUST.
Mean Sea Temperatures.

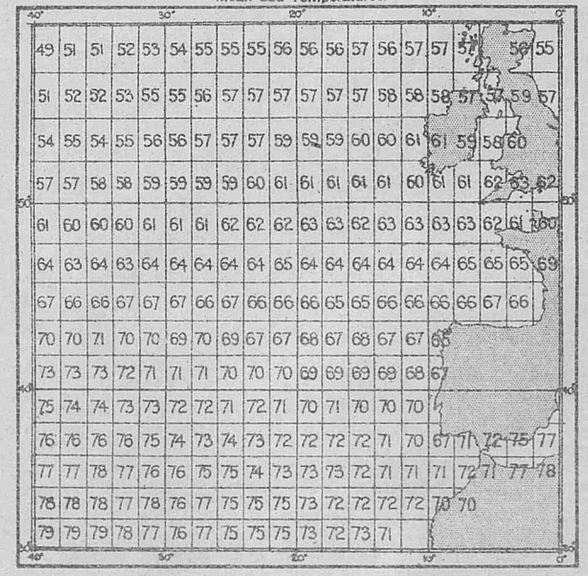


Fig. 33.

SEPTEMBER.
Mean Sea Temperatures.

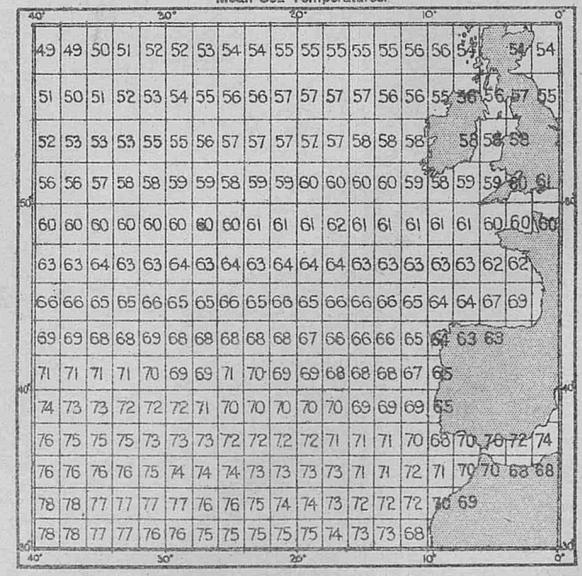


Fig. 34.

WEATHER CHART, MORNING OF AUGUST 8TH. 1923.

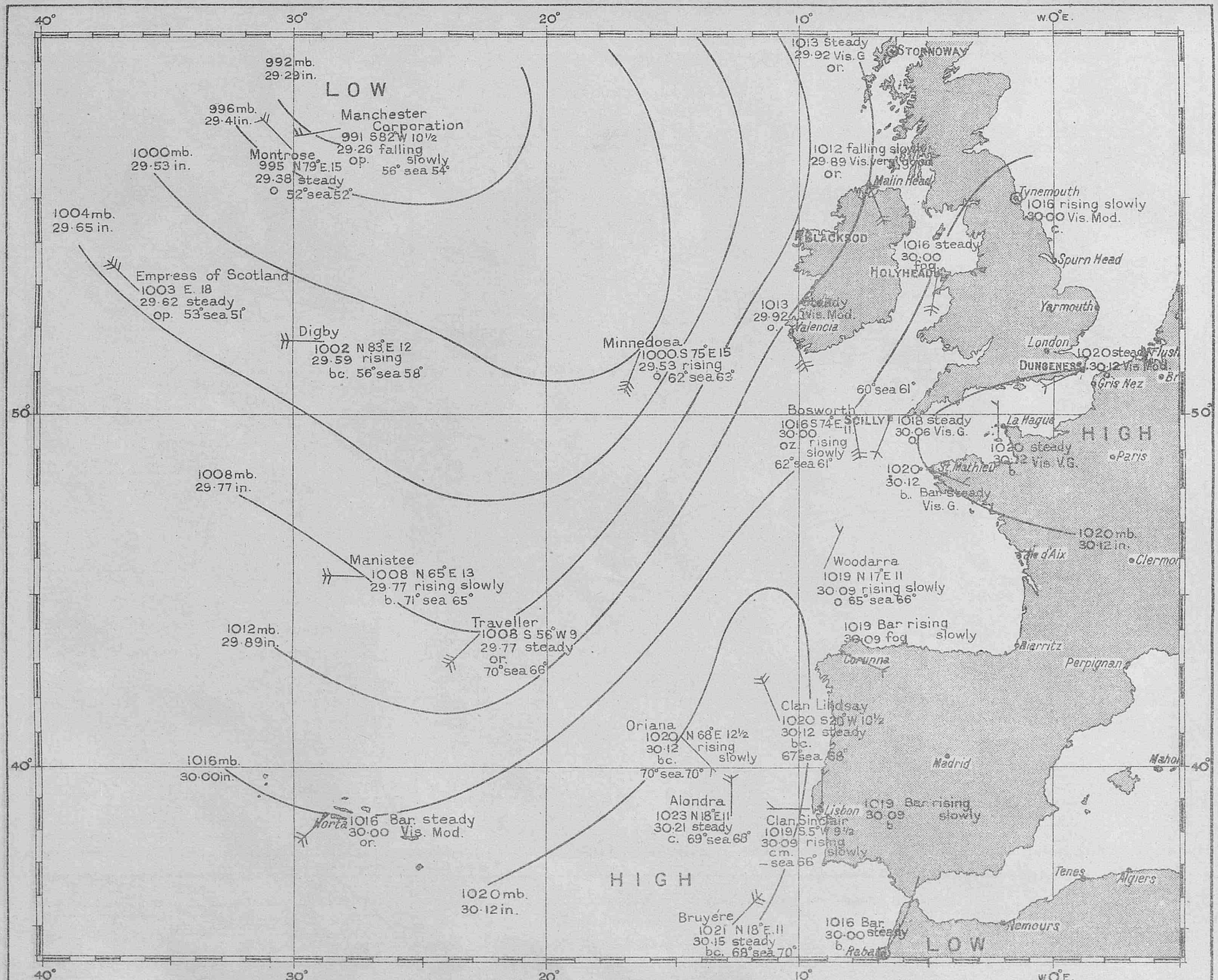


Chart XXXIX—"WIRELESS AND WEATHER."

WEATHER CHART, MORNING OF AUGUST 9TH. 1923.

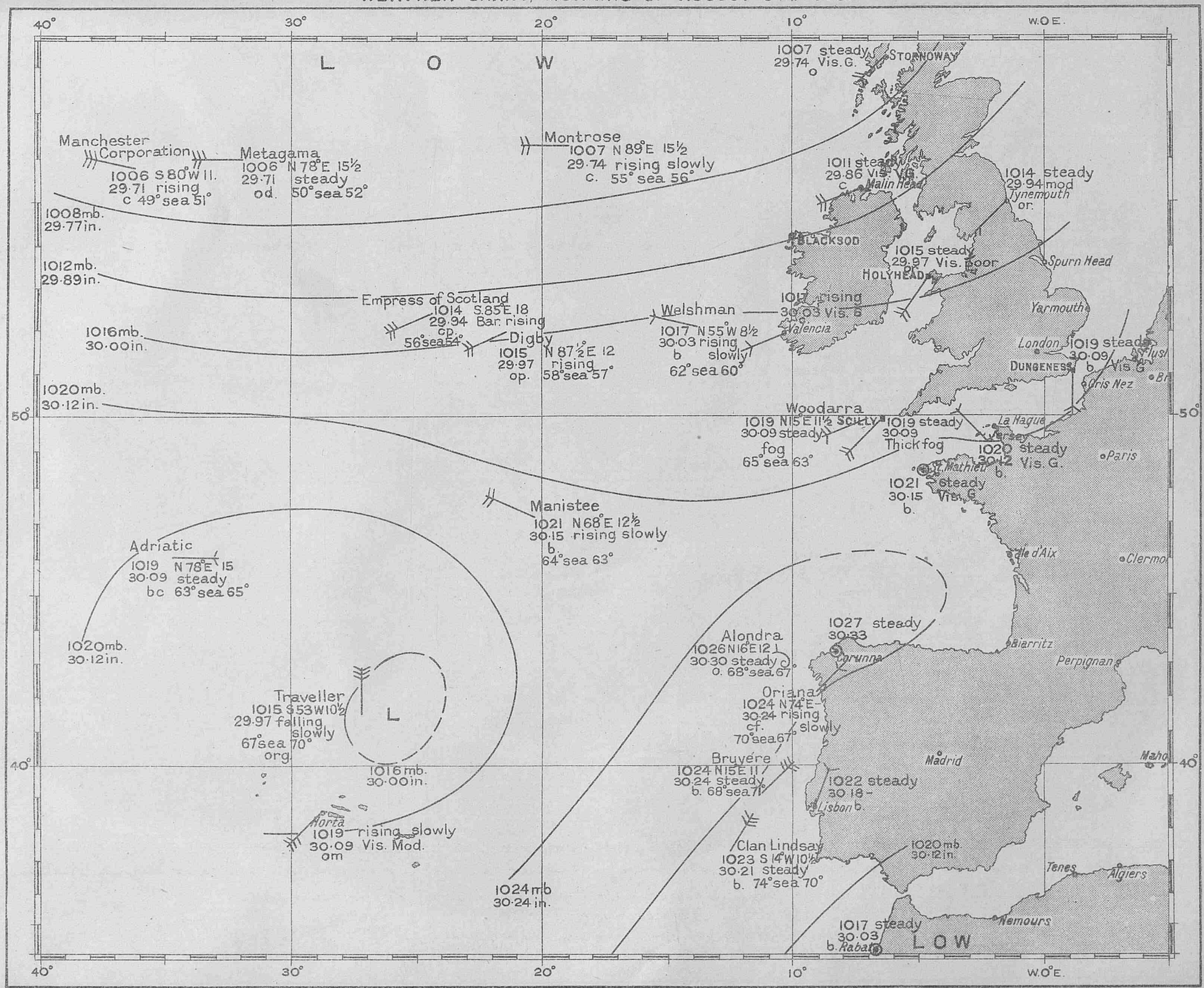
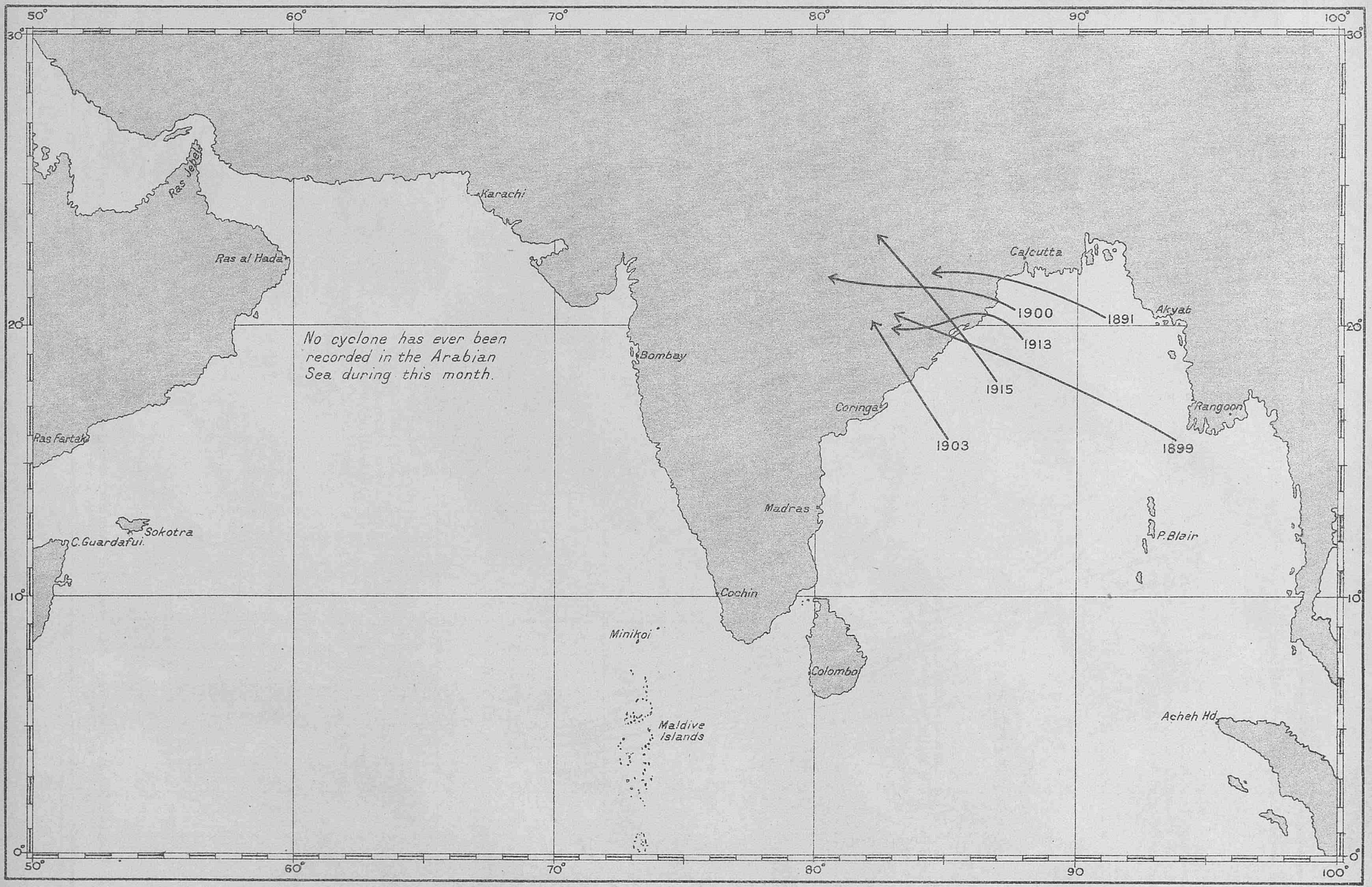


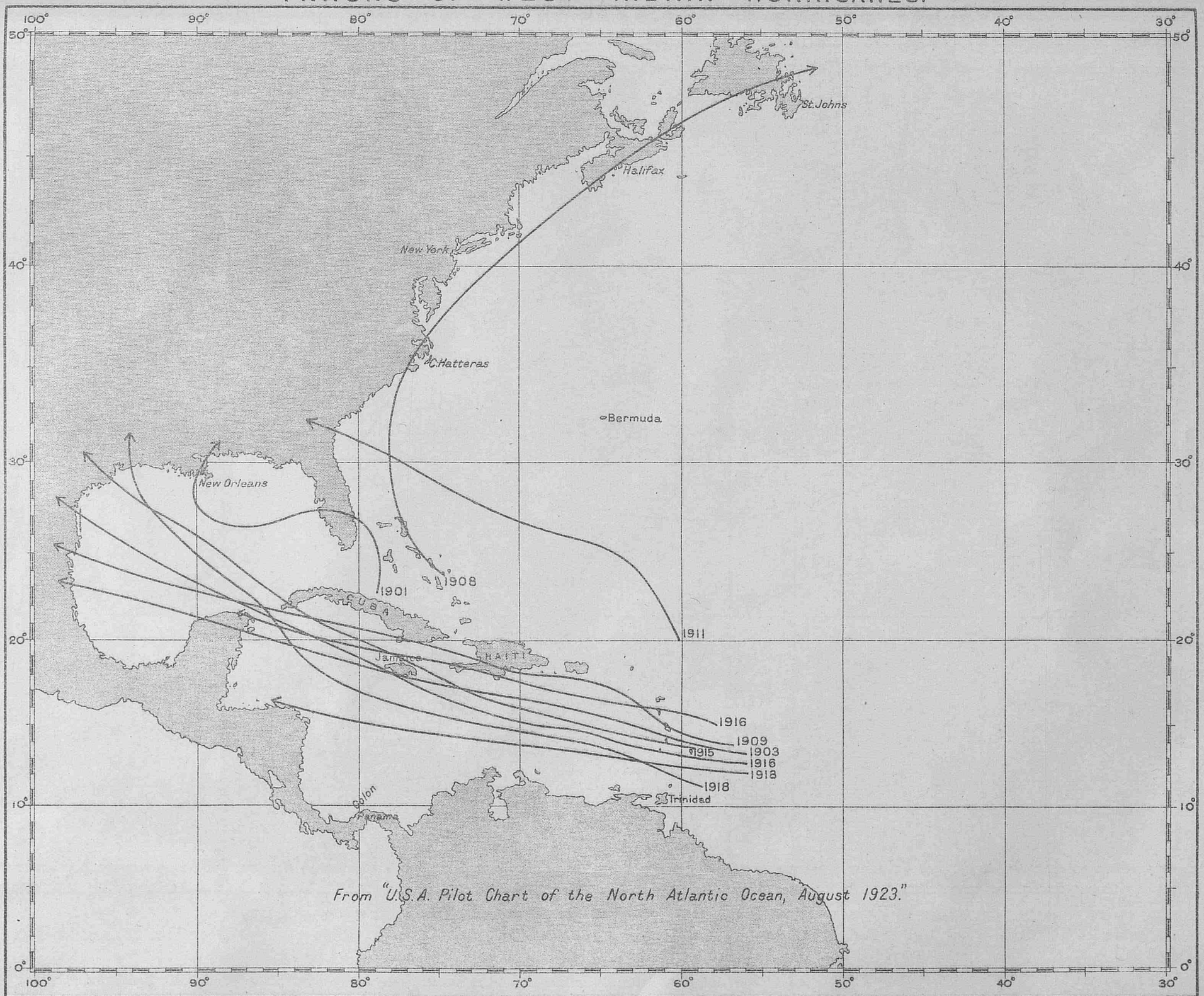
Chart XL — "WIRELESS AND WEATHER."

CYCLONE TRACKS OF THE ARABIAN SEA AND BAY OF BENGAL.



Tracks of cyclones which have occurred in the Bay of Bengal during the month of August.
The year is indicated by the figures at commencement of track.
From "Monthly Meteorological Chart of the East Indian Seas" and "U.S.A. Pilot Chart of the Indian Ocean," for the month of August.

TRACKS OF WEST INDIAN HURRICANES.



From "U.S.A. Pilot Chart of the North Atlantic Ocean, August 1923."

Tracks of Hurricanes which have occurred in the West Indies during the month of August. The year is indicated by the figures at the commencement of track.

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

Pe.1983/940.W.894.A. D.10194/pr1286.1400.6/24.

WEMBLEY EXHIBITION.

The Meteorological Office has a section at Wembley, the entrance to which will be found at the back of the Government Pavilion.

Included with the exhibits are the Meteorological Log kept in H.M.S. *Thrush*, when HIS MAJESTY the KING, then Captain PRINCE GEORGE, commanded that ship. Logs kept in H.M. Ships *Terror* and *Erebus*, Captain J. C. ROSS, Antarctic 1841–1843; ship *Gloriana*, Captain H. TOYNBEE, 1856–1857; cable steamship *Stephan*, Captain G. F. CARLTON, 1924.

IMPORTANT.

Marine observers are earnestly requested to exercise every precaution in the care of instruments lent by the Meteorological Office.

It is requested that the Captains and Officers will give the Port Meteorological Officers assistance when they visit the ship, by having all instruments accessible for their inspection.

In the event of breakages or losses, the broken parts should be handed to the Port Meteorological Officer or Agent at the ports, with a brief and clear account of how the breakage or loss occurred.

CURRENT OBSERVATION.

It is very desirable that good current data should be recorded. Spaces are provided for current experienced throughout the day and for current determined at shorter intervals in Meteorological Logs, while Form 911 (late 121) provides for either or both.

Generally the difference between the *Dead Reckoning Position* at noon, reckoned from previous noon, and the *observed position* has been accepted as attributable to a single current for the whole 24 hours.

It is necessary to make careful distinction between *Dead Reckoning Position* and *Estimated Position*, the former being the position as reckoned from the last fix by courses steered and distances run, corrected for all known errors and disturbances *except* current. When a fix cannot be obtained, an estimation for current (when one is known generally to exist) is sometimes applied to the D.R.; the result may then be conveniently termed the *Estimated Position*.

If this estimated position is given in the Meteorological Log or Form 911 (late 121), *it should be clearly stated*, otherwise it may be misleading.

Currents of varying velocity and direction may be experienced along the track made in 24 hours; therefore, when reliable fixes such as by Stellar observations at twilight are obtained, the current should be determined for the intervals, and all should be checked with the noon to noon result. Each of these currents determined at shorter intervals than 24 hours should be entered in the Meteorological Log in the appropriate column, and the time and latitude and longitude of each observation position should be given in the latitude and longitude columns. The times given on Form 911 (late 121) indicate the interval. The period of short interval currents should usually not be less than, say, six hours. The best interval is probably from twilight to twilight.

It is desirable that whenever possible two methods of ascertaining the distance run through the water should be used, as recent investigation goes to show that with one means of measuring the speed the inclination has been to credit the ship. When possible it is recommended that both patent log and revolutions should be used.

For working out the set and drift of current the position *from* as well as the position *to* must always be *fixes*. Some observers have used an *estimated* position *from*, which makes the set and drift false. The same remarks apply to course allowances for set; the latter are naturally necessary to make an *estimated* course.

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.

Invitation to Marine Observers.

The Marine Superintendent will be pleased to see Captains of observing ships, who may be in London, between 10 a.m. and 4 p.m., at Room 319, Adastral House, Kingsway, W.C.2. Telephone No. :—Regent 8000. Extension 421. Telegrams, "Marine Superintendent, Weather, London."

(Nearest station—Temple, District Railway.)

CONVERSION TABLE.

To Convert Inches into Millibars.

Inch.	mb.	Inch.	mb.	Inch.	mb.
27·50	931·2	28·65	970·2	29·85	1,010·8
27·55	932·9	28·70	971·9	29·90	1,012·5
27·60	934·6	28·75	973·6	29·95	1,014·2
27·65	936·3	28·80	975·3	30·00	1,015·9
27·70	938·0	28·85	976·9	30·05	1,017·6
27·75	939·7	28·90	978·6	30·10	1,019·3
27·80	941·4	28·95	980·3	30·15	1,021·0
27·85	943·1	29·00	982·0	30·20	1,022·7
27·90	944·8	29·05	983·7	30·25	1,024·4
27·95	946·5	29·10	985·4	30·30	1,026·1
28·00	948·2	29·15	987·1	30·35	1,027·7
28·05	949·9	29·20	988·8	30·40	1,029·4
28·10	951·6	29·25	990·5	30·45	1,031·1
28·15	953·2	29·30	992·2	30·50	1,032·8
28·20	954·9	29·35	993·9	30·55	1,034·5
28·25	956·6	29·40	995·6	30·60	1,036·2
28·30	958·3	29·45	997·3	30·65	1,037·9
28·35	960·0	29·50	999·0	30·70	1,039·6
28·40	961·7	29·55	1,000·7	30·75	1,041·3
28·45	963·4	29·60	1,002·4	30·80	1,043·0
28·50	965·1	29·65	1,004·0	30·85	1,044·7
28·55	966·8	29·70	1,005·7	30·90	1,046·4
28·60	968·5	29·75	1,007·4	30·95	1,048·1
		29·80	1,009·1		

ICE CHART.

WESTERN NORTH ATLANTIC.

LETTERS OF TRANSATLANTIC TRACKS INDICATE

(B) { Westbound 1st July to 31st August, inclusive.
Eastbound 8th July to 31st August, inclusive.

(A) From 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* front page of Ice Chart published with April Marine Observer.

SYMBOLS USED ON THE CHART.

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

PHENOMENAL DRIFTS OF ICE.

Date.	Ship or Source of Report.	Position. Lat.	Long.	Remarks.
Aug. 12, 1903	S.S. Saxon Prince ...	37°52'N.	71°30'W.	Piece 3 ft. high, 40 ft. long.
„ 7, 1908	S.S. Caronia	50°31'N.	18°55'W.	2 pieces 10 ft. square and 15 ft. square.
„ 2, 1909	S.S. Shimosa	37°16'N.	42°06'W.	Piece 18 ft. by 5 ft., 2 ft. out of water.
„ 14, 1912	S.S. Ulstermore ...	43°55'N.	39°16'W.	Piece.
„ 27, 1912	S.S. Lux	42°30'N.	15°26'W.	50 ft. sq., 4 ft. out of water.
„ 10, 1915	S.S. St. Louis... ...	41°02'N.	48°00'W.	Berg.
„ 16, 1915	S.S. St. Leonards ...	41°09'N.	56°43'W.	—
„ 21, 1915	S.S. Strathgarry ...	40°48'N.	68°20'W.	Growler.
„ —, 1915	Do. ...	39°00'N.	46°20'W.	Piece 20 ft. long, 4 ft. high.
„ 29, 1920	U.S. Hyd. Bulletin ..	40°30'N.	47°52'W.	Berg.

Reports of Ice sighted between 1st and June 30th which have been received by the Meteorological Office, are shown by the Symbols plotted in position reported, the figures indicating the day of the month.

LATEST ICE REPORTS FROM CANADA.

The following cablegram, dated 12th June, 1924, was received from the Superintendent, Canadian Signal Service, Quebec:—"Belle Isle and Point Amour, many bergs and growlers. Other points no ice."

The Cunard Steamship Co. reports:—"The following cable has been received from Cunard, Montreal, dated 18th instant:—'Norwegian steamer passed through Belle Isle. Lighthouse keeper reports large number bergs in and outside Straits.'"

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AUGUST M.O., 1924. H.M.S.O. Press, Kingsway, W.C.2.

MARINE METEOROLOGY.

Co-operation of Shipowners, Masters and Mates.

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

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

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

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

Vessels observing regularly for the Meteorological Office to which office instruments are not lent, keep Form 911, Ships Meteorological Report, using the ship's instruments, the barometer being compared with Standards.

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. 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 especially desired.

All Masters who wish to assist in developing the rapid interchange of Meteorological information and Weather Forecasting at sea can do so by using the form of W/T Weather Report suggested in "Weather Signals," given in this Journal, January Number.

The Marine Observer is sent monthly to all ships regularly contributing Logs, Forms and W/T Registers to the Meteorological Office.

Marine Agencies and Port Meteorological Officers.

LIVERPOOL .. (Port Meteorological Office) Commander G. ff. H. Lloyd, R.D., 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. 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 P. W. S. Henderson, R.N., Superintendent, Admiralty Chart and Chronometer Depôt.

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. Latitude.	Position. Longitude.	Description.
	NORTH SEA.		
4.6.24	52°02′N.	1°59′E.	Small black conical buoy.
5.6.24	20 m. S.E. by S. of River Tyne.		Floating spar, projecting 3 ft. above water.
6·6·24	320° 4 m. off Varne Bank Light Vessel.		Submerged cylindrical buoy with black conical top.
9·6·24	10 m. E.N.E. of Terschelling Bank Light Vessel.		2 buoys with pieces of wreckage—dangerous to navigation.
12.6.24	56°39′N.	7°39′E.	Wreck, ship of wood, bottom up, 60 ft. long.
13.6.24	56°58′N.	8°10′E.	Wreck, bottom up.
14.6.24	9 m. E. by N. of Terschellinger Bank Light Vessel.		One red, one green, and two black buoys adrift.
16.6.24	53°42′N.	5°51′E.	Drifting wreck, broken mast, about 5 ft. above water.
	ENGLISH CHANNEL.		
4.6.24	49°03′N.	5°06′W.	Spherical buoy, numbered *451*, painted white and green stripes, tripod on top.
5.6.24	50°31′N.	0°09′W.	White conical buoy.
6.6.24	50°32′N.	0°30′W.	Black conical buoy with large white letter "*A*" painted on, heavy marine growth on lower part.
9.6.24	50°37′N.	0°15′E.	Iron buoy adrift—dangerous to navigation.
13.6.24	49°15′N.	4°48′W.	Spherical buoy.
15.6.24	50°24′N.	0°33′W.	Schooner's top mast, cross-trees attached, about 20 ft. long.
15.6.24	1 m. South of Royal Sovereign Light Vessel.		Submerged object.
18.6.24	50°39′N.	0°21′E.	Submerged obstruction.
19.6.24	4 m. E. by N. from Royal Sovereign Light Vessel.		Wreck.
	NORTH ATLANTIC.		
1.6.24	48°54′N.	16°17′W.	Half submerged raft of heavy baulks of timber, 15 ft. × 30 ft.—dangerous to navigation.
1.6.24	53°48′N.	17°15′W.	Cylindrical tank, about 8 ft. in diameter and 14 ft. long, two-thirds of tank above surface.
2.6.24	46°06′N.	14°50′W.	Submerged wreckage.
2.6.24	27°12′N.	74°17′W.	Wreckage consisting of various sized pieces, apparently part of deckload, the largest of which was about 15 ft. long and 8 ft. wide.
2.6.24	43°47′N.	51°55′W.	Wreckage.
3.6.24	40°30′N.	71°58′W.	Broken mast about 20 inches diameter, projecting 3 ft. out of water.
3.6.24	39°39′N.	48°07′W.	Wreckage of wooden schooner awash, with 2 frames projecting 6 ft. out of water.
3.6.24	32°44′N.	77°20′W.	Small red conical buoy.
4.6.24	39°20′N.	74°19′W.	Wreckage, apparently the bottom of a scow.
5.6.24	43°40′N.	43°20′W.	Wreckage.
5.6.24	39°57′N.	61°07′W.	Spar about 20 ft. long and 18 inches diameter, painted red and black and covered with marine growth.
5.6.24	29°17′N.	74°17′W.	Wreckage about 40 ft. long, projecting 5 ft. out of water.
5.6.24	42°03′N.	65°03′W.	Whistle buoy, drifting on its side.
5.6.24	46°26′N.	30°39′W.	Can buoy.
6.6.24	57°24′N.	12°33′W.	Floating wreck, bottom up. The wreck was just breaking above water and appeared about 50 ft. long by 18—20 ft. wide.
6.6.24	33°56′N.	71°18′W.	Spar, 30 ft. long.
6.6.24	38°54′N.	74°18′W.	Red conical buoy.
8.6.24	39°42′N.	74°01′W.	Wreckage, apparently a superstructure about 40 ft. long and 15 ft. wide.
10.6.24	48°07′N.	5°35′W.	Floating derelict—probably fishing vessel bottom up.
11.6.24	48°55′N.	6°38′W.	Mast of wood, large enough to be dangerous to navigation.
11.6.24	46°59′N.	19°17′W.	Conical buoy, floating on side.
13.6.24	84 m. W. of Fastnet.		Black buoy, with white number or name.
15.6.24	45°20′N.	17°00′W.	Derelict schooner—*Governor Parr.*
18.6.24	48°50′N.	5°29′W.	Submerged wreckage, dangerous to navigation.
19.6.24	42°25′N.	9°30′W.	Sailing vessel *Espozende* on fire.

LIST OF VOLUNTARY OBSERVING SHIPS.

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.

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

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

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.

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro-logical Equipment.	Line.	Last Log, Register, or Report Contributed.	Date Received.
Aba	Hughes, J. ...	W. J. Dodd	No.	Elder Dempster ...	Form 911 2.5.24 to 6.6.24 ...	12.6.24.
Abinsi	Wright, J. B. ...	V. Baddeley	,,	Elder Dempster ...	,, 12.12.23 to 18.1.24...	25.1.24.
Actor	Haylett, E. ...	G. Kent	,,	Harrison	,, 19.1.24 to 7.3.24 ...	1.4.24.
Adda	Toft...	G. R. Langmaid	,,	Elder Dempster ...	... ...	...
Adriatic ...	Beadnell, F. E., Commr., R.N.R.	J. Collins, A. W. C. Robinson, J. Farrell.	W.T.	White Star	W.T.Reg. 27.4.24 to 17.5.24 ...	20.5.24.
					Form 911 27.4.24 to 18.5.24 ...	21.5.24.
Agapenor ...	Ramsay, J. ...	P. S. Atkins	No.	A. Holt	,, 23.2.24 to 22.3.24 ...	26.3.24.
Alban	Whayman, W. R....	R. Griffiths	,,	Booth	,, 21.2.24 to 15.4.24 ...	22.4.24.
Albania ...	Gibbons, G., R.D., Commr., R.N.R.	C. B. Osborne	,,	Cunard	,, 16.5.24 to 9.6.24 ...	13.6.24.
Algerian Prince ...	Rowlands, D. ...	G. Potts	,,	Prince	,, 8.4.24 to 21.4.24 ...	23.4.24.
Alipore ...	Gordon, L. M., R.D., Commr., R.N.R.	H. D. Case	,,	P. and O.	,, 17.1.24 to 20.3.24 ...	15.4.24.
Almanzora ...	Mackenzie, G. A. ...	H. Chamberlain	,,	R.M.S.P.	,, 15.2.24 to 3.4.24 ...	8.4.24.
Alondra ...	Pope, G. F.... ...	H. Peters	,,	Yeoward	,, 17.5.24 to 8.6.24 ...	11.6.24.
Ampetco ...	Verstichelen, A. ...	R. Janssen	,,	American Petroleum...	,, 21.2.24 to 13.4.24 ...	14.5.24.
Anglia... ...	Sorge, P.... ...	W. H. Hughes	C.C.	L.M. & S. Rly. ...	Telegraphic Report 11.4.24 ...	11.4.24.
Antilochus ...	Sprott, E. J. ...	J. J. Daniel	No.	A. Holt	Form 911 22.1.24 to 16.4.24 ...	23.4.24.
Appam ...	Yardley, H. A. ...	B. Holt, W. H. Muirhead, E. Kingan.	M.L.	Elder Dempster ...	Met. Log. 9.8.23 to 5.1.24 ...	10.1.24.
Aquitania ...	Charles, Sir J. T. W., K.B.E., C.B., R.D., Commodore, R.N.R.	J. L. Croasdaile, P. O. Davis, J. Locke.	W.T.	Cunard	W.T. Reg. 18.5.24 to 2.6.24 ...	5.6.24.
					,, 27.4.24 to 12.5.24 ...	16.5.24.
Arafura ...	Gordon, A. S. ...	H. Jeans	No.	Eastern and Australian	Form 911 17.11.23 to 1.2.24 ...	24.3.24.
Arana	Moir, A. G. ...	R. Jones	,,	R.M.S.P.	... ...	...
Armadale Castle...	George, J., O.B.E.	L. G. May	,,	Union Castle ...	Form 911 21.3.24 to 12.5.24 ...	14.5.24.
Arracan ...	Willis, M.	R. MacInnes, H. Poole, D. Frame, A. Olding.	M.L.	P. Henderson ...	Met. Log. 26.1.24 to 24.4.24 ...	5.5.24.
Arundel ...	Short, H.	Mr. Hill	C.C.	Southern Rly. ...	Telegraphic Report 12.6.24 ...	12.6.24.
Arundel Castle ...	Hague, J. W., Capt., R.N.R.	G. Blaiklock, C. Williams, C. Keen.	M.L.	Union Castle ...	Met. Log. 21.12.23 to 20.4.24...	8.5.24.
Assyria ...	Erskine, R. ...	J. Hamilton	No.	Anchor	Form 911 3.4.24 to 27.4.24 ...	5.5.24
Astronomer ...	Booth, W. M. ...	W. A. Hall, J. Jackson, S. Leyland.	M.L.	Harrison	Met. Log. 20.11.23 to 16.2.24...	14.3.24.
Athenic ...	Jones, J. L. ...	W. Hill	No.	White Star	Form 911 2.5.24 to 16.5.24 ...	10.6 24.
Atsuta Maru ...	Saito, B.	S. Mizogucki	,,	Nippon Yusen Kaisha	,, 15.3.24 to 31.3.24 ...	5.5.24.
Auldmuir ...	Ramsay, J. D. ...	P. D. Thompson	,,	Glen & Co.	,, 25.4.24 to 3.6.24 ...	11.6.24.
Ausonia ...	Storey, F. E., R. D., Capt., R.N.R.	J. Ashcroft	,,	Cunard	,, 6.4.24 to 28.4.24 ...	5.5.24.
Author... ...	Kinlock, R. ...	A. Goddard	,,	Harrison	Form 911 29.8.23 to 7.10.23 ...	12.10.23.
Ballena ...	Pape, E. R. ...	W. Webster	No.	P.S.N. Co.	,, 19.9.23 to 11.10.23...	15.10.23.
Baltic	Roberts, J., C.B.E., D.S.O., R.D., Capt., R.N.R.	E. S. Bell, C. Cochrane, J. Law.	W.T.	White Star	W.T. Reg. 11.5.24 to 1.6.24 ...	4.6.24.
					Form 911 11.5.24 to 1.6.24 ...	3.6.24.
Bambra ...	Wyles, W. S. ...	H. W. Norris, F. Humble, J. E. Turner, P. Bolton.	M.L.	State Service, Australia	Met. Log. 8.6.23 to 14.10.23 ...	11.12.23.
Bampton Castle ...	Swiney, W. A. ...	F. Norfolk, L. C. Chapman, H. A. Deller, E. Crocker, C. B. Hoggan.	M.L.	Union Castle ...	Met. Log. 21.2.23 to 3.5.23 ...	28.1.24.
					,, 2.9.23 to 9.12.23 ...	
Banbury Castle ...	... ...	C. C. Page	No.	,, ...	... ...	...
Banffshire ...	Wynne, R. H. ...	L. W. Evans	,,	Turnbull Martin ...	Form 911 8.4.24 to 29.4.24 ...	2.6.24.
Barambah ...	Mayne, W.	T. Swann	,,	Commonwealth Govt.	,, 4.8.23 to 5.9.23 ...	16.10.23.
Baron Cawdor ...	Baillie, T.	A. Campbell	,,	Hogarth & Sons ...	,, 16.1.24 to 28.1.24 ...	11.3.24.
Beaufort ...	Knowles, C. H., D.S.O., Commr., R.N.	H. L. Wheeler	M.L.	His Majesty's Ship ...	Met. Log. 31.7.22 to 3.10.22 ...	10.10.22.
Belgenland ...	Bradshaw, J. ...	C. J. Murray, J. M. Appleby, W. E. Hesketh.	M.L.	Red Star	,, 21.9.23 to 21.4.24 ...	27.5.24.
Beltai, Ketch ...	Algarsson, G. ...	J. B. Hewson	No.	Algarsson Expedition, 1924.	... ...	...
Benalder ...	Cole, J. H., D.S.C....	A. K. Watson	,,	Ben Line	Form 911 15.4.24 to 19.4.24 ...	22.5.24.
Benedict ...	Aspinall, W. ...	H. R. Mackay, K. S. Monro	,,	Booth	,, 17.6.23 to 13.8.23 ...	27.8.23.

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro-logical Equipment.	Line.	Last Log, Register, or Report Contributed.	Date Received.
Bengloe ...	McCorquodale, A. ...	G. M. Duff	No.	Ben Line	Form 911 4.5.24 to 29.5.24 ...	12.6.24.
Berengaria ...	Irvine, W. R. D., R.D. Capt., R.N.R.	G. H. Jones, R. F. Bovey, W. C. A. Robson.	W.T.	Cunard	W.T. Reg. 13.4.24 to 28.4.24 ...	5.5.24.
Bernini ...	Evans, W. ...	H. L. Rudd	No.	Lamport & Holt ...	Form 911 16.1.24 to 1.5.24 ...	28.5.24.
Berrima ...	Hussey Cooper, E. M., R.D., Commr., R.N.R.	C. C. Smith, F. W. Walsh ...	,,	P. & O. Branch ...	,, 25.4.24 to 14.5.24 ...	3.6.24.
Bolingbroke ...	Landy, E., Sargent, A. H., Aikman, E.	R. Campbell, R. F. Walker, W. P. Hains.	M.L.	Canadian Pacific ...	Met. Log. 22.2.23 to 18.10.23...	14.11.23.
Borda	Holland, R. ...	... ...	No.	P. & O. Branch ...	Form 911 18.10.23 to 24.2.24...	29.2.24.
Bothwell ...	Dott, J. F. ...	K. Hutchings	,,	Canadian Pacific ...	,, 17.5.24 to 29.5.24 ...	3.6.24.
Brandon ...	Freer, A., R.D., Commr., R.N.R.	J. Mackenzie	,,	Canadian Pacific ...	,, 21.10.23 to 20.11.23	27.11.23.
Brecon ...	McDonald, J. ...	N. B. Glennie, W. W. J. Evans, W. J. P. Roberts.	M.L.	,, ,, ...	Met. Log. 20.9.23 to 6.5.24 ...	8.5.24.
Brighton ...	Hill, A.	Mr. Munton	C.C.	Southern Railway ...	Telegraphic Report 13.6.24 ...	13.6.24.
British Engineer...	Piper, H. C. ...	A. Campbell	No.	British Tankers ...	Form 911 30.4.24 to 2.5.24 ...	11.6.24.
British Lantern ...	Taylor, R. J. ...	C. O. Tucker	,,	,, ,, ...	,, 28.2.24 to 23.4.24 ...	5.5.24.
Browning ...	Connorton, C. A. ...	G. F. V. Peck	,,	Lamport & Holt ...	,, 26.4.24 to 23.5.24 ...	27.5.24.
Bruyere ...	Heasley, W. S. ...	A. C. Kennedy	,,	,, ,, ...	,, 6.4.24 to 24.4.24 ...	14.5.24.
Cabotia ...	Lawson, P. ...	T. G. Menzies	No.	Anchor Donaldson ...	Form 911 1.5.24 to 4.6.24 ...	10.6.24.
Cambria C.S. ...	Wightman, H. G. E., D.S.C.	E. N. L. Staples	M.L.	Eastern Tel. Co. ...	Met. Log. 1.12.23 to 28.3.24 ...	23.4.24.
Cambria ...	... ...	V. S. Phillips	C.C.	L.M. & S. Rly. ...	Telegraphic Report 2.5.24 ...	2.5.24.
Camito... ...	Scudamore, J. H. H., D. S. C., R. D., Commr., R.N.R.	D. A. Jack, D. Hay, D. V. Smith.	M.L.	Elders & Fyffes ...	Met. Log. 23.10.23 to 23.2.24...	28.2.24.
Canada ...	Jones, T.	F. W. Laws	No.	White Star-Dominion	Form 911 18.5.24 to 7.6.24 ...	10.6.24.
Canadian Inventor	Roberts, R. P. ...	S. M. Holinden	,,	Canadian Govt. Merchant Marine.	,, 16.12.23 to 6.2.24 ...	24.3.24.
Canadian Scottish	Harris, G. W. ...	S. Fieldhouse	,,	,, ,, ,,	,, 22.12.23 to 26.2.24...	21.5.24.
Canadian Skirmisher.	Millar, W. H. ...	G. B. Price	,,	,, ,, ,,	,, 28.5.23 to 5.8.23 ...	5.9.23.
Carlow Castle ...	... ...	R. C. Longman	,,	Union Castle ...	... ...	...
Carmania ...	McNeil, S. G. S., R.D., Capt., R.N.R.	A. T. Hamer, L. R. Allen, P. J. Robinson.	W.T.	Cunard	W.T. Reg. 16.5.24 to 3.6.24 ...	10.6.24.
					Form 911 16.5.24 to 4.6.24 ...	10.6.24.
Caronia ...	Diggle, E. G., R.D., Capt., R.N.R.	D. W. Sorrell, J. A. Quarrie, E. R. Taylor.	W.T.	Cunard	W.T. Reg. 2.5.24 to 21.5.24 ...	27.5.24.
					Form 911 7.10.23 to 27.10.23...	31.10.23.
Cassandra ...	Mitchell, W. E. ...	G. M. Sime	No.	Anchor Donaldson ...	,, 1.5.24 to 25.5.24 ...	27.5.24.
Cedric	Marshall, W., D.S.O., R.D., Capt., R.N.R.	T. F. P. Pratt, J. A. Heenan, A. E. Harvey.	W.T.	White Star	W.T. Reg. 5.5.24 to 24.5.24 ...	27.5.24.
					Form 911 4.5.24 to 24.5.24 ...	27.5.24.
Celtic	Holme, A. ...	R. S. Walker, G. T. Kavanagh, D. W. Chamberlain.	W.T.	,, ,, ...	W.T. Reg. 19.5.24 to 7.6.24 ...	10.6.24.
					Form 911 18.5.24 to 8.6.24 ...	10.6.24.
Ceramic ...	Symons, J. ...	H. Williams	No.	,, ,, ...	,, 27.1.24 to 21.5.24 ...	26.5.24.
Changsha ...	Frame, A. M. ...	... ...	M.L.	Yuill & Co.... ...	,, 26.5.23 to 30.9.23 ...	23.1.24.
Chignecto ...	Green, J.... ...	A. F. Walker	No.	R.M.S.P. Co. ...	,, 19.1.24 to 26.2.24 ...	7.4.24.
China	King, A. M., D.S.C.	E. Cox Walker	,,	P. & O.	,, 9.4.24 to 20.5.24 ...	26.5.24.
Chindwara ...	Jones, W. H. ...	C. E. Cara	,,	British India ...	,, 28.12.23 to 8.3.24 ...	8.4.24.
Chindwin ...	Esslemont, C. ...	J. Walker, J. Summers, W. Wilson, A. McCallum.	M.L.	P. Henderson ...	Met. Log. 12.1.24 to 27.3.24 ...	4.4.24.
Chinhua	Byers, G. ...	Mr. Cook, Mr. Wherny ...	,,	China Nav. Co. ...	,, 26.7.23 to 8.12.23 ...	24.4.24.
City of Alexandria	Bedford, G. B. ...	T. C. Higgins	No.	Ellerman	... ...	...
City of Baroda ...	... ...	A. V. Radcliffe, R. J. Witton, A. B. Carson.	M.L.	,, ...	Met. Log. 20.6.23 to 15.9.23 ...	4.10.23.
City of Batavia ...	Spencer, H. ...	B. Moloney	No.	,, ...	Form 911 23.1.24 to 22.2.24 ...	26.2.24.
City of Benares ...	Macdonald, K., O.B.E.	A. A. Fullerton	,,	,, ...	,, 6.2.24 to 7.3.24 ...	14.3.24.
City of Brisbane...	Pine, R.	W. Robinson	,,	,, ...	,, 23.11.23 to 14.12.23	12.2.24.
City of Canterbury	Bremner, D. M. ...	A. M. Hamilton	,,	,, ...	,, 3.12.23 to 12.3.24 ...	7.4.24.
City of Chester ...	Teague, R. E. ...	F. C. Wilson, ...	M.L.	,, ...	Met. Log. 22.12.23 to 4.4.24 ...	8.4.24.
City of Dunkirk ...	Seaborne, F. O. ...	W. Leadbeater	No.	,, ...	Form 911 21.9.23 to 4.10.23 ...	17.10.23.
City of London ...	Martin, D. ...	C. Inglis	,,	,, ...	,, 3.4.24 to 29.4.24 ...	8.5.24.
City of Marseilles	Brown, G. ...	G. M. Womersley	,,	,, ...	,, 23.2.24 to 12.3.24 ...	17.3.24.
City of Newcastle	Oliver, R. E., D.S.C.	C. Paton	,,	,, ...	,, 26.9.23 to 22.10.23...	31.10.23.
City of Rangoon...	Williams, T. L. ...	W. Ibbotson, S. L. Hoare, T. A. Dexter.	M.L.	,, ...	Met. Log. 25.4.23 to 9.8.23 ...	16.8.23.
City of Valencia...	Williamson, W. A., R.D., Lieut.-Commr. R.N.R.	J. J. McTigue	No.	,, ...	Form 911 27.1.24 to 3.4.24 ...	7.4.24.
City of Yokohama	Jinks, J. W. ...	B. Moloney	,,	,, ...	,, 18.5.24 to 1.6.24 ...	12.6.24.
Clan Buchanan ...	George, L. S. ...	P. G. de Gruchy	,,	Clan	,, 11.10.23 to 10.1.24...	14.1.24.
Clan Lindsay ...	Baker, C. W. ...	S. J. Shennan	,,	,, ...	,, 17.5.24 to 27.5.24 ...	30.5.24.
Clan Macbeth ...	Young, A. H., R.D., Lieut.-Commdr., R.N.R.	D. S. Rae, S. T. Strange, L. L. Davis.	,,	,, ...	,, 8.5.24 to 23.5.24 ...	4.6.24.
Clan Macgillivray	West, W. F. ...	P. G. de Gruchy	,,	,, ...	,, 25.4.24 to 22.5.24 ...	3.6.24.
Clan Macindoe ...	Miller, W. ...	G. H. Johnson	,,	,, ...	,, 9.4.24 to 6.5.24 ...	3.6.24.
Clan Mackellar ...	Cowie, J. G. ...	C. W. Banbury, W. S. Simpson	,,	,, ...	,, 1.4.24 to 13.4 24 ...	5.5.24.
Clan Mackenzie ...	Young, G. ...	W. G. Arthur, J. M. Lorimer	,,	,, ...	,, 10.5.24 to 10.6.24 ...	12.6.24.
Clan Mackinnon	Thomson, W. ...	V. Wilson, W. S. Holden, T. Kay.	M.L.	,, ...	Met. Log. 6.9.23 to 24.2.24 ...	27.2.24.
Clan Macmillan ...	Mackinnon, D. ...	S. M. Werrey Easterbrook ...	No.	,, ...	Form 911 25.4.24 to 7.5.24 ...	14.5.24.
Clan Macnaughton	Gray, J. N. ...	A. G. Storkey, F. Burnes ...	,,	,, ...	,, 19.1.24 to 24.2.24 ...	26.2.24.
Clan Macphee ...	Gourlay, J. B. ...	P. H. Aydon, J. H. Mellor, J. Macdougall.	M.L.	,, ...	Met. Log. 26.5.23 to 21.11.23..	17.1.24.
Clan Macvicar ..	Phillips, G. P. ...	L. S. Murrin	No.	,, ...	Form 911 14.5.24 to 11.6.24 ...	13.6.24.
Clan Malcolm ...	Higgins, C. J. ...	T. G. Young, A. Cameron ...	M.L.	,, ...	Met. Log. 22.12.24 to 31.3.24...	3.4.24.
Clan Morrison ...	Porterfield, W. M....	D. A. Evans	No.	,, ...	Form 911 16.3.24 to 14.4.24 ...	30.4.24.
Clan Murdoch ...	Pagan, J. C. ...	R. E. Owen	,,	,, ...	,, 18.3.24 to 7.4.24 ...	5.5.24.
Clan Ranald ...	Henderson, C. W. ...	P. J. Green	,,	,, ...	,, 8.12.23 to 22.1.24 ...	28.1.24.
Clan Ross ...	Christian, W. G. M.	S. M. Werrey Easterbrook ...	,,	,, ...	,, 3.8.23 to 8.10.23 ...	19.10.23.
Clan Sinclair ...	Neill, G. A. ...	F. B. Parker	,,	,, ...	,, 15.3.24 to 11.4.24 ...	14.4.24.
Clan Urquhart ...	Sharpland, C. C. ...	R. H. Law	,,	,, ...	,, 9.2.24 to 23.4.24 ...	9.5.24.
Colonia, C.S. ...	Campos, V., O.B.E., Lt.-Commdr. R.N.R.	S. A. Garnham, A. S. Muir, W. E. Allen, S. Hall.	M.L.	Telegraph Construction & Maintenance.	Met. Log. 27.10.23 to 22.11.23	26.11.23.
Colonial ...	Barrow, R. K. ...	A. V. Jones	No.	Harrison	Form 911 15.9.23 to 29.11.23...	20.12.23.
Colonian ...	Gittins, R. P. ...	J. Crangle	,,	Leyland	,, 8.4.24 to 19.4.24 ...	25.4.24.
Columbia ...	Gemmell, W. ...	S. G. Taylor	,,	Anchor	,, 13.4.24 to 4.5.24 ...	15.5.24.
Comino ...	Nuttall, E. L. ...	A. McVicar	,,	Furness Withy ...	,, 7.3.24 to 13.4.24 ...	5.5.24.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed.	Date Received.
Cooee	Festa, M. ...	C. Keen, D. C. Rees ...	No.	Commonwealth Govt.	Form 911 29.6.23 to 16.8.23 ...	8.10.23.
Copenhagen ...	Kerr, J. J. ...	W. G. Rees	,,	Glen & Co.	,, 27.4.23 to 6.6.23 ...	23.7.23.
Corinthic ...	Hart, F.	W. T. Fitzgerald, M. Bennett, F. G. Rogers.	M.L.	White Star ...	Met. Log. 29.12.23 to 8.4.24 ...	12.5.24.
Cornish City ...	Bowen, T. S. ...	G. S. Dawes	No.	Reardon Smith ...	Form 911 8.1.24 to 16.2.24 ...	7.4.24.
Cornwall ...	Robertson, H. W. ...	W. W. Glover	,,	Dowie, J., & Co. ...	,, 5.3.24 to 12.4.24 ...	22.4.24.
Crawford Castle ...	Sinclair, G. ...	J. C. Brown	,,	Union Castle ...	,, 18.4.24 to 8.5.24 ...	10.6.24.
Culebra	Mackay, A. S. ...	... ...	,,	R.M.S.P. Co. ...	... ...	...
Cyclops ...	Cosker, W. ...	J. P. Makepeace	,,	A. Holt	Form 911 13.2.24 to 17.3.24 ...	7.4.24.
Dardanus ...	Shaw, A. T. ...	A. Morton	No.	A. Holt	Form 911 23.11.23 to 6.2.24 ...	8.2.24.
Darian... ...	Masters, W. ...	G. F. Parkinson	,,	Leyland	,, 30.3.24 to 8.5.24 ...	14.5.24.
Darro	Smith, W. E., D.S.O., R.D.,Capt., R.N.R.	E. H. Giller	,,	R.M.S.P. Co. ...	,, 6.4.24 to 30.5.24 ...	12.6.24.
Daytonian ...	Walker, C. J., D.S.C.	W. T. Godwin	,,	Leyland	,, 28.4.24 to 8.5.24 ...	21.5.24.
Delta	Brooks, C., D.S.O. R.D.,Commr.,R.N.R.	J. O. V. Young	,,	P. & O.	,, 29.3.24 to 19.4.24 ...	14.5.24.
Demerara ...	Hill. T. A. ...	A. Hambly	,,	R.M.S.P. Co. ...	,, 8.3.24 to 4.5.24 ...	8.5.24.
Demosthenes ...	Williams, W. J. ...	R. A. Alcock	,,	Aberdeen	,, 28.4.24 to 17.5.24 ...	10.6.24.
Deseado ...	Wakeman, E. C. ...	C. R. Brown, F. Collinson ...	,,	R.M.S.P. Co. ...	Form 911 11.2.24 to 3.4.24 ...	9.4.24.
Desna	Adam, C., R.D., Commr., R.N.R.	H. D. Jackman	,,	,, ...	,, 23.2.24 to 19.4.24 ...	25.4.24.
Deucalion ...	Batt, A. E. ...	W. G. Smith	,,	A. Holt	,, 5.2.24 to 19.2.24 ...	22.2.24.
Devon	Gardner, H. W. ...	A. Bell	,,	New Zealand S.S. Co.	,, 20.12.23 to 11.5.24...	4.6.24.
Dieppe... ...	Marmery, S. ...	Mr. Parsons	C.C.	Southern Railway ...	Telegraphic Report. 10.6.24 ...	10.6.24.
Digby	Chambers, F. W., D.S.C.	J. Pascoe, J. W. Murphy, W. P. Paterson.	M.L.	Furness Withy ...	Met. Log. 2.10.23 to 8.4.24 ...	22.4.24.
Dimboola ...	Roy, C. M. ...	... ...	No.	Melbourne S.S. Co. ...	Form 911 12.4.24 to 7.5.24 ...	12.6.24.
Discoverer ...	King, J. T. ...	J. Stanhope	,,	Harrison	,, 8.1.24 to 8.4.24 ...	14.4.24.
Dogra	Hartock, L. ...	E. C. Akers	,,	Asiatic S.N. Co. ...	,, 26.4.24 to 8.5.24 ...	10.6.24.
Domala, M.V. ...	Whittingham, W. E., O.B.E., R.D., Commr. R.N.R.	C. E. Merchant	,,	British India ...	,, 12.1.24 to 6.2.24 ...	18.3.24.
Doric	Davies, J. ...	A. Thompson	,,	White Star ...	,, 27.4.24 to 17.5.24 ...	21.5.24.
Dorset	Kettlewell, C. R. ...	... ...	M.L.	New Zealand S.S. Co.	... ...	...
Dramatist ...	Gibbings, W. H. ...	R. W. Roberts	No.	Harrison	Form 911 7.12.23 to 14.3.24 ...	18.3.24.
Dromore Castle ...	Linklater, H. ...	S. S. Smith	,,	Union Castle ...	,, 20.3.24 to 9.4.24 ...	6.5.24.
Dryden ...	Knight, R. A. ...	G. D. Oldfield	,,	Lamport & Holt ...	,, 28.10.23 to 2.1.24 ...	18.2.24.
Dundrum Castle...	Mumford, C. E. ...	H. Bunn	,,	Union Castle ...	... ...	...
Duendes ...	Pape, E. R. ...	... ...	,,	Pacific S.N. Co. ...	Form 911 18.4.24 to 8.5.24 ...	26.5.24.
Duquesa ...	Melville, A. ...	W. Schofield	,,	Furness Withy ...	,, 9.3.24 to 5.5.24 ...	14.5.24.
Durenda ...	Wilson, W. ...	W. Cruse, C. McFarlane ...	,,	British India ...	,, 17.2.24 to 11.3.24 ...	14.3.24.
Eastern ...	Laing, J. D. ...	J. W. Kavanagh, F. R. Miller, H. H. Litchfield.	M.L.	Eastern and Australian	Met. Log. 14.2.23 to 16.8.23 ...	8.10.23.
Ebani	Faill, —	W. McKeown	No.	Elder Dempster ...	... ...	...
Edinburgh Castle	Strong, H., R.D., Commr., R.N.R.	... ...	M.L.	Union Castle ...	Met. Log. 30.11.23 to 24.3.24...	14.4.24.
Eemland ...	Van Noppen, C. D.	G. W. Yonwen	No.	Holland Lloyd ...	Form 911 18.12.23 to 16.3.24...	14.4.24.
Egori	McDowall, J. ...	K. Redmore	,,	Elder Dempster ...	,, 25.11.23 to 10.12.23	12.12.23.
El Cordobes ...	Noton, F. G. ...	N. H. Oldham	,,	British & Argentine S.N. Co.	,, 6.3.24 to 3.4.24 ...	14.5.24.
Elmina ...	Millson, H. E. ...	... ...	M.L.	Elder Dempster ...	Met. Log. 20.9.23 to 13.12.23...	4.3.24.
El Paraguayo ...	Ellis, F., D.C.M. ...	W. E. Williams	No.	Houlder Bros. ...	Form 911 16.3.24 to 9.5.24 ...	14.5.24.
Elpenor ...	Evans, D. L. ...	P. E. Wright, C. Mock ...	M.L.	A. Holt	Met. Log. 31.12.23 to 19.4.24...	24.4.24.
Elysia	Kinnaird, J. ...	A. Grant	No.	Anchor	Form 911 16.2.24 to 8.3.24 ...	1.4.24.
Empress of Asia...	Douglas, L. D., R.D., Lt. - Commr., R.N.R.	F. C. Stratford	M.L.	Canadian Pacific ...	Met. Log. 4.10.23 to 28.1.24 ...	5.3.24.
Empress of Australia.	Robinson, S., C.B.E., R.D., Commr., R.N.R.	... ...	M.L.	,, ,, ...	,, 1.6.23 to 9.3.24 ...	7.4.24.
	Hopcraft, D. ...					
	Hailey, A. J. ...					
	Hailey, A. J. ...	... ...	M.L.	,, ,, ...	Met. Log. 29.6.23 to 6.12.23 ...	8.1.24.
Empress of Canada.	Robinson, S., C.B.E., R.D., Commr., R.N.R.					
Empress of France	Griffiths, E. ...	R. V. Everett, A. S. Phillips, B. Grant,	M.L.	,, ,, ...	,, 13.6.23 to 17.11.23...	21.11.23.
Empress of Russia	Hosken, A. J. ...	A. B. Smith, A. M. Barff, S. H. Blyth, J. P. Napier, C. S. Morris. R. H. Graham.	M.L.	,, ,, ...	,, 27.12.23 to 20.4.24...	26.5.24.
Empress of Scotland	Gillies, J., C.B.E. ...	... ...	M.L.	,, ,, ...	... ...	...
Endeavour ...	Geary Hill, S. A., D.S.O., Commr., R.N.	H. Exton Turner	M.L.	His Majesty's Ship ...	Met. Log. 3.7.22 to 8.6.23 ...	18.6.23.
	Nares. J. D., D.S.O., Capt., R.N.					
Essequibo ...	Pearce, A. W. ...	G. Pattison	No.	R.M.S.P. Co. ...	Form 911 27.3.24 to 13.5.24 ...	26.5.24.
Eumaeus ...	Read, J. W. ...	E. R. Pritchard	,,	A. Holt	,, 15.3.24 to 23.4.24 ...	3.6.24.
Euripides ...	Collins, P. J., O.B.E.	H. S. Cox, A. R. Payne, F. Fuller.	M.L.	Aberdeen	Met. Log. 4.1.24 to 27.4.24 ...	12.5.24.
Eurybates ...	Lloyd, R. ...	J. A. Havard	No.	A. Holt	Form 911 27.3.24 to 18.4.24 ...	6.5.24.
Explorer ...	Lamont, A. ...	Scientific Staff	M.L.	Scottish Fishery Board	Met. Log. 9.4.23 to 30.11.23 ...	8.1.24.
Fitzroy... ...	Woodhouse, A. F. B., Lt.-Commr., R.N.	C. W. Sabine	M.L.	His Majesty's Ship ...	,, 25.7.23 to 1.11.23 ...	10.11.23.
Flandria ...	Veldkamp, G. J. ...	W. G. Ton	No.	Holland Lloyd ...	Form 911 14.3.24 to 3.5.24 ...	5.5 24.
Flinders ...	Henderson, D A., Lt.-Commr., R.N	A. B. Fouleston	M.L	His Majesty's Ship ...	Met. Log. 25.7.23 to 1.11.23 ...	10.11.23.
Francisco ...	Wilkins, J., O.B.E.	A. Turpin	No.	Ellerman Wilson ...	Form 911 9.4.24 to 18.5.24 ...	21.5.24.
Francol ...	Gattey, E. ...	H. J. Prout	,,	Royal Fleet Auxiliary	,, 20.6.23 to 15.9.23 ...	27.11.23.
Frankenfels ...	Cartmer, G. E., O.B.E.	J. W. Allingham, J. H. A. Mackie, J. Garmory.	M.L.	India Office Shipping	Met. Log. 23.1.24 to 2 5.24 ...	8.5.24.
Freienfels ...	Cleugh, J. W. ...	C. F. Bennett, H. Wilson, R. Soper.	,,	,, ,, ,,	,, 10.11.23 to 29.2.24...	10.3.24.
Gallic	Summers, F. F., R.D., Commr. R.N.R.	W. G. O. Jones	No.	White Star ...	,, 11.4.24 to 24.5.24 ...	27.5 24.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log Register, or Report Contributed.	Date Received.
Galtymore ...	Ledsome, J. S. ...	N. Goubrough	No.	Furness Withy ...	Form 911 6.5.24 to 17.5.24 ...	21.5.24.
Garoet	Visser, C. W. ...	S. de Boo	,,	Rotterdam Lloyd ...	,, 10.5.24 to 19.5.24 ...	29.5.24.
Garthgarry, Ship	Roberts, D. ...	W. Wylie, J. Pearce, H. Bento	M.L.	Marine Nav. Co. ...	Met. Log. 15.7.22 to 27.7.23 ...	4.10.23.
Gascoyne ...	Mills, A.	P. G. Collins	No.	Dalgety & Co. ...	Form 911 20.1.24 to 29.2.24 ...	7.4.24.
Gelria	Kolkman, J. M. ...	J. Aarents	,,	Holland Lloyd ...	,, 4.4.24 to 22.5.24 ...	26.5.24.
Gladiator ...	Ruffell, —. ...	D. H. Bryant, W. E. Shotton	,,	Harrison	,, 7.1.24 to 8.3.24 ...	12.3.24.
Glenamoy, M.V. ...	Angier, J. ...	L. C. Riggs	,,	Glen Line	Form 911 24.3.24 to 14.4.24 ...	27.5.24.
Glenapp, M.V. ...	Ingram, T. T. ...	F. Poate	,,	,, ...	,, 28.4.24 to 7.5.24 ...	3.6.24.
Glenluce, M.V. ...	Kennett, W. H. ...	A. Hodd	,,	,, ...	,, 13.2.24 to 15.4.24 ...	30.5.24.
Gloucestershire ...	Robin, E. ...	T. E. Field	,,	Bibby	,, 15.3.24 to 23.5.24 ...	26.5.24.
Gorala	D'Cruz, A. B. ...	A. R. H. Barton	,,	British India ...	,, 15.1.24 to 25.5.24 ...	10.6.24.
Gorgon	Hughes, J. W. ...	J. E. Cooper	,,	Dalgety & Co. ...	,, 2.3.24 to 16.4.24 ...	26.5.24.
Gourko	Montgomery, H. ...	... ...	M.L.	Ellerman Wilson ...	... ...	...
Governor Musgrave	Coalstad, C. ...	C. B. Odman, E. W. Hughes	No.	Commonwealth Lighthouse Service.	Form 911 20.7.23 to 11.10.23...	5.12.23.
Graciana ...	Clark, J.	M. C. Turner, E. Minshull ...	M.L.	Furness Withy ...	Met. Log. 15.12.22 to 31.8.23...	1.4.24.
Haliartus ...	Marsh, L. V. ...	W. H. Upton	No.	R. P. Houston ...	,, 16.8.23 to 3.10.23 ...	20.11.23.
Harmonides ...	Hughes, W. J. ...	R. P. Davies	,,	,, ...	,, 1.3.24 to 1.5.24 ...	29.5.24.
Harmony, Auxy.	Jackson, J. C. ...	A. W. Bush	,,	Moravian Mission ...	,, 15.11.23 o 3.12.23...	19.12.23.
Hatarana ...	Mardon, T. T. ... Woodget, H. T. ...	J. L. Durkee, F. Wells, E. B. Heath, E. C. McGuiness.	M.L.	British India ...	Met. Log. 12.9.23 to 26.3.24 ...	22.4.24.
Hauraki, M.V. ...	Showman, A. C. ...	D. McLeish	No.	Union S.S. Co., N.Z....	Form 911 27.10.23 to 4.1.24 ...	11.2.24.
Henry Holmes, C.S.	Bicker-Caarten, A.	E. Hislop Tucker	,,	W. I. & Panama Telegraph Co.	,, 6.4.24 to 17.5.24 ...	12.6.24.
Herald	Harvey, J. R., Commr., R.N.	... ...	M.L.	His Majesty's Ship ...	... ...	...
Herefordshire ...	Stanley, W. ...	P. Flood, G. Whitworth, P. S. Cooper, H. Moore.	,,	Bibby	Met. Log. 18.8.23 to 30.1.24 ...	22.2.24.
Herschel ...	Carey, W. J. ...	S. C. Smith	No.	Lamport & Holt ...	Form 911 8.3.24 to 12.5.24 ...	14.5.24.
Hibernia ...	Tanner	R. Woodall	C.C.	L.M. & S. Rly. ...	Telegraphic Report. 23.5.24 ...	23.5.24.
Highland Enterprise	Pond, R. H. ...	D. R. S. Webster	No.	Nelson	Form 911 22.12.23 to 5.3.24 ...	11.3.24.
,, *Glen* ...	Jones, T. J. ...	H. H. Thomas	,,	,, ...	,, 6.4.24 to 26.4.24 ...	20.5.24.
,, *Heather*	Powell, G. A. ...	G. Watson, R. Sinclair Davies, J. C. Morton.	M.L.	,, ...	Met. Log. 23.12.22 to 22.3.23...	28.3.23.
,, *Laddie* ...	Alford, C. ...	G. L. Goodman	No.	,, ...	Form 911 17.3.24 to 6.4.24 ...	6.6.24.
,, *Laird* ...	Davis, G. O. ...	... ...	,,	,, ...	... ...	...
,, *Piper* ...	Collings, D. ...	A. S. Jones, J. S. Collins, J. H. Cables.	M.L.	,, ...	Met. Log. 1.9.23 to 14.1.24 ...	16.1.24.
,, *Pride* ...	Robinson, R. H. ...	H. McKinnon, H. Devlin, R. R. Soanes.	,,	,, ...	,, 18.1.24 to 19.3.24 ...	8.4.24.
,, *Rover* ...	Ashby Graves, F. ...	F. W. Harvey, S. G. King, F. Abbott.	,,	,, ...	,, 30.11.23 to 15.4.24...	30.4.24.
,, *Warrior*	Brooke, W. ...	W. T. Breen	No.	,, ...	Form 911 12.3.24 to 2.5.24 ...	8.5.24.
Hildebrand ...	Maddrell, J. ...	H. Welsh	,,	Booth	,, 19.3.24 to 1.5.24 ...	5.5.24.
Hobsons Bay	Ogilvie. F. J. Kydd, O. J.	J. E. Williams, E. Bailie, Mr. Edwards.	M.L.	Commonwealth Govt.	Met. Log. 27.11.23 to 29.2.24...	12.3.24.
Holbein ...	Gough, W. A. ...	G. P. Kitto	No.	Lamport & Holt ...	Form 911 12.1.24 to 10.3.24 ...	17.3.24.
Homeric ...	Metcalf, G. R., Lt.-Commr., R.N.R.	H. Clark, H. Yates, A. Griffiths.	W.T.	White Star	W.T. Reg. 1.5.24 to 16.5.24 ,, 4.6.24 to 6.6.24 ... Form 911 27.9.23 to 13.10.23	19.5.24. 10.6.24. 16.10.23.
Honorius ...	Samuels, C. ...	J. E. Martin, W. G. Iddes ...	No.	R. P. Houston ...	,, 16.4.24 to 16.5.24 ...	20.5.24.
Huanchaco ...	Redyard, A. ...	H. G. Cruickshank, J. Aldhouse.	,,	Pacific S.N. Co. ...	Form 911 4.11.23 to 16.2.24 ...	5.3.24.
Hubert	Evans, T. G. ...	C. C. Beal	,,	Booth	,, 26.3.24 to 7.4.24 ...	28.4.24.
Hurunui ...	Burton Davies, J. ...	Mr. Oxnard, J. Carpenter, Mr. Newington.	M.L.	New Zealand S.S. Co.	Met. Log. 31.8.23 to 8.3.24 ...	15.3.24.
Ibex	Langdon, C. ...	... ...	C.C.	G.W. Railway ...	Telegraphic Report. 15.4.24 ...	15.4.24.
Ikala	Meetham. J. T. ...	E. Lightfoot	No.	Welsford, J. H. ...	Form 911 9.6.23 to 19.6.23 ...	26.7.23.
Intombi ...	Worthington, B. ...	J. Richardson	,,	Harrison	,, 22.2.24 to 23.3.24 ...	26.3.24.
Ionic Star ...	Wilson, G.	J. Sinclair	,,	Blue Star	,, 29.1.24 to 26.3.24 ...	29.3.24.
Iroquois ...	Tinson, C. W., O.B.E., Commr., R.N.	R. H. Lucy, C. R. Brent, G. A. R. J. Leslie, E. E. Addis, G. A. Gould ...	M.L.	His Majesty's Ship ...	Met. Log. 29.11.23 to 16.3.24...	28.4.24.
Ixion	Baetens, F. ...	A. K. Sanderson	No.	A. Holt	Form 911 4.3.24 to 4.4.24 ...	14.4.24.
John Pender, C.S.	Smythe, T. W., O.B.E. Gibson, L., M.B.E.	B. C. Farrow, A. T. Horton...	No.	Eastern Tel. Co. ...	,, 6.3.24 to 10.5.24 ...	14.5.24.
Junin	Benson, C. W. ...	R. D. Eckford	,,	Pacific S.N. Co. ...	,, 1.5.24 to 30.5.24 ...	3.6.24.
Kaikoura ...	Downton, M. ...	L. H. Whitfield, N. Anderson, J Hopkins.	M.L.	New Zealand S.S. Co.	Met. Log. 17.9.23 to 31.3.24 ...	19.5.24.
Kaisar-i-Hind ...	Manley, G. ...	H. J. M. Perry	No.	P. & O.	Form 911 6.3.24 to 5.4.24 ...	28.4.24.
Kamo Maru ...	Okano, Y. ...	F. Takaku	,,	Nippon Yusen Kaisha	,, 4.5.24 to 3.6.24 ...	12.6.24.
Kangaroo ...	Norris, H. C. ...	C. M. C. Clayton, R. J. Sinclair F. Humble.	M.L.	State Service Australia	Met. Log. 6.11.23 to 19.2.24 ...	23.4.24.
Karroo	Robinson, T. ...	S. J. Nash	No.	Ellerman Bucknall ...	Form 911 30.6.23 to 11.7.23 ...	27.7.23.
Kashima Maru ...	Shinomiya, T. ...	M. Takada	,,	Nippon Yusen Kaisha	,, 2.1.24 to 9.2.24 ...	14.3.24.
Kashmir ...	Bartlett, E. B., O.B.E.	F. Hopkins	,,	P. & O. ...	,, 12.3.24 to 1.4.24 ...	14.5.24.
Kellett	Haselfoot, F. E. B., D.S.O., Commr., R.N.	E. H. B. Baker, W. C. Jenks	M.L.	His Majesty's Ship ...	Met. Log. 28.10.23 to 15.11.23	5.12.23.
Kenilworth Castle	Millard, L. A. ...	A. E. Denn, W. M. Tomkins	M.L.	Union Castle ...	Met. Log. 28.12.23 to 28.4.24...	8.5.24.
Khiva	Redhead, C. M., D.S.O., R.D., Capt., R.N.R.	J. Maxwell, L. Fraser, A. L. Hill.	M.L.	P. & O.	,, 26.10.23 to 19.2.24...	22.2.24.
Khyber	Pinckney, L. D., O.B.E.	N. B. S. Hewett	No.	,, ...	Form 911 6.4.24 to 11.5.24 ...	14.5.24
Kia Ora ...	Thurston, H. P. ...	A. E. Lockhart	,,	Shaw Savill & Albion	,, 18.3.24 to 2.5.24 ...	9.5.24
Kinderdijk ...	Jochems, A. B. ...	A. Stenger	,,	Holland America ...	,, 27.3.24 to 3.5.24 ...	8.5.24
Kitano Maru ...	Kamada, N. ...	R. Nakane	,,	Nippon Yusen Kaisha	,, 8.4.24 to 2.5.24 ...	11.6.24.
Knight Companion	Beale, H. E. ...	J. H. Brown, H. C. Skinns ...	,,	A. Holt	,, 15.11.23 to 21.4.24...	30.4.24.
Kovno	Casson, D. H., R.D., Commr., R.N.R.	E. R. Massam, G. H. Duncan, L. Griffiths	M.L.	Ellerman Wilson ...	Met. Log. 5.5.23 to 27.11.23 ...	3.12.23.
Lady Brenda ...	Young, W. J. ...	B. L. Brind	No.	Dawson	Form 911 25.9.23 to 4.10.23 ...	13.10.23.
Lady Denison Pender C.S.	West, G. W. ...	A. G. Watts	,,	Eastern Tel. Co. ...	,, 14.4.24 to 4.5.24 ...	10.6.24.
Laguna ...	Mander, F. ...	F. W. Parker	,,	Pacific S.N. Co. ...	Form 911 22.3.24 to 14.4.24 ...	28.4.24.
Lalande ...	Bambra, W. A. ...	N. Webster	,,	Lamport & Holt ...	,, 26.2.24 to 24.4.24 ...	20.5.24.
Lancashire ...	Beckett, F. W. ...	T. L. Owen	,,	Bibby	,, 5.1.24 to 14.3.24 ...	24.3.24.
Laomedon ...	Smith, A. H. ...	A. J. Barclay	,,	A. Holt	,, 18.11.23 to 27.2.24...	4.3.24.
La Paz, M.V. ...	Ross, J.	R. Collister	,,	Pacific S.N. Co. ...	,, 6.4.24 to 8.5.24 ...	14.5.24.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed.	Date Received.
Laplace ...	Davies, G. W. ...	A. Hughes I. O. Jones ...	No.	Lamport & Holt ...	Form 911 20.1.24 to 27.3.24 ...	7.4.24.
Lapland ...	Howell, T. ...	B. T. Harris, C. K. Knapp, G. H. Bowyer.	W.T.	Red Star	W.T. Reg. 11.5.24 to 31.5.24 ...	2.6.24.
					Form 911 10.5.24 to 31.5.24 ...	3.6.24.
Lassell, M.V. ...	Turner, J. E. ...	A. T. Crilly	No.	Lamport & Holt ...	,, 5.8.23 to 24.10.23 ...	27.11.23.
Leicestershire ...	De Legh, P. ...	J. W. Hodgson, P. H. Potter, R. Arkieson, R. Cuming.	M.L.	Bibby	,, 20.11.23 to 25.4.24...	30.4.24.
Leitrim ...	Robertson, A. ...	H. C. Roberts	No.	Dowie, J., & Co. ...	,, 13.4.24 to 5.5.24 ...	27.5.24.
Levant C.S. ...	West, G. W. ...	... ...	,,	Eastern Tel. Co.	,, 26.11.23 to 16.12.23	30.12.23.
Ling Nam ...	Waterson, W. H. V.	... ...	No.	Chunghwa Nav. Co. ...	Form 911 27.10.23 to 12.1.24...	22.4.24.
Llanstephan Castle	Wilford, T. H. ...	W. F. Malden	,,	Union Castle ...	,, 19.3.24 to 10.4.24 ...	22.4.24.
Loch Katrine ...	Matthews, G. P. ...	A. E. Jones	,,	R.M.S.P. Co. ...	,, 22.2.24 to 23.3.24 ...	1.4.24.
London Commerce	Young, H. J., D.S.C.	P. G. Leverett	,,	Furness Withy ...	,, 3.5.24 to 3.6.24 ...	12.6.24.
Loreto, M.V. ...	Barkley, E. ...	F. Binnion	,,	Pacific S.N. Co. ...	,, 18.5.24 to 7.6.24 ...	12.6.24.
Losada M.V. ...	Meldrum, G. W. ...	A. H. Turner	,,	,, ,, ...	,, 12.3.24 to 16.5.24 ...	21.5.24.
Macedonia ...	Potter, H. W., R.D., Commr., R.N.R.	G. Readman	No.	P. & O.	... ...	...
Macharda ...	Cochran, G. ...	W. Moore	,,	Brocklebank ...	Form 911 12.12.23 to 8.3.24 ...	14.3.24.
Mahana ...	Kershaw, W. A. R.	F. M. Smith, R. Batley ...	,,	Shaw Savill & Albion	,, 25.2.24 to 16.3.24 ...	5.5.24.
Maharaja ...	Peet, T. M. ...	C. B. Miller	,,	Asiatic S.N. Co. ...	,, 8.3.24 to 26.4.24 ...	20.5.24.
Mahopac ...	Puttick, J. ...	F. J. Mummery	,,	Atlantic Transport ...	,, 23.4.23 to 3.8.23 ...	27.8.23.
Maihar ...	Rowe J. P. ...	C. Straw L. Robertson, R. G. Widdon.	M.L.	Brocklebank ...	Met. Log. 22.9.23 to 10.12.23...	26.1.24.
Maimyo ...	Hamilton, G. ...	R. A. L. Williams	No.	,, ...	Form 911 24.4.24 to 14.5.24 ...	21.5.24.
Maine	Hutchison, J. G. ...	A. L. Mather	,,	Atlantic Transport ...	,, 24.3.24 to 1.5.24 ...	8.5.24.
Majestic ...	Hayes, Sir B. F., K.C.M.G., D.S.O., R.D., Commodore R.N.R.	A. F. Butcher, W. W. Pearson	W.T.	White Star	W.T. Reg. 8.5.24 to 22.5.24 ...	26.5.24.
					Form 911 8.5.24 to 22.5.24 ...	29.5.24.
Makambo ...	Williams, G. E. ...	A. Brown, W. R. Robertson, F. C. Ree, D. Wilson.	M.L.	Burns Philp ...	Met. Log. 28.3.23 to 10.9.23 ...	4.12.23.
	Brown, T. M. ...					
	Griffiths, G. I. ...					
Makura ...	Crawford, R. ...	H. Knaggs	M.L.	Canadian-Australasian	,, 3.11.23 to 1.3 24 ...	25.3.24.
	Barlow, A. E. ...					
Malancha ...	Whitham, F. ...	J. Robertson	No.	Brocklebank ...	Form 911 24.4.24 to 24.5.24 ...	29.5.24.
Malda	Gray, T. N. ...	L. H. Cornish	,,	British India ...	,, 17.2.24 to 9.5.24 ...	14.5.24.
Manchester Corporation.	Everest J. E. ...	R. A. Walker	,,	Manchester Liners ...	,, 19.5.24 to 28.5.24 ...	13.6.24.
Manchester Mariner	Riley, J. E. ...	C. E. Stocker, J. F. Fisher, F. Stockton.	M.L.	,, ,,	Met. Log. 28.7.23 to 29.2.24 ...	19.3.24.
Manchester Merchant.	Barclay J. ...	A. H. Boyd, A. E. Ricketts...	No.	,, ,, ...	Form 911 11.5.24 to 24.5.24 ...	6.6.24.
Mandasor ...	Kershaw, R. W. ...	W. Baxter	,,	Brocklebank ...	,, 1.12.23 to 7.1.24 ...	28.1.24.
Manipur ...	Scurr, T. W. ...	G. W. Barker	,,	,, ...	,, 6.2.24 to 22.4.24 ...	21.5.24.
Manistee ...	Isaacson, J. M. ...	F. McColm, A. M. Houghton, L. C. Bach, H. C. Slater.	M.L.	Elders & Fyffes ...	Met. Log. 10.11.23 to 16.3.24...	24.3.24.
Marburn	Clews, A. H. ...	A. M. Watt, W. R. Reid, S. Keay.	M.L.	Canadian Pacific ...	,, 27.10.23 to 2.3.24 ...	4.4.24.
	Hamilton, G. ...					
	Hall, J.					
Marella ...	Mortimer S. ...	Burdis, Pemberton, Thompson	M.L.	Burns Philp ...	,, 12.7.23 to 22.11.23...	3.3.24.
Marengo ...	Bean, A. ...	... ...	M.L.	Ellerman Wilson ...	... ...	...
Margha ...	Milne, R. A., R.D., Commr., R.N.R.	J. Strachan, P. Wright, R. E. Tarran, D. Johnstone.	M.L.	British India ...	Met. Log. 17.2.24 to 7.5.24 ...	15.5.24.
Marglen ...	Griffiths, J. N. ...	A. Pennington	No.	Canadian Pacific ...	Form 911 16.2.24 to 7.3.24 ...	11.3.24.
Maryland ...	Pollard, F. W., D.S.O., R.D., Commr., R.N.R.	F. T. Good	,,	Atlantic Transport ...	,, 19.3.24 to 23.4.24 ...	8.5.24.
Mashobra ...	Gallgie	M. W. K. Bishop	,,	British India ...	... ...	...
Masirah ...	Thowless, E. ...	R. C. Baker	,,	Brocklebank ...	Form 911 4.4.24 to 25.4.24 ...	26.5.24.
Massilia ...	Caithness, J. B. ...	E. Richardson	,,	Anchor	,, 29.3.24 to 23.4.24 ...	14.5.24.
Matakana ...	Bosdet, V. J. ...	J. J. Finn, J. W. Hart ...	,,	Shaw, Savill & Albion	,, 31.12.23 to 24.4.24...	29.4.24.
Matheran ...	Cornish, N. P. ...	G. B. Smith, F. Boulding, D. Hunter, G. E. Thomas.	M.L.	Brocklebank ...	Met. Log. 20.2.24 to 19.5.24 ...	12.6.24.
Mathura ...	Hanna, R. G. ...	H. H. Armstrong	No.	,, ...	Form 911 17.4.24 to 2.5.24 ...	26.5.24.
Matiana ...	Langlands, D. H. ...	W. G. E. D. Rawlingson ...	,,	British India ...	,, 28.12.23 to 21.1.24...	1.2.24.
Matina ...	Henderson, J. ...	... ...	M.L.	Elders & Fyffes ...	Met. Log. 3.9.23 to 28.5.24 ...	31.5.24.
Mauretania ...	Rostron, A. H., C.B.E., R.D., A.-d.-C., Capt., R.N.R.	G. H. Jones, P. O. Davis, W. C. A. Robson.	W.T.	Cunard	W.T. Reg. 21.10.23 to 4.11.23...	8.11.23.
					Form 911 29.9.23 to 14.10.23...	23.10.23.
Megantic ...	Berry, G. ...	L. Thompson, H. J. C. Day, R. Conway.	W.T.	White Star ...	W.T. Reg. 14.1.24 to 5.4.24 ...	9.4.24.
Melita	Clews, A. H. ...	C. Draper, A. K. Benham ...	W.T.	Canadian Pacific ...	,, 3.5.24 to 21.5.24 ...	31.5.24.
Memnon ...	Salter, G. H. ...	G. F. Evans	No.	A. Holt	Form 911 13.4.24 to 22.5.24 ...	3.6.24.
Menominee ...	Finch, E. ...	H. E. McCartney	,,	Atlantic Transport ...	,, 19.8.23 to 17.9.23 ...	21.9.23.
Mercian ...	Carnon, J. R. ...	A. T. Holloway	,,	Leyland	,, 11.2.24 to 15.3.24'...	21.3.24.
Mesaba ...	Claret, F. H. ...	L. A. Williams	,,	,, ,, ...	,, 2.7.23 to 11.7.23 ...	27.8.23.
Metagama ...	Henderson, W. ...	B. Leslie, R. Jackson, A. Mansey, A. H. Piggott.	W.T.	Canadian Pacific ...	W.T. Reg. 4.6.24 to 5.6.24 ...	10.6.24.
					,, 17.5.24 to 22.5.24 ...	3.6.24.
Miami... ...	Maxwell Brown, W. E.	E. Lowndes	No.	Elders & Fyffes ...	Form 911 10.4.24 to 10.5.24 ...	14.5.24.
Michigan ...	Tribe, A. E. ...	L. A. Williams	,,	Atlantic Transport ...	,, 18.5.24 to 28.5.24 ...	12.6.24.
Minderoo ...	Richardson, E. ...	B. J. Bennie, W. J. McPhedron, J. H. Oxton.	M.L.	West Australia Nav. Co.	Met. Log. 11.7.23 to 13.12.23...	14.4.24.
Minnedosa ...	Sibbons, H. ...	E. V. Glennie, D. I. C. Robertson, H. Scallon.	W.T.	Canadian Pacific ...	W.T. Reg. 16.5.24 to 4.6.24 ...	10.6.24.
					Form 911 16.5.24 to 4.6.24 ...	10.6.24.
Minnetonka ...	Gates, T. F. ...	H. E. McCartney	No.	Atlantic Transport ...	,, 4.5.24 to 24·5.24 ...	28.5.24.
Minnewaska ...	Claret, F. ...	W. S. Mackie	,,	,, ,, ...	Form 911 18.5.24 to 7.6.24 ...	10.6.24.
Mirror, C.S. ...	Sherwood, C. A. ...	C. E. F. St. John	No.	Eastern Tel. Co.	,, 25.2.24 to 5.4.24 ...	16.4.24.
Mississippi, M.V.	Wylie, J. T. J. ...	G. Batchelor	,,	Atlantic Transport ...	,, 6.4.24 to 18.4.24 ...	22.4.24.
Missouri ...	Hutchison, J. G. ...	W. W. Howard	,,	,, ,, ...	,, 30.7.23 to 2.9.23 ...	6.9.23.
Moena ...	Morzer Bruyns, M. F.	J. H. Nieboer	,,	Nederland	,, 19.4.24 to 13.5.24 ...	20.5.24.
Moldavia ...	Burleigh, C. W., D.S.O., R.D., Capt., R.N.R.	E. T. Ferraby	,,	P. & O.	,, 23.4.24 to 3.5.24 ...	27.5.24.
Mongolian Prince	Durrant, G. D. ...	R. S. Bibby	No.	Prince	Form 911 25.3.24 to 27.5.24 ...	2.6.24.
Monkbarns, Ship	Davies, W. ...	M. B. Glasier	,,	J. Stewart & Co. ...	,, 13.10.23 to 20.11.23	21.1.24.
Montcalm ...	Rennie, A., O.B.E.	H. McFadyen	W.T.	Canadian Pacific ...	W.T. Reg. 26.4.24 to 16.5.24 ...	19.5.24.
					Form 911 25.4.24 to 16.5.24 ...	20.5.24.
Montclare ...	Webster, G. S., R.D., Commr., R.N.R.	R. Fegan, G. F. Hutchings, F. McIlroy.	W.T.	,, ,, ...	W.T. Reg. 10.5.24 to 30.5.24 ...	3.6.24.
Montlaurier ...	Turnbull, J., C.B.E., R.D., Capt., R.N.R.	H. H. Davies	No.	,, ,, ...	Form 911 3.5.24 to 22.5.24 ...	26.5.24.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed.	Date Received.
Montrose ...	Landy, E. ...	D. Loram, T. Beck, J. P. McKenzie.	W.T.	Canadian Pacific ...	W.T. Reg. 3.5.24 to 23.5.24 ...	31.5.24.
					Form 911 3.5.24 to 23.5.24 ...	27.5.24.
Montroyal ...	Latta, R. G. ...	R. W. Jones, C. E. Duggan, E. V. Glennie, G. Marriott.	,,	,, ,, ...	,, 16.5.24 to 5.6.24 ...	12.6.24.
					W.T. Reg. 17.5.24 to 5.6.24 ...	12.6.24.
Morvada ...	Mills, T. L., O.B.E., R.D., Commr., R.N.R.	J. Norris, D. Lonie, F. Dyson	M.L.	British India ...	Met. Log. 15.9.23 to 27.11.23...	29.11.23.
Mulbera ...	Steadman, W. R. ...	F. G. Tizzard, C. Cox ...	No.	British India ...	Form 911 25.4.24 to 13.5.24 ...	10.6.24.
Musician ...	Egerton, J. J. ...	O. Stanhope	,,	Harrison	,, 5.4.23 to 17.6.23 ...	2.8.23.
Nagara ...	Turner, E. A. ...	C. K. Brown	,,	R.M.S.P. Co. ...	,, 17.2.24 to 16.4.24 ...	24.4.24.
Napierian ...	Kerruish, W. ...	T. Griffiths	,,	Leyland	,, 14.2.24 to 26.2.24 ...	14.3.24.
Nardana ...	Brown, H. ...	S. C. T. Smith, R. M. Naylor	,,	British India ...	,, 24.3.24 to 5.4.24 ...	26.5.24.
Nariva... ...	Buret, T. J. C. ...	J. E. Atkins, B. C. Dodds, S. H. Butler.	M.L.	R.M.S.P. Co. ...	Met. Log. 2.4.24 to 30.5.24 ...	4.6.24.
Nascopie ...	Smellie, T. F. ...	P. Lloyd, R. J. Summers, R. S. Mott.	M.L.	Hudson's Bay Co. ...	,, 15.6.23 to 24.10.23...	31.10.23.
Navarino ...	Crichton, J. S. ...	J. Annam	No.	Glen & Co.	Form 911 13.12.23 to 12.1.24...	22.1.24.
Navasota ...	Willan, F. G. L., R.D., Commr., R.N.R.	W. A. Delap	,,	R.M.S.P. Co. ...	,, 19.1.24 to 9.3.24 ...	17.3.24.
Navigator ...	Mowat, J. ...	... ...	,,	Harrison	,, 29.4.23 to 26.6.23 ...	11.7.23.
Nawab... ...	Smith, J. F. ...	... ...	,,	Asiatic S.N. Co. ...	,, 7.12.23 to 4.2.24 ...	25.2.24.
Nebraska ...	Collins, A. R. D., O.B.E., R.D., Lt.-Commr., R.N.R.	A. F. Walker	,,	R.M.S.P. Co. ...	,, 15.3.24 to 21.4.24 ...	5.5.24.
Nellore... ...	Murray, F. S., R.D., Lt. - Commr., R.N.R.	G. Aspinall	,,	P. & O.	,, 9.4.24 to 27.5.24 ...	2.6.24.
Nestor	Owen, R. D., O.B.E.	W. J. Eyson	,,	A. Holt	,, 1.2.24 to 13.3.24 ...	17.3.24.
Nevasa... ...	Swanson, C. J. ...	E. C. T. West	,,	British India ...	,, 12.10.23 to 21.12.23	4.1.24.
Newby Hall ...	Kendall, J. W. ...	E. J. Myles, C. H. Webb, T. A. Dexter.	M.L.	Ellerman	Met. Log. 4.7.23 to 24.1.24 ...	4.3.24.
Niagara ...	Rolls, J. T. ...	R. M. Scott, N. G. Buxton, O. C. Bray, R. B. Denniston.	M.L.	Canadian-Australian...	,, 6.10.23 to 28.2.24 ...	30.4.24.
Ningchow ...	Wilson, C. A. ...	R. A. Hannay	No.	A. Holt	Form 911 19.3.24 to 20.4.24 ...	20.5.24.
Nore	Randall H. W., R.D., Capt., R.N.R.	J. C. Ablewhite, R. W. Mackie, H. C. Slinn.	M.L.	P. & O.	Met. Log. 6.3.24 to 25.5.24 ...	29.5.24.
Norman ...	Morton Betts, W. ...	D. A. Hodgson	No.	Union Castle ...	Form 911 13.4.24 to 1.5.24 ...	29.5.24.
Norseman, C.S. ...	Barter, H. O., R.D., Commr., R.N.R.	S. M. Hammond, E. R. Duffey, L. M. Cooper.	M.L.	Western Tel. Co. ...	Met. Log. 12.2.23 to 21.8.23 ...	24.9.23.
Northumberland ...	Haines, F. P. ...	... ...	No.	Federal	Form 911 16.6.23 to 28.7.23 ...	31.7.23.
Nortonian ...	McCormick, J. ...	C. R. Stevens	,,	Leyland	,, 20.4.24 to 22.5.24 ...	29.5.24.
Nubian ...	Watmough, T. M. ...	W. J. Wright	,,	,, ...	,, 25.4.24 to 11.5.24 ...	14.5.24.
Nyanza ...	Carpendale, F. W. J.	F. Aheir, C. H. Hand, F. Ardern.	M.L.	P. & O.	Met. Log. 11.2.24 to 6.5.24 ...	12.5.24.
Oaklands Grange...	Routledge, R. ...	E. A. Insley	No.	Houlder Bros. ...	Form 911 15.2.24 to 3.5.24 ...	16.5.24.
Odland I. ...	Villiamsen ...	H. Svendgaard	,,	Hannevig Bros. ...	Form 911 19.12.23 to 2.1.24 ...	4.1.24.
Ohio	Lainson, W. H. ...	W. Paine, C. K. Brown, G. C. Clairmonte.	M.L.	R.M.S.P. Co.	Met. Log. 18.5.23 to 2.12.23 ...	13.12.23.
Olympia ...	Duncan, A. R. ...	D. R. Urquhart, G. Lynas, F. McIntyre.	M.L.	Anchor	,, 12.1.24 to 23.3.24 ...	2.4.24.
Olympic ...	Howarth, F. B., Commr., R.N.R.	J. C. M. Boyce, C. W. Couch, C. J. Warltire.	W.T.	White Star ...	W.T. Reg. 15.5.24 to 29.5.24 ...	5.6.24.
					Form 911 3.4.24 to 9.5.24 ...	14.5.24.
Omar	Simner, G. L., R.D., Commr., R.N.R.	W. M. McRitchie, C. V. Dodgson, L. E. Fordham, H. S. Schofield, T. J. Jones.	M.L.	Orient	Met. Log. 22.9.23 to 6.1.24 ...	16.1.24.
Onitsha ...	Williams, T. E. ...	D. Rollo	No.	Elder Dempster ...	Form 911 1.9.23 to 21.9.23 ...	20.11.23.
Oranian ...	Hoskins, W. ...	T. Miller	,,	Leyland	,, 4.2.24 to 29.3.24 ...	2.4.24.
Orari	Robinson, F. W. ...	R. Newman, T. Breen, F. Longheed, G. Lant, H. Farrant.	M.L.	New Zealand S.S. Co.	Met. Log. 22.11.23 to 11.5.24...	16.5.24.
Orator	Flynn, D. ...	J. C. Sinclair	No.	Harrison	Form 911 2.7.23 to 22.7.23 ...	22.8.23.
Orbita	Parker, W. H., C.B.E., R.D., Capt., R.N.R.	D. R. Lee, O. S. Thomas, K. P. Alliston.	W.T.	R.M.S.P. Co. ...	W.T. Reg. 19.4.24 to 12.5.24 ...	14.5.24.
					Form 911 18.4.24 to 12.5.24 ...	14.5.24.
Orcoma ...	Pleignier, H. T. S....	G. B. Wardale, J. J. Buckley, C. H. Denton.	M.L.	Pacific S.N. Co. ...	Met. Log. 21.2.24 to 4.5.24 ...	8.5.24.
Orduna ...	Warner, G. E., R.D., Commr., R.N.R.	J. W. Carr, J. Vivian, J. S. Rake, J. Smith, A. A. Martin.	W.T.	R.M.S.P. Co. ...	W.T. Reg. 15.5.24 to 8.6.24 ...	11.6.24.
					Form 911 14.5.24 to 8.6.24 ...	11.6.24.
Oriana... ...	Christian, G. H. ...	G. Pattison, Mason, G. F. Nicholson, Cruikshank.	M.L.	Pacific S.N. Co. ...	Met. Log. 26.1.23 to 14.8.23 ...	18.8.23.
Orita	Dominy, R. H., C.B.E., Commr., R.N.R.	H. S. Roberts, J. S. Wardman.	M.L.	,, ,, ...	Met. Log. 26.12.23 to 2.6.24 ...	5.6.24.
Ormonde ...	Douglas, H. P., C.M.G., Capt., R.N.	R. A. Stephens	M.L.	His Majesty's Ship ...	Met. Log. 8.8.23 to 20.9.23 ...	30.4.24.
Ormonde ...	Staunton, H. G., C.B.E., R.D., Commr., R.N.R.	T. G. McGregor, H. MacLean, F. J. L. Butler,	M.L.	Orient	Met. Log. 14.10.23 to 29.1.24	5.2.24.
Ormuz	James, L. V., D.S.C.	J. S. Metcalf, I. E. G. Goldsworthy, L. A. Keeble.	M.L.	,, ...	Met. Log. 6.1.24 to 24.4.24 ...	30.4.24.
Oroya	Chittenden, A. ...	S. Lewis	No.	Pacific S.N. Co. ...	Form 911 30.1.24 to 10.4.24 ...	16.4.24.
Orsova	Matheson, C. G., D.S.O., R.D., Commr., R.N.R.	C. Fox, J. C. Jackson, C. V. Dodgson, P. P. Murphy.	M.L.	Orient	Met. Log. 3.2.24 to 20.5.24 ...	30.5.24.
Ortega	Christian, C. H. ...	... ...	No.	Pacific S.N. Co. ...	Form 911 10.3.24 to 21.5.24 ...	30.5.24.
Orvieto... ...	Shelford, W. S., Lt.-Commr., R.N.R.	G. H. Wylie, A. J. Baxter, G. E. Martin, A. O. H. O'Bryen, M. C. Lester.	M.L.	Orient	Met. Log. 11.11.23 to 26.2.24...	3.3.24.
Osterley ...	Coad, A. J., R.D., Commr., R.N.R.	A. E. Nicholls, F. G. Goodman, T. B. Grainger-Grieve, E. Hatch.	M.L.	,, ...	,, 9.12.23 to 26.3.24 ...	7.4.24.
Othello	Pearson, Z. C. ...	E. G. H. Huddleston ...	No.	Ellerman Wilson ...	Form 911 9.4.24 to 12.5.24 ...	3.6.24.
Otira	Elford, H. E. ...	V. R. Bowling	,,	Shaw, Savill & Albion	,, 24.11.23 to 13.12.23	1.1.24.
Ovid	Groom, A. E. B. ...	... ...	,,	Shakespear Shipping Co.	... ...	...
Pacific Shipper, M.V.	Newman, G. ...	F. H. Perry	No.	Furness Withy ...	... ...	...
Pakeha ...	Hartman, W. H. ...	W. L. P. Cox	,,	Shaw, Savill & Albion	Form 911 23.12.23 to 2.2.24 ...	11.2.24.
Paparoa ...	Ashworth, F. ...	E. H. Hopkins	,,	New Zealand S.S. Co.	,, 25.3.24 to 10.5.24 ...	14.5.24.
Paris	Cook, C. L. ...	Mr. Biles...	C.C.	Southern Rly. ...	Telegraphic Report. 19.2.24 ...	19.2.24.
Patia	Bostock, R. J. ...	W. McIlwain	No.	Elders & Fyffes ...	Form 911 13.4.24 to 18.5.24 ...	23.5.24.
Patrol, C.S. ...	Bredenberg, F. ...	Gardiner, Albrecht, Morrell...	M.L.	Eastern Extension (A. & C.) Telegraph Co.	Met. Log. 1.7.23 to 14.9.23 ...	25.2.24.
Persic	Davies, E. ...	N. E. Banks	No.	White Star ...	Form 911 17.2.24 to 24.3.24 ...	28.4.24.
Peshawur ...	Hester, C. W., R.D., Commr., R.N.R.	C. E. Arundel	M.L.	P. & O.	Met. Log. 13.3.24 to 13.5.24 ...	19.5.24.
Philadelphian ...	Baker, J. A. ...	G. W. B. Lloyd	No.	Leyland	Form 911 7.2.24 to 22.4.24 ...	24.4.24.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed.	Date Received.
Polyphemus ...	Hatfield, J. ...	F. Silva	No.	A. Holt	Form 911 27.2.24 to 16.3.24 ...	18.3.24.
Poona	Cherry, W. G. W. ...	F. J. Ablewhite	,,	P. & O.	,, 21.4.24 to 3.5.24 ...	13.6.24.
Port Albany ...	Robinson, C. A. ...	G. L. Hazlewood, W. B. Craig, A. G. Newbury, W. Eastoe.	M.L.	Commonwealth & Dominion.	Met. Log. 18.10.23 to 19.3.24...	1.4.24.
,, *Augusta* ...	Brown, A. H. Harris, G .T. C. Sawbridge, I. R.	R. C. Carter, C. F. Coate, H. Stone.	M.L.	,, ,, ,,	,, 13.10.23 to 24.3.24...	7.4.24.
,, *Caroline* ...	Renaut, F. A. ...	E. G. Fullick, P. H. Pedrick, T. Palmer.	M.L.	,, ,, ,,	,, 18.7.23 to 19.11.23...	24.11.23.
,, *Curtis* ...	Van den Bergh, C.	A. G. Rhind	No.	,, ,, ,,	... ...	...
,, *Darwin* ...	Jack, J.	E. T. N. Lawrey, E. W. R. Young.	,,	,, ,, ,,	Form 911 30.1.24 to 6.4.24 ...	9.4.24.
,, *Hacking* ...	Stickland, A. E. ...	Rowland Hill	,,	,, ,, ,,	,, 25.1.24 to 11.3.24 ...	18.3.24.
,, *Hunter* ...	Cottell, S. C. ...	A. Cooper, C. F. Post, J. H. Bower.	M.L.	,, ,, ,,	Met. Log. 16.11.23 to 18.3.24...	21.3.24.
,, *Lyttelton* ...	Ferris, J.... ...	W. L. Lynd, J. Buchan H. M. Post, G. H. Harvey.	M.L.	,, ,, ,,	,, 19.9.23 to 23.11.23...	3.6.24.
,, *Melbourne* ...	Kearney, F. J. ...	D. G. H. Bradley, R. B. Linklater. T. L. Kidwell.	M.L.	,, ,, ,,	,, 11.9.23 to 17.1.24 ...	28.1.24.
,, *Nicholson* ...	Hoad, A. C. ...	W. G. Jones, C. R. Townshend. G. G. Langford.	M.L.	,, ,, ,,	,, 5.10.23 to 4.2.24 ...	11.2.24.
,, *Pirie* ...	Higgs, W. G. ...	H. C. Jeffery, E. E. Roswell, R. S. Stannard, E. N. Rogerson.	M.L.	,, ,, ,,	,, 25.8.23 to 26.12.23...	30.12.23.
,, *Sydney* ...	Lea, W. H. ...	H. E. Higgs, A. W. Sams, C. Groves, A. M. Stanton.	M.L.	,, ,, ,,	,, 9.12.23 to 27.4.24 ...	8.5.24.
,, *Victor* ...	Swan, L. H. ...	R. T. R. Tomsett, W. Pickup, G. Jones.	M.L.	,, ,, ,,	,, 23.10.23 to 17.3.24...	19.3.24.
President Jackson	Griffith, J ...	E. Walker	No.	Pacific S.S. Co. ...	Form 911 19.2.24 to 20.3.24 ...	10.5.24.
Protea, H.M.S.A.S.	Dalgleish... ...	H. McMaster	,,	South African Naval Service.	,, 14.5.23 to 29.6.23 ...	31.7.23.
Protesilaus ...	Wilkinson, H. ...	E. P. Gault, T. Miners, A. Woolfenden, F. Smith.	M.L.	A. Holt	Met. Log. 3.1.24 to 10.3.24 ...	7.4.24.
Pyrrhus ...	Elford, W. J. ...	W. Owen	No.	,, ...	Form 911 24.5.24 to 3.6.24 ...	12.6.24.
Rajah	Park, G.	... ...	No.	Asiatic S.N. Co. ...	Form 911 17.6.23 to 10.7.23 ...	15.8.23.
Regina... ...	Smith, R. G. ...	A. Hulme	,,	White Star-Dominion	,, 11.5.24 to 1.6.24 ...	10.6.24.
Reindeer ...	Mulhall, W. ...	... ...	C.C.	G.W. Railway ...	Telegraphic Report 12.6.24 ...	12.6.24.
Rhodesian Transport.	Fowler, W. H. ...	A. E. Warburton	No.	Houlder Bros. ...	Form 911 19.2.24 to 29.5.24 ...	11.6.24.
Rialto	Mordue, J. A. ...	... ...	,,	Ellerman Bucknall ...	,, 1.4.24 to 14.4.24 ...	30.4.24.
Rimutaka ...	Hemming, F. A. ...	E. W. Smith, H. Horwood, R. S. Cox.	M.L.	New Zealand S.S. Co.	Met. Log. 22.9.23 to 6.2.24 ...	11.2.24.
Risaldar, ...	Park, G.	... ...	,,	Asiatic S.N. Co. ...	... ...	...
Romney ...	Leicester, F. S. ...	E. S. Phillips, E. King ...	No.	Lamport & Holt ...	Form 911 3.2.24 to 1 3.24 ...	10.3.24.
Royal Fusilier ...	Dawson, J. ...	J. Fraser	,,	London & Edinburgh S.S. Co.	,, 18.5.24 to 30.5.24 ...	2.6.24.
Royal Transport...	Dove, J.	R. Martin	,,	Houlder Bros. ...	,, 27.3.24 to 27.4.24 ...	29.4.24.
Ruapehu ...	Holland, E. A. ...	J. D. Tooms, G. Kinnett, P. J. Connolly, F. Cooke.	M.L.	New Zealand S.S. Co.	Met. Log. 6.11.23 to 7.3.24 ...	13.3.24.
Sachem... ...	Furneaux, S. ...	C. Waldron, E. Sainty ...	No.	Furness Withy ...	Form 911 25.3.24 to 29.4.24 ...	5.5.24.
Samaria ...	Horsburgh, G. ...	E. Esson	,,	Cunard	,, 24.9.23 to 10.10.23...	16.10.23.
Sandown Castle ...	Jackson, C. R. ...	G. Mayhew	,,	Union Castle ...	,, 25.3.24 to 20.4.24 ...	24.4.24.
Saoirse, Yacht ...	O'Brien, C. ...	H. S. Hodges	,,	C. O'Brien	,, 1.9.23 to 6.10.23 ...	7.11.23.
Sardinia ...	Cadiz, F. G., D.S.C.	A. F. Wiles	,,	P. & O.	,, 1.1.24 to 21.1.24 ...	4.2.24.
Saturnia ...	Black, J. ...	T. Ure	W.T.	Anchor Donaldson ...	W.T. Reg. 10.5.24 to 29.5.24 ... Form 911 10.5.24 to 31.5.24 ...	4.6.24. 3.6.24.
Saxoleine ...	Biddick, E. ...	S. Wood	No.	Hunting & Son ...	,, 25.4.24 to 29.5.24 ...	10.6.24.
Saxon	Stanley, W. F., R.D., Commr., R.N.R.	R. S. W. Harris	,,	Union Castle ...	,, 28.3.24 to 19.5.24 ...	28.5.24.
Saxonia ...	McNeil, S. G. S., R.D., Capt., R.N.R.	H. A. D. Waterhouse ...	,,	Cunard	,, 22.3.24 to 1.4.24 ...	8.4.24.
Scholar ...	O'Connor, T. ...	H. Hall	,,	Harrison	,, 28.12.23 to 22.2.24...	5.3.24.
Scientist ...	Hansen, W. A. ...	D. G. Russell	,,	,, ...	,, 8.2.24 to 23.4.24 ...	30.4.24.
Scindia ...	Smart, R. W. ...	H. D. Campsie	,,	Anchor	,, 15.3.24 to 28.5.24 ...	3.6.24.
Scotia	Telfer	O. W. L. Jones	C.C.	L.M. & S. Rly. ...	Telegraphic Report 12.6.24 ...	12.6.24.
Scottish Bard ...	McDonnell, S. ...	W. H. Campbell	No.	Tankers, Ltd.	Form 911 25.8.23 to 14.9.23 ...	1.10.23.
Scottish Borderer	Thompson, F. ...	G. F. Widger	,,	,, ...	,, 14.4.24 to 16.5.24 ...	27.5.24.
Scythia ...	Prothero, W. ...	T. Parry, G. Overton, W. Cox.	W.T.	Cunard	W.T. Reg. 11.5.24 to 1.6.24 ... Form 911 11.5.24 to 1.6.24 ...	5.6.24. 6.6.24.
Sheaf Mount ...	Groves, C. V. ...	C. Goold	No.	Souter, W. A. ...	,, 9.5.24 to 24.5.24 ...	6.6.24.
Sheaf Spear ...	Whitfield, G. A., O.B.E.	A. E. Harvey, W. H. Grisewood.	M.L.	,, ...	Met. Log. 21.8.23 to 27.1.24 ...	15.3.24.
Sicilia	Davis, H. C., D.S.C., R.D., Commr., R.N.R.	R. Rowe	No.	P. & O.	Form 911 24.3.24 to 13.4.24 ...	20.5.24.
Socrates ...	James, F. R. ...	E. R. Hartley	,,	Lamport & Holt ...	,, 11.4.24 to 24.5.24 ...	10.6.24.
Soekaboemi ...	Ruhaak, G. H. ...	W. N. de Wijn	,,	Rotterdam Lloyd ...	,, 28.12.23 to 15.1.24...	8.2.24.
Somerset ...	Barnett, H. ...	C. H. Landfield	M.L.	New Zealand S.S. Co.	,, 17.11.23 to 1.1.24 ...	4.1.24.
Somme... ...	Miles, F. R., Commr., R.N.R. ...	B. K. Berry, C. C. Prosser, D. P. Larham.	M.L.	R.M.S.P. Co. ...	Met. Log. 24.4.23 to 28.11.23...	17.12.23.
Songster ...	Thompson, W. ...	W. F. O'Neill	M.L.	Harrison	,, 13.10.23 to 5.11.23...	19.2.24
Spectator ...	Owen, W. F. ...	A. M. Dick	No.	,, ...	Form 911 2.1.24 to 18.4.24 ...	22.4.24.
Spero	French, H. E. ...	E. A. Gould, G. Mussared ...	M.L.	Ellerman Wilson ...	Met. Log. 8.6.23 to 17.2.24 ...	13.3.24.
Stephan, C.S. ...	Carlton, G. F., O.B.E., Commr., R.N.R.	L. J. Hegarty, J. Matthews, F. B. Bolingbroke.	M.L.	Telegraph Construction & Maintenance.	,, 5.5.23 to 3.10.23 ...	10.10.23.
Surrey	Field, H. E. B. ...	G. W. Allard, S. E. Hoblyn, R. R. Bennett.	M.L.	Federal	,, 12.1.24 to 6.6.24 ...	11.6.24.
Sussex	Upton, E. C. S. ...	W. A. Ewington	No.	,, ...	Form 911 3.4.24 to 8.5.24 ...	13.6.24.
St. Albans ...	... ...	... ...	...	Eastern and Australian	... .	...
St. George ...	Blair, D., O.B.E., R.D., Commr., R.N.R.	... ...	M.L.	Scientific Expeditionary Research Assocn.	... ...	...
St. Patrick ...	Bearpark, E. W. ...	W. P. Baker	No.	Rankin Gilmour ...	Form 911 10.4.24 to 26.4.24 ...	10.5.24.
Tainui ...	Hartman, W. H. ...	J. Dickson	,,	Shaw, Savill & Albion	,, 4.4.24 to 9.5.24 ...	14.5.24.
Tairoa	Summers, W. G. ...	P. Campbell	,,	,, ,, ,, ...	,, 11.11.23 to 13.4.24...	22.4.24.
Taiyuan ...	Hamilton, H. E. ...	R. D. Thomas, W. Bailley, D. D. Tyer.	M.L.	Yuill & Co. ...	Met. Log. 11.10.23 to 16.2.24...	30.4.24.
Talthybius ...	Beswick, W. ...	D. Rees	No.	A. Holt	Form 911 4.3.24 to 11.4.24 ...	14.4.24.
Tambora ...	Ruhaak, H. G. ...	H. Van Manen	,,	Rotterdam Lloyd ...	,, 13.3.24 to 30.3.24 ...	14.5.24.
Teiresias ...	Reynard, J. G. ...	H. Humphreys	,,	A. Holt	,, 15.1.24 to 5.4.24 ...	22.4.24.

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro-logical Equipment.	Line.	Last Log, Register, or Report Contributed.	Date Received.
Teucer	Hanney, T. W. ...	J. C. Norton	No.	A. Holt	Form 911 20.9.23 to 18.1.24 ...	4.2.24.
Themistocles ...	Jermyn, W. M. ...	R. H. Harrison	,,	Aberdeen	,, 8 11.23 to 5.3.24 ...	11.3.24.
Theseus ...	Williams, D. T. ...	W. Cowperthwaite ...	,,	A. Holt	,, 1.12.23 to 8.2.24 ...	15.2.24.
Titan	Ireland, T. R. ...	J. P. Williams, A. C. H. Jones D. J. Davies, C. Taylor.	M.L.	,, ...	Met. Log. 2.11.23 to 8.3.24 ...	12.3.24.
Tolmie, S.F.Bqtne.	Stewart, J. C. ...	E. F. Collins R. E. Smith ...	No.	B. C. Mills, Tug and Barge Co.	Form 911 10.2.24 to 17.4.24 ...	3.6.24.
Tottori Maru ...	Mataukura, B. ...	K. H. Kubota	,,	Nippon Yusen Kaisha	,, 18.4.24 to 30.4.24 ...	8.5.24.
Transmitter, C.S.	Jones, Ll. T., M.B.E.	S. P. Sheldon	,,	Eastern Tel. Co. ...	,, 7.12.23 to 2.2.24 ...	18.2.24.
Traveller ...	Jones, E. W. ...	... ...	,,	Harrison	,, 4.8.23 to 8.10.23 ...	18.10.23.
Tredenham ...	Evans, J. O. ...	C. Warren	,,	Hain S.S. Co. ...	,, 9 3.24 to 25.3.24 ...	5.5.24.
Trematon ...	Hicks, F. H. ...	J. Christopher, D. Thomas, F. J. Webb.	M.L.	,, ...	Met. Log. 28.8.22 to 30.3.23 ...	18.4.23.
Tuscania ...	Bone, D. W. ...	T. S. Nixon	No.	Anchor	Form 911 18.5.24 to 8.6.24 ...	13.6.24.
Tuscanstar ...	Thomas, R. J. ...	W. H. Webster	,,	Blue Star	,, 29.5.23 to 3.7.23 ...	11.7.23.
Tyndareus ...	Adcock, F. ...	D. L. Hoare	,,	A. Holt	,, 13.3.24 to 26.4.24 ...	3.6.24.
Ulysses ...	Hazeland, J. H. D.	W. J. Peard	No.	A. Holt	Form 911 2.11.23 to 17.11.23...	11.12.23.
Umtali	Rogers, W. G. ...	W. H. Foster	,,	Bullard King ...	... ...	...
Valacia ...	Doyle, M. ...	J. W. Caunce	,,	Cunard	,, 19.4.24 to 30.4.24 ...	5.5.24.
Valdura ...	Mitchell, A. ...	J. Campbell, J. Anderson, A. M. S. Well.	M.L.	Gow Harrison ...	Met. Log. 21.9.23 to 10.12.23...	6.5.24.
Valemore ...	Griffiths, J. ...	H. Miller...	No.	Furness Withy ...	Form 911 22.11.23 to 29.12.23	30.12.23.
Vardulia ...	Townley, J. C. ...	W. L. Hughes	,,	Cunard	,, 19.4.24 to 21.5.24 ...	26.5.24.
Vasconia ...	Inch, F.	W. P. Armour	,,	,, ...	,, 13.3.24 to 13.4.24 ...	22.4.24.
Vellavia ...	Fear, E. T. C. ...	H. H. Kidwell	,,	,, ...	,, 30.3.24 to 11.4.24 ...	22.4.24.
Ventura de Larrinaga.	Keay, W. S. ...	H. J. Kay	,,	Larrinaga	,, 2.3.24 to 4,4.24 ...	10.4.24.
Verbania ...	Gronow, S.	J. G. Wiseman	,,	Cunard	,, 30.3.24 to 8.5.24 ...	14.5.24.
Verentia ...	Stafford, W., D.S.C., R.D., Lt.-Commr., R.N.R.	D. E. Sibson	,,	,, ...	,, 14.4.24 to 15.5.24 ...	21.5.24.
Victoria ...	Fisher, F. T. ...	J. Males, E. Peacock, J. Archer	M.L.	China-Australia ...	Met. Log. 29.3.23 to 29.8.23 ...	6.10.23.
Waiotapu ...	Brown, T. F. S. ...	B. S. Cave	No.	Canadian-Australasian	Form 911 12.4.24 to 21.5.24 ...	6.6.24.
Walmer Castle ...	Chave, Sir B.,K.B.E.	C. Aylen	,,	Union Castle ...	,, 17.4.24 to 9.6.24 ...	10.6.24.
Wangaratta ...	Scutt, W. ...	T. W. Wordingham, M. Chant, K. M. Morrison.	M.L.	British India ...	Met. Log. 14.1.24 to 20.5.24 ...	27.5.24.
Warfield ...	Steel, R. ...	E. V. Wilkinson	No.	,, ,, ...	Form 911 1.5.24 to 14.5.24 ...	29.5.24.
War Nizam ...	Putt, R. O. ...	E. R. Clark	,,	British Tankers ...	,, 31.3.24 to 19.5.24 ...	4.6.24.
Welshman ...	Rollerson, W. ...	... ...	,,	White Star-Dominion	,, 23.4.24 to 20.5.24 ...	26.5.24.
Winifredian ...	Harrocks, W. ...	A. R. Rose	,,	Leyland	,, 13.4.24 to 19.5.24 ...	23.5.24.
Woodarra ...	Reilly, J. V. ...	L. D. Graham, A. V. Fisher, L. C. Comber, J. Wallace.	M.L.	British India ...	Met Log. 7.10.23 to 9.3.24 ...	26.3.24.
Yorkshire ...	Millson, G. C. ...	E. Jones	No.	Bibby	Form 911 19.1.24 to 27.3.24 ...	1.4.24.
Zeeland ...	Thomas, A. J. ...	W. Jackman	No.	Red Star	Form 911 16.5.24 to 6.6.24 ...	10.6.24.
		Unless otherwise stated,	vessels on t	he above list are S.S.		
Conway, H.M.S.	Broadbent, H. W., R.D. Capt., R.N.R.	The Senior Cadets... ...	Cadets' M.L.	... ...	Cadets' Met. Log. 20.1.24 to 29.3.24	5.4.24.
Pangbourne Nautical College.	Tracy, A. F. G., Commr., R.N.	,, ,, ...	,,	... ...	Cadets' Met. Log. 21.1.24 to 5.4.24	10.4.24.
Worcester, H.M.S.	Sayer, M. B., O.B.E., R.D., Capt., R.N.R.	,, ,, ...	,,	... ...	Cadets' Met Log. 25.1.24 to 12.4.24	17.4.24.
Abaco	... ...	The Keepers	Lighthouse Register.	... ...	Lighthouse Register 1.7.23 to 1.1.24	3.3.24.
Cay Lobos ...	... ...	,, ...	,,	... ...	Lighthouse Register 1.7.23 to 31.12.23	3.3.24.
Double Headed Shot	... ...	,, ...	,,	... ...	Lighthouse Register 1.7.23 to 31.12.23	3.3.24.
Inagua... ...	... ...	,, ...	,,	... ...	Lighthouse Register 1.7.23 to 31.12.23	3.3.24.
Sombrero ...	... ...	,, ...	,,	... ...	Lighthouse Register 1.7.23 to 31.12.23	25.2.24.
Watling Island ...	... ...	,, ...	,,	... ...	Lighthouse Register 1.8.23 to 31.12.23	3.3.24.
Cape Pembroke (Falkland Is.).	... ...	,, ...	,	... ...	Lighthouse Register 1.7.23 to 31.12.23	3.3.24.

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.	Date Received.
Alban	Whayman, W. R. ...	R. Griffiths	Booth	Water Samples	23.4.24.
Hildebrand	Maddrell, J.	A. Blacklock	,, ...	,, ,, ...	10.5.24.
Patia	Bostock, R. J.... ...	S. A. Sapsworth, P. D. Allen	Elder & Fyffes ...	,, ,, ...	1.5.24.
Tortuguero	Martin	H. H. Dunning ...	,, ,, ...	,, ,, ...	16.4.24.

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