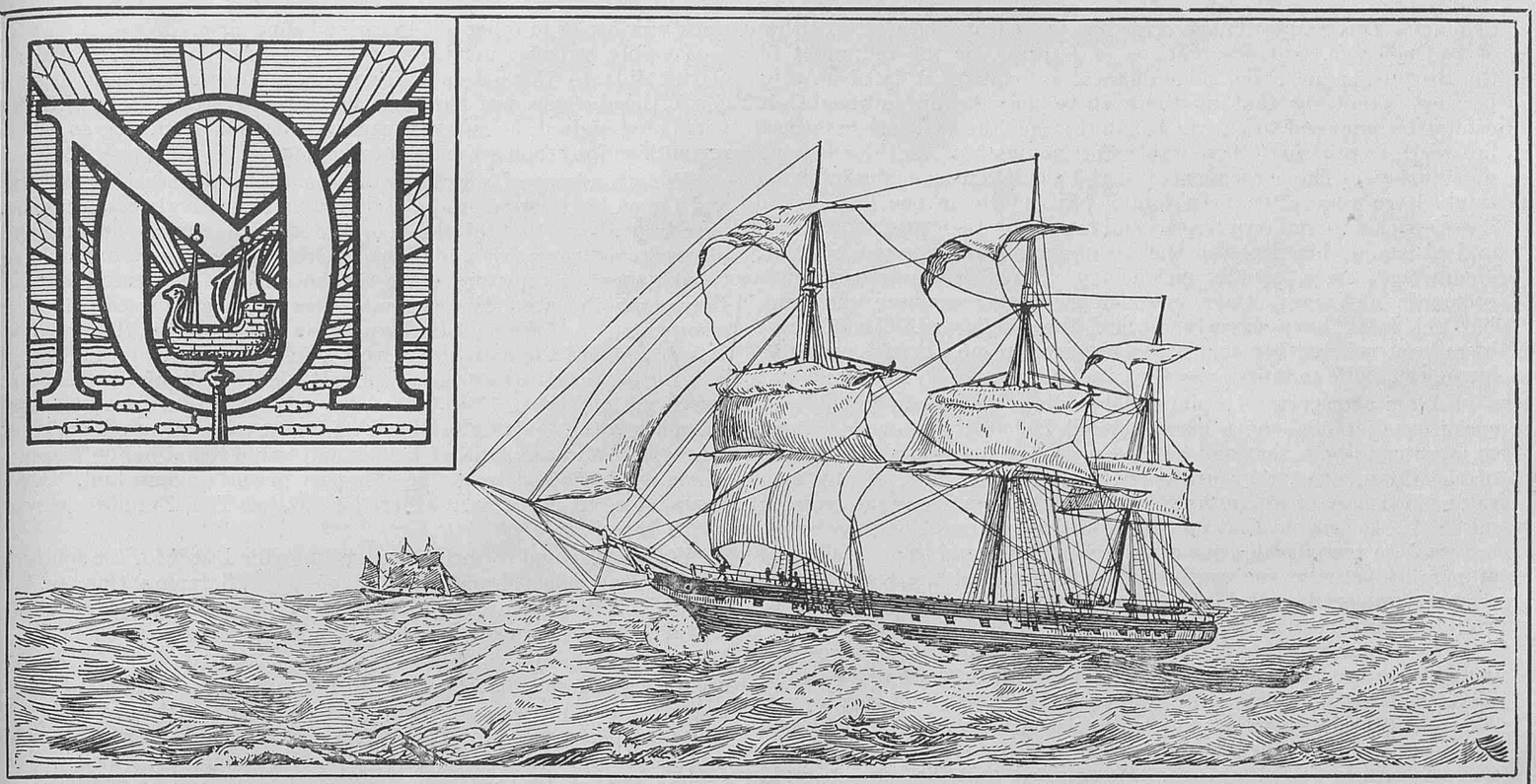


VOL. II. No. 23. THE MARINE OBSERVER. NOVEMBER 1925.

TABLE OF PRINCIPAL CONTENTS.

CURRENT CHARTS.

THE Charts published in this Journal since its commencement show by the current roses the vagaries of current. With this Number all the Quarterly Current Charts to be published in Volume II. are completed, and with the four charts for the route, Channel to the Latitude of St. Vincent, now before us, it is well to say that the experiment made in showing components of current due to wind, with wind and current diagrams, which was fully explained in Vol. I, No. 9, "Wireless and Weather, an Aid to Navigation," Chapter IX, "Wind and set and drift of Current," is not entirely satisfactory with the amount of data available. But, generally, these diagrams do give the navigator a very good idea of the influence of wind upon set, and the following conclusions may be substantiated by them.

Generally along the route charted from the chops of the Channel to the Latitude of Cape St. Vincent, south-westerly winds contribute most to sets with easting; while north-east winds are more often associated with sets having westing. The set being more often to the southward than to the northward along the whole of this route the southerly set is strongest with north and north-west winds.

With regard to the well-known caution given in the Bay of Biscay Pilot as to the easterly current which sets into the Bay, this is shown to predominate, by the current arrows, in the First and Last Quarters, *i.e.*, it is most frequent in winter, the season for south-westerly gales.

As an instance of this easterly current, the reports of S.S *Astronomer*, Captain W. B. BOOTH and R.M.S. *Edinburgh Castle*, Captain H. STRONG, of being set to the eastward when crossing the Bay of Biscay in March last year, the former outward bound and the latter homeward bound, which were published in Vol. II, No. 15, may be cited.

The Rennell Current.

Though our chart only takes us as far north as Latitude 48° N. information of inset into the Bay of Biscay may lead to knowledge of the current to be encountered from that Latitude right across the mouth of the English Channel, for the question naturally arises what becomes of the water from this easterly set in the Bay of Biscay, and what about the much discussed RENNELL'S current? We cannot do better than refer to the paper read before the Royal Society in the year 1793 by Major JAMES RENNELL, formerly Surveyor-General of Bengal. It commenced as follows :—

"It is a circumstance well known to seamen, that ships, in coming from the Atlantic, and steering a course for the English Channel, in a parallel somewhat to the *south* of the Scilly Islands; do, notwithstanding, often find themselves to the *north* of those Islands: or, in other words, in the mouth of St. George's, or of the Bristol

x (5)25001 Wt 145—94 1125 & 175 10/25 E & S

Channel. This extraordinary error has passed for the effects, either of bad steerage, bad observations of latitude, or the indraught of the Bristol Channel: but none of these account for it satisfactorily; because, admitting that at times there may be an indraught, it cannot be supposed to extend to Scilly; and the case has happened in weather the most favourable for navigating, and for taking observations. The consequences of this deviation from the intended track, have very often been fatal; particularly in the loss of the *Nancy* packet, in our own times; and that of Sir CLOUDESLEY SHOVEL, and others of his fleet, at the beginning of the present century. Numbers of cases, equally melancholy, but of less notoriety, have occurred; and many others, in which the danger has been imminent, but not fatal, have scarcely reached the public ear. All of these have been referred to accident; and therefore no attempt seems to have been made to investigate the cause of them.*

"I am, however, of opinion, that they may be imputed to a specific cause; namely, a current; and I shall therefore endeavour to investigate both that and its effects, that seamen may be apprised of the times, when they are particularly to expect it, in any considerable degree of strength; for then only it is likely to occasion mischief; the current that prevails at ordinary times being, probably, too weak to produce an error in the reckoning, equal to the difference of parallel between the south part of Scilly, and the track that a Commander, prudent in his measures, but unsuspicious of a current, would choose to sail in."†

RENNELL went on to show that due to the prevalence of westerly winds in the Atlantic the water is impelled along the north coast of Spain and along the coast of France to the north and north-west. The stronger the wind the more water driven into the Bay of Biscay in a given time, and the longer the continuance of the wind the farther will the vein of current extend. He asserted that the current would maintain the course or set given it by the coast and so continue about N.W. by W. from the coast of France to the westward of Scilly and Ireland. He indicated that at ordinary times it may not preserve this line of direction across the mouth of the English Channel, or, if it does, may not have enough velocity to throw a ship far out of her course. That a current prevails generally he had little doubt and its degree of strength regulated by the state of the winds. After hard and continuous gales from the westward the current will be felt in a considerable degree of strength not only in the parallel of Scilly but in that of the south-west coast of Ireland likewise.

Twenty-one years later RENNELL read another paper before the Royal Society, 1815; in which he set out further observations tending to confirmation of the conclusions he had come to in 1793. He asserted that the current does not exist in strength but at certain intervals; and therefore operates in a more dangerous, because a treacherous, manner.

In this paper RENNELL also deals with currents within the tidal waters of the Irish Sea and English Channel and his conclusions are remarkable in view of what has since been proved, notably by the chart recently published by the Admiralty, "General Drift of the surface water in the neighbourhood of the British Isles and in the North Sea." It must be remembered that the chronometer had only been invented about 40 years when RENNELL made his researches and that surveys were imperfect, nor had the regular ebb and flow of the tidal streams then been investigated. According to the chart accompanying Lieutenant J. R. Lumby's article "Temperature and Salinity," Vol. II, No. 16, page 53 of this Journal, the general flow of the current from the Bay of Biscay past Ushant is to the north-eastward.

As currents are not usually entered in the Meteorological Log within tidal waters we have not sufficient specific observations to definitely prove the existence of current other than tides in the English Channel. To make the Eddystone sooner than expected, however, is within the writer's own experience and probably not always due to a northerly current or tide.

It has not sometimes been sufficiently realised that at reduced speeds the slip of the propeller is also very much reduced, hence there is a tendency to underestimate the distance run when eased down in thick weather or in order not to arrive before time.

Possibly stronger northerly sets than have actually existed are attributable to this. Hence for current observation it is best to check the distance run through the water by revolutions with the patent log, indeed, he is a wise man who uses a patent log as well as revolutions for keeping the dead reckoning.

The strandings of several vessels on the south coast of Cornwall and Devon have seemed to be attributable to northerly set occasioned over and above that of the tide and though it may be said that observations reported under such circumstances are extenuating, though they may not prove the existence of the RENNELL's current, they show the need for constant observation and research. They also remind us of the need for all possible precautions in thick weather Possibly one of the most instructive cases in modern times is that of S.S. *Suevic*, stranded on the rocks half a mile S.W. of the Lizard on the night of March 17th 1907; her salving was a great triumph, though it meant cutting her bows off and leaving them on the rocks, a new fore end being built at Belfast and towed round to Southampton where it was joined to the greater part of the original hull. A few hours later S.S. *Jebba* went ashore on the Bolt Tail, 53 miles eastward of the Lizard.

We are indebted to the Editor of "Lloyd's List" for the following information, culled from the files of the "Shipping Gazette," as "Lloyd's List" was known in 1907, of the evidence given at the Board of Trade Inquiries into the stranding of these vessels.

The Captain and witnesses of the *Suevic* stated to the effect that accurate sights put his vessel 137 to 138 miles from the Lizard Lighthouse at noon for which he set a direct course and from which they only ported one point for 12 minutes. He intended to run 131 miles if the weather kept clear. At 10 p.m. the patent log, which was set at zero at noon, showed 122 miles, which put them at a distance of 16 miles from the Lizard. At 9.48 p.m. they sighted the light of a fishing vessel which was passed at 10 p.m. a distance of about 2½ miles from which he reckoned he would see the Lizard Light 10 miles.

At 10.15 the loom of the Lizard Light was seen apparently low on the horizon. At 10.27 the Lizard Light was seen high in the air, the vessel steaming at full speed. The helm was immediately ported but the vessel struck the rocks almost immediately afterwards, her head having only swung about 2 points. Engines reversed were ineffective.

Witnesses ashore testified to the wind being strong with thick fog at the Lizard.

The ship had run 128 miles by engines from noon when she stranded at 10.27 p.m., which agreed with the patent log. Thus the ship had been set about N. by E. 10 miles in 9 hours 51 minutes, the clock having been advanced (36 minutes) to Greenwich Time in the afternoon.

The Captain of S.S. *Golconda* wrote a letter, which was produced in evidence, in which he stated: "I must have been not very far from you when the accident occurred. I am sending you an extract from my log which seems to bear upon the case by showing the existence of a strong current, which was probably not known to you but discovered by me by sighting of Ushant almost an hour too soon."

The *Jebba* was not so fortunate in this respect as *Golconda*, for sighting Ushant before they expected, they thought their position by sights at noon to be in error.

Ushant was abeam at 3 p.m. when a 4 point bearing fix was obtained and the patent log reset. Course was shaped to pass 9 miles east of the Eddystone, which Light was not seen. At 11.45 they sounded in 37 fathoms, log 97½ miles, at 12.55 a.m. March 18th, 1907, the log read 106 miles and the lead gave 11 fathoms, the helm was put hard a port but the vessel stranded and was wrecked.

The Captain concluded that he had been set 7 miles N.N.E. in 9 hours 55 minutes, having allowed for tide.

With regard to the continuance of the northerly set from the neighbourhood of Ushant across to the south-west coast of Ireland we also lack data. It seems that currents do at times exist to the westward of Scilly which are sufficient to materially affect the course of a fast steamer. In this connection the Direction Finder is proving of inestimable value in making a good landfall. A favourite method of verifying the latitude on approaching Scilly from the westward being to obtain reciprocal D.F. bearings by means of the ships D.F. and that of the station at Land's End. Next year when the currents on the Trans-North Atlantic route are charted we may be able to throw more light upon the conditions which are associated with currents

* "In December, 1758, the *Belliqueux*, a French sixty-four, was carried to the entrance of the Bristol Channel and captured. She had escaped from Louisbourg. And, in about 1797, the *Terrible*, Sir RICHARD BICKERTON, was carried to the northward of Scilly."

† "It may be remarked, by the way, that the true latitude of the present lighthouse on St. Agnes's Island, is 49° 54′; and that of the most southerly part of the whole group of islands and rocks is 49° 52′. This is according to an advertisement given out by the Trinity House, in 1792."

at the south-west approaches to Home Waters; meanwhile Marine Observers are invited to send in their experiences and views and to note the set and drift whenever possible within the 100 fathom line at the Mouths of and in the English, Bristol, and St. George's Channels, noting the fact that the observations are made within tidal waters as well as continuing to record the set and drift of ocean currents.

MARINE SUPERINTENDENT.

MARINE METEOROLOGY, HISTORY AND PROGRESS.

III. Present Day.

CAPTAIN HEPWORTH, who had remained in harness during the War, although over the retiring age, died in February, 1919, and Mr. H. HARRIES, a member of the Marine Division for many years and who had served under Captain TOYNBEE, was appointed acting Superintendent pending the appointment of Captain HEPWORTH'S successor. Commander L. A. BROOKE SMITH, R.D., R.N.R., (now Captain R.N.R retired), who before the outbreak of war had commanded the Orient Line R.M.S. *Orontes*, a ship which has returned many Meteorological Logs, was appointed Marine Superintendent on 3rd November, 1919. The effect of the War had been to stop almost entirely the inflow of marine observations and the new Marine Superintendent was faced with the task of entirely re-organising and re-constructing marine meteorological work. Two considerations presented themselves at the outset, viz., the advances made in ship construction and marine engineering and the extensive application of wireless telegraphy as a means of communication at sea. To the modern high-power steamer bad weather, except for a tropical revolving storm, or hurricanes in higher latitude, is not such a serious matter. In the former case the opinion of Captain ANGUS, Nautical Inspector to the P. & O. Line and for so many years engaged in navigating cyclone areas, is worthy of note " of recent years it seems that some men commanding large and powerful steamers have had a sense of false security regarding tropical cyclones, while damage sustained in these storms proves that no steamer however seaworthy can afford to try conclusions with them." On the other hand, the depression of trade has produced keen competition and the necessity for the utmost economy in the fuel consumed and in this respect, a knowledge of the weather ahead of him is of the greatest importance to the navigator. The use of wireless telegraphy for the communication of weather data points the way to a solution by enabling him to construct a weather chart and predict for himself on board his ship.

For the mariner to be truly weatherwise it was still necessary that he should be supplied with the best possible charts of normal conditions over the oceans and therefore the collection of marine observations must still be the essential function of the Marine Division and the re-organisation of an observing fleet was a first duty. It was also decided that from April 1st, 1920, logs reaching a sufficiently high standard should be completely extracted on receipt. To do this it was obviously necessary to limit the number of observations collected and in order to maintain this limit and a high standard of observation it was necessary to obtain a Corps of regular Voluntary Marine Observers limited by a definite number of ships. There was an immediate response and a Corps was quickly brought together whose limit has been subsequently fixed at 500 observing ships, and there is a constant waiting list of Captains and Officers willing to share in the work of observing at sea.

It was also realised that if a high standard of observations were to be obtained in future years that early training in observing would be a great asset. A form of cadet's meteorological log was therefore drawn up and is being kept in the three principal cadet establishments, H.M.S. *Conway*, *Worcester* and Pangbourne College. In the instructions, the young cadet is advised that " What you learn now will be invaluable when you go to sea. Every British boy who goes to sea wishes to be a seaman. You cannot be a good seaman unless you are observant, therefore learn to observe now. Meteorological observations will only be one of your many duties when you become an Officer, but it is a very important duty. If now, as Cadet Captain of the Watch, you learn to observe the wind, clouds and other elements, and to read your instruments accurately and record them, you will soon learn, as Officer of the Watch, how to foretell bad weather and know when to call the Captain."

The question of the method of dealing with the observations then had to be considered. For a start TOYNBEE'S system of data books was continued, but those who have visited the Marine Division will realise the laborious monotony that this system involves for the man engaged in copying the observations. A new system was therefore sought for and found, and for a description of this one may quote from a lecture delivered to captains and officers by the Marine Superintendent at the Technical College, Dundee, November, 1923.

" By the time the complement of the Marine Division was complete on April 1st, 1920, I had been able to draw up the framework of an organisation and I remember remarking to Mr. DURST a land surveyor, who joined that day as Senior Assistant, when I showed him the logs and data books, that it was work for a machine rather than a man.

" Well, Mr. DURST caught hold of the idea right away and by and by he came and told me of a machine they were using to make a census of the health of the Air Force, why not use this machine for making a census of the weather of the oceans ?

" This is how we are attempting to do it. FIGURE 4 shows part of the page of a log with observations recorded every four hours at sea. Over these observations you see small figures, these are the code figures written in pencil in the Marine Division. The code figures translate the observations into numbers.

" FIGURE 5 shows a HOLLERITH Card. One of these cards contains a set of observations taken at the end of a watch at sea indicated by the punched holes. The cards are placed in a punching machine

Specimen of Coded Log.

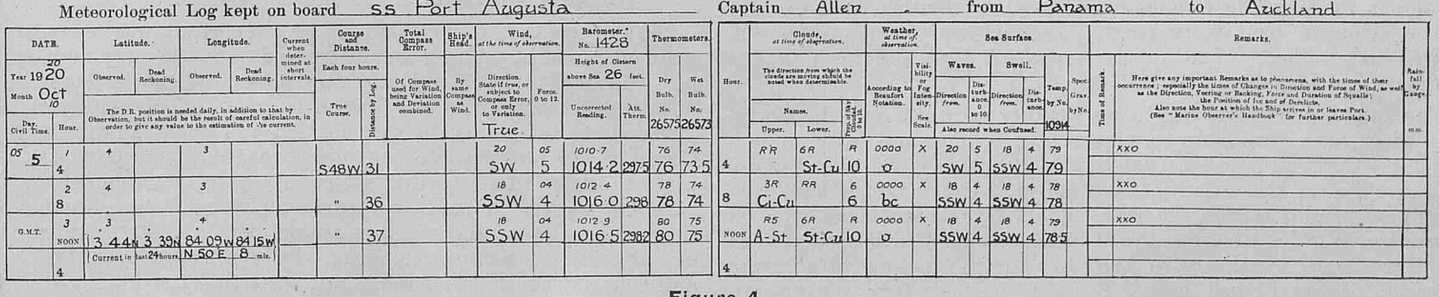


Figure 4.

Specimen of Corresponding Punched Card. 4 a.m., 5th October 1920.

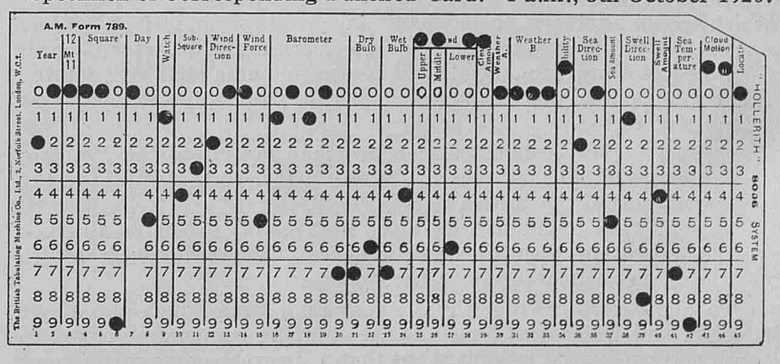


Figure 5.

which is worked like a typewriter and holes are punched in the columns on the card corresponding to the columns in the log-book, indicating the code figures.

"The cards are then put through another machine which checks the holes. Then the cards are stowed in geographical order indicated by numbered 10° MARSDEN Squares.

"When sufficient data have thus been prepared for any square, district or ocean, these cards are passed through the HOLLERITH Electric Tabulating and Sorting Machine, which sorts them at the rate of 10,000 per hour and is also capable of adding up the observation figures and the number of observations, so that all that has to be done to obtain an average is to divide the sum, say, of barometric readings by the total number of observations.

"Being capable of sorting, the figures for wind roses can be got out very quickly, and where a man may make a mental error the machine does not.

"It is obvious that observations of high order are necessary for such work, and therefore the interest of marine observers is more than ever necessary."

The HOLLERITH system which was brought into use on May 1st, 1921, does not lend itself to the computation of current data, and these, together with the interesting remarks, are extracted into the data books. Much attention has been given to the computation of current. The fact that all ships more or less navigate along certain defined tracks makes the preparation of general current charts for a whole ocean more difficult. Hence in the initial stages it has been decided to concentrate on the currents experienced along the tracks themselves. The current arrow which has generally been the means of showing current hitherto does not show the variations. The current rose for small areas and the resultant current arrow for each degree or two degrees of latitude or longitude of the track have been adopted for depicting results.

Also more attention has been given to the remarks of interesting phenomena reported by observers. A complete index of all important phenomena is being kept which will greatly facilitate ready reference and investigation as occasion arises.

Since the application of the HOLLERITH machine to the computation of marine data by the British Meteorological Office several inquiries as to the process have been received from foreign nations and the same method has been adopted by Holland. This opens up new possibilities for the easy exchange of data. It is obvious that any one national meteorological service cannot provide for the collection of observations from all parts of the Ocean in sufficient numbers. To obtain reliable normals international co-operation is necessary, and if the HOLLERITH system is adopted internationally or by the Dominions forming the Commonwealth of the British Empire, this can be achieved by simply posting the necessary cards from one country to another. Hence it is important that the form of the Meteorological Log should be uniform.

The application of wireless to sea weather work has been developed along three lines, from ship to shore, shore to ship and between ship and ship. First it was essential that the service of wireless reports sent by ships in the Atlantic to *Weather, London*, which had been entirely suspended during the War, should be re-commenced as soon as possible, in order to supply the Forecaster ashore with observations to the westward which are so necessary for the making of accurate forecasts for the British Isles. For this purpose it was necessary that a code should be drawn up which would give the maximum of information and at the same time retain a simplicity of character which would enable it to be easily and quickly handled by officers at sea. After long discussion by the International Meteorological Commission, a provisional code was agreed to, and a trial by a limited number of ships was inaugurated. The scope of the code was intended to be :—

"(1) For certain steamers to make reports to the Meteorological Office of weather conditions in the North Atlantic to the westward of the British Isles by W/T.

"(2) If found suitable after trial for (1) to enable all ships co-operating with the Meteorological Office who wish to, to exchange synchronous weather reports at sea."

To quote further from the Memorandum from which the above is taken and which was issued to the shipping companies invited to assist, early in 1921, it is pointed out that "By exchanging synchronous observations over an area at sea out of reach of weather forecast reporting stations officers may, by plotting these observations, be enabled to make forecasts with far greater accuracy than is possible for an isolated observer.

"These forecasts may be of great value :

"(*a*) to enable ships to keep clear of the dangerous part of the storm field in a tropical cyclone;

"(*b*) to have warning of approaching bad weather;

"(*c*) to foretell spells of settled fine weather ahead so that steamers may regulate speed to maintain their schedule with economy of fuel."

The matter of re-organisation was not an easy one. The grave financial condition of the country after the vast expenditure of the War, made it imperative that only the barest essential service should be maintained. Difficulties had arisen before the War in dealing with observations sent in by ships using their own instruments, where the error of the barometer was always a doubtful factor; while often the messages were received too late to be of any value to the Forecaster. It was considered, therefore, to be the best plan to equip a small fleet of Atlantic liners fitted for Continuous Wave Transmission, with tested instruments. This eliminated any doubt as to the reliability of the observations, their regularity of programme ensured a fair distribution of data over the Ocean with a minimum number of ships, while C.W. gave a range from as far as 40° W. This was carried into effect and the first coded weather report was received on March 27th 1921.

The next consideration was the reciprocation between shore and ship. If the captain of a ship approaching coastal waters knows the general weather conditions prevailing, what the weather is likely to be in the next few hours and in particular the visibility in coastal waters, he can gauge the time of his arrival in port far more accurately and thereby effect economy. This information can best be supplied by the forecaster ashore with the large number of observations from near and distant stations. If in addition to a general forecast, the ship approaching Great Britain could obtain observations from a number of shore stations as well as ships in the vicinity, an accurate weather chart could be constructed on board which would show the details required. This was materialised by the broadcasting on 2,800 metres spark of a weather message from Poldhu at 0930 G.M.T. (Civil) and 2130 G.M.T. (Civil) commencing on the 15th June, 1921. This message consisted of two parts :—

(1) a forecast for the Western Seaboard of the British Isles;

(2) a data message giving observations in code of the barometer, the direction and force of the wind, the visibility and tendency of the barometer for five coast stations, viz., Stornoway, Blacksod, Holyhead, Scilly and Dungeness.

If full use was to be made of this report, it was necessary that seamen should be advised and instructed as to the method of applying it. The backs of the monthly meteorological charts were the only means of communication between seamen afloat and the Marine Division ashore and as their circulation was practically limited to the Corps of Observers while the utilization of this report was of the utmost importance to the whole seafaring community, a small pamphlet entitled "Weather Forecasting in the Eastern North Atlantic for Seamen" was prepared by Captain BROOKE SMITH and published in July, 1921. Before very long, the views expressed by Captains and Officers themselves made it apparent that the Poldhu report was of distinct benefit to seamen, and recommendations for the extension of broadcasted weather messages for other coasts were received from such influential bodies as the Chamber of Shipping of the United Kingdom, the North of England Shipowners' Association, and the Imperial Merchant Service Guild.

The trial with the Provisional International Code was continued until June, 1924, when the New Code in accordance with the latest International agreement and revised from the experience gained since 1921, was brought into use. In August, 1924, observers making these coded weather reports to *Weather, London*, were asked with the permission of their owners, to extend their observations right across the Atlantic, co-operating with America by sending their observations west of 40° W. to *Gov't. Observer, Washington, D.C.*

The gradual increase of ships fitted with C.W. reception has enabled a more comprehensive broadcast weather bulletin from the United Kingdom to be introduced. This is the "Weather Shipping"

Bulletin broadcast from the Air Ministry at 0900 G.M.T. and 2000 G.M.T. on 4,100 metres C.W., which is now so well known that it need not be described again here.

The greatly increased range using C.W. enables the observer to obtain data for the construction of his weather chart when up to 2,000 miles distant from the United Kingdom. It also provides an economical means of disseminating weather information at the various ports where local enterprise is able to arrange for its interception. This has been done through the courtesy of the Cunard Line at the Port Meteorological Office, Liverpool, and also by Captain CLARKE, the Meteorological Agent at Dublin.

Provision had still to be made for the smaller craft particularly in the North Sea, none of which are fitted for continuous wave reception. This has been accomplished by the broadcast of that part of the "Weather Shipping" Bulletin affecting the area concerned; thus Valencia and Seaforth broadcast that for the Western Area, Niton for the Southern Area and Cullercoats for the Eastern Area on 600 metres, spark.

For the development of weather work at sea through the agency of wireless telegraphy it was desirable that the matter should be constantly before the notice of observers, and being an entirely new departure, it was necessary that adequate instruction should be given as to the method of constructing weather charts and making forecasts. This was carried out by utilising the backs of the Monthly Meteorological Charts, but the awkward size of the charts for even ordinary reading and the difficulty of using them as works of reference was very apparent. In 1922, the Marine Superintendent put forward the proposal for the issue of a monthly magazine. After careful consideration authority was finally given for the publication of THE MARINE OBSERVER commencing with January, 1924. A reprint of the face of the charts containing only elements of permanent use has been made and issued as sets of normals to Marine Observers on receipt of written application.

As to the effectiveness of THE MARINE OBSERVER adequate comment has been made in the "Work of the Year," published in Vol. II, No. 18. Copies are issued gratis to all ships in the Voluntary Corps of Observers. Through its pages, particulars of the New International Code and a Decode have been placed before shipping. A serial article entitled "Wireless and Weather, an Aid to Navigation," by the Marine Superintendent has shown how this subject may be developed and utilised for the benefit of shipping.

What the future developments of Marine Meteorology will be rests largely in the hands of seamen themselves. If they will give their support to the suggestion made to all log-keeping ships in the concluding chapter of "Wireless and Weather, an Aid to Navigation," Vol. I., No. 12, of this Journal, the possibilities are boundless. New discoveries in wireless communication are being made every day. The Ocean Greyhounds and the ordinary trader have been provided for by the "Weather Shipping" Bulletin C.W. and Spark issues; and now wireless telephony proves the means of enabling those smaller craft, who do not carry a trained operator to take messages in Morse, to receive appropriate parts of the same Bulletin. So that in the distant future the ideal of a continuous knowledge of the weather to be expected right along the trade routes by means of wireless between ship, shore and aircraft may not be so visionary as it now seems. The "Weather Shipping" Bulletin is the outcome of the views of British seamen; it has proved its value in Home Waters. British seamen have carried British ideas to all parts of the World; let us hope that this may be the means of obtaining world-wide uniformity of method as far as is possible.

THE MARINE OBSERVER'S LOG.

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

Responsibility for statements rests with the Contributor.

METEOR.

THE following report has been received from S.S. *Orbita*, Captain W. H. PARKER, C.B.E., R.D., R.N.R., New York to Southampton, Observer Mr. R. V. RUTLEY.

"Saturday, November 1st, 1924. Latitude 48° 51′ N. Longitude 23° 57′ W. Course 80° (T). Speed 15·0 knots.

"At 17h. 29m. 20s. G.M.T. observed a very bright Meteor travelling rapidly in a southerly direction parallel to a line drawn through Castor and Pollux and 3° of arc in an 80° direction from these stars.

"The Meteor itself appeared as an ordinary Meteor and lasted the usual time (3–4 sec.); but it left a very bright trail of luminous particles in the heavens which remained for some time and being examined through binoculars showed the trail to be a curious line

and not straight as the Meteor appeared to travel to the naked eye.

"This curious trail did not appear to be regular in curvature, or in breadth of path and appears to have started in a blotch or big patch and slowly trailed away somewhat after the manner of a Tracer Shell burst or trail of smoke from a steamer, but in a seemingly horizontal plane to the rational horizon.

"The Meteor hit the sky and would appear to have been of greater brilliancy than Sirius."

ATLANTIC DOLDRUMS.

THE following is an extract from the Meteorological Log of S.S. *Nariva* Captain T. J. C. BURET, River Plate to London, Observer, Mr. E. GILLER.

"On the homeward passage (November 23rd, 1924) little or no doldrums were experienced. A heavy rain squall brought the wind round from S.E. to E.N.E. (at 10.50 a.m. in Latitude 3° N. Longitude 27° W.) During the passage of this squall, barometer and thermometers remained steady and unchanged. On the next day after sunrise the wind steadily increased in force and sea rose: during the forenoon (in Latitude 8° N., Longitude 25° W.) three squalls of extreme violence were experienced: the storm cloud extended generally from E. through north to N.N.W.: heavy Nimbus: deep bluey-black. Wind veered to east 7 during the passage of the squalls, backing again to N.E. slowly after the passing. Rain fell like a blinding sheet and visibility reduced to a minimum. Occasional flashes of lightning occurred with distant thunder. Instruments remained unchanged except the dry bulb which dropped 2° during the passage of the second squall, the wet bulb falling 1°. This seems an unusual time of the year to expereince rain squalls of such violence so far north after the trade wind had become well established."

HEAVY CURRENT RIPS.

THE following report has been received from S.S. *Cuthbert*, Captain W. H. B. REYNOLDS, Brazil to New York, Observer, Mr. A. B. FASTING.

"On Wednesday, November 26th, 1924, at 3.30 p.m. Position, Latitude 2° 32′ N., Longitude 45° 33′ W. Barometer 29·84″. Wind N.N.E. 2. Sea N.N.E. 2. $\frac{\text{Ci/Cu. 2.}}{\text{N}}$ Cloud amount 5. Broken water was observed on the southern horizon and extending rapidly in a N. by W'ly direction.

"At 4.0 p.m. a moderate S.E'ly swell got up, which was followed by the breakers, crossing the ship's track and visible from horizon to horizon when looking fore and aft, ship steaming N. 53° W. (True) 10½ knots. The crests of the waves were long and in height from 3 to 4 feet, and made much noise in breaking, also causing the vessel to roll considerably.

"At 4.30 p.m. the breakers became much smaller and continued to subside until at 5.0 p.m. the sea resumed its normal state.

"The sea did not appear to be discoloured with Amazon water, although the ship was at the time passing the mouths of that river, distant 250 miles."

CURRENT.

THE following is an extract from the Meteorological Log of S.S. *Surrey*, Captain H. G. B. FIELD, Aden to Fremantle, Observer, Mr. C. P. JACKSON, 2nd Officer.

"Current for 24 hours ending Noon, November 22nd, 1924, between Latitude 1° 02′ N., Longitude 61° 30′ E., and Latitude 3° 13′ S., Longitude 65° 41′ E., was S. 85° E. 70 miles."

NOTE.—The maximum strength of the current usually experienced in this vicinity is about 60 miles per day.

The following is an extract from the Meteorological Log of S.S. *Port Pirie*, Captain W. G. HIGGS, Fremantle to Dunkirk via Suez.

"The strong current experienced on November 20th is confirmed by S.S. *Gallic*, then about 80 miles ahead.

Current experienced.

"From Noon, 19th November, 1924, Lat. 1° 07′ S., Long. 63° 46′ E. to Noon, 20th November, 1924, Lat. 1° 48′ N., Long. 61° 02′ E. Current set S. 73° E. 60 miles."

CURRENT RIP.

THE following was received with the Meteorological Report of S.S. *Clan Ross*, Captain R. C. JONES, Chittagong to Suez, Observer, Mr. G. SHORT, 3rd Officer.

"From Latitude 12° 05′ N., Longitude 51° 13′ E., to Latitude 12° 12′ N., Longitude 50° 55′ E. Wind west, force 1–2, from 10.20 to 11.40 a.m. A.T.S. 11th November, 1924.

"The sea between these two positions assumed a condition of long layers of light and dark water, parallel to each other and stretching north and south.

"Although the wind was west the ripples came from the east indicating, no doubt, a westerly set.

"Steering of ship became erratic to extent of 5° to port, I at first thought the quartermaster was steering badly and stood by the compass. After a few minutes, ship steady on course, she took a sudden cant to port. This occurred frequently while in the disturbed area.

"I presume this to be a strong under-current from the southward skirting the coast by Guardafui."

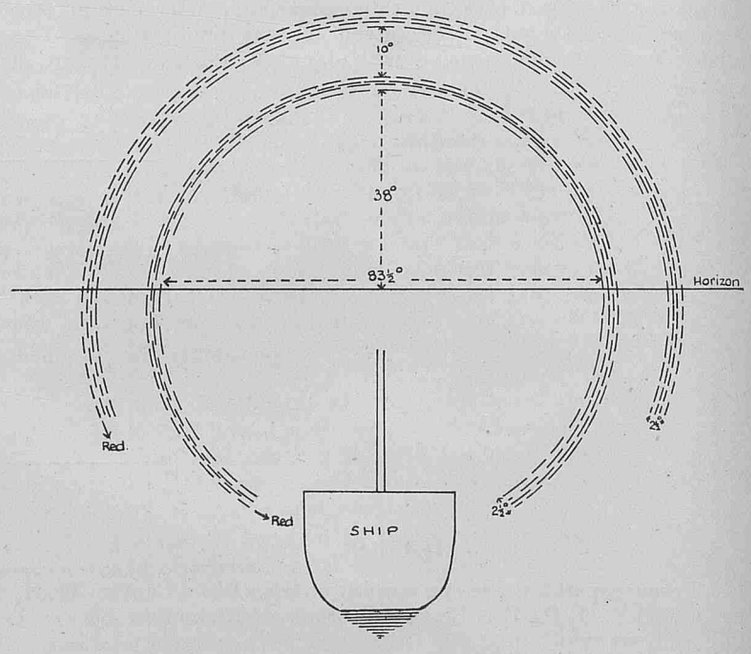
RAINBOW.

THE following account has been received from Captain A. S. MACKAY, S.S. *Culebra*.

"At about 0600 hours G.M.T. of the evening of November 14th, 1924, ship in Latitude 41° 18′ N., Longitude 22° 36′ W. A rain squall approaching the ship from the northward. Sun setting, being 5 degrees above the horizon. As squall neared the ship, wind freshening, with light rain, an exceptionally bright rainbow was observed forming. Three minutes later it was a complete bow which gradually developed into almost a circle, broken only by the vessel. The breadth of the arc steadily increased until the appearance was as if three rainbows were in one, and then definitely developed into three distinct bows. Another bow of much less brightness, was observed 10 degrees above the upper limb of the lower bow. In both cases red was the predominating colour. The dimensions of the first bow at its greatest size and brilliancy were observed by the sextant to be as follows :—

Altitude of Lower Limb - - -	38 Degrees.
Lower Limb to Upper Limb - -	2½ Degrees.
Diameter from Points of Intersection with Horizon - - - - -	83½ Degrees.

"The exceptional size and brightness of the first bow was maintaind for a period of 4½ minutes, after which time it decreased to the size and brilliancy of the second bow. By this time the squall had passed over, the bows disappearing with the cessation of the rain. Appended is a small illustration."



JAVA PORTS.

THE following remarks and sketch are contributed by Captain G. PARK, of the Asiatic Steam Navigation Co.

Pekalongan, Java.

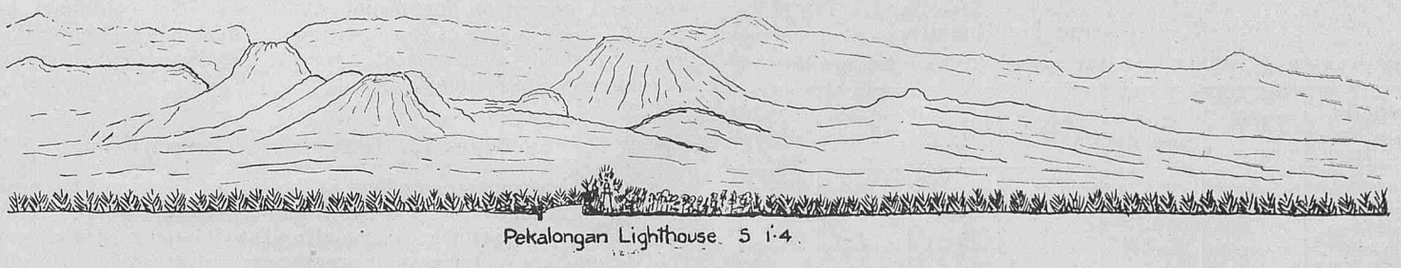
"**Charts.**—Island of Java, Western Portion No. 1653. Reeden de Noordkust van Java, No. 88 Dutch. Your guide to an anchorage is a bearing of the Lighthouse and the lead.

"The Lighthouse is not so clearly seen, so it is advisable to get a bearing of the light before daylight and run in slowly by the lead. My sketch shows a clump of trees near the Lighthouse. There are no other landmarks of any value to help you.

"The high land behind the Lighthouse will not help you. The early sun haze will shut out the Lighthouse. Anchor early.

"Be careful of the wreck, marked on the Dutch chart in 4½ fms. This is a lighter of steel rails.

Java Ports—continued.



" During the east Monsoon, anchor east of the Lighthouse bearing south.

" During the west Monsoon anchor with the Lighthouse bearing about S.S.E. or S. 10° E.

" Holding ground is good.

" Lighters only lay on one side if any sea.

" There is one feeble powered tug for the lighters with no time or speed to attend empty lighters."

THE BAROMETER.

PREPARED IN THE MARINE DIVISION BY
C. S. DURST, SENIOR PROFESSIONAL ASSISTANT.

THE invention of the Barometer is due to TORRICELLI, an Italian engineer of the seventeenth century. He was consulted by some workmen who had failed to draw water from a deep well with a suction pump. In his investigations as a result of this problem TORRICELLI performed the experiment of filling a long glass tube with mercury, inverting it and placing the open end in a vessel also containing mercury. He then discovered that the length of the mercury column became approximately 30 inches, and he thus had in all essentials the mercury barometer as we know it.

The fluctuation of the mercury was observed to be related to weather, since a low barometer in temperate latitudes is generally associated with a deep depression and a high barometer with calm anti-cyclonic conditions, and so for two centuries the barometer was deemed to be a direct forecaster of the weather to come and legends were inscribed at different heights to foretell " stormy," " change," " dry," " very dry," etc.

It was for a seaman, Admiral FITZROY to explode finally that belief and by the construction of weather charts to show how the atmospheric pressure is truly related to the weather systems that move over the surface of the globe.

His rules still serve as the simplest and most useful formulæ for an observer whose information is confined to the single observation of pressure made in his own ship; but with the aid of Wireless Telegraphy a wider view has been given to the mariner. With this wider view has also come the necessity for greater accuracy in observation. Systematic errors, which would have had no importance in the days before inter-communication at sea, may now be vital and it is essential that observers should be fully alive to the necessity of this accuracy.

With this end in view the notes below have been written.

Barometric Corrections.

THE Marine Mercurial barometer is the most satisfactory instrument for measuring atmospheric pressure at sea.

Mercurial Barometer readings should be corrected for—

(1) Height above sea level, because with height pressure is reduced.

(2) Temperature, because mercury expands with heat and contracts with cold.

(3) Gravity, because due to flattening of the earth at the poles the weight is greater at the poles than at the equator, and so the height of a column of mercury required to balance the atmospheric pressure in different latitudes will vary. We use as datum the parallel half-way between the pole and the equator, *i.e.*, Latitude 45°.

Aneroid Barometer readings are only corrected for index error and height because difference of gravity does not affect the measurement by these instruments and they are compensated for temperature. The Aneroid is not very reliable for measuring absolute pressure but its deficiencies have been somewhat exaggerated. If constant precautions are taken it may give sufficiently accurate readings for wireless weather work in Middle and High Latitudes. It is not sufficiently constant for comparing with normals in Low Latitudes for the purpose of obtaining warning of tropical revolving storms.

Be sure to ascertain the Index Error of the Barometer before sailing.

To correct a Mercurial Barometer.

Graduated in Inches.

Tables.

I. Temperature Correction.					II. Height Correction.					III. Gravity Correction.	
Temperature of attached Thermometer.	Inches. 28·0	29·0	30·0	31·0	Height.	Temperature of Air. 20°	40°	60°	80°	Latitude.	
°F.	Ins.	Ins.	Ins.	Ins.	Ft.	Ins.	Ins.	Ins.	Ins.	°	Ins.
20	+·022	+·023	+·024	+·024	10	+·012	+·011	+·011	+·010		
25	+·009	+·010	+·010	+·010	15	+·018	+·017	+·017	+·016	0	−·078
30	−·003	−·004	−·004	−·004	20	+·023	+·023	+·022	+·021	10	−·073
35	−·016	−·017	−·017	−·018	25	+·029	+·029	+·027	+·026	20	−·060
40	−·029	−·030	−·031	−·032	30	+·035	+·034	+·032	+·031	25	−·050
45	−·042	−·043	−·045	−·046	35	+·041	+·040	+·038	+·037	30	−·039
50	−·054	−·056	−·058	−·060	40	+·047	+·045	+·043	+·042	35	−·027
55	−·067	−·069	−·072	−·074	45	+·053	+·051	+·049	+·047	40	−·013
60	−·080	−·082	−·085	−·088	50	+·059	+·056	+·054	+·052	45	−·000
65	−·092	−·095	−·099	−·102	55	+·065	+·062	+·060	+·057	50	+·013
70	−·105	−·109	−·112	−·116	60	+·071	+·068	+·065	+·062	55	+·027
75	−·117	−·122	−·126	−·130	65	+·077	+·074	+·071	+·068	60	+·039
80	−·130	−·135	−·139	−·144	70	+·083	+·079	+·076	+·073	65	+·050
85	−·143	−·148	−·153	−·158	75	+·089	+·085	+·082	+·078	70	+·060
90	−·155	−·161	−·166	−·172	80	+·094	+·091	+·087	+·083		
					85	+·100	+·097	+·093	+·089		

Example.

In Latitude 51° N. barometer reads 30·240 at a height of 36 feet above sea level. The attached thermometer reads 58° F., and the index error is + ·005.

	Inches.
Uncorrected reading	30·240
Index error correction ... ... +	·005
	30·245
*Temperature correction for 58° F. ... ... −	·080
	30·165
*Height correction for 36 feet at air temperature of 58° F. ... ... +	·039
	30·204
*Gravity correction in Latitude 51° N. ... ... +	·014
	30·218
	or 30·22

Graduated in Millibars.

The standard temperature of the barometer is given on the Kew Certificate pasted on the inside of its packing case; it should also be

* When the temperature, height or latitude is not exactly given in the tables the correction is obtained by interpolation.

engraved on the instrument itself.

Table of Correction for Gravity.

(Corrections to be applied to the standard temperature.)

Latitude of Ship.	0°	10°	20°	25°	30°	35°
Correction ... (degrees absolute).	−15·0	−14·0	−11·5	−9·5	−7·5	−5·0

Latitude of Ship.	40°	45°	50°	55°	60°
Correction ... ... (degrees absolute).	−2·5	0·0	+2·5	+5·0	+7·5

Example.

Standard temperature of barometer	284°·2 a
Ship's latitude 52° N., correction	+ 3°·5 a
	287°·7 a
Divide height of barometer in feet above sea level by 5 and add	
Thus barometer 42 feet ÷ 5	+ 8°·4 a
Adjusted fiducial temperature	296°·1 a
Subtract observed temperature of attached thermometer at time of observation	−289°·0 a
	+ 7°·1 a
Divide by 6	+ 1·2
Call the result millibars and add it to or subtract it from the observed reading of the barometer according to its sign—	
Observed barometric reading	1017·1 mb.
Correction as above...	+ 1·2 mb.
Corrected barometric reading	1018·3 mb.

Broadly, this method is a dodge whereby the index error, temperature, height and gravity are applied. For full particulars, *see* the *Marine Observer's Handbook*, 3rd Edition.

To obtain the Index Error of a Barometer.

Mercurial Barometer graduated in Inches.

The ship's instrument must be compared with a standard barometer, the index error of which is known.

Hang the instrument, of which the index error is required, up side by side, with the standard and leave for half an hour so that they may settle.

Read both barometers and correct both readings as explained; the difference between the corrected readings (no index error having been applied to the ship's instrument) will be the correction to be applied for index error of the ship's barometer + if too low − if too high.

Mercurial Barometer graduated in Millibars.

These instruments as at present lent to ships by the Meteorological Office have the index error combined in the corrections explained above; should the index error be found by reliable comparison to have materially changed, the matter should be reported to the Meteorological Office or Agent.

Aneroid Barometers.

Hang a mercurial barometer, the index error of which is known up side by side with the aneroid and allow to settle. Read both instruments, correct the reading of the mercurial barometer as described but apply no correction whatever to the reading of the aneroid; the difference between these readings will be the index error and correction for height above sea level combined for the aneroid. The height of the instruments must not be changed. This procedure should be frequently repeated as the index errors of some aneroids vary from time to time.

Facilities for Barometric Comparison.

Standard barometers are kept at the Marine Division, Meteorological Office, Air Ministry, Kingsway, London, W.C.2, the Port Meteorological Office, Dock Office, Liverpool, and at all important Observatories. The Barometers of telegraphic weather reporting stations in all parts of the world are sufficiently accurate for the purpose of ascertaining the index error of ships' barometers.

When possible the Port Meteorological Officer or Agent boards ships on the list of regular observers to the Meteorological Office, and compares the barometer, but all wishing to derive full benefit from wireless weather reports should make their own comparisons as well as completing and sending in the blue post-card, Form 913, regularly. A further check may sometimes be made at sea by using Coast Weather Reports.

Example.

Suppose a ship is doubtful of the index error of her barometer, and she happens to be within 10 miles of Holyhead at 7 a.m. G.M.T. when the wind is light. The barometer reading is noted and corrections applied. On receipt of the morning weather bulletin, described in "Weather Signals," Vol. II., No. 14, the approximate correct pressure at her position at 7 a.m. will be known and the difference with that observed should be the index error.

Such a comparison is only a check. If the wind is not light it should not be used, for gradient might cause error.

Conversion of Millibars to Inches.

It must be clearly understood that if two mercurial barometers one graduated in inches and the other in millibars, are read at the same place and time, the uncorrected readings will differ. It is only when each reading has been reduced to the same datum that they will agree; the reason being that an inch barometer corrected for index error reads true at 28°·6 F. at sea level in Latitude 45°, while a millibar barometer reads true at its standard temperature, about 285° A. (54° F.) at sea level in Latitude 45°.

Therefore, before converting the reading of a millibar barometer to inches, or vice versa, by the Table, correct it.

Table IV.—Conversion of Millibars to Inches.

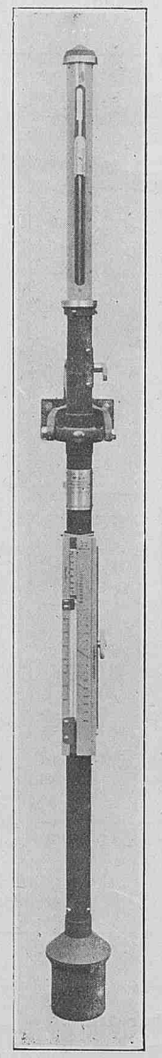
Equivalent in Mercury Inches at 32°, and Latitude 45° of Millibars.

Mb.	In.	Mb.	In.	Mb.	In.	Mb.	In.	Mb.	In.	Mb.	In.	Mb.	In.
925	27·32	940	27·76	960	28·35	980	28·94	1000	29·53	1020	30·12	1040	30·71
926	27·35	941	27·79	961	28·38	981	28·97	1001	29·56	1021	30·15	1041	30·74
927	27·38	942	27·82	962	28·41	982	29·00	1002	29·59	1022	30·18	1042	30·77
928	27·41	943	27·85	963	28·44	983	29·03	1003	29·62	1023	30·21	1043	30·80
929	27·44	944	27·88	964	28·47	984	29·06	1004	29·65	1024	30·24	1044	30·83
930	27·46	945	27·91	965	28·50	985	29·09	1005	29·68	1025	30·27	1045	30·86
931	27·49	946	27·94	966	28·53	986	29·12	1006	29·71	1026	30·30	1046	30·89
932	27·52	947	27·97	967	28·56	987	29·15	1007	29·74	1027	30·33	1047	30·92
933	27·55	948	28·00	968	28·59	988	29·18	1008	29·77	1028	30·36	1048	30·95
934	27·58	949	28·03	969	28·62	989	29·21	1009	29·80	1029	30·39	1049	30·98
935	27·61	950	28·05	970	28·65	990	29·24	1010	29·83	1030	30·42	1050	31·01
936	27·64	951	28·08	971	28·67	991	29·26	1011	29·86	1031	30·45	1051	31·04
937	27·67	952	28·11	972	28·70	992	29·29	1012	29·89	1032	30·48	1052	31·07
938	27·70	953	28·14	973	28·73	993	29·32	1013	29·92	1033	30·51	1053	31·10
939	27·73	954	28·17	974	28·76	994	29·35	1014	29·94	1034	30·53	1054	31·13
		955	28·20	975	28·79	995	29·38	1015	29·97	1035	30·56		
		956	28·23	976	28·82	996	29·41	1016	30·00	1036	30·59		
		957	28·26	977	28·85	997	29·44	1017	30·03	1037	30·62		
		958	28·29	978	28·88	998	29·47	1018	30·06	1038	30·65		
		959	28·32	979	28·91	999	29·50	1019	30·09	1039	30·68		

Simplified Method of Correcting Mercurial Barometers.

A slide which will greatly simplify the correction of the barometer has been invented: it has been tried and used with success by a few vessels on the list of regular observers, and certain modifications have been introduced. It is now intended to issue these slides more widely to ships as the slides become available.

The Gold Slide Scale Mark III.



These slides are attached by clips which embrace the cover of the barometer so that the slides can be fitted to any Kew pattern marine mercurial barometer.

The apparatus consists essentially of a thermometer and a slide worked from a rachet and pinion. On the slide are engraved scales of height and correction to pressure, while on the fixed part are engraved scales of latitude and temperature, as can be seen in the photograph reproduced here.

To use the Apparatus.—Revolve the large milled headed screw until height of the instrument above the water line, indicated on top right-hand scale, coincides with the latitude of the ship (top left-hand scale).

The total correction to be applied to the barometer reading is then read off at the head of the mercury column of the attached thermometer by the scale to the right. The temperature is indicated by the scale to the left.

Barometers with these scales attached should be kept free from exposure to rapid changes of temperature, for these thermometers are rather more exposed than in ordinary barometers.

To test that the thermometer is correctly adjusted when the instrument is first placed in position, set the height scale so that zero height coincides with 45° on the latitude scale. Then read the value of the temperature scale corresponding to zero on the "correction to barometer scale." If this reading of the temperature scale is identical with the standard temperature of the barometer, the apparatus is in correct adjustment.

A Note on Diurnal Range.

Seamen know well that the barometric pressure varies regularly during the day, there being two maxima and two minima. This diurnal variation is most marked in the Tropics and decreases towards the poles. In the latitude of the British Isles this regular variation can seldom be seen in one day's observation, as it is masked by the irregular variations of pressure, but it is still present, and can be seen when a large number of hourly observations of pressure are meaned.

If this diurnal variation of pressure is analysed, it is found to be composed of two series of pressure waves which sweep round the earth from west to east. One wave has a period of 24 hours, that is to say, it takes 24 hours for successive crests to pass any point on the earth. The primary cause of this wave is the expansion and contraction of the atmosphere due to the heat of the sun. The second wave is one of 12-hour period and is due to the fact that the atmosphere of the earth has a natural tendency to oscillate with this period owing to its elasticity. The diurnal variation, as observed with a barometer, is the result of a combination of the two, in the same way that a short sea can be combined with a long swell.

For a long time there has been a theory that one of the signs of the approach of a tropical storm was a "break in the diurnal range." The cause of the diurnal range is one that affects the atmosphere of the earth as a whole, and on the face of it it is difficult to conceive how a disturbance embracing so small an area (in comparison with the surface of the globe) could cause a cessation of the atmospheric oscillation even in the neighbourhood of the disturbance. Of all the many tropical storms examined in the Marine Division there has been no case found in which reliable observations have shown a true cessation. It is true that before a storm there may be slight variations in the barometric range, but not more frequently than may be found under normal weather conditions. The range, too, is masked by the fall of the pressure when the storm area is reached, so that an 8 o'clock observation may be below the preceding 4 o'clock reading, but when the observations are plotted as they are in FIGURES 1 AND 2, it will be found that the diurnal variations cannot confidently be stated to be broken even at the height of the storm, and that as a warning of the approach of a disturbance it is of little value.

Barometer Traces S.S. "Assyria," "Ormuz," and "Ophir," during cyclone in the Arabian Sea, October 24 to November 1, 1906.

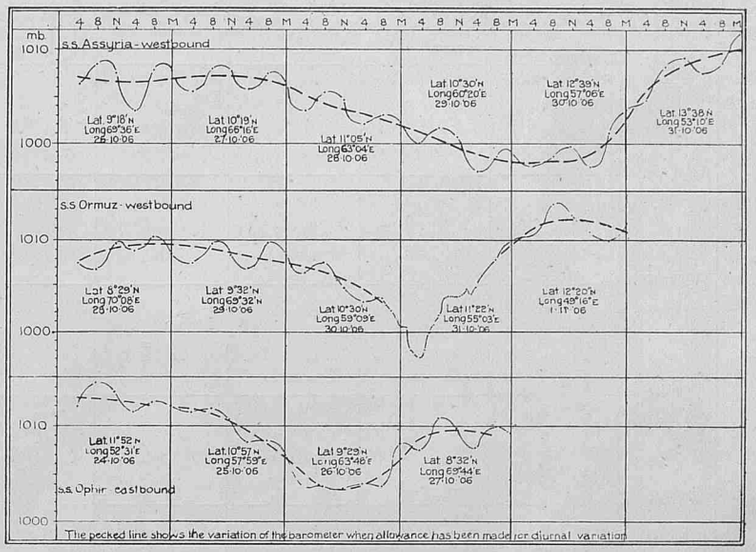


Figure 1.

In those regions of the ocean where Tropical Revolving Storms are encountered, it is a wise precaution to make a comparison regularly once a day between the observed pressures and the normal taken from the appropriate meteorological ocean chart to see if there is an appreciable difference of pressure from the normal. For this purpose a correction should be made for the diurnal range. A table is given later in these notes for application.

Errors in Mercurial Barometric Readings.

The most easy error of any to make is that of misreading 5 or 10 mbs. or ·1 in. as the case may be. In running one's eye down the columns of a log, it is not infrequently possible to detect a mistake of this sort without any doubt whatever. The only means of guarding against such errors is care. When a reading has been made and entered in the original note book it should invariably be checked by re-reading the barometer. A good rule is to make absolutely sure at the first reading of the decimals and at the second to pay particular attention to the tens and units.

A case in point was that of S.S. *Saturnia* on September 4th, 1921. She sent in a coded W/T report at 0700 on that date which gave her pressure as 1007 mb., in filling in Form 911 the pressure after correction and reduction to M.S.L. was 1002 mb. at 8 a.m. It is obvious that a five millibar error has been made. But if it is supposed that the error was not detected and *Saturnia* constructed a synoptic chart on W/T reports given her by *Victorian*, *Lexington*, *Colonia* and *Finland*, as well as the British W/T stations, the result is shown in CHARTLET A. An ugly little secondary is shown over *Saturnia* and a steep gradient ahead since she was bound for Liverpool. She would expect this depression to affect the weather ahead of her and that she was running into very much stronger winds. As she would be making a landfall, this might affect the decision of the Captain as regards course and speed to be adopted and expected time of arrival to be wirelessed to owners, etc. The correct isobars are shown in CHARTLET B in which Saturnia's pressure is neglected.

Any consistent error, even though comparatively small, is serious; especially from the point of view of preparing normal charts. All observers probably have a small personal equation, in just the same way that all observers have a small personal equation in taking astronomical observations. In some observers it is known that the personal equation is comparatively large.

FIGURE 3 shows a case. The barometric readings of a certain ship in the Tropics as given in her meteorological log were corrected

S.S. "Miami."

Pressure by ship's aneroid corrected for Height and Index error (Index error found by direct comparison at Liverpool), October 7th, 1922.

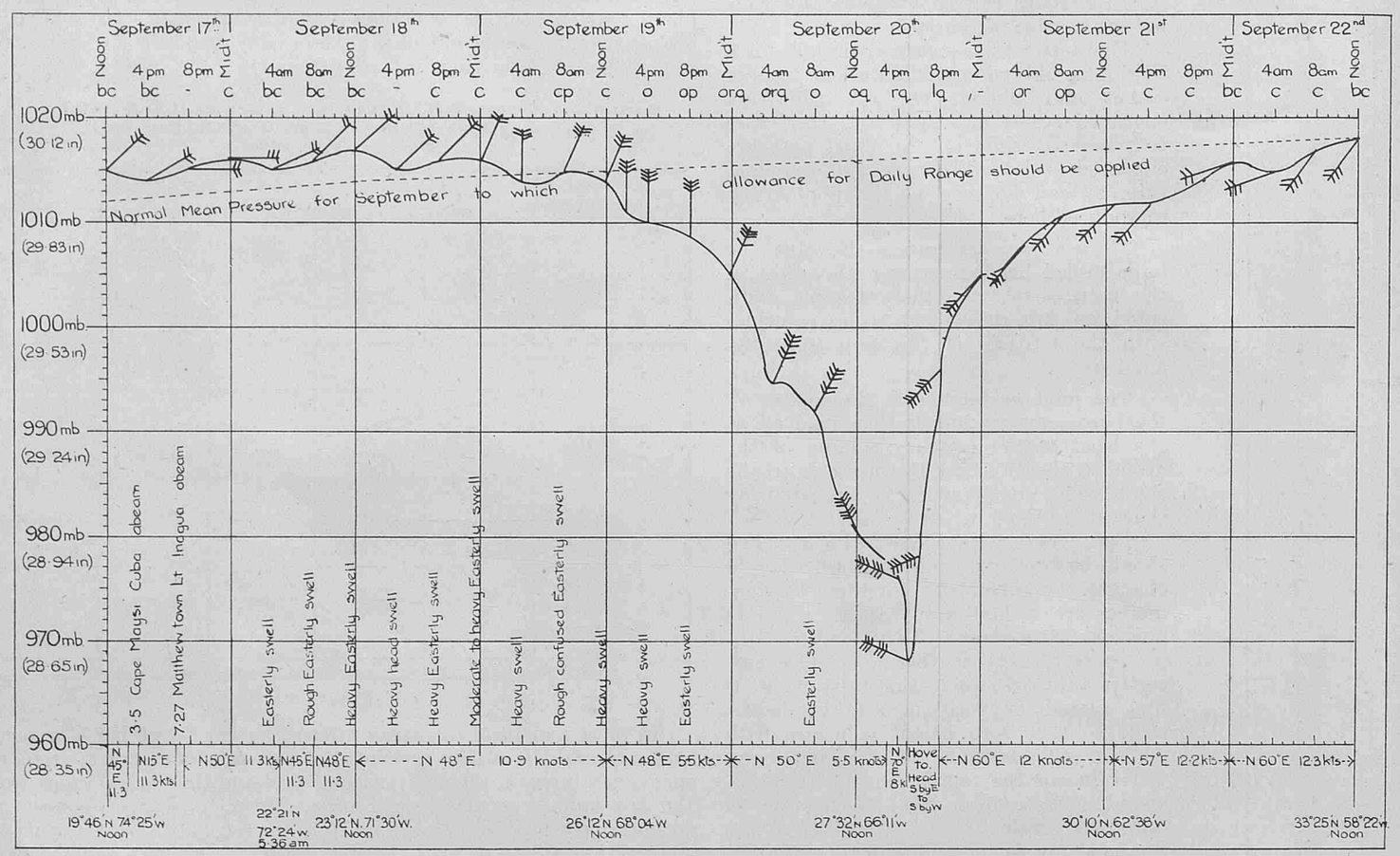
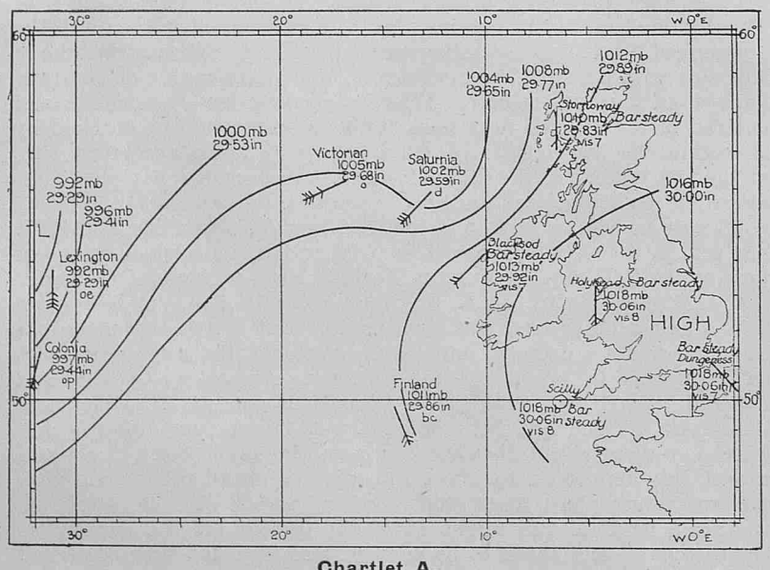


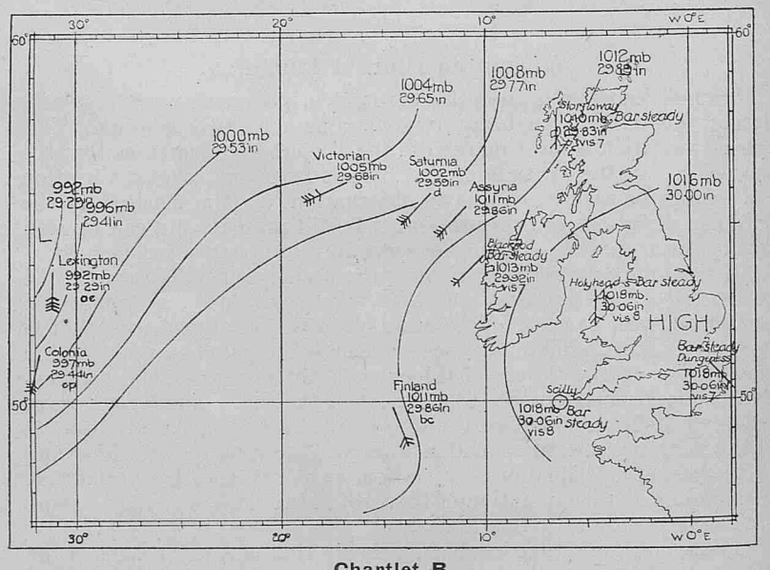
Figure 2.

Weather Chart, morning of 4th September 1921.



Chartlet A.

Weather Chart, morning of 4th September 1921.



Chartlet B.

for temperature, etc., and an additional allowance made for diurnal range. The readings so corrected were then plotted against the time. The result shows that the observer who took the readings at 8 a.m. and 8 p.m. was reading consistently low. It seems probable that his error was due to parallax from his eye not being on a level with the top of the mercury column of the barometer. Possibly he was shorter than the other two observers and the barometer was hung inconveniently high for him.

This method of checking their individual observations for consistent errors may well be applied by observers themselves. It is most conveniently done over a period of five or six days when the ship is in the Tropics, as irregular pressure variation is least there. The following Tables give the correction for diurnal variation in pressure for the ocean between Latitudes 10° and 20° N. and 10° and 20° S. They are constructed from a large number of observations received in the Marine Division since 1921 all round the globe. They may be used for all tropical regions with sufficient accuracy for our purpose.

Curve showing Observer's Error, probably due to Parallax.

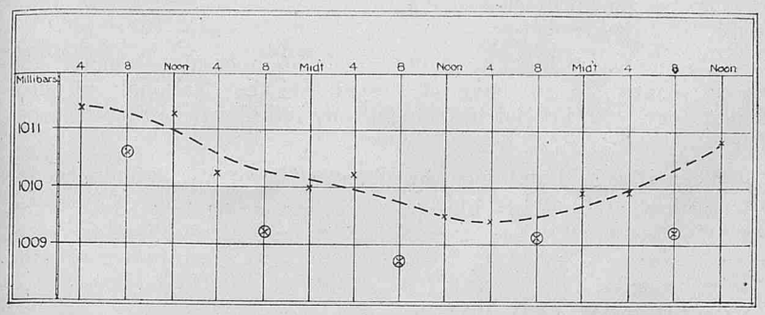


Figure 3.

Tables to correct Barometric Pressure for Diurnal Variation.

Lat. 10° to 20° N. in all Longitudes at Sea.

Ship's Time.	Northern Spring.		Northern Summer.		Northern Autumn.		Northern Winter.	
	Mbs.	Ins.	Mbs.	Ins.	Mbs.	Ins.	Mbs.	Ins.
4 a.m. -	+ 0·8	+ ·02	+ 0·7	+ ·02	+ 0·8	+ ·02	+ 0·3	+ ·01
8 a.m. -	− 1·1	− ·03	− 0·9	− ·03	− 0·9	− ·03	− 0·9	− ·03
Noon - -	− 0·9	− ·03	− 0·6	− ·02	− 0·7	− ·02	− 0·6	− ·02
4 p.m. -	+ 1·3	+ ·04	+ 1·2	+ ·04	+ 1·3	+ ·04	+ 1·4	+ ·04
8 p.m. -	+ 0·1	·00	+ 0·1	·00	− 0·1	·00	0·0	·00
Midnight -	− 0·4	− ·01	− 0·3	− ·01	− 0·3	− ·01	− 0·2	− ·01

Lat. 10° to 20° S. in all Longitudes at Sea.

Ship's Time.	Southern Spring.		Southern Summer.		Southern Autumn.		Southern Winter.	
	Mbs.	Ins.	Mbs.	Ins.	Mbs.	Ins.	Mbs.	Ins.
4 a.m. -	+ 0·6	+ ·02	+ 0·7	+ ·02	+ 0·7	+ ·02	+ 0·5	+ ·02
8 a.m. -	− 1·0	− ·03	− 1·0	− ·03	− 0·8	− ·02	− 0·9	− ·03
Noon - -	− 0·5	− ·02	− 0·4	− ·01	− 0·4	− ·01	− 0·4	− ·01
4 pm. -	+ 1·4	+ ·04	+ 1·3	+ ·04	+ 1·1	+ ·03	+ 1·2	+ ·04
8 p.m. -	− 0·0	·00	− 0·1	·00	− 0·2	− ·01	− 0·2	− ·01
Midnight. -	− 0·5	− ·02	− 0·4	− ·01	− 0·4	− ·01	− 0·5	− ·02

It will be found that in many cases one or more readings are consistently high or consistently low each day. If this is found to be the case, the cause can probably be detected by two observers reading the barometer in succession and comparing results.

FIGURE 4 is interesting. It is obtained from the observations of pressure made between Colombo and Aden by a ship in the Indian Trade (corrected for diurnal range). The noon observations show a marked tendency to be too high, though the midnight ones do not show it to the same extent. The tendency is very much more pronounced on the homeward than the outward voyage. This consistent error has been traced back to 1921, during which time all the observers except one have changed. It seems probable that this error is not the personal equation, but is a fault in the lighting of the barometer. This could be obviated probably by having a sheet of white paper at the back of the instrument against which the top of the mercury column would stand out clearly.

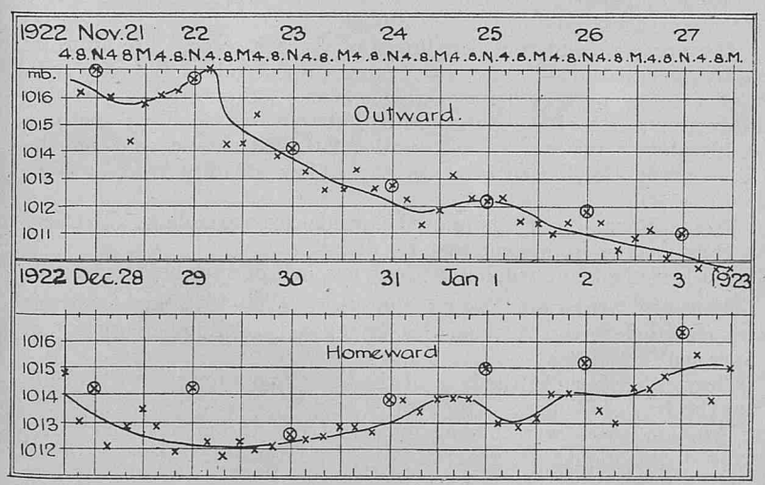


Figure 4.

It may be thought, perhaps, that the errors considered above are small and of no very great significance, but they are quite appreciable in comparison with the variations of pressure in the Tropics. How necessary accuracy in observation may be is shown by an investigation made to find out how frequently pressure as much as three millibars (one-tenth of an inch) below normal was found in the Arabian Sea in May.

All observations made during May of the years 1853 to 1905 in the area between Latitude 10° and 12° N. and Longitude 60° and 70° E. were examined. It was found that only on six per cent. of the occasions did the pressure fall more than three millibars below normal (no correction for diurnal range being applied).

That a fall of this amount may give warning of cyclonic storms is shown by the following:—At 8 a.m. on May 25th, 1881, S.S. *Strathlevin* in Latitude 10° N., Longitude 64° E., had a pressure of 1004 mb. (after correction for diurnal range), the normal being about 1009 mb. The wind was force 4. From May 28th to June 2nd, 1881, a cyclone raged in the Arabian Sea, though *Strathlevin* did not herself experience a wind of greater force than 7.

At 4 a.m on May 22nd, 1886, S.S. *Benalder*, in Latitude 10° N., Longitude 61° E., had a pressure of 1006 mb. (after correction for diurnal range). The wind was force 4. From the 24th to the 29th a cyclone was in being, though *Benalder* was out of its sphere of influence.

Errors in Aneroid Barometers.

What has been said above refers more especially to mercurial barometers. The Aneroid cannot be considered as an instrument of such precision as the mercurial barometer owing to limitations, inherent in its construction, though in certain circumstances it may prove more convenient to use. But the observer should be aware of its limitations.

If an aneroid is subjected to a comparatively sudden decrease of pressure, a gradual change will take place in the shape of the diaphragms of the vacuum box and will introduce **creep.** This gradual change may go on for days before it becomes inappreciable. When pressure rises again, the shape of the diaphragms will gradually return to normal and a corresponding creep in the opposite direction will take place. The creep of an aneroid depends largely on the design of its construction and with a good aneroid should be small at the pressures met with at sea level. This creep should not be confused with lag. **Lag** is the term given to the fact that a barometer will not immediately show a change of pressure. A certain time elapses before the mechanism can adjust itself to the new conditions. However, the lag of an aneroid is very small, smaller than is the case in a marine mercurial barometer.

In an aneroid there is a certain amount of play between the working portions in order to reduce the error due to friction. In a well-made aneroid the play should not be great. It may be tested by tapping the instrument from different sides and holding it in a variety of positions.

There is also a tendency for aneroid barometers to change their index error with time. As an example, the aneroid of a certain ship has been compared by the blue post-card method since the middle of 1920. Two comparisons then gave an index error of + ·03 in. At the end of 1920 the error was — ·01. in., about September, 1921 — ·10 in., June, 1922 — ·14 in., December, 1922 — ·18 in., January, 1923 — ·21 in., March, 1923 — ·22 in., and two comparisons in May and July 1923, gave — ·17 in. In December, 1923, the error was — ·20 in., while in April, 1924, it had dropped to — ·15 in., and in May, 1924, it was once more — ·17 in. The increase of negative error seems to be quite regular until March, 1923.

For this reason, comparisons by the blue post-card method should be frequently made but not only for this reason. It is quite possible for an aneroid barometer to change its index error suddenly owing to some slight fault in its internal mechanism. Without repeated comparisons such an error might go unnoticed to the bewilderment of anyone endeavouring to use a reading in the construction of a synoptic chart. How bad an aneroid may be is evidenced by tha

of a certain ship taking most excellent observations with its M.O. mercurial barometer. At noon each day was recorded the ship's aneroid. It was found that the index error of the aneroid varied fairly regularly from 7 mb. at a pressure of 990 mb. to 15 mb. at a pressure of 1020 mb. !

It has been the custom in some ships when a good comparison has been obtained between an aneroid and a mercury barometer to readjust the aneroid so as to eliminate index error. Unless the index error is very large, this should not be done. It is easy to apply a small correction to the reading of the aneroid and far more will be learnt of the behaviour and reliability of the instrument by keeping a record of the changes in its index error.

If a navigator has any doubt about his aneroid barometer, the wisest course is to have it tested at the National Physical Laboratory. An inferior instrument may fail him just when he most needs its help.

When all is said and done the Mercurial Barometer is undoubtedly the most accurate and reliable.

WEATHER CHARTS FOR THE NORTH SEA AND BALTIC.

Prepared in the Marine Division by J. Hennessy, Senior Nautical Assistant.

Since March 1st last, a Weather Shipping message has been broadcast by the Swedish Meteorological Office from **Karlsborg (SAJ)** which if intercepted and combined with the British " Weather Shipping " Bulletin, will give the navigator complete weather information and allow him to construct a weather chart covering the whole of the North Sea and Baltic.

Commanders and Officers of the Observing Fleet are familiar with the British " Weather Shipping " Bulletin, and examples showing its practical use have appeared in this Journal from time to time.

The Swedish message is similar in arrangement to that of the British and is broadcast at 1115 G.M.T. on 2,500 metres, C.W., and again at 2030 G.M.T. on 2,500 metres, Spark, giving observations obtained at 0700 and 1800 G.M.T. respectively, from nine Swedish and four Danish and Norwegian stations together with observations supplied by ships in the North Sea, also a general inference and forecasts for the different areas covering the ensuing twelve hours.

Weather Charts XLII, XLIII, XLIV, for the 14th to 16th November, 1924, are drawn from data contained in the combined British and Swedish Weather Bulletins.

S.S. *Gourko*, Captain H. Montgomery on passage from Hull to Reval when in Skagerrak obtains the Swedish weather reports, and combining them with the British " Weather Shipping " message received earlier in the day, constructs a weather chart which gives him a graphic description of existing weather conditions over the whole of North Western Europe and from which he will be able to foresee any change likely to be experienced during his passage through the Baltic.

Weather Chart XLII, morning of November 14th, 1924, shows *Gourko* to be situated near the centre of an anti-cyclone which extends and influences the weather over the North Sea and British Isles, while westward of the British Isles pressure decreases to the centre of a Low situated west of Iceland.

The barometer tendencies indicate that the anti-cyclone will remain practically stationary and develop during the next twenty-four hours. *Gourko* proceeding through the Kattegat will expect to maintain the general weather conditions then prevailing with the force of wind decreasing.

Weather Chart XLIII, morning of November 15th, 1924.—The chart for this morning differs very little from that of the preceding day. There is little alteration in pressure over Scandinavia, but a slight increase is shown over the British Isles, while a low pressure area exists to the S.W. of Scilly. The barometer tendencies indicate that the existing pressure distribution will be maintained and *Gourko* now entering the Baltic Sea may expect light wind gradually backing to N.E., sky becoming overcast with possibly rainy weather and moderate visibility

Weather Chart XLIV, morning of November 16th, 1924.—The same general characteristics are shown on this chart as on that of yesterday. Pressure has increased over the whole area, the increase being greatest over the British Isles.

The barometer tendencies indicate that the anti-cyclone will become further intensified and *Gourko* now nearing the Gulf of Finland, will expect no change in her weather, experiencing light winds, overcast sky, intermittent rain and moderate visibility.

NOTES UPON AVERAGE CONDITIONS IN THE INDIAN OCEAN, NORTH OF LATITUDE 35° S.

XI.—November.

The area of high pressure centred over the Persian Gulf 1018 mb. (30·06 in.) and Chinese Provinces 1020 mb. (30·12 in.) has developed considerably since the preceding month and now extends over the northern part of the Bay of Bengal and over the north and west of the Arabian Sea.

The area of comparatively low pressure bounded by the 1010 isobar (29·83 in.) now occupies the centre and south of the Bay, the east and S.E. of the Arabian Sea, and the greater part of the equatorial region. The normal difference in pressure over the eastern half of the North Indian Ocean is 5 mb. (·15 in.) while over the western half it is 7 mb. (·21 in.). Over the Arabian Sea and Bay of Bengal the N.E. monsoon becomes established but is generally light, calms not being infrequent.

Between the parallels of 5° North and South, east of the 60th meridian the wind blows chiefly from a north-westerly direction, the force of which varies between 2 and 3. Calms are frequent in this area especially off the coast of Sumatra. West of the 60th meridian between the same parallels the winds are variable with those from a south-easterly direction predominating.

In the South Indian Ocean pressure increases in a southerly direction from about Latitude 10° S. to the centre of the high pressure system situated in about Latitude 33° S., Longitude 85° E. The normal difference of pressure over this area is 10 mb. (·30 in.) a decrease of 2 mb. (·06 in.) since October.

The northern and southern limits of the S.E. trades are approximately in Latitude 7° and 27° South respectively. Blowing with an average strength of between forces 3 and 4 they are fairly steady in direction north of the 20th parallel but south of this they fluctuate considerably between the N.E. and S.E. quadrants except off the S.E. coast of Madagascar where they blow steadily from a N.E. direction.

In the Mozambique Channel the winds are variable in direction, but come mainly from some easterly direction.

South of the trade wind zone there is a belt of variable winds.

Cyclonic Storms.—During the years 1890–1912 eight storms were recorded in the Arabian Sea giving a percentage frequency of 17 per cent.

They either form in the S.E. of the Sea or pass over the Peninsula from the Bay of Bengal. They travel in a W.N.W. direction towards the Arabian coast or recurving move to the head of the Sea. The storms of this month are generally of great intensity.

Bay of Bengal.—Forty-three storms are recorded in this month

during the years 1877–1923 giving a percentage frequency of 11 per cent., a little less than that for the preceding month.

The storms may form in any part of the southern half of the Bay and travel in any direction from west round north to N.E. and are of a severe nature.

South Indian Ocean.—During the years 1848–1917, thirty-three storms giving a percentage frequency of 6 per cent. were recorded in this month.

They originate south of the fifth parallel between the meridians of 50° and 100° East and move in a south-westerly direction recurving between Latitudes 15° and 20° South to the S.E. They are generally of a severe nature.

For tracks of the above storms, *see* Vol. I., No. XI., of this Journal.

Air Temperature.—In the Arabian Sea the normal air temperature for the month is about 78° F. in the north, 82° F. on the eastern side, between 80° and 81° F. over the centre and 79° F. on the western side of the Sea.

In the Bay of Bengal the normal temperature is about 80·5° F. over the northern half and 81·5° F. over the southern half of the Bay.

Between Latitudes 10° North and South the normal temperature is fairly constant at about 81° F. From Latitude 10° South the temperature gradually decreases with increased Latitude being about 60° F. in Latitude 35° South.

Sea Surface Temperature.—On the eastern side of the Arabian Sea the normal sea surface temperature for the month is about 82° F. Over the centre of the Sea it is about 80° F. and on the western side about 79° F. Over the northern part of the Bay of Bengal the normal temperature is about 81° F. and over the southern part of the Bay 82° F.

Between Latitudes 10° North and South, east of the 60th meridian the normal temperature is between 81° and 82° F. West of the 60th meridian it varies between 82° and 78° F. Southward from Latitude 10° S. temperature gradually decreases and is about 60° in Latitude 35° S.

Currents.—Between the 25th and 35th parallels the currents are irregular but tend to set in an easterly direction.

The S.E. Trade drift setting in a westerly direction between the 25th and 6th parallels flows to the north and south of Madagascar. The stream flowing to the north of Madagascar on reaching the mainland in the vicinity of Cape Delgado branches and sets up and down the coast. The stream flowing to the south of Madagascar joins the stream setting down the west side of the Mozambique Channel which, keeping parallel with the coast, flows on around the Cape forming the Agulhas current.

In the centre of the Mozambique Channel the currents are irregular, and on the eastern side the set follows the contour of the west coast of Madagascar to the southward.

Between Latitude 6° South and the Equator, east of the 50th meridian the set is easterly; west of the 50th meridian the currents are irregular except to within 120 miles of the African coast where the set follows the land to the northward.

North Indian Ocean.—In the Arabian Sea, east of the 60th meridian the general set of the current is to the S.W. except along the west coast of the Indian Peninsula where it runs to the N.W. West of the 60th meridian the currents are irregular but there is a set to the S.W flowing along the Arabian coast into the Red Sea.

Over the central and eastern parts of the Bay of Bengal the current sets to the west and S.W. On the western side of the Bay the set is to the S.W. and south. Turning to west when south of Ceylon it later turns N.W. and flows up the west coast of the Peninsula. East of the 60th meridian, south of the Arabian Sea and Bay of Bengal to the Equator the current flows to the eastward. West of the 60th meridian the currents are variable.

WEATHER SIGNALS.

II. WIRELESS WEATHER BULLETINS.

MEXICO.

(Spark Issue.)

Chapultepec W/T station, approximate Latitude 19° 25′ N., Longitude 99° 11′ W. call sign **XDA**, broadcasts a weather bulletin at 1900 G.M.T. on a wavlength of 2,000 metres (spark).

The bulletin is in two parts.

Part I., in special code, contains the observations of 1300 G.M.T. from the following stations :—

Station.	Position approx. Latitude.	Longitude.
Acapulco	16° 52′ N.	99° 50′ W.
Chihuhua	28° 32′ N.	106° 28′ W.
Frontera	18° 35′ N.	92° 38′ W.
Guaymas	27° 58′ N.	110° 48′ W.
Leon	21° 01′ N.	101° 15′ W.
Lerdo	——	——
Manzanillo	19° 00′ W.	104° 20′ W.
Islas Marias	21° 40′ N.	106° 30′ W.
Matamoros	25° 53′ N.	97° 33′ W.
Mazatlan	23° 10′ N.	106° 22′ W.
Monterrey	25° 34′ N.	100° 20′ W.
Payo Obispo	18° 29′ N.	88° 22′ W.
La Paz	24° 10′ N.	110° 18′ N.
Progreso	21° 16′ N.	89° 36′ W.
Salina Cruz	16° 17′ N.	95° 15′ W.
Tacubaya	19° 24′ N.	99° 12′ W.
Tampico	22° 11′ N.	97° 53′ W.
Tapachula	15° 10′ N.	92° 27′ W.
Vera Cruz	19° 12′ N.	96° 10′ W.

Explanation of Part I.

Commencing with the word "Meteorologico," the name of the observation station is sent followed by two groups of figures, there being five figures in each group.

First Group : 1st, 2nd and 3rd figures give the corrected barometer reading in millimetres and tenths, initial 7 omitted. To convert to mbs., *see* Table XV, p. 45, March 1925, MARINE OBSERVER.

4th figure gives the wind direction on scale 0–8, Table XLV, p. 151, September 1925, MARINE OBSERVER.

5th figure gives the wind force by Beaufort scale, 9 being used for forces 9 and above.

Second Group : 1st figure gives the state of the weather at the time of observation, Table XLVI., p. 151, September, 1925, MARINE OBSERVER.

2nd figure gives the barometric tendency in millimetres for the 2 hours previous to the time of observation, Table LIV.

3rd figure gives the cloud amount (number of tenths of sky obscured). Table XLVIII., p. 151, September 1925, MARINE OBSERVER.

4th figure gives the cloud form and speed, Table XLIX, p. 151, September 1925, MARINE OBSERVER.

5th figure gives the direction of movement of the clouds on scale 0–8; 0 = no appreciable movement, etc., Table XLV., p. 151, September, 1925, MARINE OBSERVER. When both upper and lower clouds are observed, only the amount, kind, and direction of the lower clouds will be sent. In such cases the amount of the upper clouds, if any, can be determined, approximately, by taking the difference between the tenths of cloudiness interpreted from the figures showing "present weather" and "amount of clouds."

NOTES.—(1) Missing observations replaced by letter "X."

(2) When all the data for a station cannot be supplied the name of the station will be omitted.

Part II. sent *en clair* (Spanish) gives information concerning the general weather situation, position of centres of High or Low pressure areas, and weather forecasts for 24 hours.

SOUTH AMERICA.

CHILE.

Valparaiso W/T Station, approximate Latitude 33° 01′ S., Longitude 71° 39′ W., call sign **CCE**, broadcasts a weather bulletin in code commencing with the letters OMC (Officina Metéorologica de Chile) at

0100 and 1700 G.M.T. on a wave length of 1,000 metres (spark).

The message gives observations from the following stations :—

Indicator Letter.	Station.	Position (approx.). Latitude.	Longitude.
V	Valparaiso	33° 06′ S.	71° 40′ W.
T	Talcahuano	36° 43′ S.	73° 08′ W.
C	Corral	39° 53′ S.	73° 35′ W.
J	Juan Fernandez	33° 42′ S.	78° 45′ W.
M	Mocha	38° 25′ S.	74° 00′ W.
G	Guafo (or Huafo)	43° 35′ S.	74° 45′ W.
R	Raper	46° 50′ S.	75° 38′ W.
P	Punta Arenas	53° 08′ S.	70° 56′ W.
O	Puerto Montt	41° 30′ S.	72° 58′ W.
Q	Coquimbo	29° 57′ S.	71° 20′ W.

The observations are contained in one group consisting of a key letter and four figures for each station.

The first two figures give barometer corrected in whole millimetres, the initial seven being omitted (*see* Table XV, p. 45, March 1925 MARINE OBSERVER, to convert to mbs. and ins.).

The third figure gives wind direction true.

1 = N.	3 = E.	5 = S.	7 = W.
2 = N.E.	4 = S.E.	6 = S.W.	8 = N.W.

The fourth figure gives wind force by Beaufort scale. When this is greater than 9 it will be given in words, thus :—

diez = 10, once = 11, and doce = 12.

When necessary the following words will be added :—

Temporal = gale.	Neblina = fog.
Lluvia = rain.	Sol = sunny.

An " X " will replace the figure for any missing observation, but if all the values for any station are missing, the word " No " will precede the key letter, thus " No T."

The bulletin at 0100 G.M.T. will also contain a summary of the weather changes that have taken place during the day.

Each bulletin will conclude with a meteorological forecast, and a statement regarding the probable approach of bad weather.

Talcahuano—Rocuant, W/T Station, Latitude 36° 44′ S., Longitude 73° 06′ W., call sign **CCK**, broadcasts at 0130 and 1730 G.M.T. on a wave length of 1,900 metres (spark), a repetition of the messages broadcast from Valparaiso at 0100 and 1700 G.M.T. respectively.

ARGENTINA.

Buenos Aires—Dârsena Norte, W/T Station, approximate Latitude 34° 36′ S., Longitude 58° 22′ W., call sign **LIH**, broadcasts a weather bulletin, *en clair*, in Spanish, at 0205 G.M.T., on a wave length of 1,000 metres. The bulletin will also contain a weather forecast for the ensuing 24 hours for the Rio de la Plata.

BRAZIL.

(a) Wireless Weather Reports on the Brazilian Coast.

With a view to assisting navigation, etc., the Brazilian W/T coast stations given in the list below transmit, **every four hours,** the state of weather and sea, as well as the force and direction of the wind. The elements so transmitted are direct observations made at the W/T stations. They are sent in Portuguese, *en clair*, and owing to uniformity can be easily understood by ships of other nationalities.

W/T Station.	Position (approx.). Latitude.	Longitude.	Call Sign.	Times of Sending. G.M.T.
Belém (Para)	1° 27′ S.	48° 30′ W.	SPB	0245, 0645, etc., etc.
S. Luiz (Maranham)	2° 32′ S.	44° 17′ W.	SOM	0300, 0700, etc., etc.
Natal	5° 47′ S.	35° 18′ W.	SNR	0330, 0730, etc., etc.
Olinda (Pernambuco)	8° 01′ S.	34° 51′ W.	SPO	0345, 0745, etc., etc.
Amaralina (Bahia)	13° 01′ S.	38° 28′ W.	SPA	0315, 0715, etc., etc.
Fernando Noronha	3° 51′ S.	32° 25′ W.	SPN	0315, 0715, etc., etc.
Abrolhos	17° 58′ S.	38° 45′ W.	SNN	0320, 0720, etc,. etc.
C. St. Thome	22° 02′ S.	40° 59′ W.	SPT	0330, 0730, etc., etc.
Santos	23° 56′ S.	46° 20′ W.	SPS	0245, 0645, etc., etc.
Florianopolis	27° 36′ S.	48° 30′ W.	SOV	0315, 0715, etc, etc..
Junccão (Rio Grande do Sul)	32° 04′ S.	52° 07′ W.	SPJ	0345, 0745, etc., etc.
Rio	22° 54′ S.	43° 10′ W.	SOH	1200, 1500, 2100, 0000

The wave length used by the above stations for the transmission of the messages is 600 metres (spark) in each case.

(b) Special Messages, including forecasts for the South Coast of the State of Rio de Janeiro, the remainder of the Southern Brazilian Coast, and to Buenos Ayres.

Ilha do Governado—Rio de Janeiro—W/T Station, approximate Latitude 22° 48′ S., Longitude 43° 13′ W., call sign **SOH** broadcasts daily two special weather bulletins at 1800 and 0100 G.M.T., both on 1800 metres (spark).

These bulletins are divided into three parts; the first part contains respectively the 1200 and 2100 G.M.T. observations in New International Code of various Brazilian, Uruguayan and Argentine meteorological stations given below; the second part contains upper air observations in code; the third part contains detailed weather forecasts in Portuguese, *en clair*, expressed in a small collection of terms which can be easily understood by ships of other nationalities.

Indicator Number.	Station.	State.	Position (approx.). Latitude.	Longitude.
01	Ondina	Bahia	13° 00′ S.	38° 31′ W.
02	Caetité	,,	14° 03′ S.	42° 37′ W.
03	Victoria	Esp. Santo	20° 10′ S.	40° 18′ W.
04	Bello Horizonte	Minas Geraes	19° 55′ S.	43° 56′ W.
05	Uberaba	,, ,,	19° 45′ S.	47° 57′ W.
06	Pirapora	,, ,,	17° 18′ S.	44° 57′ W.
07	Juiz de Fora	,, ,,	21° 45′ S.	43° 20′ W.
08	Rio de Janeiro	Rio de Janeiro	22° 54′ S.	43° 10′ W.
09	Cabo Frio	,, ,,	22° 52′ S.	42° 01′ W.
10	S. Paulo	Säo Paulo	23° 33′ S.	46° 38′ W.
11	Santos	,, ,,	23° 56′ S.	46° 19′ W.
12	S. Paulo dos Agudos	,, ,,	22° 28′ S.	49° 00′ W.
13	Cuyaba	Matto Grosso	15° 35′ S.	56° 05′ W.
14	Coxim	,, ,,	18° 28′ S.	54° 45′ W.
15	Tres Lagoas	,, ,,	20° 47′ S.	41° 42′ W.
16	Curityba	Paranà	25° 25′ S.	49° 16′ W.
17	Florianopolis	S. Catharina	27° 36′ S.	48° 30′ W.
18	Palmas	Paranà	26° 28′ S.	51° 58′ W.
19	Porto Alegre	Rio G. Sul	30° 01′ S.	51° 13′ W.
20	Uruguayana	,, ,,	29° 45′ S.	57° 05′ W.
21	S. Luiz das Missões	,, ,,	28° 23′ S.	54° 58′ W.
22	Rio Grande	,, ,,	32° 01′ S.	52° 05′ W.
23	Bagé	,, ,,	31° 20′ S.	54° 06′ W.
24	S. Victoria do Palmar	,, ,,	33° 31′ S.	53° 21′ W.
25	Sta. Izabel	Uruguay	32° 45′ S.	56° 32′ W.
26	Montevidéo	,,	34° 54′ S.	56° 12′ W.
27	Buenos Aires	Buenos Aires	34° 36′ S.	58° 22′ W.
28	Oran	Salta	23° 06′ S.	64° 20′ W.
29	Adalgala	Catamarca	27° 30′ S.	66° 26′ W.
30	Corrientes	Corrientes	27° 27′ S.	58° 49′ W.
31	Santa Fé	Santa Fé	31° 40′ S.	60° 42′ W.
32	Mendoza	Mendoza	32° 53′ S.	68° 49′ W.
33	Victorica	Pampa Central	36° 10′ S.	65° 21′ W.
34	Cipolletti	Rio Negro	38° 56′ S.	68° 08′ W.
35	Bahia Blanca	Buenos Aires	38° 45′ S.	63° 15′ W.
36	P. Madryn	Chubut	42° 49′ S.	64° 58′ W.
37	Sarmiento	,,	45° 30′ S.	69° 00′ W.
38	16 de Outubro	,,	42° 12′ S.	71° 08′ W.

1800 G.M.T. Bulletin (1500 45th Meridian Time).

First part of Bulletin (observations of 1200 G.M.T.) Code used :

Brazilian Stations (1–24) I_n I_n BBBDD. FwwTT.
Uruguayan ,, (25–26) I_n I_n BBBDD.
Argentine ,, (27–38) I_n I_n BBBDD.

in which

I_n I_n = Indicator number of station.
BBB = Barometric pressure corrected, in millimetres and tenths (initial 7 omitted). (*See* Table XV, p. 45, March 1925 MARINE OBSERVER. to convert to mbs. and ins.).
DD = Wind direction true (Table III, p. 13, January 1925 MARINE OBSERVER.
F = Wind force by Beaufort scale.
ww = Weather at time of observation (Table V, p. 15, January 1925, MARINE OBSERVER.
TT = Air temperature in whole degrees C. (*See* Table XVII, p. 45, March 1925 MARINE OBSERVER, to convert to Faht.).

Second Part of Bulletin sent in code preceded by the word " Pilot " contains upper air observations.

Third Part of Bulletin contains night weather forecasts and is preceded by the word " Previsão."

0100 G.M.T. Bulletin (2200 45th Meridian Time).

The First Part of the Bulletin contains the 2100 G.M.T. observations (in code) of stations 08, 09, 11, 17, 22 and 24, in exactly similar,

form as for stations 1–24 in the 1800 G.M.T. Bulletin.

Second Part of Bulletin contains upper air observations in code and is preceded by the word " Temp Alegrete."

Third Part of Bulletin contains weather forecasts for the following day for the south coast of the State of Rio de Janeiro, remainder of the Brazilian coast and to Buenos Aires, in Portuguese *en clair*, preceded by the word " Previsão."

NOTE.—Missing figures replaced by hyphens.

WIRELESS STORM WARNINGS.

SOUTH AMERICA.

CHILE.

Valparaiso W/T Station, call sign CCE, broadcasts storm warnings when necessary, after the weather bulletins at 0100 and 1700 G.M.T. on a wave length of 1,000 metres (spark).

Special Weather Telegraphy Table,
Not New International Code.

Table LIV. Barometer Tendency.

Code figure.
0 = Steady (rise or fall less than 1 mm).
1 = Rising 1 mm. (1·4 mb.).
2 = Falling 1 mm. (1·4 mb.).
3 = Rising 1·5 mm. (2·0 mb.).
4 = Falling 1·5 mm. (2·0 mb.).
5 = Rising 2 mm. (2·7 mb.).
6 = Falling 2 mm. (2·7 mb.).
7 = Rising 2·5 mm. (3·4 mb.).
8 = Falling 2·5 mm. (3·4 mb.).
9 = Rise or fall 3 mm. (4·1 mb.) or more. (Whether it is an increase or decrease can be determined by the tendency at surrounding stations.

III. WIRELESS TIME SIGNALS.

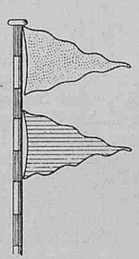
Country and Station.	Call.	Wavelength.	G.M.T.	System.
Chile.				
Valparaiso. Lat. 33° 01′ 04″ S. Long. 71° 39′ 27″ W.	CCE	1,000 (spark)	h. m. s. h. m. s. 00 55 00—01 00 00	The T.S. commence at 00h. 55m. 00s. G.M.T. and continue for 5 min. During this period every tick (represented by a dot) of the standard clock at the even second is transmitted *except* the 29th, 50th, 51st, 52nd, 53rd, 54th, 55th, 56th, 57th, 58th and 59th. The tick at the final second of each minute is the T.S. (which ends at 01h. 00m. 00s. G.M.T.). NOTES.—(1) Sent daily, except Sundays. (2) T.S. controlled by the Hydrographic Office. (3) In the event of failure or irregularities in the T.S., the word " senal nula " (signal annulled) will be made three times in succession, one minute after 0100 G.M.T.
Brazil.				
Rio de Janeiro. **(Ilha do Governador).** Lat. 22° 48′ 00″ S. Long. 43° 13′ 00″ W.	SOH	1,800 (spark)	13 57 00—14 00 00 23 57 00—00 00 00	New International } *See* FIG. 1, p. 64, April 1925, MARINE, New International } OBSERVER. NOTE.—Signals sent 30 minutes later in case of accident preventing transmission at correct times.

IV. VISUAL STORM WARNINGS.

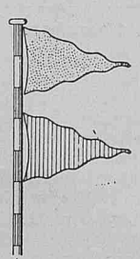
MEXICO.

The following system of visual storm and wind signals has been established at ports on the coasts of Mexico.

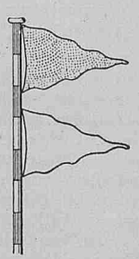
(1) Storm signals are used to give warning of the existence of cyclonic disturbances whether distant or near, or, of the existence of bad weather outside the port. These storm signals which consist of pennants only and their meanings, are as follows :—



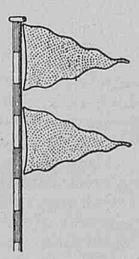
Bad weather North of the port.



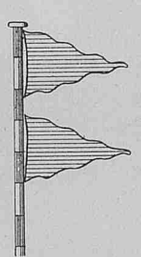
Bad weather South of the port.



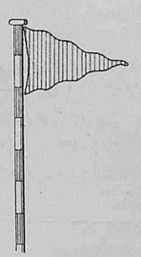
Bad weather East of the port.



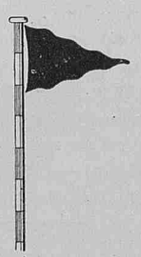
Bad weather West of the port.



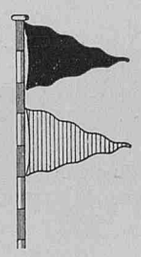
Northerly gale from Matamoras begun. (Gulf ports only.)



Gulf Ports.—Cyclone in Caribbean Sea. Pacific Ports.—Distant cyclone.



Gulf Ports.—Cyclone in Gulf of Mexico. Pacific Ports.—Cyclone close by.

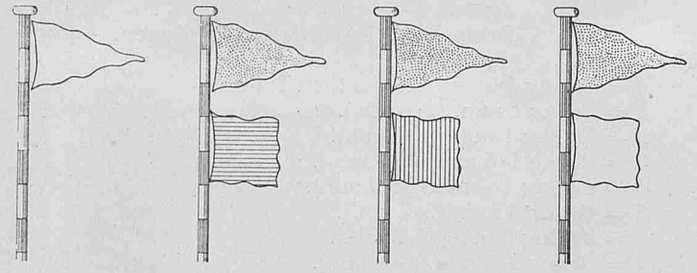


Cyclone at the Port, or will pass close by on that day.

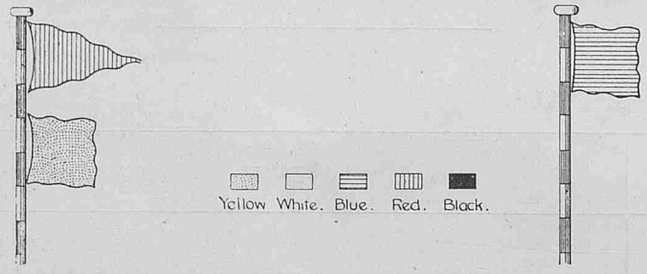
Night Signals.—Two red lights, vertical, are hoisted to indicate that navigation may be dangerous.

(2) The following signals consisting of pennants, denoting the strength, and flags the direction of the wind, are used to indicate its probable strength and direction from the time of hoisting the signal until the following 0600. They will be lowered, if necessary,

to hoist a storm signal and in the evening when no longer visible :—



Light or moderate winds. | Moderate or strong Northerly winds. | Moderate or strong Southerly winds. | Moderate or strong Easterly winds.



Gale or hurricane from the West.

Northerly gale expected the following day. (Gulf Ports only.)

The signals are exhibited at the following ports from flagstaffs painted in *red* and *white* bands :—

Gulf Coast.—Matamoras, Tampico, Tuxpan, Vera Cruz, Puerto Mexico, Frontera, Ciudad del Carmen, Campeche, and Progreso.

Caribbean Coast.—Payo Obispo.

Pacific Coast.—Salina Cruz, Acapulco, Manzanilla, San Blas, Mazatlan, Guaymas, and La Paz.

South America.

Chile.

Storm Signals, Valparaiso.—The storm signals formerly exhibited from the signal mast on the turret of the " Gobernacion Maritima " Building have been discontinued.

The following signals are now exhibited from the above mast, from April 15th to October 15th.

By day.—The degrees of good, variable and stormy or bad weather are indicated by the position of the symbols on the mast, viz. :—

First degree, mast-head : Second degree, half-mast; Third degree, below.

Good weather is indicated by flag D (International Code).

Variable weather is indicated by one ball.

Storm or bad weather is indicated by two balls.

By night. — The degrees of variable, and stormy weather are indicated by one, two or three lights, viz. :—

Variable weather by *blue* light or lights.

Stormy weather by *red* light or lights.

Special Night Signal.—One *red* and one *blue* light placed vertically means " Barometer falling rapidly."

Argentina.

Buenos Aires.—On a flagstaff on the roof of the Ministry of Agriculture, situated near Dock No. 1, the undermentioned storm signals for the Rio de la Plata are made.

Signals for Local Gales—probable up to the next day.

By day.	Meaning.	By night.
A black cone, point up.	Gale from N.W. quadrant.	Three *white* lights in triangle, point up.
A black cone, point down.	Gale from S.W. quadrant.	Three *white* lights in triangle, point down.
Two cones, points up.	Gale from N.E. quadrant.	Four *white* lights in a square, with one light above.
Two cones, points down.	Gale from S.E. quadrant.	Four *white* lights in a square, with one light below.
Two cones, bases together.	Hurricane.	Six *white* lights forming two triangles, bases together.
Red square flag above the cones.	Caution that the gales predicted are imminent, or may occur on same day.	*Red* light over the *white* lights.

Uruguay.

Montevideo.—On the approach of storms or bad weather, by day, a red and white flag will be hoisted under the national flag from a flagstaff at the north-west angle of the Custom-house; at night a *red* light will be shown in place of the flag.

Brazil.

The following system of Visual Storm Signals is in operation at Brazilian seaports, the symbols being hoisted when necessary.

By day.	Meaning.	By night.
One black cone.	Wind from any quarter, dangerous for small craft.	—
Two black cones, bases touching.	Strong winds from S.E.	One *red* light.
Two black cones, points upward.	Strong winds from N.E.	Two *red* lights.
Two black cones, points touching.	Strong winds from N.W.	*White* over red light.
Two black cones points downward.	Strong winds from S.W.	*Red* over white light.

At Rio de Janeiro, the signals are exhibited from the Time Signal Tower at the Observatory, at Santos from the Signal Station on Monte Serrat, and at Cape Frio, from the Signal Station.

Special Notices regarding Personnel.

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

Captain James Gillies, C.B.E.

Captain James GILLIES, C.B.E., Commodore of the Canadian Pacific Atlantic Fleet and late Commander of R.M.S. *Empress of Scotland*, has been appointed General Manager of Canadian Pacific Steamships Limited in succession to the late Commander Sir THOMAS FISHER, K.B.E., R.N.

Captain GILLIES joined the Elder Dempster S.S. Company in 1899, and on the transfer of that company's Atlantic Fleet to the Canadian Pacific flag in 1903, was appointed second officer of the *Mount Royal*. In 1907 he obtained his first command, the *Montezuma*, since when he has commanded many of the largest ships of the company and has held appointments as Marine Superintendent for the company at the ports of Trieste and Liverpool. In 1920 he was appointed a Commander of the Civil Division of the Order of the British Empire for his services during the War.

Since the war, Captain GILLIES has been a keen observer for the Meteorological Office and has contributed Logs, Forms and W/T Registers, his name appearing on the list of Captains and Officers to whom the Meteorological Committee have made " excellent " awards.

Marine Observers will join with the Marine Division in congratulating Captain GILLIES upon his promotion to this highly important post.

Captain F. W. Chambers, D.S.C.

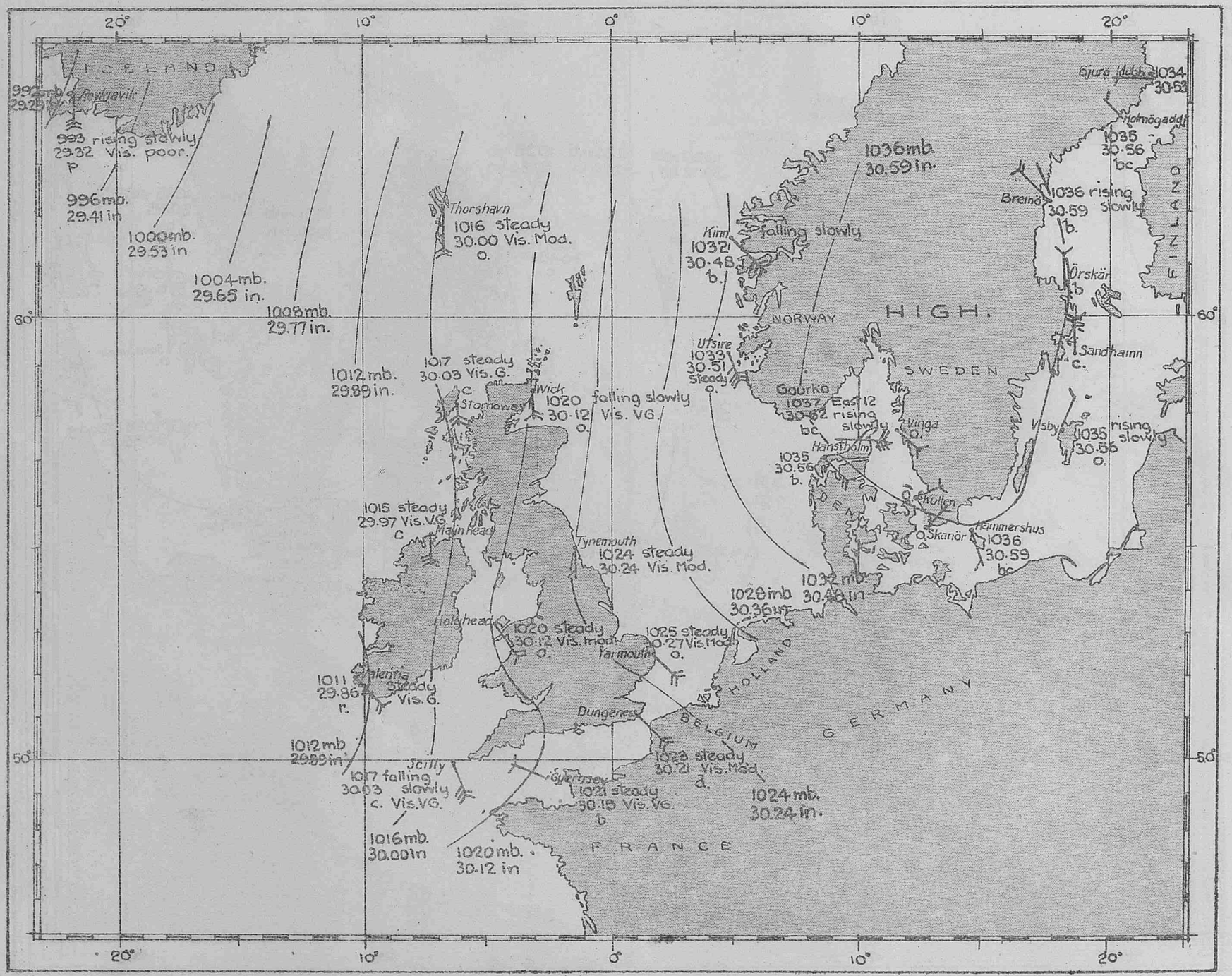
Captain F. W. CHAMBERS, of S.S. *Digby*, Furness Withy Line, who has been a marine observer since 1919 and has contributed 12 meteorological logs, of which eight were " excellent," retired on July 29th, 1925, after half a century's sea service. He served his apprenticeship in Messrs. John Stewart & Co.'s Barque *Star of Jamaica*, sailing on his first voyage on November 9th, 1875.

After passing for 2nd Mate he served in Messrs. Adamson & Shorts, Black Sea trade, and joined the Furness Withy Line in May 1892.

Gaining command of S.S. *Damara* in 1896, Captain CHAMBERS has commanded a number of the Furness Withy steamships in the Newfoundland, Nova Scotia and Boston trades. He took the first flying machine which attempted to fly the Atlantic with Messrs. HAWKER and GRIEVE to America, transferring them to the Coaster S.S. *Portia* in Placentia Bay on account of ice condition which made it impossible to land them at St. John's.

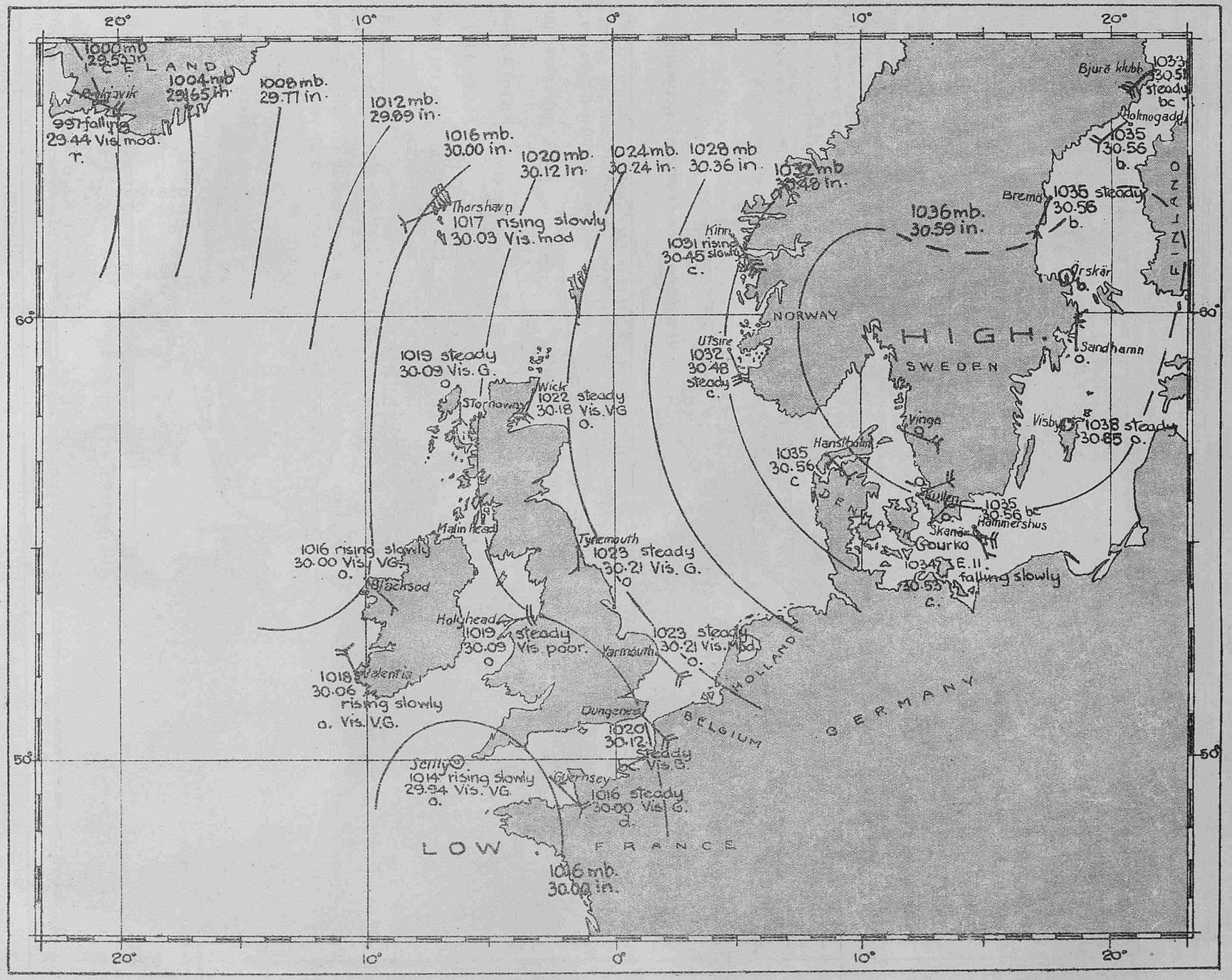
Marine Observers will join the Marine Division in wishing Captain CHAMBERS many years health and happiness in his retirement.

MORNING OF NOVEMBER 14TH 1924.



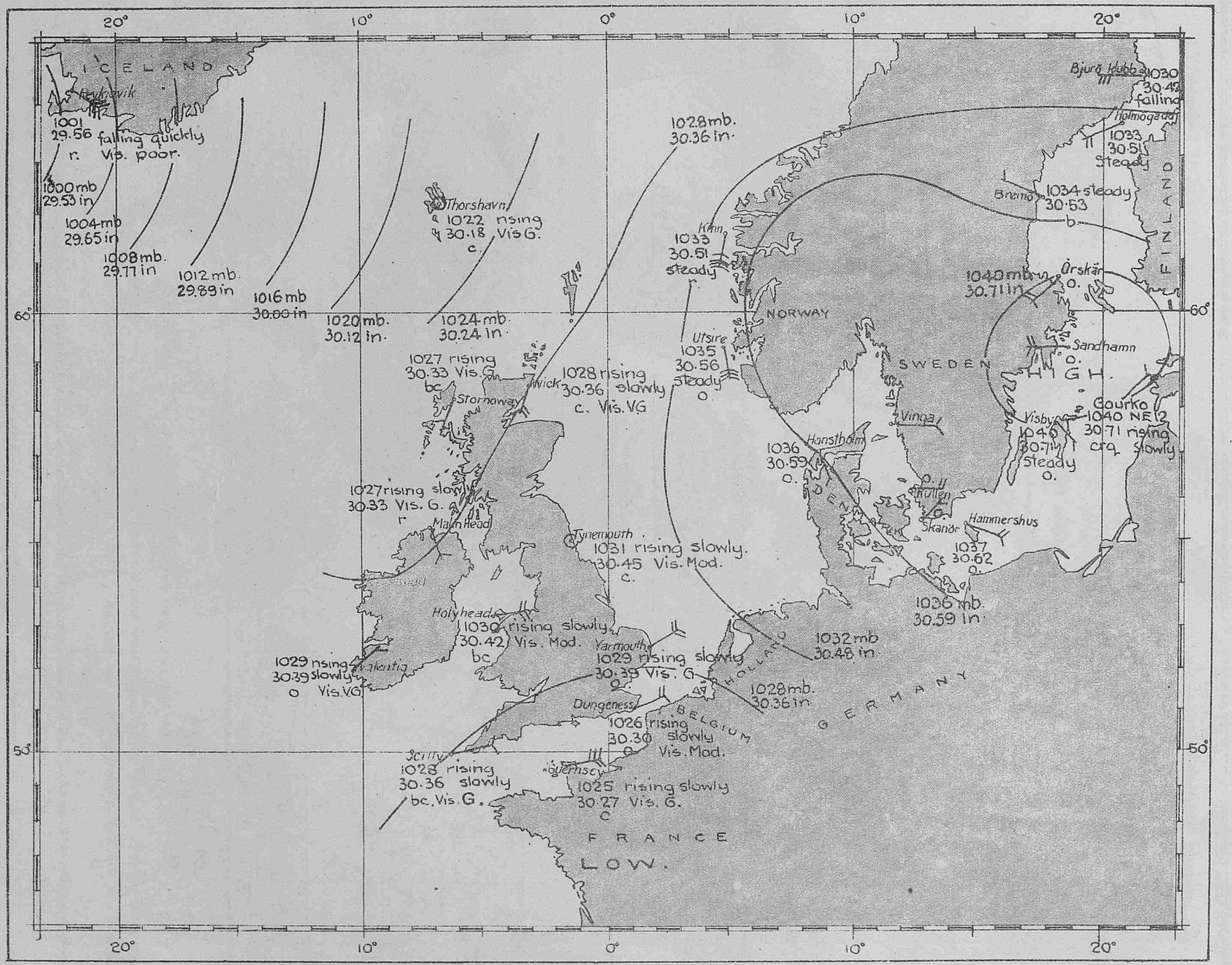
WEATHER CHART XLII.

MORNING OF NOVEMBER 15TH 1924.



WEATHER CHART XLIII.

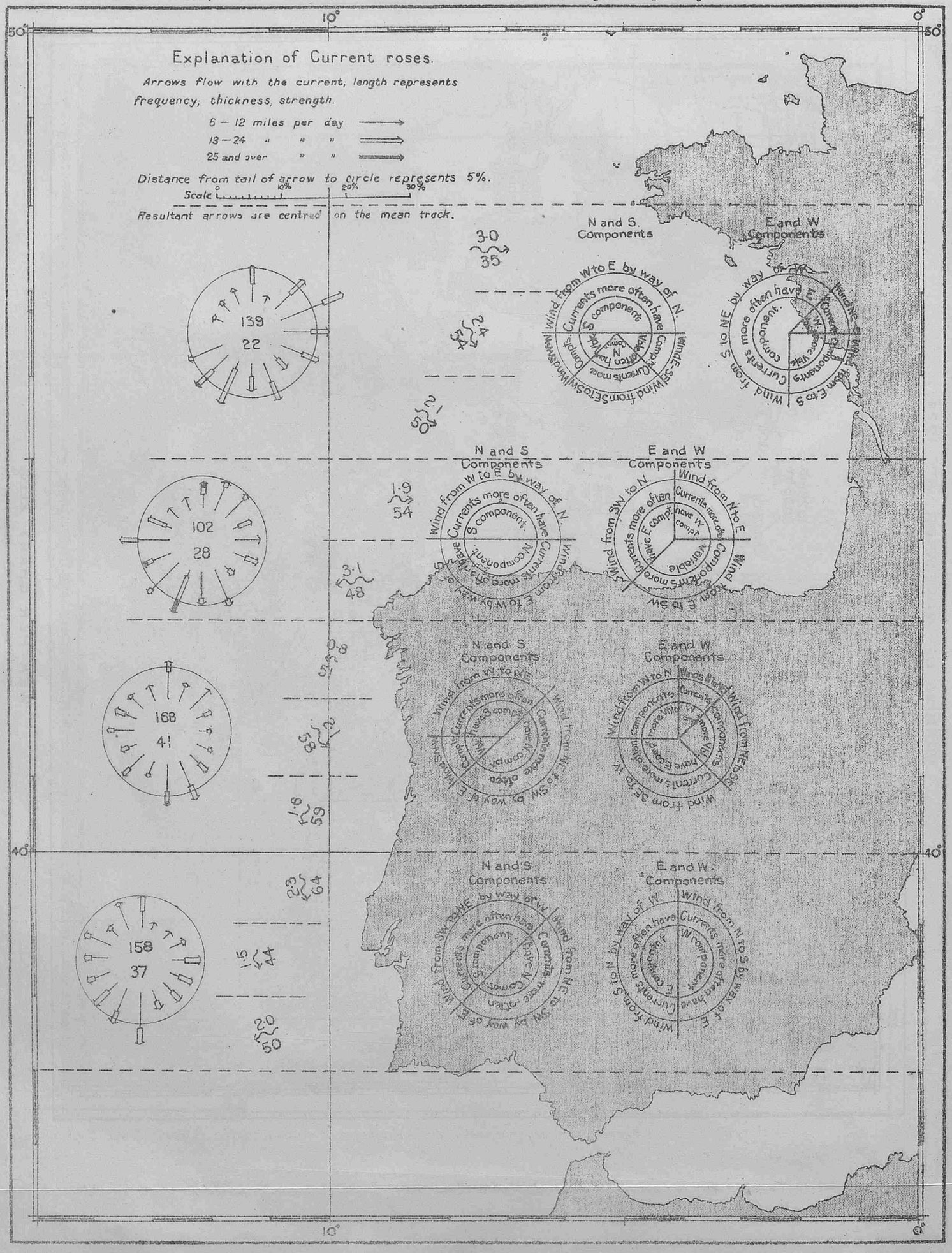
MORNING OF NOVEMBER 16TH 1924.



WEATHER CHART XLIV.

CURRENT CHART, CHANNEL TO LATITUDE OF CAPE ST VINCENT.

Compiled from observations made by ships using the routes from the Channel to Madeira and southward and the Mediterranean, in the months of November, December and January, during the years 1910 - 1923.



TYPHOONS IN THE FAR EAST DURING 26 YEARS.

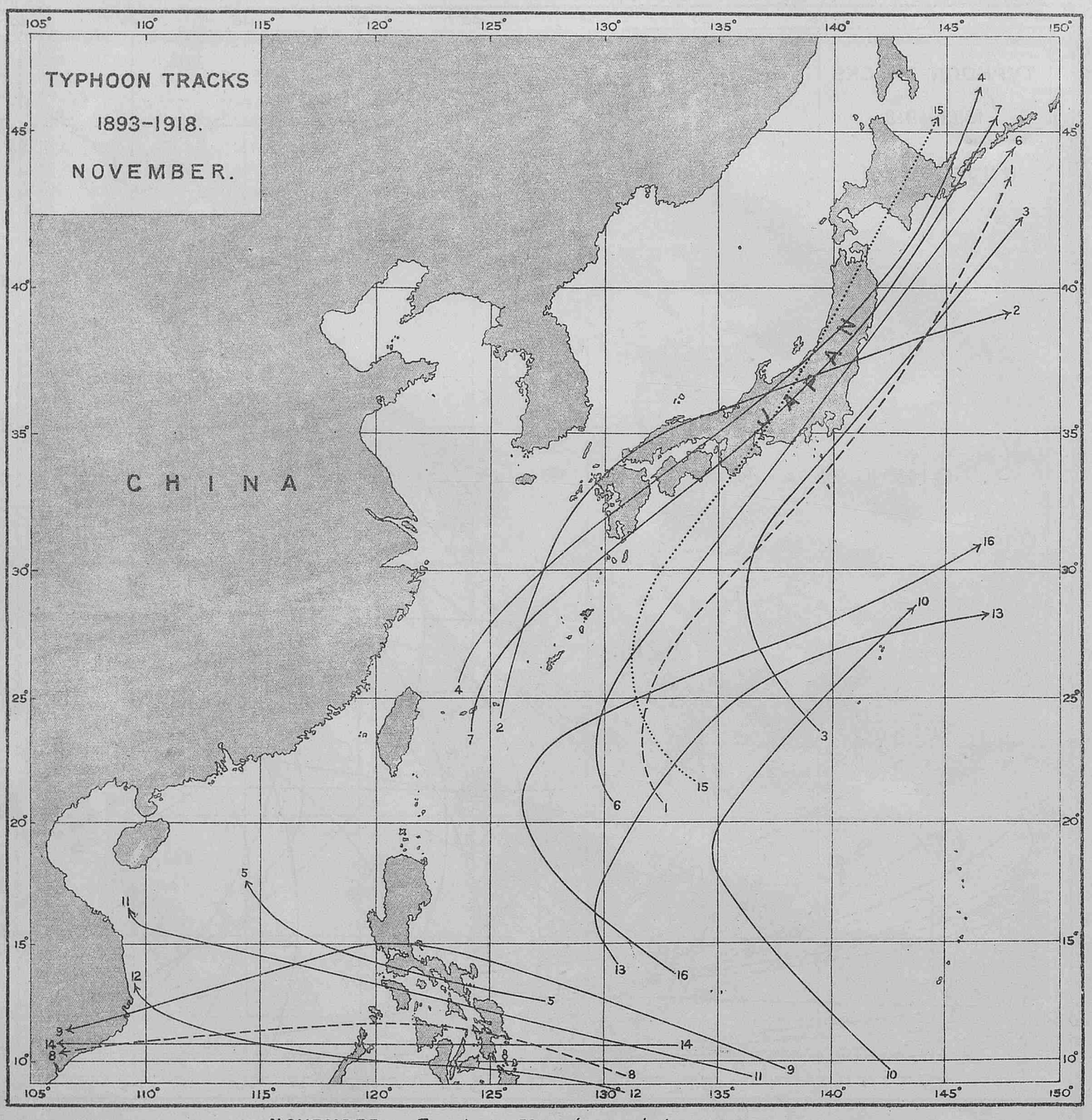
NOVEMBER — *Two charts: 52 tracks; two instances every year.*

First fortnight: 1–15. — *36 tracks.* — *The high pressures of the continent have succeeded to expulse the typhoons from the Sea of Japan, the Eastern Sea and the Channels between Formosa and Luzon. No case has been recorded to the N.W. of a line running from the Pratas to the S. point of Hokkaïdo.*

The point from which the trajectories are issued has retired to the low latitudes, about 5° to 8°, to the S.W of Yap. Not a few tracks are recurving on the Pacific to the S of Japan, with a marked preference for the N Marianas and the Bonin. On the China Sea there is rather an increase of activity, it is like the last battlefield of the typhoons, divided in two columns, the one advancing from the Visayas to the coast of Annam, across the Paracels, the other travelling from Mindanao or Palawan to the shores of lower Cochinchina, keeping their course between latitudes 9° and 12°.

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

TYPHOONS IN THE FAR EAST DURING 26 YEARS.



NOVEMBER. — *Two charts: 52 tracks; two instances every year.*

Second fortnight: 16-30. — *16 tracks, — We find ourselves under the full influence of the high pressures emanating from the great asiatic anticyclone, and consequently the winter monsoon has established its reign along our coasts. A few trajectories are still found between Japan and the Bonin. Three times Japan has been crossed from end to end, but such depressions, born between Formosa and the Loochoos appear to be a kind of hybrid storms having a bond with the family of the continental depressions, rather than real typhoons.*

On the China Sea too, the storms are gradually disappearing; and those which cross the 15th parallel meet soon with their death. The remaining energy is concentrated in those centres which circulate along the 10th parallel, between the S. Visayas and Cochinchina; one of the last ones at least has followed distinctly a WSW direction, from Manila bay to Cape Padaran. Let us add however that the month is not a peaceful one, to the N. of the Formosa Strait, for if the typhoons have left the field, it remains open to the Continental depressions, and the monsoon, with its NW or NE gales is often very hard to the ships sailing against it from Hongkong to the northern ports.

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

NOTICES.

THE BAROMETER.

Before barometer readings are compared with the normal isobars shown on the Meteorological Ocean Charts, transmitted by W/T or plotted on Weather Charts, mercurial barometers should be corrected for height, gravity, temperature and index error, for which tables are given on pp. 80 to 83 and 84 to 86 of the Marine Observer's Handbook. A table for converting inches to millibars is also given below.

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

Readings of the barometer should be entered in the Meteorological Log as read—*i.e.*, uncorrected—and the attached thermometer should also be recorded. A column is now also given for the corrected reading, and it will be of great assistance if this is also completed.

While a difference from the pressure values shown on the charts does not necessarily mean unusual weather, when there is a divergence the mariner should be on the alert, particularly within cyclone regions.

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

BLUE POSTCARD FOR BAROMETER COMPARISON.

Marine Observers will greatly assist by obtaining comparisons with Standard instruments when at suitable ports; also regularly completing and returning the Blue Postcard whether their instruments are M.O. or Ships.

Form 913. **Barometer Error.**

TEST CARD FOR BAROMETER ERROR.

To be forwarded with Logs or Reports to **Meteorological Office,**
Air Ministry,
Kingsway, London.

Name of Ship	Ship
Captain	Capt.
In Port of	Port
Mercurial or Aneroid	Date
Maker's Name and No.	Bar. No.
Height above Mean Sea Level .....ft.	..... Too high ..... Too low
	At
	Date
	This counterfoil will be returned to Ship.

Date 192 .	Time.	Barometer readings.	Attached Therm.
.....			
.....			

In British Home Ports please take three readings at 7 a.m., or 6 p.m. G.M.T. If in a colonial or foreign port, read at 8 a.m. Local Standard Time.

CHARTS OF NORMALS AND FREQUENCIES.

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

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

These Charts may be purchased through the Admiralty Chart Agents.

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

THE MARINE OBSERVER. DISTRIBUTION AND PRESERVATION.

A number of requests have been received from Commanders of regular observing ships to which copies of "The Marine Observer" have been sent each month, for certain numbers.

In several cases Commanders have stated that these copies have been inadvertently mislaid or have not been received in the ship.

Upon investigation it was found that all numbers had been posted to the ship in accordance with the published "Postal Arrangements" to which special attention is invited. Each ship upon the list is supplied with a copy of "The Marine Observer" addressed to her Captain, which it is desirable should be preserved in the ship.

Personal copies of individual numbers are sent to Captains and observing officers whose special contributions appear in them.

In future "Excellent" awards will mainly consist of bound volumes of the previous year's numbers of "The Marine Observer."

POSTAL ARRANGEMENTS.

"The Marine Observer" is published, when circumstances permit, on the first Wednesday of the month previous to that to which the number refers.

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

S.S...... *Captain*.....

Port of Call.....

Date of Homeward Departure.....

Postal Address.....

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

CONVERSION TABLE.

To Convert Inches into Millibars.

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

ICE CHART.

WESTERN NORTH ATLANTIC.

LETTERS OF TRANSATLANTIC TRACKS INDICATE

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

(E) From 15th November to 14th February, inclusive.

(F) Optional, during the operative dates of Track (G) for vessels bound to or from U.S. Ports **from or to the North of Ireland.**

(G) From the opening of Straits of Belle Isle to 14th November.

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

ROUTE NOTICES.

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

SYMBOLS USED ON THE CHART.

- Iceberg.
- 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.

Steamers keep {10'N of this track Westbound / 10'S of this track Eastbound}

Limit of Ice reported to Meteorological Office November 30th, 1925

PHENOMENAL DRIFT OF ICE.

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

Reports of Ice sighted between September 1st and September 30th, 1925, 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.

Pe 2365/1171. Wt. 145 A. D.10134/P.F.1286. 1.25. 3/25.

NOVEMBER M.O., 1925. 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. The number of ships regularly contributing approved forms of all descriptions to the Marine Division is limited to 500.

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

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

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

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

Vessels making voyages of less than two months' duration are requested to retain their logs until nearly filled up.

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

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

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

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

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

Marine Agencies and Port Meteorological Officers.

LIVERPOOL ..	(Port Meteorological Office), Lieut.-Commander M. Cresswell, R.N.R., Dock Office. *Telephone No.: Bank 8959.*
CARDIFF	Captain T. Johnston, Technical College.
LEITH	Captains G. Black and C. G. Bonner, V.C., D.S.C., Leith Salvage and Towage Co., Ltd., 2, Commercial Street.
THE CLYDE ..	Captain M. C. Corrance, Board of Trade Surveyor's Office, 73, Robertson Street, Glasgow.
HULL	Captain Geo. B. Sturdy, c/o Mr. W. Hakes, Commercial Road.
SOUTHAMPTON ..	Captain D. Forbes, Nautical Academy, 1, Albion Place.
TYNE	Commander E. S. Macleod, R.D., R.N.R., Board of Trade Surveyor's Office, North Shields.
DUBLIN	Captain M. H. Clarke, Chief Surveyor, Ministry of Industry and Commerce, Marine Department, 27, Eden Quay.
HONG KONG ..	Lieut.-Commander C. R. H. Harvey, O.B.E., R.N., Superintendent, Admiralty Chart and Chronometer 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.
	BALTIC.		
2.9.25	56°11′N.	11°46′E.	Barge.
3.9.25	58°19′N.	20°35′E.	Floating buoy, newly painted and lighted, drifting eastward.
21.9.25	54°27′N.	12°13′E.	Drifting wreck.
	NORTH SEA.		
2.9.25	53°30′N.	0°18′E.	Derelict.
7.9.25	51°04′N.	1°31′E.	Small open black fishing boat, probably anchored, no occupants.
13.9.25	52°53′N.	1°36′E.	Mast projecting, apparently fast to a wreck.
22.9.25	54°18′N.	3°27′E.	Mast about 3½ ft. above water, probably fast to a wreck.
23.9.25	15 m. S23° E. of Kentish Knock.		Boat bottom up, painted red.
	ENGLISH CHANNEL.		
17.9.25	50°27′N.	0°05′E.	Drifting spherical buoy about 2 ft. in diameter, newly painted red.
23.9.25	15 m. 104° (true) from St. Catherine's Point.		Object resembling torpedo.
25.9.25	3½ m. S.S.E. Beachy Head.		Schooner's boom projecting about 3 ft. above water, apparently attached to submerged wreckage, dangerous to navigation.
	MEDITERRANEAN.		
21.9.25	33°48′N.	28°27′E.	Capsized wreck.
	NORTH ATLANTIC.		
2.9.25	37°22′N.	74°41′W.	Large spar, 70 ft. long, apparently a schooner's mast with other wreckage in the vicinity.
3.9.25	10°02′N.	82°58′W.	Three patches of logs, appearing to be parts of a raft.
5.9.25	26°45′N.	79°47′W.	Large wooden spar projecting about 6 ft. out of water. 4-inch red iron band around top and covered with marine growth.
8.9.25	45°43′N.	54°33′W.	An upright spar, showing 2 ft. out of water, apparently attached to submerged wreckage.
8.9.25	47°14′N.	32°35′W.	Gas and whistling buoy, painted black.
9.9.25	24°59′N.	68°22′W.	Nun buoy showing about 10 ft. out of water.
10.9.25	43°13′N.	41°33′W.	Waterlogged dory about 18 ft. long.
10.9.25	33°53′N.	77°11′W.	Mast projecting about 6 ft. out of water, apparently attached to submerged wreckage.
11.9.25	30°11′N.	80°32′W.	Wreck of British schooner *Lewis Brothers*.
11.9.25	36°34′N.	75°05′W.	White spherical object 3 ft. in diameter, with an eye in top and bottom ; a long wire was attached to one eye.
12.9.25	50°25′N.	5°21′W.	Black spherical buoy, apparently adrift.
12.9.25	49°16′N.	11°50′W.	Buoy adrift marked *Silvertown Company 20*. Dangerous to navigation.
13.9.25	50°26′N.	9°34′W.	Drifting buoy marked *CC Telegraph C 4*.
13.9.25	41°30′N.	64°44′W.	Schooner's mast with rigging attached, projecting 6 ft. above water, presumably attached to submerged wreckage.
14.9.25	43°43′N.	50°34′W.	Ship's boat awash ; no masts, no name, drifting west at 1·5 knots.
	NORTH PACIFIC.		
3.9.25	36°07′N.	128°11′W.	Log about 30 ft. long and 1½ ft. diameter, with roots attached and covered with marine growth.
5.9.25	27°46′N.	150°12′W.	Large tree trunk about 75 ft. long and 6 ft. diameter, covered with marine growth.
9.9.25	35°46′N.	129°26′W.	Log about 40 ft. and 3 ft. diameter.

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

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

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

Only in special cases will individual letters be sent.

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

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

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

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

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

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

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

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

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

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

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

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 18.9.25.	Date Received.
Aba	Hughes, J. ...	G. Pugh Williams, R. Wilkinson, W. L. James.	M.L.	Elder Dempster ...	Met. Log. 2.4.25 to 5.7.25 ...	10.7.25.
Abinsi	Wright, J. B. ...	W. Borrows	No.	,, ,, ...	Form 911 10.6.25 to 17.7.25 ...	28.7.25.
Achilles ...	Melling, C. F. ...	O. V. Jones	,,	A. Holt	,, 15.7.25 to 27.7.25 ...	17.8.25.
Actor	Haylett, E. ...	W. Rennie	M.L.	Harrison	,, 22.8.24 to 6.9.24 ...	7.10.24.
Adda	Toft, J. T.	J. E. Wood, G. A. Boswell, J. R. Jones.	No.	Elder Dempster ...	,, 13.5.25 to 19.6.25 ...	22.6.25.
50 *Adriatic* ...	Beadnell, F. E., Capt., R.N.R.	J. Collins, A. C. I. Anson, R. G. Roberts.	W.T.	White Star	W.T.Reg. 3.8.25 to 22.8.25 ... / Form 911 2.8.25 to 22.8.25 ...	25.8.25. / 25.8.25.
Aeneas ...	Wallace, W. K. ...	... ...	No.	A. Holt	... ...	...
Agapenor ...	Ramsay, J. ...	A. T. Gillard	,,	,, ...	Form 911 16.7.25 to 6.8.25 ...	31.8.25.
Alban	Torrible, R. H. ...	G. E. Freeman	,,	Booth	,, 15.6.25 to 28.6.25 ...	3.7.25.
Albania ...	Gronow, S.	E. W. Connell	,,	Cunard	,, 4.12.24 to 17.3.25 ...	1.4.25.
Algerian Prince ...	Shaw, D. C. ...	G. Potts	,,	Prince	,, 17.3.25 to 31.3.25 ...	6.4.25.
Alipore ...	Gordon, L. M., R.D., Commr., R.N.R.	F. R. W. Page	,,	P. and O.	,, 21.6.25 to 10.7.25 ...	4.9.25.
Almanzora ...	Mackenzie, G. A. ...	E. B. Ingram	,,	R.M.S.P.	,, 30.5.25 to 12.7.25 ...	15.7.25.
Alondra ...	Prendergast, J. J. ...	H. Peters	,,	Yeoward	,, 2.8.25 to 22.8.25 ...	3.9.25.
Ampetco ...	Vandenkerckhone, A.	L. Kamp	,,	American Petroleum...	,, 28.7.25 to 22.8.25 ...	31.8.25.
Antilochus ...	Wilkinson, H. ...	E. T. Bayes	,,	A. Holt	,, 1.6.25 to 26.7.25 ...	7.9.25.
Aorangi ...	Crawford, R. ...	R. B. Denniston, D. Rollo, G. Eustace, R. Blampied, A. Lansley.	M.L.	Canadian-Australasian	Met. Log. 3.1.25 to 28.5.25 ...	27.6.25.
Appam ...	Yardley, H. A., D.S.C.	S. C. Fry, G. H. George, P. Marriott.	,,	Elder Dempster ...	,, 7.1.25 to 9.6.25 ...	12.6.25.
30 *Aquitania* ...	Charles, Sir J. T. W., K.B.E., C.B., R.D., Commodore, R.N.R.	J. L. Croasdaile, J. Locke, L. T. Simpson.	W.T.	Cunard	W.T. Reg. 9.8.25 to 23.8.25 ... / ,, 30.8.25 to 14.9.25 ...	26.8.25. / 16.9.25.
62 *Arabic* ...	... ...	... ...	,,	White Star	... ...	...
Arafura ...	Gordon, A. S. ...	R. Lloyd Harry	No.	Eastern and Australian	Form 911 17.8.24 to 18.10.24...	15.12.24.
Archimedes ...	Taylor, F. C. ...	F. W. Johnson	,,	Lamport & Holt ...	,, 7.6.25 to 8.7.25 ...	9.7.25.
Armadale Castle...	Millard, L. A., Knight, A.	M. M. Tomkins, R. F. Bayer, C. H. Williams.	M.L.	Union Castle ...	Met. Log. 31.1.25 to 22.7.25 ...	8.8.25.
Arracan ...	Willis, M.	R. McInnes, M. S. Stuart, A. McCullum.	,,	P. Henderson ...	,, 28.2.25 to 30.525 ...	4.6.25.
Arundel ...	Short, H.	Mr. Hill	C.C.	Southern Rly. ...	Telegraphic Report 13.9.25 ...	13.9.25.
Arundel Castle ...	Hague, J. W., Commr., R.N.R.	G. Blaiklock, C. Williams, F. Granger.	M.L.	Union Castle ...	Met. Log. 17.1.25 to 10.5.25 ...	20.5.25.
Assyria ...	Donald, D. R. ...	A. Middleton	No.	Anchor	Form 911 16.8.25 to 7.9.25 ...	9.9.25.
Astronomer ...	Booth, W. M. ...	L. Harriman, H. Thomas, E. Shatton.	M.L.	Harrison	Met. Log. 16.3.25 to 17.7.25 ...	1.8.25.
Athenic ...	Davies, E.	W. Hill	No.	White Star	Form 911 15.8.25 to 29.8.25 ...	18.9.25.
Atreus	Salter, G. H. ...	W. Anderson	,,	A. Holt	,, 24.6.25 to 8.9.25 ...	9.9.25.
Atsuta Maru ...	Furuhashi, M. ...	S. Mizogucki	,,	Nippon Yusen Kaisha	,, 7.6.25 to 6.7.25 ...	4.8.25.
Auditor ...	Owen, W. T. ...	T. E. Steel	,,	Harrison	,, 15.7.25 to 27.8.25 ...	31.8.25.
Auldmuir ...	Ramsay, J. D. ...	J. A. S. Adams	,,	Glen & Co.	,, 11.10.24 to 27.10.24	11.11.24.
Ausonia ...	Gibbons, G., R.D., Commr., R.N.R.	E. R. B. Freeman ...		Cunard	,, 14.6.25 to 5.7.25 ...	15.7.25.
Author	Kinloch, R ...	... ...	,,	Harrison	... ...	...
Avon	Nicholson, M. L. ...	E. N. Hatchard, J. A. Jephson Jones.	,,	R.M.S.P.	Form 911 25.7.25 to 7.9.25 ...	14.9.25.
51 *Baltic* ...	White, E. R. ...	J. Law, F. Patchett, H. R. Wilkinson.	W.T.	White Star	W.T. Reg. 17.8.25 to 5.9.25 ... / Form 911 16.8.25 to 6.9.25 ...	8.9.25. / 8.9.25.
Bambra ...	Buckeridge, G. ...	H. W. Norris, J. E. Turner, F. Humble.	M.L.	State Service, Australia	Met. Log. 2.4.25 to 6.8.25 ...	7.9.25.
Bampton Castle ...	Hutchings, A. H. ...	M. J. Castle	,,	Union Castle ...	,, 2.5.25 to 21.8.25 ...	2.9.25.
Banffshire ...	Wynne, R. H. ...	J. M. Bowie	No.	Turnbull Martin ...	Form 911 21.6.25 to 11.7.25 ...	24.8.25.
Baron Cawdor ...	Baillie, T.	A. Campbell	,,	Hogarth & Sons ...	,, 15.8.24 to 28.8.24 ...	16.10.24.
Barpeta ...	Beedle, T. S. ...	W. G. E. Rawlingson ...	,,	British India ...	,, 15.7.25 to 15.8.25 ...	7.9.25.
Baychimo ...	Cornwall, S. A. ...	R. J. Summers	,,	Hudson's Bay Co. ...	... ...	...

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 18.9.25.	Date Received.
Beaufort ...	Rice, W. V., D.S.O., D.S.C., Commr., R.N.	J. Taylor	M.L.	His Majesty's Ship ...	Met. Log. 16.4.25 to 13.8.25 ...	1.9.25.
59 *Belgenland* ...	Bradshaw, J. ...	C. J. Murray, J. M. Appleby, W. E. Hesketh.	W.T.	Red Star	W.T. Reg. 12.7.25 to 30.7.25 ...	1.8.25.
					Form 911 11.7.25 to 30.7.25 ...	1.8.25.
Benalder ...	Cole, J. H., D.S.C....	W. M. Webster	No.	Ben Line	,, 1.8.25 to 8.9.25 ...	9.9.25.
Bendigo ...	Nicholl, R. N. C. ...	J. K. Crane	,,	P. & O. Branch ...	,, 5.6.25 to 22.6.25 ...	25.7.25.
Bengloe ...	McCorquodale, A. ...	G. M. Duff	,,	Ben Line	,, 20.6.25 to 21.7.25 ...	13.8.25.
31 *Berengaria* ...	Irvine, W. R. D., R.D., Capt., R.N.R.	J. A. Myles, W. C. A. Robson, E. W. Connell.	W.T.	Cunard	W.T. Reg. 16.7.25 to 31.7.25 ...	2.9.25.
Bernini ...	Evans, W. ...	H. L. Rudd	No.	Lamport & Holt ...	Form 911 21.11.24 to 31.1.25...	16.2.25.
Berrima ...	Townshend, W. P.	H. C. Slinn	,,	P. & O. Branch ...	,, 2.6.25 to 29.7.25 ...	5.8.25.
Bintang ...	Morzer Bruyns, M. F.	A. A. H. Blankestyn ...	,,	Nederland ...	,, 23.7.25 to 23.8.25 ...	28.8.25.
Bogota ...	Dunn, R. E., O.B.E.	T. R. Thomas	,,	R.M.S.P. Co. ...	,, 13.7.25 to 31.7.25 ...	3.9.25.
Bolingbroke ...	Jones, D. C. ...	C. A. Mott	M.L.	Canadian Pacific ...	Met. Log. 19.11.24 to 27.5.25...	27.6.25.
Borda	Holland, R. ...	... ...	No.	P. & O. Branch ...	Form 911 12.2.25 to 19.6.25 ...	25.6.25.
Bothwell ...	Murray, M. F. ...	S. W. Keay	,,	Canadian Pacific ...	,, 23.8.25 to 1.9.25 ...	4.9.25.
Brandon ...	Mc. Combie, G. F. G.	A. H. Easton, G. B. Marriott,	,,	,, ,, ...	,, 9.2.25 to 5.5.25 ...	21.5.25.
Brecon ...	Newman, J. ...	J. Mackenzie, H. C. Waters, T. J. Webster, D. Durin, N. B. Goater, T. Golby.	M.L.	,, ,, ...	Met. Log. 2.12.24 to 24.2.25 ...	4.3.25.
Brenda ...	Murdoch, R. G. ...	F. R. Ness	No.	Scottish Fishery Board	Form 911 1.7.25 to 31.7.25 ...	1.8.25.
Brighton ...	Hill, A.	Mr. Munton	C.C.	Southern Railway ...	Telegraphic Report 18.9.25 ...	18.9.25.
British Advocate	Taylor, R. J. ...	C. J. Metcalf	No.	British Tankers ...	Form 911 31.5.25 to 4.8.25 ...	7.8.25.
British Engineer...	Joures, T. W. ...	M. J. Grieves	,,	,, ,, ...	,, 7.5.25 to 13.7.25 ...	24.7.25.
Browning ...	Connorton, C. A. ...	W. E. Johnston	,,	Lamport & Holt ...	,, 17.11.25 to 6.2.25 ...	23.2.25.
Bruyere ...	Denson, W. ...	C. E. Legg	,,	,, ,, ...	,, 8.4.25 to 11.6.25 ...	6.7.25.
Cambria C.S. ...	Wightman, H. G. E., D.S.C.	E. N. L. Staples	M.L.	Eastern Tel. Co. ...	Met. Log. 8.7.24 to 5.10.24 ...	27.1.25.
Cambria ...	Telfer, J.E. ...	V. S. Phillips	C.C.	L.M. & S. Rly. ...	Telegraphic Report 12.9.25 ...	12.9.25.
Camito... ...	Scudamore, J. H. H., D. S. C., R. D., Commr., R.N.R.	R. M. Cossantine, R. Sutherland, P. C. Congdon.	M.L.	Elders & Fyffes ...	Met. Log. 11.5.25 to 6.9.25 ...	10.9.25.
Canada ...	Jones, T. ...	A. Thompson	No.	White Star-Dominion	Form 911 25.7.25 to 12.9.25 ...	15.9.25.
Canadian Importer	Wallace, C. ...	C. W. Gilding	,,	Canadian Govt. Mercantile Marine.	,, 1.6.25 to 7.7.25 ...	24.7.25.
Canadian Inventor	Roberts, R. P. ...	... ...	,,	,, ,, ,,	... ...	...
Canadian Miller	McConechy, W. T.	B. D. Ranns	,,	,, ,, ,,	... ...	...
Canadian Raider	Dixon, C. C. ...	C. J. Carp	,,	,, ,, ,,	Form 911 16.3.25 to 22.4.25 ...	5.5.25.
Canadian Scottish	Forson, A. ...	S. Fieldhouse	,,	,, ,, ,,	,, 8.1.25 to 24.1.25 ...	9.2.25.
Canadian Skirmisher.	Millar, W. H. ...	C. W. Crofts	,,	,, ,, ,,	,, 26.4.25 to 6.8.25 ...	31.8.25.
Canadian Winner	Hocking, N. P. ...	R. Girling	,,	,, ,, ,,	,, 5.6.25 to 10.7.25 ...	25.7.25.
Carlow Castle ...	Whitfield, G. J. ...	J. W. Kirby	,,	Union Castle ...	,, 8.5.25 to 2.6.25 ...	8.6.25.
35 *Carmania* ...	McNeil, S. G. S., R.D., Capt., R.N.R.	W. M. Stewart, A. T. Hamer, L. T. Pryse.	W.T.	Cunard	W.T. Reg. 9.8.25 to 29.8.25 ...	1.9.25.
					Form 911 8.8.25 to 29.8.25 ...	1.9.25.
34 *Caronia* ...	Hossack, W. H., R.D., Capt., R.N.R.	R. F. Bovey, R. Campbell, D. M. MacLean.	,,	,, ...	W.T. Reg. 26.7.25 to 14.8.25 ...	18.8.25.
					,, 24.8.25 to 11.9.25 ...	16.9.25.
					Form 911 26.7.25 to 12.9.25 ...	16.9.25.
Cassandra ...	Mitchell, W. E. ...	G. M. Sime	No.	Anchor Donaldson ...	,, 8.10.24 to 16.12.24...	18.12.24.
52 *Cedric* ...	Hickson, V. W. ...	A. E. Weller, H. J. Yates, V. Evans.	W.T.	White Star	W.T. Reg. 9.8.25 to 29.8.25 ...	3.9.25.
					Form 911 9.8.25 to 30.8.25 ...	3.9.25.
53 *Celtic* ...	Berry, G. ...	E. Burt, G. T. Kavanagh, J.W. Allingham, J.W. Peters	,,	,, ,, ...	W.T. Reg. 27.7.25 to 16.8.25 ...	18.8.25.
					,, 24.8.25 to 13.9.25 ...	16.9.25
					Form 911 26.7.25 to 13.9.25 ...	16.9.25.
Centaur ...	Rose, A. F. ...	L. Johnstone	No.	A. Holt & Co. ...	,, 28.3.25 to 31.5.25 ...	6.7.25.
Ceramic ...	Trant, E. L., R.D., Commr., R.N.R.	A. E. Harvey	,,	White Star	,, 9.4.25 to 13.5.25 ...	19.5.25.
Changsha ...	Gambrill, F. C. ... Thomas, R. D. ...	A. M. Frame, F. G. Stratford, H. Lishman, L. A. Bailie, W. Bailley.	M.L.	Yuill & Co.... ...	Met. Log. 25.4.24. to 2.10.24...	10.3.25.
China	Short, E. E. ...	G. C. Case	No.	P. & O.	Form 911 26.6.25 to 15.7.25 ...	10.8.25.
Chindwara ...	Brisley, P. L. ...	W. Welch	,,	British India ...	,, 28.7.25 to 10.8.25 ...	14.9.25.
Chindwin ...	Esslemont, C. ...	J. Summers, W. Wilson, J. G. Walker.	M.L.	P. Henderson ...	Met. Log 18.4.25 to 5.7.25 ...	20.7.25.
City of Alexandria	Bedford, G. B. ...	T. Tellesson	No.	Ellerman	Form 911 14.3.25 to 7.4.25 ...	5.5.25.
City of Baroda ...	Houghton, W. ...	A. Beaton, J. Cook, H. N. Jones.	M.L.	,, ...	Met. Log. 27.5.25 to 13.8.25...	17.8.25.
City of Batavia ...	Nancollas, H. E. ...	S. J. Nash	No.	,, ...	Form 911 27.12.24 to 25.1.25...	9.3.25.
City of Benares ...	Wyper, J. ...	C. G. Inglis	,,	,, ...	,, 24.7.25 to 12.8.25 ...	24.8.25.
City of Brisbane...	Seaborne, F. O., D.S.C.	W. E. Fletcher	,,	,, ...	,, 11.5.25 to 6.6.25 ...	15.6.25.
City of Canterbury	Bremner, D. M. ...	A. M. Hamilton	,,	,, ...	,, 3.4.25 to 24.6.25 ...	29.6.25.
City of Chester ...	Letton, F. W. ...	F. C. Wilson, E. Garner, D. B. Carson, J. Shearer.	M.L.	,, ...	Met. Log. 4.12.24 to 27.4.25 ...	4.5.25.
City of Dunkirk...	Jinks, J. W. ...	... ...	No.	,, ...	... ...	...
City of Edinburgh	Spencer, H. ...	J. D. MacDonald	,,	,, ...	Form 911 4.6.25 to 2.7.25 ...	18.8.25.
City of London ...	Martin, D. ...	J. J. McTigue	,,	,, ...	,, 11.5.25 to 5.6.25 ...	8.6.25.
City of Marseilles	Brown, G. ...	W. J. Nixon	,,	,, ...	,, 5.12.24 to 28.12.24...	6.1.25.
City of Rangoon...	Dunning, F. W. ...	... ...	M.L.	,, ...	... ...	...
City of Valencia...	Williamson, W. A., R.D., Lieut.-Commr. R.N.R.	C. C. Duncan	No.	,, ...	Form 911 5.3.25 to 3.4.25 ...	2.6.25.
City of Yokohama	McDonald, W. D. ...	R. Moloney	,,	,, ...	,, 1.5.25 to 23.6.25 ...	15.7.25.
Clan Cumming ...	McLean J. G. ...	S. M. Werrey Easterbrook ...	,,	Clan	,, 25.12.24 to 29.1.25...	9.3.25.
Clan Lindsay ...	Willits, J., Commr.	G. H. Johnson	,,	,, ...	,, 12.7.25 to 2.8.25 ...	1.9.25.
Clan Macbeth ...	Young, A. H., R.D., Lieut.-Commdr., R.N.R.	J. T. Bell...	,,	,, ...	,, 25.6.25 to 6.9.25 ...	18.9.25.
Clan Macfadyen	Stenson, F. J., R.D., Capt., R.N.R.	... ...	,,	,, ...	... ...	...
Clan Macgillivray	West, W. F. ...	P. G. de Gruchy	,,	,, ...	Form 911 19.6.25 to 3.8.25 ...	8.9.25.
Clan Macindoe ...	Law, A. ...	F. G. Darnborough ...	,,	,, ...	,, 3.8.25 to 1.9.25 ...	3.9.25.
Clan Mackellar ...	Scotland, A. ...	A. V. Howard	,,	,, ...	,, 3.6.25 to 11.6.25 ...	23.6.25.
Clan Mackenzie ...	Young, G. ...	W. G. Arthur, F. B. Fairweather.	,,	,, ...	,, 7.11.24 to 21.11.24...	12.12.24.
Clan Mackinnon	Mackie, R. W. ...	T. V. Wilson, C. Jones, W. F. Isaac.	M.L.	,, ...	Met. Log. 27.1.25 to 9.5.25 ...	15.5.25.
Clan Macphee ...	Gourlay, J. B. ...	D. S. Rae, A. W. Jones, J. J. Millar.	,,	... ...	,, 28.12.24 to 24.7.25...	4.8.25.
Clan Macnaughton	Thomson, W. ...	A. J. Storkey, F. Barnes ...	No.	,, ...	Form 911 14.6.25 to 2.7.25 ...	24.8.25.
Clan Mactaggart...	Gray, J. N. ...	W. J. Henderson	,,	,, ...	,, 23.6.25 to 18.7.25 ...	11.8.25.
Clan Macvicar ...	Phillips, G. P ...	L. S. Murrin	,,	,, ...	,, 14.7.25 to 2.8.25 ...	24.8.25.
Clan Morrison ...	Porterfield, W. M....	G. Morren	,,	,, ...	,, 10.7.25 to 14.7.25 ...	25.8.25.
Clan Murdoch ...	Pagan, J. C. ...	C. W. Thomas	,,	,, ...	,, 10.1.25 to 5.2.25 ...	2.3.25.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 18.9.25.	Date Received.
Clan Ranald ...	Openshaw, L. G. ...	T. E. Woodall	No.	Clan	Form 911 6.8.25 to 8.9.25 ...	9.9.25.
Clan Ross ...	Jones, R. C. ...	G. Short	,,	,, ...	,, 25.4.25 to 17.6.25 ...	22.6.25.
Clan Sinclair ...	Neill G. A. ...	J. Brittain	,,	,, ...	,, 10.3.25 to 29.7.25 ...	5.8.25.
Clan Urquhart ...	Gibb, A. F. W. ...	T. G. Mitchell	,,	,, ...	,, 4.7.25 to 9.8.25 ...	12.8.25.
Colonia, C.S. ...	Campos, V., O.B.E., Lt.-Commdr., R.N.R.	S. A. Garnham, A. S. Muir, J. M. Matthews, W. Sangwine.	M.L.	Telegraph Construction & Maintenance.	Met. Log. 26.3.25 to 11.6.25 ...	1.7.25.
Colonian ...	Gittins, R. P. ...	T. A. Schofield-Miller ...	No.	Leyland	Form 911 13.8.25 to 7.9.25 ...	18.9.25.
Columbia ...	Erskine, R. ...	C. L. Seaman	,,	Anchor	,, 28.6.25 to 19.7.25 ...	27.7.25.
Concordia ...	Morris, J. ...	T. Philip, J. McIntosh, J. Davies.	M.L.	Anchor Donaldson ...	Met. Log. 7.3.25 to 30.6.25 ...	20.7.25.
Comino ...	Nuttall, E. L. ...	J. Woodward	No.	Furness Withy ...	Form 911 3.5.25 to 21.7.25 ...	18.8.25.
Cooee	Festa, M. ...	C. Keen	,,	Commonwealth Govt.	,, 9.8.24 to 29.8.24 ...	7.10.24.
Copenhagen ...	Kerr, J. J. ...	... ...	,,	Glen & Co.	... ...	...
Corinthic ...	Hart, F.	F. Kean, M. Bennett, F. G. Rogers.	M.L	White Star ...	Met. Log. 4.4.25 to 18.7.25 ...	27.7.25.
Cornwall ...	Haines, F. P. ...	Mr. Maltby, Mr. Ray ...	No.	Dowie, J., & Co. ...	Form 911 10.4.25 to 23.5.25 ...	28.5.25.
Crawford Castle ...	Morgan, A. O., R.D., Commr. R.N.R.	G. Montgomery	,,	Union Castle ...	,, 4.7.25 to 3.8.25 ...	11.8.25.
Culebra ...	Mackay, A. S. ...	C. Wolfenden, J. W Duncan. R. Hocken.	M.L.	R.M.S.P. Co. ...	Met. Log. 10.11.24 to 10.4.25...	4.5.25.
Cuthbert ...	Reynolds, W. H. B.	J. Watson	No.	Booth	Form 911 22.6.25 to 5.7.25 ...	11.8.25.
Cyclops ...	Cosker, W. ...	A. Brotherton	,,	A. Holt	,, 4.6.25 to 28.8.25 ...	31.8.25.
Dardanus ...	Williams, D. T. ...	W. K. Kerr	,,	,, ...	,, 14.7.25 to 21.7.25 ...	4.9.25.
Darian... ...	Masters, W. ...	A. S. Holland	,,	Leyland	,, 27.5.25 to 8.6.25 ...	10.6.25.
Darro	Smith, W. E., D.S.O., R.D.,Capt., R.N.R.	F. W. M. Drew	,,	R.M.S.P. Co. ...	,, 26.6.25 to 23.8.25 ...	31.8.25.
Daytonian ...	Walker, C. J., D.S.C.	... ...	,,	Leyland	,, 30.3.25 to 13.5.25 ...	21.5.25.
Demerara ...	Willan, F. C. L. ...	E. Hewitt	,,	R.M.S.P. Co. ...	,, 18.6.25 to 25.7.25 ...	28.7.25.
Demosthenes ...	Williams, W. J. ...	... ...	,,	Aberdeen	... ...	...
Deseado ...	Hannam, F. S. ...	H. B. Bennett, A. H. Phillipson	,,	R.M.S.P. Co. ...	Form 911 17.7.25 to 2.9.25 ...	14.9.25.
Desna	Huff, G. F. ...	W. S. Thomas	,,	,, ...	,, 16.5.25 to 11.7.25 ...	18.7.25.
Deucalion ...	Findlay, J. ...	L. E. Brown	,,	A. Holt	,, 17.7.25 to 4.8.25 ...	7.9.25.
Dieppe... ...	Marmery, S. ...	Mr. Parsons	C.C.	Southern Railway ...	Telegraphic Report 17.9.25 ...	17.9.25.
Dimboola ...	Roy, C. M. ...	G. A. Molyneux	No.	Melbourne S.S. Co. ...	Form 911 5.6.25 to 30.6.25 ...	4.8.25.
Discoverer ...	Ling, J. T. ...	H. Hall	,,	Harrison	,, 25.3.25 to 27.8.25 ...	15.9.25.
Discovery, R.R.S.	Stenhouse, J. R., D.S.O., D.S.C., O.B.E., R.D., Commr. R.N.R.	... ...	M.L.	Discovery Expedition	... ...	...
Dogra	Hartock, L. ...	E. C. Akers	No.	Asiatic S.N. Co. ...	Form 911 27.12.24 to 12.1.25...	2.2.25.
Domala, M.V. ...	Buswell, W. ...	C. E. Merchant	,,	British India ...	,, 1.7.25 to 13.8.25 ...	26.8.25.
61. *Doric* ...	S.Bolton,D.S.C.,R.D., Commr., R.N.R.	W. A. Calway	W.T.	White Star ...	,, 31.7.25 to 21.8.25 ...	25.8.25.
Doric Star ...	Thomas, R. T. ...	T. Williams	No.	Blue Star	,, 1.8.25 to 15.9.25 ...	16.9.25.
Dorset ...	Kettlewell, C. R. ...	F. G. Capon, L. Cann, D. M. Lambert.	M.L.	New Zealand S.S. Co.	Met. Log. 24.11.24 to 20.4.25...	27.4.25.
Dorsetshire ...	Adamson, B. W. ...	C. H. Griffiths, W. A. Kent, R. Cuming.	,,	Bibby	,, 31.5.25 to 27.8.25 ...	31.8.25.
Dromore Castle ...	Vincent, E. S., R.D., Commr. R.N.R.	S. S. Smith	No.	Union Castle ...	Form 911 2.4.25 to 8.7.25 ...	4.8.25.
Dryden ...	Major, T. W. ...	A. Hewitt	,,	Lamport & Holt ...	,, 1.6.25 to 19.6.25 ...	18.9.25.
Dundrum Castle...	Kershaw, H. J. ...	R. May	,,	Union Castle ...	,, 3.5.25 to 28.5.25 ...	12.6.25.
Duendes ...	Pape, E. R. ...	D. P. Morgan	,,	Pacific S.N. Co. ...	,, 22.11.24 to 24.12.24	29.12.24.
Duffield ...	King A.	T. S. Robertson	,,	Hunting & Sons ...	,, 10.11.24 to 9.12.24...	16.12.24.
Dunrobin ...	Ramsay, J. D. ...	M. M. Ramsay	,,	Glen & Co.	,, 14.8.25 to 4.9.25 ...	18.9.25.
Duquesa ...	Ellis, F., D.S.C. ...	C. P. Lane	,,	Furness Withy ...	,, 28.6.25 to 6.8.25 ...	31.8.25.
Durenda ...	Wilson, W. ...	W. H. Creese	,,	British India ...	,, 31.1.25 to 28.4.25 ...	12.5.25.
Edinburgh Castle	Strong, H., R.D., Commr., R.N.R.	A. Parker, T. Goldstone, C. S. Kean.	M.L.	Union Castle ...	Met. Log. 1.5.25 to 23.8.25 ...	5.9.25.
Eemland ...	Van Noppen, C. D.	C. C. Van Huizen	No.	Holland Lloyd ...	Form 911 10.4.25 to 14.6.25 ...	19.6.25.
El Cordobes ...	Noton, F. G. ...	J. W. Ekins	,,	British & Argentine S.N. Co.	,, 23.6.25 to 3.9.25 ...	9.9.25.
Elmina ...	Millson, H. E. ...	G. D. Simpson, C. Cryer, R. Griffiths.	M.L.	Elder Dempster ...	Met. Log. 26.3.25 to 16.8.25 ...	5.9.25.
El Paraguayo ...	Smith, F. C. ...	W. E. Williams	No.	Houlder Bros. ...	Form 911 1.7.25 to 19.8.25 ...	21.8.25.
Elpenor ...	T. W. Hannay ...	P. E. Wright, W. T. Pennington.	M.L.	A. Holt	Met. Log. 3.11.24 to 18.2.25 ...	23.2.25.
Empress of Asia...	Douglas, L. D., R.D., Lt. - Commr., R.N.R.	G. H. Blyth, R. H. Foley, R. Dobbin, L. Johnston.	,,	Canadian Pacific ...	,, 6.2.25 to 18.5.25 ...	26.6.25.
Empress of Australia.	Hailey, A. J. ..	C. Critchley, R. A. Leicester, A. B. Smith.	,,	,, ,, ...	,, 6.11.25 to 10.5.25 ...	3.6.25.
Empress of Canada	Robinson, S., C.B.E., R.D., Commr., R.N.R.	W. S. Halliday, L. C. Barry .. L. M. Goddard.	,,	,, ,, ...	,, 15.11.24 to 11.5.25...	26.6.25.
Empress of France	Griffiths, E. ...	O. Pennington, E. Roberts, A. W. Patrick.	,,	,, ,, ...	,, 31.12.24 to 3.6.25 ...	12.6.25.
Empress of Russia	Hosken, A. J. ...	J. Reid, D. F. McNeill ...	,,	,, ,, ...	,, 20.12.24 to 5.6.25 ...	17.7.25.
Empress of Scotland	Gillies, J., C.B.E. ...	B. Grant, S. C. Fox, D. Loram, L. W. Akerman, W. J. Phillips.	,,	,, ,, ...	,, 26.4.24 to 29.10.24...	11.12.24.
Endeavour ...	Commr. S. A. Geary-Hill, D.S.O., R.N.	M. L. Harrison, E.V.B. Baker, E. H. B. Baker, J. Torlesse.	,,	His Majesty's Ship ...	,, 26.5.25 to 24.6.25 ...	13.7.25.
Essequibo ...	Duncan, E. E. ...	G. Pattison	No.	R.M.S.P. Co. ...	Form 911 18.6.25 to 30.6.25 ...	7.9.25.
Eumaeus ...	Read, J. W. ...	W. E. Steer	,,	A. Holt	,, 26.7.25 to 9.8.25 ...	14.9.25.
Euripides ...	Collins, P. J., O.B.E.	H. S. Cox, G. R. Fisher, A. J. Terry.	M.L.	Aberdeen	Met. Log. 27.2.25 to 18.6.25 ...	29.6.25.
Eurybates ...	Carnon, C. G. ...	C. Napier	No.	A. Holt	Form 911 9.5.25 to 24.5.25 ...	9.7.25.
Explorer ...	Lamont, A. ...	Scientific Staff	M.L.	Scottish Fishery Board	Met. Log. 20.6.24 to 27.9.24 ...	24.10.24.
Ferndale	Daniel, F.	... ...	No.	Leopold Walford ...	... ...	...
Fitzroy... ...	Silk, H. V., Lt.-Commr, R.N.	M. E. Welby	M.L.	His Majesty's Ship ...	Met. Log. 16.4.25 to 24.8.25 ...	4.9.25.
Flandria ...	Veldkamp, G. J. ...	T. Doornbosch	No.	Holland Lloyd ...	Form 911 26.6.25 to 15.8.25 ...	18.8.25.
Flinders ...	Henderson, D A., Lt.-Commr., R.N.	K. F. Boxall	M.L.	His Majesty's Ship ...	Met. Log. 26.7.24 to 30.10.24...	18.11.24.
Francisco ...	Williams, J. C. ...	J. C. Nettleship	No.	Ellerman Wilson ...	Form 911 15.7.25 to 23.8.25 ...	28.8.25.
Freya	Angus, W. ..	J. H. Hennessey, J. Murray	,,	Scottish Fishery Board	,, 23.7.25 to 12.9.25 ...	14.9.25.
Gallic	Summers,F. F., R.D., Commr. R.N.R.	W. G. O. Jones	,,	White Star ...	Met. Log. 3.8.24 to 9.12.24 ...	12.12.24.
Galtymore ...	Ledsome, J. S. ...	N. Goubrough	,,	Furness Withy ...	Form 911 5.3.25 to 15.3.25 ...	18.3.25.

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro-logical Equipment.	Line.	Last Log Register, or Report Contributed. Received up to 18.9.25.	Date Received.
Garoet	Visser, C. W. ...	C. J. Vandenboom ...	No.	Rotterdam Lloyd ...	Form 911 21.4.25 to 22.5.25 ...	26.5.25.
Gascoyne ...	Mills, A.	P. G. Collins	,,	Dalgety & Co. ...	,, 21.10.24 to 1.2.25 ...	9.3.25.
Gelria	Kolkman, J. M. ...	K. H. Schilp	,,	Holland Lloyd ...	,, 10.4.25 to 28.5.25 ...	2.6.25.
Glenamoy, M.V. ...	Angier, J. ...	R. H. Bishop	,,	Glen Line	,, 25.7.25 to 12.8.25 ...	8.9.25.
Glenapp, M.V. ...	Griffith, J. E. ...	S. W. Bell	,,	,, ...	,, 8.3.25 to 18.3.25 ...	22.6.25.
Glenluce, M.V. ...	Barkley, E. ...	J. D. Richards	,,	,, ...	,, 22.2.25 to 24.3.25 ...	30.3.25.
Glenshane ...	Bennett, J. H. ...	R. A. Dale	,,	,, ...	,, 10.8.25 to 20.8.25 ...	31.8.25.
Gloucestershire ...	Robin, E. ...	T. E. Field	,,	Bibby	,, 10.4.25 to 20.6.25 ...	23.6.25.
Gorgon... ...	Hughes, J. W. ...	W. Simpson	,,	A. Holt & Co. ...	,, 14.6.25 to 26.7.25 ...	31.8.25.
Gourko... ...	Montgomery, H. ...	N. J. Donovan	M.L.	Ellerman Wilson ...	Met. Log. 12.11.24 to 2.4.25 ...	24.4.25
Haliartus ...	Marsh, L. V. ...	W. H. Upton	No.	R. P. Houston ...	Form 911 13.6.25 to 10.7.25 ...	1.8.25.
Harmonides ...	Hughes, W. J. ...	D. L. Roberts	,,	,, ...	,, 1.3.25 to 16.3.25 ...	30.4.25.
Harmony, Auxy.	Jackson, J. C. ...	A. W. Bush	,,	Moravian Mission ...	,, 29.6.25 to 25.8.25 ...	14.9.25.
Hatarana ...	Woodget, H. T. ...	J. L. Durkee, F. Wells, H. Harrison, H. J. O'Donohoe.	M.L.	British India ...	,, 7.10.24 to 22.4.25 ...	4.5.25.
Hauraki, M.V. ...	Frew, J. D. ...	A. K. Champion	No.	Union S.S. Co., N.Z....	,, 3.7.25 to 25.7.25 ...	16.9.25.
Henry Holmes, C.S.	Bicker Caarten, A.	R. J. M. Pearce	,,	W. I. & Panama Telegraph Co.	,, 28.5.25 to 6.7.25 ...	5.8.25.
Herald... ...	Harvey, J. R., O.B.E., Commr., R.N.	W. C. Jenks	M.L.	His Majesty's Ship ...	Met. Log. 1.2.25 to 27.5.25 ...	27.7.25.
Herefordshire ...	Stanley, W. ...	R. C. Leitch, G. Whitworth, P. S. Cooper, H. G. Walton	,,	Bibby	,, 13.9.24 to 26.2.25 ...	23.3.25.
Herschel ...	Davies, G. W. ...	A. N. Blundell, H. Phillips...	No.	Lamport & Holt ...	Form 911 30.4.25 to 4.7.25 ...	6.7.25.
Hibernia ...	Tanner, E. B. ...	R. Woodall	C.C.	L.M. & S. Rly. ...	Telegraphic Report. 5.9.25 ...	5.9.25.
Highland Enterprise	Pond, R. H. ...	J. H. Titton	No.	Nelson	Form 911 31.1.25 to 26.4.25 ...	12.5.25.
,, *Glen* ...	Jones, T. J. ...	C. M. Best	,,	,, ...	,, 3.2.25 to 20.6.25 ...	24.6.25.
,, *Heather*	Powell, G. A. ...	J. H. Cables, F. Jeyes ...	M.L.	,, ...	Met. Log. 10·12·24 to 1·6·25 ...	16.6.25.
,, *Laddie*...	Alford, C. ...	G. L. Goodman	No.	,, ...	Form 911 28.5.25 to 19.7.25 ...	22.7.25.
,, *Piper* ...	Collings, D. ...	A. S. Jones, J. S. Collins, W. T. Breen.	M.L	,, ...	Met. Log. 6.1.25 to 25.5.25 ...	10.6.25.
,, *Pride* ...	Robinson, R. H. ...	F. Falconer, R. R. Soanes, G. E. Leech.	,,	,, ...	,, 13.3.25 to 3.8.25 ...	17.8.25.
,, *Rover* ...	Ashby Graves, F. ...	F. W. Harvey, H. Thomas, F. Abbott.	,,	,, ...	,, 2.7.25 to 29.8.25 ...	17.9.25.
,, *Warrior*	Robinson, R. H. ...	G. I. Evans	No.	... ...	Form 911 1.6.25 to 29.7.25 ...	10.8.25.
Hildebrand ...	Maddrell, J. ...	R. S. H. Goodier	,,	Booth	,, 18.3.25 to 1.5.25 ...	4.5.25.
Hobsons Bay ...	Kydd, O. J. ...	J. E. Williams, O. J. Edwards, M. P. Pearce.	M.L.	Commonwealth Govt.	Met. Log. 2.12.24 to 12.3.25 ...	8.4.25.
Holbein ...	Gough, W. A. ...	G. P. Kitto, E. King ...	No.	Lamport & Holt ...	Form 911 25.5.25 to 25.7.25 ...	1.8.25.
54 *Homeric* ...	Holme, A. ...	A. E. Dyer, A. Griffiths, S. A. Jones.	W.T.	White Star ... {	W.T. Reg. 6.8.25 to 21.8.25 ...	24.8.25.
				{	,, 27.8.25 to 11.9.25 ...	14.9.25.
Honorius ...	Samuels, C. ...	J. E. Martin, W. G. Iddes ...	No.	R. P. Houston ...	Form 911 27.7.25 to 27.8.25 ...	31.8.25.
Hororata ...	Haines, F. P. ...	... ...	,,	New Zealand S.S. Co.	... ...	...
Hubert... ...	Buck, R. H. ...	G. H. Jordan	,,	Booth	Form 911 6.8.25 to 28.8.25 ...	14.9.25.
Hurunui ...	Burton Davies, J....	J. C. Tuckett, C. D. Watt, F. Pover, G. R. Hogg.	M.L.	New Zealand S.S. Co.	Met. Log. 20.11.24 to 17.5.25...	9.6.25.
Ibex	Langdon, C. ...	... ...	C.C.	G.W. Railway ...	Telegraphic Report. 19.3.25 ...	19.3.25.
Iceland, Auxy. Brigantine.	Worsley, F.A., D.S.O., O.B.E., Commr., R.N.R.	... ...	M.L.	Algarsson Polar Expedition.	... ...	...
Ikala	Meetham, J. T. ...	E. Lightfoot, C. W. Smithurst	No.	J. H. Welsford & Co.	Form 911 22.5.25 to 5.6.25 ...	16.7.25.
Ingoma ...	Barrow, R. K. ...	O. Stanhope	,,	Harrison	,, 19.7.25 to 31.8.25 ...	2.9.25.
Intaba... ...	Gibbings, W. A. ...	A. M. Hughes	,,	,, ...	,, 18.6.25 to 30.7.25 ...	7.8.25.
Intombi ...	Sawyer, E. I. ...	J. Richardson	,,	,, ...	,, 3.8.24 to 19.10.24 ...	22.10.24.
Iris, C.S. ...	Hughes, H. R. ...	... ...	,,	Pacific Cable Board ...	... ...	...
Iroquois ...	Tinson, C. W., O.B.E., Commr., R.N.	G. A. R. J. Leslie, R. H. Lucy, G. A. Gould.	M.L.	His Majesty's Ship ...	Met. Log. 15.7.24 to 7.11.24 ...	3.2.25
Ixion	Reed, G. C. ...	A. R. Cook	No.	A. Holt	Form 911 19.5.25 to 10.8.25 ...	12.8.25.
Jervis Bay ...	Chaplin, W. R. ...	R. W. Laycock	,,	Commonwealth Govt.	,, 2.7.25 to 20.7.25 ...	11.8.25.
John Pender, C.S.	Smythe, T. W., O.B.E.	A. G. Watts	,,	Eastern Tel. Co. ...	,, 6.5.25 to 12.5.25 ...	8.6.25.
Junin	Benson, C. W. ...	A. Beharrel	,,	Pacific S.N. Co. ...	,, 16.5.25 to 5.6.25 ...	17.6.25.
Kaikoura ...	McNish, R. ...	H. E. Reilly, H. Neagle, D. Glegg, S. Toyne.	M.L.	New Zealand S.S. Co.	Met. Log. 26.1.25 to 8.8.25 ...	26.8.25.
Kaisar-i-Hind ...	Manley G. ...	G. R. Baker	No.	P. & O.	Form 911 4.7.25 to 21.7.25 ...	1.8.25.
Kamo Maru ...	Shiratori, S. ...	F. Takaku	,,	Nippon Yusen Kaisha ...	,, 8.8.25 to 8.9.25 ...	9.9.25.
Kangaroo ...	Norris, H. C. ...	R. J. Sinclair, V. J. Denton, V. Gilbert, J. Egglestone.	M.L.	State Service Australia	Met. Log. 27.8.24 to 11.3.25 ...	25.5.25.
Kashmir ...	Stringer, R. H., O.B.E., R.D., Commr. R.N.R.	F. Hopkins	No.	P. & O.	Form 911 24.8.24 to 8.9.24 ...	18.11.24.
Kellett	Maxwell, P. S. E., Commr., R.N.	D. G. V. Williams... ...	M.L.	His Majesty's Ship ...	Met. Log. 15.4.25 to 28.7.25 ...	11.8.25.
Kenilworth Castle {	Millard, L. A. ... George J., O.B.E.	A. E. Denn, W. M. Tomkins — May.	,,	Union Castle ...	,, 16.5.24 to 25.1.25 ...	6.2.25.
Khiva	Randall, H.W., R.D., Capt., R.N.R.	L. Fraser, K. H. Cummins, G. K. Fox.	,,	P. & O.	,, 24.10.24 to 31.1.25...	5.2.25.
Khyber... ...	Collyer, R. M. M., R.D., Commr., R.N.R.	J. C. Davies	No.	,, ...	Form 911 25.3.25 to 10.5.25 ...	14.5.25.
Kia Ora ...	McIntosh, A. ...	A. E. Lockhart	,,	Shaw Savill & Albion	,, 5.4.25 to 27.4.25 ...	19.5.25.
Kildonan Castle...	Wilford, T.H. ...	G. H. Pickering	,,	Union Castle ...	,, 19.6.25 to 9.8.25 ...	11.8.25.
Kitano Maru ...	Gotoh, M.	M. Hara	,,	Nippon Yusen Kaisha	,, 16.7.25 to 6.8.25 ...	14.9.25.
Knight Companion	Beale, H. E. ...	J. J. Daniel, A. M. Hunter...	,,	A. Holt	,, 8.7.25 to 23.7.25 ...	24.8.25.
Koranna ...	Mordue, J. A. ...	... ...	,,	Ellerman Bucknall ...	,, 2.7.25 to 25.8.25 ...	31.8.25.
Kovno ... {	Casson, D. H., R. D., Commr., R.N.R. Brown, A. M. ...	L. Griffiths, J. Sanders, J. Marshall, T. Tindell, N. W. Glendinning, F. T. Shaw.	M.L.	Ellerman Wilson ...	Met. Log. 26.7.24 to 20.4.25 ...	24.4.25.
Kyogle... ...	Coalstad, C. ...	C. B. Odman, E. W. Hughes	No.	Commonwealth Lighthouse Service.	Form 911 13.11.24 to 13.12.24	19.1.25.
Lady Denison Pender, C.S.	West, G. W. ...	F. Lawrence	,,	Eastern Tel. Co. ...	,, 2.7.25 to 14.8.25 ...	15.9.25.
Laguna ...	Pape, E. R. ...	W. P. Boon	,,	Pacific S.N. Co. ...	,, 9.6.25 to 4.7.25 ...	6.7.25.
Lalande ...	Taylor, G. C. ...	H. Phillips	,,	Lamport & Holt ...	,, 24.4.25 to 13.5.25 ...	6.7.25.
Lancashire ...	Beckett, F. W. ...	W. M. S. Higginson ...	,,	Bibby	,, 9.5.25 to 19.7.25 ...	14.8.25.
36 *Lancastria* ...	... ...	... ...	W.T.	Cunard	... ...	...
Laomedon ...	Blues, A. ...	H. Howe...	No.	A. Holt	Form 911 21.6.25 to 11.7.25 ...	9.9.25.
La Paz, M.V. ...	Ross, J.	A. Davies	,,	Pacific S.N. Co. ...	,, 14.6.25 to 18.7.25 ...	23.7.25.
Laplace ...	Shaw, W. ...	W. Boyde, R. B. Langley ... R. E. Wiggins.	,,	Lamport & Holt ...	,, 19.4.25 to 19.7.25 ...	18.8.25.
55 *Lapland* ...	Howell, T. ...	B. Harries, E. Cornellie ...	W.T.	Red Star ... ... {	W.T. Reg. 23.8.25 to 10.9.25 ...	12.9.25.
				{	Form 911 22.8.25 to 10.9.25 ...	14.9.25.

Name of Vessel.	Captain.	Observing Officers.	Official Meteoro-logical Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 18.9.25.	Date Received.
Lassell, M.V. ...	Hickman, V. T. ...	F. J. Durrant	No.	Lamport & Holt ...	Form 911 4.5.25 to 7.8.25 ...	8.9.25.
Leicestershire ...	English, G. L. ...	J. Ineson, P. H. Potter, D. Y. Sharrock, J. Tradewell.	M.L.	Bibby	Met. Log. 20.6.25 to 30.8.25 ...	1.9.25.
Leighton, M.V. ...	Lindesay J. M. ...	... ...	No.	Lamport & Holt ...	... ...	...
Leitrim ...	Robertson, A. ...	E. F. C. Higgins	,,	Dowie, J., & Co. ...	Form 911 14.7.25 to 4.8.25 ...	16.9.25.
Llanstephan Casile	Owen, S. H. ...	J. B. M. Reynolds... ...	,,	Union Castle ...	,, 20.9.24 to 25.11.24...	29.11.24.
Loch Katrine ...	Shillittoe, B. ...	C. Noakes, C. N. Hatchard	,,	R.M.S.P. Co. ...	,, 15.3.24 to 12.6.25 ...	18.6.25.
London Commerce	Young, H. J., D.S.C.	H. P. Longland	,,	Furness Withy ...	,, 1.8.25 to 2.9.25 ...	4.9.25.
Loriga, M.V. ...	Barkley, E. ...	W. N. Anders	,,	Pacific S.N. Co. ...	,, 22.5.25 to 6.8.25 ...	25.8.25.
Losada, M.V. ...	Meldrum, G. W. ...	A. H. Turner	,,	,, ,, ...	,, 29.6.25 to 9.9.25 ...	14.9.25.
Macedonia ...	Potter, H. W., R.D., Commr., R.N.R.	E. R. Bodley	,,	P. & O.	,, 5.7.25 to 22.7.25 ...	25.8.25.
Macharda ...	Cochran, G. ...	W. Moore	,,	Brocklebank ...	,, 6.9.24 to 24.11.24 ...	5.12.24.
Mahana ...	Kershaw, W. A. R.	F. M. Smith, J. C. K. Rogers	,,	Shaw, Savill & Albion	,, 2.7.25 to 22.8.25 ...	26.8.25.
Maharaja ...	Perry, C. R. ...	C. B. Miller, D. M. Swaine...	,,	Asiatic S.N. Co. ...	,, 18.5.25 to 7.6.25 ...	6.7.25.
Maihar ...	Rowe, J. P. ...	C. Shaw, H. T. Scoins, R. G. Widdon.	M.L.	Brocklebank ...	Met. Log. 15.8.24 to 29.4.25 ...	7.5.25.
Maimyo ...	Richardson, T. ...	P. Yates	No.	,, ...	Form 911 31.5.25 to 21.6.25 ...	1.8.25.
Maine	Seymour, H. ...	A. S. Smith	,,	Atlantic Transport ...	,, 20.4.25 to 26.5.25 ...	15.6.25.
58 *Majestic* ...	Metcalfe, G. R. ...	L. Thompson, W. Pearson, W. T. Poustie, J. A. Macnaughton.	W.T.	White Star	W.T. Reg. 13.8.25 to 27.8.25 ... / Form 911 13.8.25 to 27.8.25 ...	29.8.25. / 31.8.25.
Makambo ...	Brown, T. M. ... / Brown, A.	F. C. Vogelmann ...	M.L.	Burns Philp ...	Met. Log. 5.3.25 to 19.7.25 ...	1.9.25.
Makura ...	Mawson, J. ...	J. D. Lundie, G. H. Kime, N. Archibald, A. R. Noble.	,,	Canadian-Australasian	,, 23.10.24 to 6.3.25 ...	30.3.25.
Malakuta ...	Maugham, J. W. ...	... ...	No.	Brocklebank ...	... ...	...
Malancha ...	Whitham, F. ...	A. Hill	,,	,, ...	Form 911 6.7.25 to 2.8.25 ...	24.8.25.
Malda	Gray, T. N. ...	R. F. Wetherseed	,,	British India ...	,, 19.7.25 to 20.8.25 ...	14.9.25.
Manchester Corporation.	Everest, J. E. ...	W. L. Lavers	,,	Manchester Liners ...	,, 22.8.25 to 31.8.25 ...	9.9.25.
Manchester Hero	Riley, J. E. ...	... ...	,,	,, ,, ...	... ...	...
Manchester Merchant.	Barclay, J. ...	R. A. Walker	,,	,, ,, ...	Form 911 31.7.25 to 10.9.25 ...	15.9.25.
Manchester Shipper	Dormer, A. E. ...	... ...	M.L.	,, ,, ...	... ...	...
Manhattan ...	Hutchison, J. G. ...	R. Day	No.	Atlantic Transport ..	Form 911 10.11.24 to 18.12.24	22.12.24.
Manipur ...	Scurr, T. W. ...	G. W. Barker	,,	Brocklebank ...	,, 16.2.25 to 11.5.25 ...	15.5.25.
Manistee ...	Isaacson, J. M. ...	A. M. Houghton, F. R. Inch, L. Dobson.	M.L.	Elders & Fyffes ...	Met. Log. 2.5.25 to 30.8.25 ...	4.9.25.
Mantua ...	Butler, G. E. ...	J. Paice	No.	P. & O.	Form 911 12.6.25 to 13.8.25 ...	24.8.25.
Manzanares ...	Henderson, J. N. ...	H. E. Lees	,,	Elders & Fyffes ...	,, 7.7.25 to 7.8.25 ...	12.8.25.
29 *Marburn* ...	... ...	... ...	W.T.	Canadian Pacific ...	... ...	...
Marella ...	Mortimer S. ... / Donaldson, A. ...	D. Pemberton, W. McBride, A. M. Hill, A. Campbell, W. Middleton.	M.L.	Burns Philp ...	Met. Log. 18.4.24 to 18.2.25 ...	11.5.25.
Marengo ...	... ...	L. T. Hale, F. Elgin, J. E. Stott, W. G. Pearce, E. Wood.	,,	Ellerman Wilson ...	,, 12.9.24 to 21.2.25 ...	25.2.25.
Margha ...	Milne, A. R., R.D., Commr., R.N.R.	J. Strachan, P. Wright, H. E. Evans, B. Paul.	,,	British India ...	,, 15.2.25 to 12.5.25 ...	20.5.25.
Marglen ...	Griffiths, J. N. ...	E. Eastley	No.	Canadian Pacific ...	Form 911 19.2.25 to 9.4.25 ...	14.4.25.
Maryland ...	Hutt, F. C. ...	A. C. Clay	,,	Atlantic Transport ...	,, 16.1.25 to 18.2.25 ...	24.2.25.
Matakana ...	Thurston, H. P. ...	A. Chrystal	,,	Shaw, Savill & Albion	,, 1.2.25 to 30.5.25 ...	5.6.25.
Mataram ...	Hillman, E. J. ...	K. L. Thompson	,,	Burns Philp & Co. ...	,, 18.6.25 to 18.7.25 ...	31.8.25.
Matheran ...	Columbine, F. F. ...	J. A. Embley, J. Robertson, R. E. Gartside.	M.L.	Brocklebank ...	Met. Log. 21.3.25 to 13.6.25 ...	16.6.25.
Mathura ...	Hanna, R. G. ...	H. H. Armstrong	No.	,, ...	Form 911 2.8.25 to 13.8.25 ...	24.8.25.
Matiana ...	Langlands, D. H. ...	G. Hopkins	,,	British India ...	,, 7.7.25 to 5.8.25 ...	7.9.25.
Maunganui ...	Mawson, J. ...	G. H. Kime	,,	Union S.S. Co. of N.Z.	,, 25.4.25 to 27.7.25 ...	7.9.25.
32 *Mauretania* ...	Rostron, A. H., C.B.E., R.D., A.-d.-C., Capt., R.N.R.	R. Allen, E. R. Taylor, A. Mackellar.	W.T.	Cunard	W.T. Reg. 2.8.25 to 17.8.25 ... / ,, 23.8.25 to 6.9.25 ...	19.8.25. / 8.9.25.
Media	Maughan ...	... ...	No.	T. & J. Brocklebank...	... ...	...
56 *Megantic* ...	Trant, E. L., Commr. R.N.R.	F. A. Billiald, J. Clarke, N. E. Banks.	W.T.	White Star ...	W.T. Reg. 9.8.25 to 28.8.25 ...	1.9.25.
22 *Melita*	Clews, A. H. ...	J. McLennan, D. Dunn, R. Jackson.	,,	Canadian Pacific ...	,, 2.8.25 to 19.8.25 ... / Form 911 1.8.25 to 19.8.25 ...	21.8.25. / 21.8.25.
Memnon ...	Evans, D. L. ...	R. D. Baird	No.	A. Holt	,, 25.4.25 to 18.7.25 ...	8.9.25.
Menominee ...	Pollard, W. F., D.S.O., R.D., Capt. R.N.R.	C. F. Hicks	,,	Atlantic Transport ...	,, 14.2.25 to 19.3.25 ...	23.3.25.
Mercian ...	Gardner, J. ...	R. Hughs	,,	Leyland	,, 16.3.25 to 26.4.25 ...	1.5.25.
21 *Metagama* ...	Henderson W. ...	W. F. Reid, A. M. Watt, E. Laurence.	W.T.	Canadian Pacific ...	W.T. Reg. 5.7.25 to 20.7.25 ...	23.7.25.
Miami... ...	Makepeace, S. ...	H. Dunning, W. E. Grant ...	No.	Elders & Fyffes ...	Form 911 28.7.25 to 29.8.25 ...	2.9.25.
Minderoo ...	Richardson, E. ...	B. J. Bennie, W. J. McPhedron, J. H. Oxton.	M.L.	West Australia Nav. Co.	Met. Log. 27.11.24 to 16.5.25...	15.7.25.
Minna ...	Mackenzie, G. G. ...	D. Rattray	No.	Scottish Fishery Board	Form 911 30.7.25 to 7.9.25 ...	9.9.25.
23 *Minnedosa* ...	Notley, A. H., R.D., Commr., R.N.R.	R. Antrobus	W.T.	Canadian Pacific ...	W.T. Reg. 15.8.25 to 2.9.25 ...	4.9.25.
Minnetonka ...	Gates, T. F., C.B.E.	H. E. McCartney	No.	Atlantic Transport ...	Form 911 17.8.25 to 5.9.25 ...	8.9.25.
Minnewaska ...	Claret, F. ...	W. S. Mackie	,,	,, ,, ...	,, 3.8.25 to 6.9.25 ...	18.9.25.
Mirror, C.S. ...	Gibson, L. ...	C. E. F. St. John	,,	Eastern Tel. Co. ...	,, 2.4.25 to 29.5.25 ...	30.6.25.
Mississippi, M.V.	Wylie, J. T. J. ...	H. K. Cockerill	,,	Atlantic Transport ...	,, 17.5.25 to 28.5.25 ...	3.6.25.
Moena ...	Morzer Bruyns, M. F.	G. H. Vander Roest ...	,,	Nederland	,, 18.12.24 to 6.2.25 ...	10.2.25.
Moldavia ...	Burleigh, C. W., D.S.O., Capt. R.N.R.	... ...	,,	P. & O.	... ...	...
Mongolian Prince	Durrant, G. D. ...	P. F. Owens	,,	Prince	Form 911 22.2.25 to 11.4.25 ...	15.4.25.
Monkbarns, Ship	Davies, W. ...	R. Baise, J. Williams ...	,,	J. Stewart & Co. ...	,, 7.2.25 to 6.5.25 ...	15.6.25.
24 *Montcalm* ...	Sibbons, H. ...	H. McFadyen	W.T.	Canadian Pacific ...	W.T. Reg. 11.7.25 to 30.7.25 ...	1.8.25.
25 *Montclare* ...	Webster, G. S., R.D., Commr., R.N.R.	R. Fegan, W. Phillips, H. S. Knight.	,,	,, ,, ... / ,, 16.8.25 to 3.9.25 ... / Form 911 15.8.25 to 3.9.25 ...	5.9.25. / 4.9.25.
27 *Montnairn* ...	Turnbull, J., C.B.E., R.D., Capt., R.N.R.	F. E. Williams	,,	,, ,, ...	W.T. Reg. 22.8.25 to 10.9.25 ...	12.9.25.
Montoro ...	Hillman, E. J. ...	K. Morris	No.	Burns, Philp & Co. ...	,, 6.3.25 to 14.4.25 ...	29.6.25.
26 *Montrose* ...	Landy, E. ...	T. Beck, C. Clarke, A. Mansey	W.T.	Canadian Pacific ...	W.T. Reg. 14.7.25 to 16.7.25 ... / Form 911 26.6.25 to 17.7.25 ...	20.7.25. / 20.7.25.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 18.9.25.	Date Received.
20 *Montroyal* ...	Latta. R. G. ...	J. H. Tudor, A. K. Benham	W.T.	Canadian Pacific ...	W.T. Reg. 1.8.25 to 20.8.25 ...	24.8.25.
Moresby ...	Edgell, J. A., O.B.E., Capt. R.N.	... ...	M.L.	His Majesty's Ship ...	... ...	
Mulbera ...	Steadman, W. R. ...	H. W. Norris	No.	British India ...	Form 911 8.8.25 to 26.8.25 ...	14.9.25.
Nagara ...	Purvis, A. ...	E. N. Giller	,,	R.M.S.P. Co. ...	,, 26.6.25 to 2.9.25 ...	7.9.25.
Nagoya... ...	Cherry, W. G. W. ...	P. Haworth	,,	P. & O.	,, 25.4.25 to 1.7.25 ...	22.7.25.
Nardana ...	Moth. F. L. ...	S. C. T. Smith	,,	British India ...	,, 16.6.25 to 20.7.25 ...	7.9.25.
Nariva... ...	Buret, T. J. C. ...	E. Delahay, E. I. Fletcher, R. S. Wooley, H. Trenchard, W. Hughes.	M.L.	R.M.S.P. Co. ...	Met. Log. 1.5.25 to 24.6.25 ...	8.7.25.
Nascopie ...	Smellie, T. F. ...	A. S. Watts, T. D. Roseburgh	,,	Hudson's Bay Co. ...	,, 16.6.24 to 17.10.24...	23.10.24.
Nellore... ...	Hignett, A. H., R.D., Lt. - Commr. R.N.R.	F. Squire	No.	P. & O.	,, 25.7.25 to 24.8.25 ...	14.9.25.
Nestor	Owen, R. D., O.B.E.	W. H. Newby, R. Wilks, F. J. Silva.	M.L.	A. Holt	Met. Log. 22.3.25 to 23.7.25 ...	5.8.25.
Nevasa... ...	Swanson, C. J. ...	D. Lorrie	No.	British India ...	Form 911 21.2.25 to 12.5.25 ...	19.5.25.
Newby Hall ...	Kendall, J. W. ...	A. Martin	M.L.	Ellerman	Met. Log. 12.9.24 to 10.1.25 ...	27.1.25.
Niagara ...	Showman, A. C. ...	T. A. Macpherson, J. Dawson, A. P. Cousin.	,,	Canadian-Australian...	,, 7.5.25 to 20.8.25 ...	10.9.25.
Ningchow ...	Wilson, C. A. ...	F. A. Brown	No.	A. Holt	Form 911 6.5.25 to 22.6.25 ...	25.6.25.
Nore	Parker, J. W. ...	R. W. Mackie, C. B. Roche, R. H. Turner, G. Haughey.	M.L.	P. & O.	Met. Log. 7.3.25 to 3.6.25 ...	15.6.25.
Norna	Wright, J. ...	T. Mather	No.	Scottish Fishery Board	Form 911 3.7.25 to 27.7.25 ...	5.8.25.
Norseman, C.S. ...	W. Douglas ...	... ...	M.L.	Western Tel. Co. ...	Met. Log. 16.8.24 to 30.1.25 ...	3.3.25.
Nortonian ...	McCormick, J. ...	T. Griffiths	No.	Leyland	Form 911 2.8.24 to 30.9.24 ...	4.10.24.
Nubian ...	Watmough, T. M. ...	H. R. Gaskill	,,	,, ...	,, 21.12.24 to 2.1.25 ...	6.1.25.
Nyanza ...	Carpendale, F. W. J.	R. H. Hand, R. G. Freeman, J. Metcalfe.	M.L.	P. & O.	Met. Log. 14.6.25 to 3.9.25 ...	8.9.25.
Oaklands Grange...	Routledge, R. ...	E. A. Insley	No.	Houlder Bros. ...	Form 911 18.10.24 to 2.2.25 ...	19.2.25.
42 *Ohio* ...	Parker, W. H., C.B.E., R.D., Capt., R.N.R.	W. Paine, P. M. Burrell, R. W. Stoney.	W.T.	R.M.S.P. Co. ...	W.T. Reg. 17.8.25 to 3.9.25 ...	14.9.25.
					Form 911 16.8.25 to 3.9.25 ...	14.9.25.
Olympia ...	Caldwell, R. ...	D. R. Urquhart, G. Lynas, W. Proudfoot.	M.L.	Anchor	,, 26.6.25 to 12.9.25 ...	17.9.25.
57 *Olympic* ...	Marshall, W., C.B., D.S.O., R.D., Capt., R.N.R.	H. J. C. Day, C. J. Warltire, W. Fitzgerald.	W.T.	White Star ...	W.T. Reg. 31.7.25 to 13.8.25 ...	17.8.25.
					,, 20.8.25 to 3.9.25 ...	5.9.25.
					Form 911 31.7.25 to 3.9.25 ...	4.9.25.
Orama... ...	Staunton, H. G., C.B.E., R.D., Commr, R.N.R.	L. J. Vesty, F. Butler, M. C. Lester, J. S. Metcalf.	M.L.	Orient	Met. Log. 8.3.25 to 10.6.25 ...	15.6.25.
Oranian ...	Hoskins, W. ...	R. H. Theaker	No.	Leyland	Form 911 16.8.25 to 3.9.25 ...	17.9.25.
Orari	Robinson, F. W. ...	F. Longheed, C. Wilkinson, W. Tarr.	M.L.	New Zealand S.S. Co.	Met. Log. 7.3.25 to 11.8.25 ...	15.8.25.
40 *Orbita* ...	Warner, G. E. ...	B. C. Dodds, H. G. Whittle, H. M. Rennie, R. Wray Hurt, R. H. East.	W.T.	R.M.S.P. Co. ...	W.T. Reg. 27.7.25 to 16.8.25 ...	19.8.25.
	Buret, T. J. C. ...				,, 24.8.25 to 13.9.25 ...	16.9.25.
					Form 911 25.7.25 to 14.9.25 ...	17.9.25.
Orcoma ...	Dominy, R. H., C.B.E., Commr. R.N.R.	G. B. Wardale, L. Jones, W. Billington.	M.L.	Pacific S.N. Co. ...	Met. Log. 21.5.25 to 3.8.25 ...	13.8.25.
41 *Orduna* ...	Matthews, G. P. ...	R. W. Sumpton, J. Vivian, K. M. Drake, W. Lowe.	W.T.	R.M.S.P. Co. ...	W.T. Reg. 10.8.25 to 30.8.25 ...	2.9.25.
					Form 911 9.8.25 to 30.8.25 ...	2.9.25.
Oriana... ...	Mander, T. ...	R. E. Skellorn, R. D. Eckford, T. H. McGill.	M.L.	Pacific S.N. Co. ...	Met. Log. 12.5.25 to 20.7.25 ...	1.8.25.
Orita	Splatt, W. A. ...	J. G. Harvey, T. R. Scott, D. W. Hutchinson, C. P. D. Dean.	,,	,, ,, ...	,, 19.12.24 to 29.5.25...	12.6.25.
Ormonde ...	Knowles, C. H., D.S.O., Commr., R.N.	A. M. Hughes	,,	His Majesty's Ship ...	,, 8.11.24 to 6.12.24 ...	31.12.24.
Ormonde ...	Shelford, W. S., Lt.-Commr., R.N.R.	N. A. Whinfield, W. A. Wickham, A. H. Dyer.	,,	Orient	,, 4.1.25 to 7.4.25 ...	15.4.25.
Oronsay	Owens, A. L., R.D., Lt. Commr., R.N.R.	J. C. K. Dowding, P. R. Murphy, R. K. Rogerson.	,,	,, ...	,, 15.6.25 to 6.7.25 ...	24.8.25.
Oroya	Pearce, A. ...	S. Lewis	No.	Pacific S.N. Co. ...	Form 911 28.4.25 to 6.7.25 ...	22.7.25.
Orsova	Matheson, C. G., D.S.O., R.D., Commr., R.N.R.	A. J. Croft Cohen, C. V. Dodgson, C. Fox	M.L.	Orient	Met. Log. 5.4.25 to 8.7.25 ...	11.7.25.
Ortega	Pleignier, H. S. ...	C. Leatherbarrow	No.	Pacific S.N. Co. ...	Form 911 9.12.24 to 16.2.25 ...	25.2.25.
Orvieto... ...	Simner, G. L., R.D., Commr., R.N.R.	A. O. H. O'Bryen, Hawker, A. H. Dyer.	M.L.	Orient	Met. Log. 4.5.25 to 4.8.25 ...	8.8.25.
Osterley ...	Cameron, E. P. ...	H. Tanner, J. E. Goldsworthy, G. L. Carter.	,,	,, ...	,, 31.5.25 to 31.8.25 ...	16.9.25.
Othello	Montgomery, H. ...	G. Binks	No.	Ellerman Wilson ...	Form 911 19.4.25 to 28.7.25 ...	12.8.25.
Otira	Elford, H. E. ...	J. H. Fuller	,,	Shaw, Savill & Albion	,, 13.6.25 to 2.7.25 ...	10.8.25.
Ovid	Groom, A. C. B. ...	... ...	,,	Shakespear Shipping Co.	,, 20.4.25 to 20.5.25 ...	23.5.25.
Oxfordshire ...	Crumplin, W. E. ...	F. C. Brooks	,,	Bibby Bros. ...	,, 4.6.25 to 22.6.25 ...	21.7.25.
Pacific Shipper M.V.	Newman, G. W. A.	R. S. Smith	,,	Furness Withy ...	,, 25.12.24 to 12.1.25...	14.4.25.
Pakeha ...	W. P. Clifton Mogg	R. K. Vandervard, E. T. Baker, R. James.	M.L.	Shaw, Savill & Albion	Met. Log. 22.4.25 to 20.8.25 ...	26.8.25.
Paparoa ...	Dowse, F.	G. Mathieson	No.	New Zealand S.S. Co.	Form 911 20.5.25 to 21.6.25 ...	22.7.25.
Pareora ...	Evans, J. O. ...	R. F. Hillings	,,	Hain S.S. Co. ...	,, 17.8.25 to 29.8.25 ...	8.9.25.
Paris	Cook, C. L. ...	Mr. Biles...	C.C.	Southern Rly. ...	Telegraphic Report. 6.6.25 ...	6.6.25.
Patia	Bostock, R. J. ...	W. McIlwaine	No.	Elders & Fyffes ...	Form 911 4.7.25 to 8.8.25 ...	12.8.25.
Patrol, C.S. ...	Welsh, T. K. ...	W. H. S. Clark, H. F. P. Albrecht, W. G. MacBryde, A. T. Morrell.	M.L.	Eastern Extension (A. & C.) Telegraph Co.	Met. Log. 1.10.24 to 12.1.25 ...	16.4.25.
Persic	Bulman, J. B. ...	H. G. Morgan	No.	White Star ...	Form 911 8.2.25 to 19.6.25 ...	23.6.25.
Peshawur ...	Hester, C. W., R.D., Commr., R.N.R.	D. G. Baillie, E. J. R. North, R. D. Whyte-Mackay.	M.L.	P. & O.	Met. Log. 22.1.25 to 30.5.25 ...	5.6.25.
Pharos ...	Ewing, T. N. ...	A. McLachlan	No.	Northern Lighthouse Board.	Form 911 29.6.25 to 14.8.25 ...	18.8.25.
Philadelphian ...	Baker, J. A. ...	W. T. Godwin	,,	Leyland	,, 14.8.25 to 27.8.25 ...	9.9.25.
Polycarp ...	Evans, T. G. ...	S. E. Adam	,,	Booth	,, 18.7.25 to 12.8.25 ...	16.9.25.
Polyphemus ...	Hatfield, J. ...	R. E. Wilkes	,,	A. Holt	,, 1.2.25 to 23.2.25 ...	25.2.25.
Port Adelaide ...	Hayter S W. ...	E. Catchpole, E. Rogerson, C. Hodson.	M.L.	Commonwealth & Dominion.	Met. Log. 5.2.25 to 11.6.25 ...	17.6.25.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 18.9.25.	Date Received.
Port Albany ...	Robinson, C. A. ...	A. Jenkyns, A. G. Newbury, G. Lovegrove.	M.L.	Commonwealth & Dominion.	Met. Log. 15.11.24 to 1.4.25...	9.4.25.
,, *Auckland* ...	Durham, R. S. ...	R. B. Stannard	No.	,, ,, ,,	Form 911 15.5.25 to 26.7.25 ...	4.9.25.
,, *Augusta* ...	Sawbridge, I. R. ...	G. T. C. Harris, R. C. Carter, C. F. Coate.	M.L.	,, ,, ,,	Met. Log. 6.4.24 to 15.10.24 ...	7.11.24.
,, *Caroline* ...	Renaut, F. A. ...	T. Copeland, E. Fenton, C. Chamberlin.	,,	,, ,, ,,	,, 24.1.25 to 13.6.25 ...	22.7.25.
,, *Curtis* ...	Van den Bergh, C.	W. H. Miles	No.	,, ,, ,,	Form 911 14.12.24 to 25.4.25	2.6.25.
,, *Darwin* ...	Sawbridge, I. R. ...	E. T. N. Lawrey ...	,,	,, ,, ,,	,, 27.6.25 to 5.8.25 ...	16.9.25.
,, *Denison* ...	Ferris, J. ...	W. H. Sadler	,,	,, ,, ,,	,, 26.3.25 to 12.5.25 ...	19.5.25.
,, *Hacking* ...	Williams, R. ...	Rowland Hill	,,	,, ,, ,,	,, 3.11.24 to 17.12.24...	26.1.25.
,, *Hunter* ...	Cottell, S. C. ...	A. Cooper, C. F. Post, J. T. Weldin.	M.L.	,, ,, ,,	Met. Log. 18.10.24 to 2.3.25 ...	9.3.25.
,, *Melbourne* ...	Kearney, F. J. ...	D. G. H. Bradley, J. A. Fairbairn, A. G. Starkey.	,,	,, ,, ,,	,, 26.4.25 to 7.9.25 ...	10.9.25.
,, *Nicholson* ...	Jack, J. ...	... ...	,,	,, ,, ,,	,, ...	...
,, *Pirie* ...	Higgs, W. G. ...	H. C. Jeffery, W. G. Jones, J. T. Nicholson, E. G. L. Jones.	,,	,, ,, ,,	,, 12.2.25 to 29.6.25 ...	11.7.25.
,, *Sydney* ...	Lea, W. H. ...	A. W. Sams, C. Groves, A. M. Stanton.	,,	,, ,, ,,	,, 13.12.24 to 19.5.25...	25.5.25.
,, *Victor* ...	Swan, L. H. ...	E. G. Fullick, W. Howe, W. Renouf.	,,	,, ,, ,,	,, 5.4.25 to 14.8.25 ...	22.8.25.
President Cleveland	Yardley, W. ...	J. E. Murphy...	No.	Pacific Mail S.S. Co....	... ...	...
President Jackson	Griffith, J. ...	E. E. Henry	,,	,, ,, ,,	Form 911 25.5.25 to 25.7.25 ...	17.9.25.
President Jefferson	Nichols, F. R. ...	H. E. Clarke	,,	Admiral Oriental Line	... ...	...
President McKinley	Carey, R. E. ...	L. C. Leeds	,,	,, ,, ,, ...	... ...	...
President Pierce...	January, G. T. ...	A. F. Jones	,,	Pacific Mail S.S. Co....	... ...	...
President Wilson	Nelson, H. ...	... ...	,,	,, ,, ...	... ...	...
Protea, H.M.S.A.S.	Woodhouse, A. F. B., Lt.-Commr., R.N.	F. J. S. Scott-Stokes ...	,,	South African" Naval Service.	Form 911 1.7.25 to 31.7.25 ...	8.9.25.
Pyrrhus ...	Elford, W. J ...	W. Owen	,,	A. Holt	,, 13.5.25 to 1.8.25 ...	6.8.25.
60 *Regina* ...	Smith, R. G. ...	G. W. Couch	W.T.	White Star-Dominion	,, 24.5.25 to 10.7.25 ...	13.7.25.
Reindeer ...	Mulhall, W. ...	... ...	C.C.	G.W. Railway ...	Telegraphic Report. 28.5.25 ...	28.5.25.
Rhodesian Transport.	Fowler, W. H. ...	W. Heritage	No.	Houlder Bros. ...	Form 911 27.3.25 to 28.6.25 ...	6.7.25.
Rimutaka ...	Hemming, F. A. ...	H. Horwood, R. S. Cox, O. M. Watts.	M.L.	New Zealand S.S. Co.	Met. Log. 12.10.24 to 1.4.25 ...	6.4.25.
Risaldar ...	Park, G.	B. Walsh, P. A. Handforth, T. E. Ward.	,,	Asiatic S.N. Co. ...	,, 13.10.24 to 14.4.25...	20.5.25.
Romney ...	Syms, G.	D. Knox	No.	Lamport & Holt ...	Form 911 10.8.25 to 29.8.25 ...	4.9.25.
Rotorua ...	Hunter, J. B. ...	C. A. H. Landfield ...	,,	N.Z.S. Co. ...	,, 27.6.25 to 1.8.25 ...	13.8.25.
Royal Fusilier ...	Dawson, J. ...	J. Fraser	,,	London & Edinburgh S.S. Co.	,, 26.7.25 to 10.9.25 ...	14.9.25.
Royal Transport...	Dove, J.	C. Feaver	,,	Houlder Bros. ...	,, 29.7.25 to 28.8.25 ...	14.9.25.
Ruapehu ...	McKellar, A. W., R.D., Capt., R.N.R.	P. J. Connolly, T. N. Bennett, F. Cooke.	M.L.	New Zealand S.S. Co.	Met. Log. 25.10.24 to 14.3.25...	23.3.25.
Sachem... ...	Westgarth, W. A. ...	C. Waldron, E. Sainty, G. R. Watson.	,,	Furness Withy ...	Form 911 24.12.24 to 20.6.25...	27.6.25.
St. Albans ...	Pilcher, E.	W. McIntyre	,,	Eastern and Australian	,, 10.9.24 to 18.11.24...	19.1.25.
St. George ...	Blair, D., O.B.E., R.D., Commr., R.N.R.	G. H. Blair, R. A. Edwards	,,	Scientific Expeditionary Research Assocn.	Met. Log. 1.5.24 to 10.12.24 ...	1.4.25.
St. Helier ...	Mulhall, W. ...	C. Bell	C.C.	G.W. Railway ...	Telegraphic Report 17.9.25 ...	17.9.25.
St. Julien ...	Langdon, C. H. ...	C. Joy	,,	,, ,, ...	,, ,, 16.9.25 ...	16.9.25.
St. Patrick ...	Bearpark, E. W. ...	J. Hill	No.	Rankin Gilmour ...	Form 911 27.6.25 to 7.8.25 ...	26.8.25.
Salaga	Sola, P., D.S.O. ...	G. E. Dutton	,,	Elder Dempster ...	,, 18.6.25 to 27.7.25 ...	5.8.25.
Samaria ...	Horsburgh, G., O.B.E. R. D., Commr., R.N.R.	D. Macmillan	,,	Cunard	,, 14.8.25 to 3.9.25 ...	7.9.25.
Sandown Castle ...	Jackson, C. R. ...	E. H. de Heaume	,,	Union Castle ...	,, 17.7.25 to 14.9.25 ...	17.9.25.
10 *Saturnia* ...	Mitchell, W. ...	D. Macqueen	W.T.	Anchor Donaldson ...	W.T. Reg. 27.6.25 to 17.7.25 ... / Form 911 27.6.25 to 17.7.25 ...	27.7.25. / 25.7.25.
Saxoleine ...	Biddick, E. ...	B. Johnsen	No.	Hunting & Son ...	,, 28.5.25 to 17.6.25 ...	24.6.25.
Saxon	Owen, S. H. ...	F. O. Wilbraham	,,	Union Castle ...	,, 17.7.25 to 7.9.25 ...	8.9.25.
Saxonia ...	Jones, R. D. ...	H. A. D. Waterhouse ...	,,	Cunard	,, 7.9.24 to 7.10.24 ...	16.10.24.
Scholar ...	McCullum, J. ...	J. D. Grieves	,,	Harrison	,, 1.4.25 to 20.6.25 ...	2.7.25.
Scindia ...	Caithness, J. B. ...	R. S. Paton	,,	Anchor	,, 8.6.25 to 10.7.25 ...	14.7.25.
Scotia	Prichard, S.D. ...	O. W. L. Jones	C.C.	L.M. & S. Rly. ...	Telegraphic Report 17.9.25 ...	17.9.25.
Scottish Bard ...	McDonnell, S. ...	S. W. Watts	No.	Tankers Ltd. ...	Form 911 21.7.25 to 19.8.25 ...	14.9.25.
Scottish Strath ...	French, A. L. ...	W. Black	,,	,, ...	,, 9.11.24 to 14.12.24...	3.1.25.
33 *Scythia* ...	Prothero, W. ...	T. Parry, W. B. Tanner, J. W. Caunce.	W.T.	Cunard	W.T. Reg. 1.8.25 to 20.8.25 ... / ,, 28.8.25 to 15.9.25 ... / Form 911 31.7.25 to 15.9.25 ...	24.8.25. / 18.9.25. / 18.9.25.
Sheaf Spear ...	Whitfield G. A., O.B.E.	W. H. Grisewood, N. Thompson.	M.L.	,, ...	Met. Log. 7.12.24 to 16.7.25 ...	19.8.25.
Sicilia	Davis, H. C., D.S.C., R.D., Commr., R.N.R.	G. C. Bateman	No.	P. & O.	Form 911 17.2.25 to 16.3.25 ...	21.4.25.
Socrates ...	Bibby, A. R. ...	W. E. Jordan	,,	Lamport & Holt ...	,, 14.6.25 to 8.7.25 ...	7.9.25.
Soekaboemi ...	Lap, J.	W. N. de Wijn	,,	Rotterdam Lloyd ...	,, 14.4.25 to 13.5.25 ...	19.5.25.
Somerset ...	Barnett, H. ...	J. J. Youngs	,,	N.Z.S. Co.	,, 27.6.25 to 16.7.25 ...	24.8.25.
Somersetshire ...	De Legh, P. ...	P. Hawkins, R. C. Lietch, M. Simmons.	M.L.	Bibby	Met. Log. 20.3.25 to 21.6.25 ...	4.7.25.
Somme... ...	Spriddell, F. G. ... / Miles, F. R., Commr., R.N.R. ...	K. W. Simpton, H. Chamberlian, V. Hill, C. C. Prosser.	,,	R.M.S.P. Co. ...	,, 16.2.24 to 29.9.24 ...	18.11.24.
Songster ...	Jackson, J. ...	W. Weatherall, W. Wilford, L. Bull.	,,	Harrison	,, 6.3.25 to 16.5.25 ...	29.5.25.
Spectator ...	Richardson, R. ...	D. Fraser, J. G. F. Betson ...	No.	,, ...	Form 911 26.1.25 to 9.4.25 ...	16.4.25.
Spero	French, H. E. ... / Rowntree, G. ...	W. Harbord, R. O. Otley	M.L.	Ellerman Wilson ...	Met. Log. 15.8.24 to 16.5.25 ...	12.6.25.
Stephan C.S. ...	Carlton, G. F., O.B.E., Commr., R.N.R.	F. B. Bolingbroke, W. E. Allen, T. J. Horan.	,,	Telegraph Construction & Maintenance	,, 24.2.25 to 7.4.25 ...	28.4.25.
Stockwell ...	Kershaw, R. W. ...	... ...	No.	Brocklebank ...	... ...	...
Stuart Prince ...	Durrant, G. D. ...	W. C. Freeman	,,	Prince	Form 911 17.6.25 to 29.7.25 ...	4.8.25.
Surrey	Field, H. G. B. ...	C. P. Jackson, C. H. Landfield.	M.L.	Federal	Met. Log. 2.11.24 to 28.3.25 ...	14.4.25.
Sussex	Upton, E. C. S. ...	W. A. Ewington	No.	,, ...	Form 911 28.10.24 to 13.11.24	15.12.24.
Tainui ...	Hartman, W. H. ...	P. S. Horwood	,,	Shaw, Savill & Albion	,, 7.5.25 to 11.6.25 ...	16.6.25.
Tairoa	Summers, W. G. ...	S. A. Bannister	,,	,, ,, ,,	,, 16.4.25 to 31.5.25 ...	8.6.25.

Name of Vessel.	Captain.	Observing Officers.	Official Meteorological Equipment.	Line.	Last Log, Register, or Report Contributed. Received up to 18.9.25.	Date Received.
Tahiti ...	... ...	... ...	No	Union S.S. Co. of N.Z.	Form 911	...
Taiyuan ...	Hamilton, H. E. ... Thomas, R. D. ...	W. Bailley	M.L.	Yuill & Co. ...	Met. Log. 20.12.24 to 5.5.25 ...	6.7.25.
Talthybius ...	Lloyd, R. ...	P. Elder	No.	A. Holt	Form 911 2.7.25 to 16.7.25 ...	11.8.25.
Tanda ...	Pilcher, E. ...	... ...	M.L.	E. & A. S.S. Co. ...	... ...	...
Tambora ...	Huisman, N. ...	H. Van Manen	No.	Rotterdam Lloyd ...	,, 18.6.25 to 6.8.25 ...	22.8.25.
Teiresias ...	Holden, W. R. F. ...	R. S. Young	,,	A. Holt	,, 8.1.25 to 28.1.25 ...	2.2.25.
Teucer	Hodgson, R. N. ...	A. Lightbody	,,	,, ...	,, 15.7.25 to 1.8.25 ...	1.9.25.
Themistocles ...	Jermyn, W. M. ...	W. F. Sargent	,,	Aberdeen	,, 20.6.25 to 30.7.25 ...	4.9.25.
Theseus ...	Batt, A. E. ...	J. T. Fettes	,,	A. Holt	,, 12.8.25 to 31.8.25 ...	9.9.25.
Titan	Wilkinson, T. G. ...	G. Gow, L. Morton, S. C. Tinmouth, F. D. Lovewell.	M.L.	,, ...	Met. Log. 12.11.24 to 14.3.25...	11.5.25.
Tolmie, S.F.Bqtne.	Stewart, J. C. ...	E. F. Collins	No.	B. C. Mills, Tug and Barge Co.	Form 911 1.11.24 to 24.12.24...	2.3.25.
Tottori Maru ...	Matsukura, B. ...	S. Ibori	,,	Nippon Yusen Kaisha	,, 7.9.24 to 13.10.24 ...	20.10.24.
Trematon ...	Evans, B. ...	S. Smith, C. Mayberry, J. Bell.	M.L.	Hain S.S. Co. ...	Met. Log. 21.10.24 to 16.7.25...	11.8.25.
Tuscania ...	Bone, D. W. ...	J. W. Cherry	No.	Anchor	Form 911 23.6.25 to 11.7.25 ...	21.7.25.
Tyndareus ...	Slater, H. N. ...	C. Broad, A. C. H. Jones, S. A. Beith.	M.L.	A. Holt	Met. Log. 23.4.25 to 2.7.25 ...	4.8.25.
Ulimaroa ...	Wyllie, W. J. ...	J. Gilbertson	No.	Huddart Parker, Ltd.	Form 911 17.10.24 to 23.11.24	19.1.25.
Ulysses ...	McHutcheon, W. ...	T. R. Phillips	,,	A. Holt	,, 30.5.25 to 7.7.25 ...	19.8.25.
Umvolosi ...	Barnes, E. W. ...	R. L. Jefferson	,,	Bullard King ...	,, 27.6.25 to 26.7.25 ...	24.8.25.
Valacia ...	Doyle, M. ...	N. Grayson	,,	Cunard	Form 911 19.7.25 to 18.8.25 ...	22.8.25.
Valdura ...	Mitchell, A. ...	H. J. Maughan, J. Anderson, A. M. S. Well.	M.L.	Gow Harrison ...	Met. Log. 19.6.24 to 20.11.24...	8.12.24.
Vardulia ...	Murchie, P. A., R.D., Commr., R.N.R.	A. Bridgewater	No.	Cunard	Form 911 15.8.25 to 27.8.25 ...	31.8.25.
Vasconia ...	Inch, F.	L. Hunter	,,	,, ...	,, 15.6.25 to 24.6.25 ...	10.7.25.
Vellavia ...	Fear, E. T. C. ...	J. E. Deans	,,	,, ...	,, 26.3.25 to 6.4.25 ...	14.4.25.
Ventura de Larrinaga.	Keay, W. S. ...	H. J. Kay	,,	Larrinaga	,, 3.12.24 to 28.3.25 ...	19.5.25.
Verbania ...	Pooley, T. S. M. ...	J. G. Wiseman	,,	Cunard	,, 23.5.25 to 26.6.25 ...	29.6.25.
Verentia ...	Jones, R. D. ...	A. F. Watts	,,	,, ...	,, 6.7.25 to 12.8.25 ...	18.8.25.
Vigilant	Simpson, E. S. S. ...	J. Hunter	,,	Scottish Fishery Board	,, 22.7.25 to 9.9.25 ...	14.9.25.
Waiotapu ...	Davey, A.	R. N. Turner.	,,	Canadian-Australasian	,, 18.5.25 to 21.8.25 ...	14.9.25.
Walmer Castle ...	Kerbey, J. H. ...	H. A. Deller	,,	Union Castle ...	,, 10.7.25 to 31.8.25 ...	14.9.25.
Wangaratta ...	Scutt, W. ...	T. W. Wordingham, W. C. Cripps, K. M. Morrison, N. A. Pope.	M.L.	British India ...	Met. Log. 21.1.25 to 19.7.25 ...	20.7.25.
Warfield ...	Steel, R.	H. Coffey	No.	,, ,, ...	Form 911 16.3.25 to 28.5.25 ...	8.6.25.
War Nizam ...	Moncrieff, R. ...	D. Beaumont	,,	British Tankers ...	,, 13.8.25 to 27.8.25 ...	15.9.25.
Welshman ...	Rollerson, W. ...	W. A. Fletcher	,,	White Star-Dominion	,, 31.7.25 to 24.8.25 ...	1.9.25.
Winifredian ...	Harrocks, W. ...	G. P. Boyle	,,	Leyland	,, 9.7.25 to 11.8.25 ...	25.8.25.
Woodarra ...	Reilly, J. V. ...	L. D. Graham, G. Hyland ... L. C. Comber, J. Wallace.	M.L.	British India ...	Met Log. 7.3.25 to 19.8.25 ...	26.8.25.
Yorkshire ...	Millson, G. C. ...	E. E. Jones	No.	Bibby	Form 911 23.5.25 to 2.8.25 ...	4.8.25.
Zeeland ...	Thomas, A. J. ...	W. N. Jenkins	,,	Red Star	,, 14.8.25 to 4.9.25 ...	7.9.25.
Conway H.M.S.	Broadbent, H. W., R.D. Capt., R.N.R.	The Senior Cadets... ...	Cadets' M.L.	... ...	Cadets' Met. Log. 3.5.25 to 25.7.25	31.7.25.
Pangbourne Nautical College.	Tracy, A. F. G., Commr., R.N.	,, ...	,	... ...	Cadets' Met. Log. 10.5.25 to 24.7.25	30. 7.25.
Worcester, H.M.S.	Sayer M. B., O.B.E., R.D., Capt., R.N.R.	,, ...	,,	... ...	Cadets' Met. Log. 8.5.25 to 29.7.25	3.9.25.
Abaco	... ...	The Keepers	Lighthouse Register.	... ...	Lighthouse Register 7.7.24 to 14.1.25	9.3.25.
Cay Lobos ...	... ...	,, ...	,,	... ...	Lighthouse Register 1.7.24 to 31.12.24	9.3.25.
Double Headed Shot	... ...	,, ...	,,	... ...	Lighthouse Register 1.7.24 to 31.12.24	9.3.25.
Inagua... ...	... ...	,, ...	,,	... ...	Lighthouse Register 11.7.24 to 18.1.25	9.3.25.
Sombrero ...	... ...	,, ...	,,	... ...	Lighthouse Register 1.1.25 to 30.6.25	7.8.25.
Watling Island ...	... ...	,, ...	,,	... ...	Lighthouse Register 1.7.24 to 30.12.24	9.3.25.
Cape Pembroke (Falkland Is.).	... ...	,, ...	,,	... ...	Lighthouse Register 1.1.25 to 30.6.25	9.9.25.

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

Name of Vessel.	Captain.	Observing Officer.	Line.	Last Case of Water Samples, Reports, etc., Received up to 31.8.25.	Date Received.
Herschel	Davis, T. J.	T. Lester Guy	Lamport & Holt ...	Water Samples	...
Hildebrand	Maddrell, J.	H. Welch	Booth	,, ,, ...	30.6.25.
Holbein	Gough, W. A.	G. P. Kitto	Lamport & Holt ...	,, ,, ...	15.8.25.
Manzanares	Henderson, J. N. ...	H. E. Lees	Elders & Fyffes ...	,, ,, ...	15.8.25.
Miami	Makepeace, S.	H. H. Dunning ...	,, ,, ...	,, ,, ...	27.7.25.

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