

VOL. IX. No. 106.

THE MARINE OBSERVER.

OCTOBER, 1932.

TABLE OF PRINCIPAL CONTENTS.

	PAGE	
World Tonnage and Marine Meteorology	179	Lithographic Illustrations after page 196 :—
“The Marine Observer” and the Future of the Work	180	Chart XI—Ships’ Wireless Weather Signals.
The Marine Observers’ Log (with illustrations)	181	
London River and the Port Meteorological Office	185	Wind for the region adjacent to S.W. Approaches to Great Britain— October.
Weather Signals :—		
Wireless Stations detailed to receive Routine Coded Weather Reports from “A Selected Ships”	189	Wind, Fog, Mist and Weather for the region N.E. and S.W. of Panama Canal— October.
Wireless Stations detailed to intercept Routine Coded Weather Reports from “B Selected Ships”	191	
Australia, New Zealand and S. Pacific Islands	193	

WORLD TONNAGE AND MARINE METEOROLOGY.

LLOYDS REGISTER of Shipping for 1932-1933 has just been published, and it is necessary to revise the Table which appears on page 14 of the January 1932 number, given in the scheme for working Selected Ships.

The British proportion of the world’s tonnage has been reduced by about seven thousandths, Canadian and Dutch by about two thousandths and German by about one thousandth; while the proportion of the world’s tonnage upon the register for South Africa, China, Danzig, Denmark, France, Greece, Italy, Norway, and Russia have all slightly increased.

Accordingly the number of Selected Ships of different nations requires adjustment, and the Table overleaf gives the exact numbers, as well as the tonnage and number of ships of each nation.

In accordance with the agreement reached through the International Meteorological Organization at Copenhagen in 1929, for the carrying out of the services undertaken in Article 35 of the Convention for Safety of Life at Sea, the number of British Selected Ships will be reduced from 306 to 299 on September 7th, the day this number is to be published.

**Total Merchant Tonnage approximate (Steam and Motor)
of the World**

(Vessels over 100 tons, Lloyds Register Book, 1932-33)

**and Number of Selected Ships required for making
W.T. Weather Reports,
in all Oceans, World Wide.**

Country.	Steamers and Motor Vessels.		Percentage of World Tonnage.	Number of "Selected Ships" required.	Number of Ships fitted for C.W. Long Wave Transmission (June, 1932).
	Number	Gross Tons.			
Great Britain and Ireland.	7,592	19,562,143	29.9	299	192
Australia and New Zealand.	569	639,734	1.0	10	—
Canada (excluding Lakes).	638	950,846	1.4	14	23
Hong Kong ...	117	260,950	0.4	4	—
India and Ceylon	154	185,584	0.3	3	1
South Africa and Other Colonies*	535	509,341	0.8	8	3
British Empire Total.	9,605	22,108,598	33.8	338	219

* Including Dominion of Newfoundland.

Country.	Steamers and Motor Vessels.		Percentage of World Tonnage.	Number of "Selected Ships" required.	Number of Ships fitted for C.W. Long Wave Transmission (June, 1932).
	Number.	Gross Tons.			
America (United States)(excluding Lakes).	2,812	10,374,720	15.8	158	411
Argentina ...	304	312,485	0.5	5	1
Belgium ...	237	533,014	0.8	8	9
Brazil ...	296	491,647	0.7	7	10
Chile ...	108	174,497	0.3	3	3
China ...	244	369,396	0.6	6	—
Danzig ...	46	287,071	0.4	4	—
Denmark ...	702	1,171,275	1.8	18	26
Finland ...	233	262,530	0.4	4	1
France ...	1,518	3,507,525	5.4	54	25
Germany ...	2,135	4,142,920	6.3	63	44
Greece ...	551	1,470,064	2.2	22	—
Holland ...	1,424	2,957,195	4.5	45	26
Italy ...	1,091	3,331,304	5.1	51	73
Japan ...	1,964	4,255,014	6.5	65	233
Jugo-Slavia ...	185	381,045	0.6	6	—
Latvia ...	106	187,238	0.3	3	—
Norway ...	2,001	4,163,836	6.3	63	15
Panama ...	43	137,741	0.2	2	2
Portugal ...	172	245,005	0.4	4	15
Russia (Soviet Union).	446	682,143	1.0	10	11
Spain ...	793	1,250,128	1.9	19	22
Sweden ...	1,353	1,691,253	2.6	26	3
Turkey ...	189	178,053	0.3	3	—
Other Countries	668	833,671	1.3	13	5
Total ...	29,226	65,499,368	100.0	1,000	1,154

THE MARINE OBSERVER AND THE FUTURE OF THE WORK.

FROM the January 1933 number, THE MARINE OBSERVER will be published quarterly instead of monthly; and there will be a Monthly Supplement.

The quarterly numbers will be known respectively as the **January, April, July, and October** numbers, and will be numbered in sequence as hitherto.

THE MARINE OBSERVERS' LOG in each number will contain a selection of remarks, and reproductions of photographs, sketches and charts for each month of the quarter. As far as possible seasonal information will be published in the appropriate number. In fact the general plan of THE MARINE OBSERVER will not be altered; and though the number of pages in each yearly number will be somewhat reduced, we hope that the quality of the information will be maintained and indeed improved by this pruning.

Before THE MARINE OBSERVER was established, much of our time was spent in acknowledging the work of marine observers by letters to the Captains of observing ships. This correspondence grew to such an extent that we could not cope with it adequately without sacrificing one of the main purposes of the Marine Division, that is, to extract observations and compile and publish information therefrom.

The monthly publication of the Fleet List of Voluntary Observing Ships, with the acknowledgments published therein, "Work of the Year" in THE MARINE OBSERVER, and the Port Meteorological Officers and Agents, greatly relieved this pressure of correspondence.

The improved organization of the observing fleet, the system of notification of classification by post-card, and the Port Meteorological Officers and Merchant Navy Agencies render it possible to acknowledge written returns from observing ships only once in every three months; and the publication of the Fleet List four times instead of twelve times a year will give great relief to the Marine Division. Why this relief is necessary we will deal with later.

Alterations in the observing fleet, that is, the names of ships dropping out, or ships taking on regular voluntary duties as observing ships, will be notified *monthly* in the Supplement, also the changes of "Selected Ships."

This Supplement is in fact the present sheet known as the Ice Chart of Western North Atlantic. By means of this Supplement, the monthly publication of information of ice in the North Atlantic, Track Convention routes, reports of derelicts, notices to marine observers, and corrections or addenda, will be continued monthly.

The monthly supply of forms to observing ships will be continued monthly with the quarterly numbers of THE MARINE OBSERVER and the monthly Supplements.

The quarterly numbers and supplements will be published on the last Wednesday of the month previous; that is the January number will be published on the last Wednesday in December, and so on.

In reviewing the work of last year in the June number we said:—

"A scheme which has long been in existence in the Marine Division for preparing sufficient observations collected in Meteorological Logs since 1855 to complete the charting of all oceans has been crystallized. With the observing fleet reduced by one quarter, collection of data has been reduced considerably so that less clerical work is involved on that side and more is being done in *extracting* data. The system of charting the currents in THE MARINE OBSERVER, and from these section charts producing atlases, continues. At the end of two years, progress will be reviewed and if the financial position justifies it is intended to take the necessary steps to procure additional temporary clerks to complete extraction within a reasonable period, after which the permanent staff of the Marine Division will be in a position to make the necessary computations and complete the survey of the oceans.

Other changes are under consideration which it is hoped will also ease the position and help towards extracting data."

The conversion of THE MARINE OBSERVER from a monthly to a quarterly review of the Marine Division in co-operation with voluntary Marine Observers is the last of the "other changes" which we then referred to, and we are confident that we can rely upon the support of Marine Observers in all these changes for the following reasons:—

No less than 1,190,000 sets of observations of wind, air temperature, humidity, cloud amount, weather, and sea temperature, with position, time, and date, which have never been extracted from Meteorological Logs kept between 1855 and 1920 in ships in the North and South Pacific and the North Atlantic oceans must be punched on Hollerith cards before the survey and charting of the climates of the Oceans can be completed by the Marine Division.

Of these some 771,000 observations were made in the Pacific and about 419,000 in the North Atlantic.

Then, to make up arrears of data extraction between 1921 and 1930 we have to code and prepare some 150,000 complete sets of post-war observations.

The sub-committee which examined this matter on behalf of the Meteorological Committee, recommended that the position should be reviewed in two years' time.

Now when the position is reviewed after two years, it will be the progress which we have made in that time in extracting data, as well as the question of finance, which will count. Therefore it is in the interest of every seaman and indeed of everyone, that we should be given not only a fair chance, but every possible facility to engage every possible man of the Marine Division upon extracting weather data and charting the currents.

Of late years the Corps of Voluntary Marine Observers has taken upon itself a fine moral discipline; it works together almost as one man, and our work of supervising the work in the great field of observation at sea is made lighter.

It is only necessary therefore to say to Marine Observers—continue to follow the guidance given you in the pages of this journal and in the MARINE OBSERVER'S HANDBOOK, and the advice of the Port Meteorological Officers and Merchant Navy Agents, who are kept informed week by week of "departures from desired procedure."

All those ashore who desire Marine Meteorological information will greatly assist us, if before calling upon the Marine Division to supply information, they will consult what is already published. Much time has been occupied in the past in answering enquiries, many of which would not have been made had the enquirer referred to the literature on the subject.

Past failure to extract all the necessary data to provide published information of climate for all parts of the oceans covered by the trade routes has been largely due to efforts continually made to satisfy enquirers for the time being by piecemeal methods.

This scheme is a renewed attempt to provide information of climate of the whole of the oceans, for the future; and if it is to succeed, not only does it mean a concentrated effort by the Marine Division, but also that others should assist by forgoing, as far as possible, for some years information regarding particular parts of the oceans.

The spirit of Article 35 of the International Convention of Safety of Life at Sea, which is now embodied in the Merchant Shipping (Safety and Load Line Conventions) Act the opening sentence of which reads—"The Contracting Governments undertake to encourage the collection of meteorological data by ships at sea, and to arrange for their examination, dissemination, and exchange in the manner most suitable for the purpose of aiding navigation," requires that this finest collection of marine meteorological data in the world should be worked up, and made available for the purposes of navigation.

The value of such information to aerial navigation, and all that meteorology serves, is beyond dispute.

Indeed if the Marine Division is to do justice to all those seamen who have carried out the work since it was commenced by ADMIRAL FITZROY, and fulfil its original purpose, this work for the next two years must have prior claim.

Some years ago we spoke in this journal of the wish expressed by many seamen, and the undoubted need for a simple handbook or manual for the merchant navy, upon the wind systems, storms, currents, floating ice, fog, law of storms, and the practical application of this knowledge, in language which is natural for those for whom it is intended.

Much of the requisite information has been published in THE MARINE OBSERVER, but it requires to be abridged or adapted.

We have permission to compile such a book, but up to the present, the pressure of other official duties in the Marine Division during the abnormal times through which we have been passing, has not only prevented the necessary time being devoted to this work, but has also rendered impossible that concentration which is necessary to compress much information into a small compass.

The relief given by the quarterly publication of THE MARINE OBSERVER may make it possible to prepare this book, and will also help to enable us to provide the necessary cartographers for making the charts when the time comes.

The "Selected Ship" service being now well established should be the means of giving immediate aid to navigation. The Port Meteorological Officers' principal duties are now to give guidance to Marine Observers in the development of this work at sea, from which the whole merchant navy may benefit.

MARINE SUPERINTENDENT.

London,

June 29th, 1932.

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.

CURRENT.

Off Brazil.

THE following is an extract from the Meteorological Record of S.S. *Highland Chieftain*, Captain R. H. ROBINSON, South America to United Kingdom. Observer, Mr. W. J. PRESLAND, 3rd Officer.

Approaching Boi Point, Latitude 23° 58' S., Longitude 45° 15' W., from westward on October 26th, 1931. Wind W.S.W. Force 3. Heavy S.W. swell at the time. A current was experienced setting East at about 1½ knots. On rounding Boi Point, the current set about E.N.E. at first at the rate of 3½ knots, then at 3 knots until abeam of Victoria Island. Here the current became reduced until conditions were practically normal again.

It has been noticed on previous voyages that in this locality, with a S.W. wind and swell, a strong current runs towards N.E., often setting the vessel to the northward of the limiting arc of visibility of the light. The current appears to reach its maximum strength between Boi Point and Victoria Island, and generally sets about N.E., though quite frequently it sets more to the Northward than to the Eastward.

TIDE RIP.

West Coast of Africa.

THE following is an extract from the Meteorological Record of S.S. *Dramatist*, Captain A. J. MEEK, England to Cape Town. Observer, Mr. I. W. PAGE, 3rd Officer.

October 21st, 1931, at 8.50 p.m. A.T.S., vessel crossed fierce tide rip extending in E.S.E.-W.N.W. direction, width 400 yds. (approx.), length 3 miles (approx.). Ship's head fell off $1\frac{1}{2}$ points to southward and three turns of starboard helm were required to bring her back to her course. Surface of water in rip markedly disturbed in comparison with rest of surface. Vessel had been passing through area of small rips from noon 21st and set and drift for 24 hours previous was 034° 16 miles and for 24 hours from October 21st to October 22nd was 323° 15 miles.

Temperature sea surface 82° F., temperature 16 feet below surface 81° F., Air 85° F. Light S.E. airs and slight sea, long low S'yly swell.

Position of ship, Latitude $10^{\circ} 14' N.$, Longitude $16^{\circ} 44' W.$ True course 143° . Speed 10.75 knots. D.R. position puts vessel 2 miles outside 100 fathom line.

SOUND TRANSMISSION IN FOG.

Nova Scotia.

THE following is an extract from the Meteorological Record of S.S. *British Lantern*, Captain P. M. PENTON, Montreal to Port Arthur, Texas. Observer, Mr. T. SNOWLING.

October 6th, 1931, after passing through the Gut of Causo the vessel's position was accurately fixed off the Cerberus Shoal buoy and almost immediately afterwards fog shut down, thick with dense patches.

Vessel passed $2\frac{1}{2}$ miles South of Green Island, but the fog diaphone was only heard once, abaft the beam, and only one blast in place of three.

The whistle buoy off Causo head was not heard nor any of the fog signals on the mainland.

A northward bound steamer was heard twice, just south of Causo Head, and from points before the beam and once two points abaft. Her whistle was very audible and her position to the eastward.

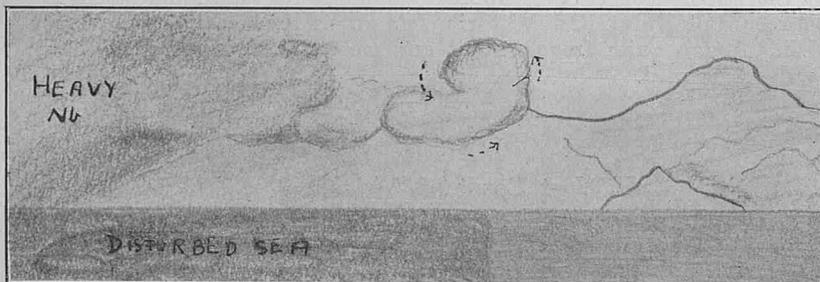
Time 0950-1130 G.M.T., wind S.W., force 4.

SQUALL.

Off Rio de Janeiro.

THE following is an extract from the Meteorological Record of S.S. *Desna*, Captain G. F. HUFF, Rio de Janeiro to Liverpool. Observers, Messrs. H. E. SANG, 3rd officer, and J. E. PARDOE MATTHEWS, 4th officer.

October 20th, 1931, leaving Rio de Janeiro, previous weather in harbour, fine and clear, part cloudy and hot, shade temperature 90° at 16.00, light airs. On clearing harbour observed a heavy bank of Nimbus, West. Weather at the time calm, light Cu-Nb (Mod. High) moving from eastward. The storm overhauled us very quickly, about 40 miles in an hour and a half, and was preceded by a long narrow belt of cloud. This stretched north and south from the southern horizon to the mountains and was revolving rapidly, and this formed a distinct wall of atmospheric disturbance, the sea beneath being choppy, and also distinct from the calm ahead of the storm. Soon after this wall of advancing wind had passed, rain commenced with vivid lightning and heavy thunder. The visibility was very moderate at times during torrential rain with fierce wind squalls; the wind easing to force 3 about midnight and rain continuous but moderating, sky clearing.



WHIRLWINDS.

Californian Waters.

THE following is an extract from the Meteorological Log of S.S. *Empire Star*, Captain G. OWEN, San Pedro to Seattle. Observer, Mr. R. M. THORNE.

October 1st, 1931, at 8.25 a.m. Observed bearing West true a line of five whirlwinds appearing similar to small waterspouts in formation, moving rapidly across the bow from the sea, one of which passed over the after part of the vessel, lifting small loose objects off the deck; this whirlwind was revolving in an anti-clockwise direction. The surface of the sea was in a very disturbed state, large quantities of spindrift being swept up into the air. Heavy nimbus clouds were observed overhead with continuous forked lightning. 8.30 a.m. the wind was E.S.E., force 3, veering suddenly through S.W. and N. to E.N.E., force 9, the barometer reading 1014.3 mb., a drop since 8 a.m. of 3.1 mb. The waterspouts disappeared at 8.40 a.m., barometer 1017.1, wind north, force 2. The air seemed to be travelling in channels, some hot and some cold. At 8.45 a.m., temperature dry 77° F., wet 63° F., barometer 1017.0 mb., wind north, force 2. At 8.50 a.m., temperature dry 79° F., wet 66° F., wind veered quickly to W.S.W., force 2, and clouds appeared to rise. At 9.00 a.m., barometer 1017.3 mb., temperature dry 78° , wet 66° . The wind during the morning watch veered twice round the compass. 1st 10.00 to 10.30 a.m., 2nd 11.45 to 11.55 a.m., barometer steady. There was rain during this disturbance. This miniature cyclonic-like disturbance was broadcast as having passed over Los Angeles later in the day, doing considerable damage.

Position of ship, Latitude $33^{\circ} 56' N.$, Longitude $118^{\circ} 54' W.$

METEOR.

Gulf of Aden.

THE following is an extract from the Meteorological Record of S.S. *Mongolia*, Captain H. R. RHODES, Aden to Perim. Observer, Mr. H. LEE, 3rd Officer.

October 27th, 1931, at 6.21 p.m. A.T.S., observed a peculiar luminosity in the direction of Perim Island, or slightly to the Southward. True bearing West, altitude 35° to 36° .

The sun had dipped at 5.50 p.m., and there was still a tinge of twilight to the westward, but below the luminosity mentioned above. There were no clouds in the sky at the time, nor had there been any for the previous 24 hours. The phenomenon was visible until 6.30 p.m., and during the nine minutes it was visible, several sketches were obtained, three of which are enclosed herewith.

Both the Commander and the 2nd Officer, who were on the bridge at the time, could offer no explanation for this light, nor could several others who have had meteorological work experience over a period of years, but upon arriving at Port Sudan, the Marine Observer was received for November, and in it we read of the meteoric shower viewed by the S.S. *Transylvania*, on November 17th, 1930, and there seems to be little doubt that this is a similar luminosity, even to the shining globules of matter plainly observed through a telescope. The constellation of Ophiuchus was the limit of the spiral and the direction varied only a few degrees during the whole observation of nine minutes.

Ship's position, 20 miles due South of Mt. San Antonio (Jebel Kharaz).

Note.—This appears likely to have been the trail left by a bright meteor which in certain cases does remain visible for a considerable time.



1821 A.T.S.



1825 A.T.S.

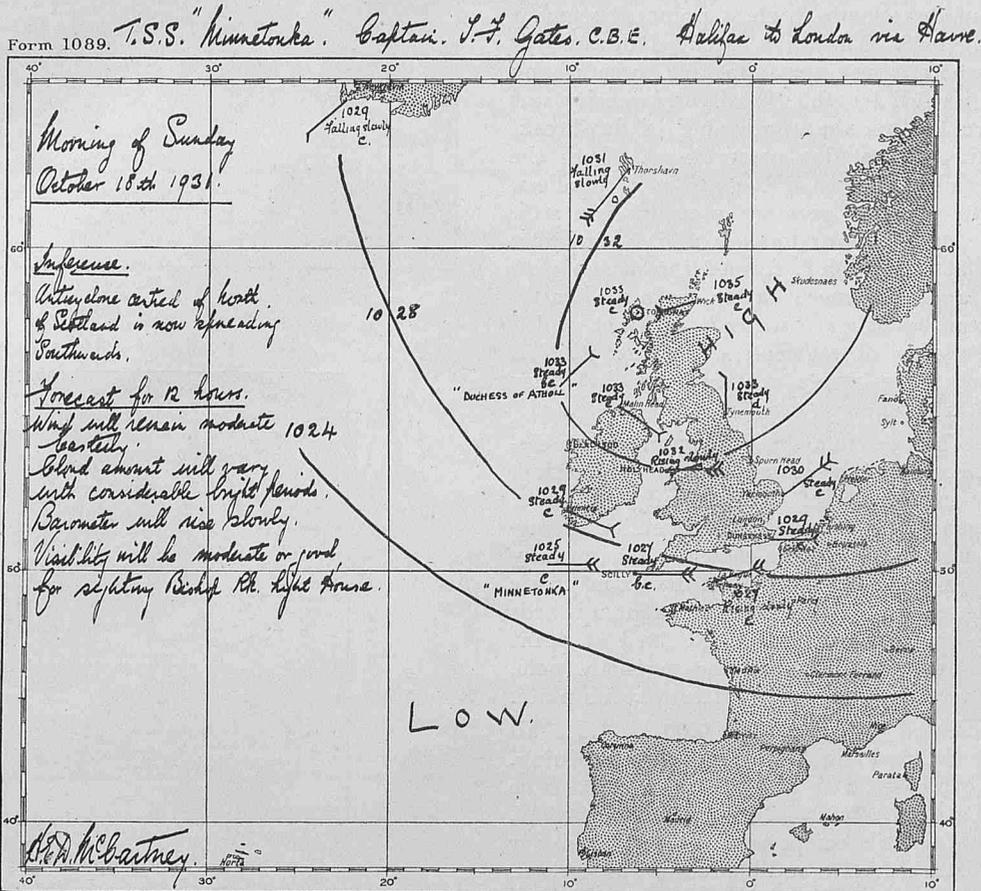


1830 A.T.S.

WEATHER CHART MADE AT SEA.

Eastern North Atlantic.

Weather chart made at sea on board S.S. *Minnetonka*, Captain T. F. GATES, C.B.E., Halifax to London, by Mr. H. E. D. McCARTNEY, 5th Officer.



AURORA.

North Atlantic.

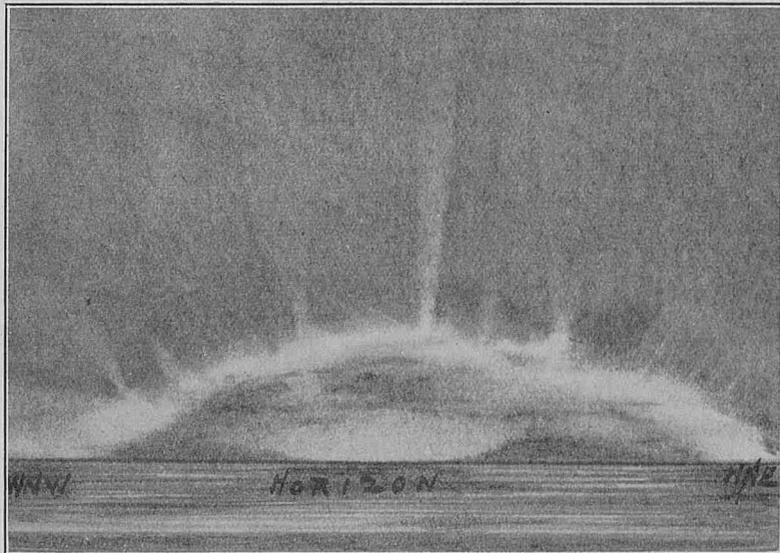
The following is an extract from the Meteorological Record of S.S. *Minnewaska*, Captain F. CLARET, C.B.E., London to New York. Observer, Mr. E. PENGELLY, 4th officer.

October 12th, 1931, at 8.00 p.m., in Latitude 49° 43' N., Longitude 18° 30' W., the aurora was seen in the form of an arch, and resembling a high dawn, growing from a glimmer to that of the opening of day.

The light spread over the horizon from W.N.W. to N.N.E. true, and at midnight darting rays of light were thrown across the sky similar to those of a searchlight, only of moderate to faint lustre. This continued with varying brightness until 1.00 a.m., Tuesday 13th, when it slowly disappeared behind cumulus clouds which loitered in the vicinity.

The ship's position was then Latitude 49° 42' N., Longitude 20° 15' W. The weather was fine, and the wind having decreased from strong N.N.W. to gentle westerly airs was still backing.

The accompanying sketch shows how the arc of auroral light and its rays appeared shortly after midnight.



The following is an extract from the Meteorological Record of S.S. *Tuscania*, Captain W. B. ROMÉ, Glasgow to New York. Observer, Mr. J. NOBLE, 3rd Officer.

October 13th, 1931, 0.45 a.m. (G.M.T. 0245), Latitude $54^{\circ} 11' N.$, Longitude $28^{\circ} 21' W.$ Sky previously clouded with cumulus clouds, breaking up, brilliant aurora display became visible. A segment of light appeared bearing 270° through 000° to 045° , the extremities of which were concealed by cumulus clouds, highest point of segment having $20\frac{1}{2}^{\circ}$ altitude, bearing 015° . The light extended downwards to within 3° of the horizon where it met what appeared to be a bank of stratus clouds extending its full length. The light intensity was such as to give the northern horizon the appearance of day-break, making it possible to obtain good stellar observations. With the exception of the clouds already mentioned, the sky was cloudless, and there was no moon. The point of greatest intensity bore 290° . About 5° from western extremity (approximately 275°) there were four stationary rays, which at 0300 G.M.T. formed into a fan with common centre bearing 275° and commenced darting into the zenith. From 0245 G.M.T. horizontal bands or "waves" of light rolled into the zenith from upper edge of segment, extending its full length. The speed at which these waves rose, varied, but they appeared to average 5 to 10 a second.

0305 G.M.T., Cumulus clouds rose from the S.W., concealing display. 0315 G.M.T., sky cleared revealing same conditions existing. 0330 G.M.T., in addition to movements of light already described, horizontal rays appeared, emanating from either extremity of segment. They partook of two motions, e.g. from the ends, horizontally inwards to a point bearing approximately 333° (vicinity of magnetic pole), on reaching which, the ends next this bearing swept upwards into the zenith whilst their opposite ends remained fixed at point of issue. As one ray reached the vicinity of the magnetic pole, and commenced to sweep upwards another shot out to take its place.

0400 G.M.T., display decreased in intensity. 0500 G.M.T., all movement of light ceased, diffused light of segment remaining. 0530 G.M.T., sky became overcast with alto-stratus clouds from W.S.W. Position of ship, Latitude $53^{\circ} 59' N.$, Longitude $29^{\circ} 36' W.$ Colour of aurora, white. Magnetic compasses were watched for deflection, but remained undisturbed. No audible sound was noticed, and enquiry from the wireless-room revealed that "atmospherics" were normal for the time of the year.

Prevailing weather throughout above period:—Wind S.W.5, tending to back and freshen. Barometer 1022.2 mb., falling at increasing rate. Air 54° . Sea 54° . Sky cumulus 2/10. Swell—confused (west and S.W. 4).

WATERSPOUT. South Australia.

THE following is an extract from the Meteorological Record of S.S. *Barrabool*, Captain J. S. SHEEPWASH, Plymouth to Brisbane, via Suez. Observer, Mr. F. N. MOSEY.

October 17th, 1931, at 1435 S.T. a waterspout was observed bearing S.W. by S. (T.), moving in an E.N.E'y direction, accompanied by a heavy squall of rain, and hail. The cloud from which it projected was heavy, loose and ragged Nimbus. The spout had a slight curvature which became more pronounced on approaching the land, where it finally burst. The collapse was very rapid, the spout disappearing in a few seconds, showing that violent air currents were in force over the land. Figures 1, 2 and 3, illustrate the observations.

Barometer 30.198 in. Temperature, Air $48^{\circ} F.$, Sea 59° .

Position of ship, Cape Jervis Lt. House bearing 161° dist. $3\frac{1}{2}$ miles, ship's course 202° .



Figure 1.

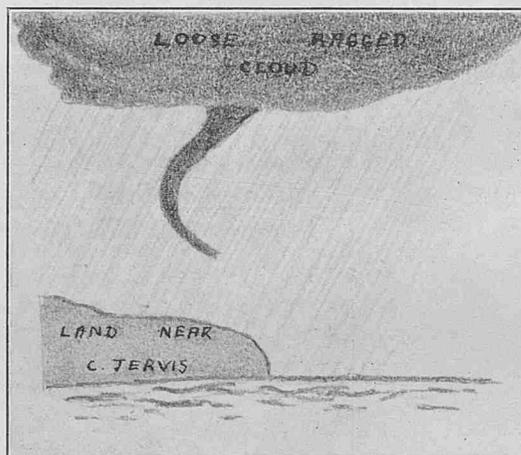


Figure 2.

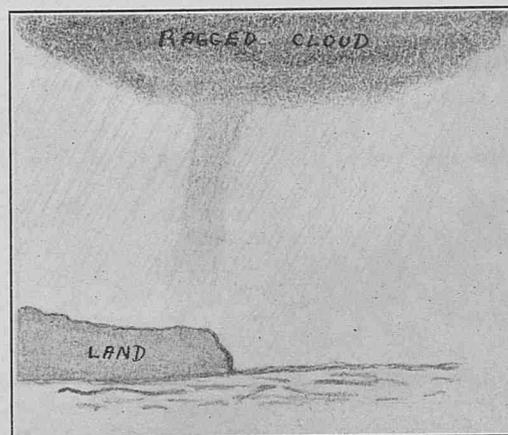


Figure 3.

MAGNETIC DISTURBANCE. Western Australia.

THE following is an extract from the Meteorological Log of S.S. *Australia*, Captain W. SCUTT, Liverpool to Fremantle via Cape of Good Hope. Observer, Mr. L. W. SMITH, Chief Officer.

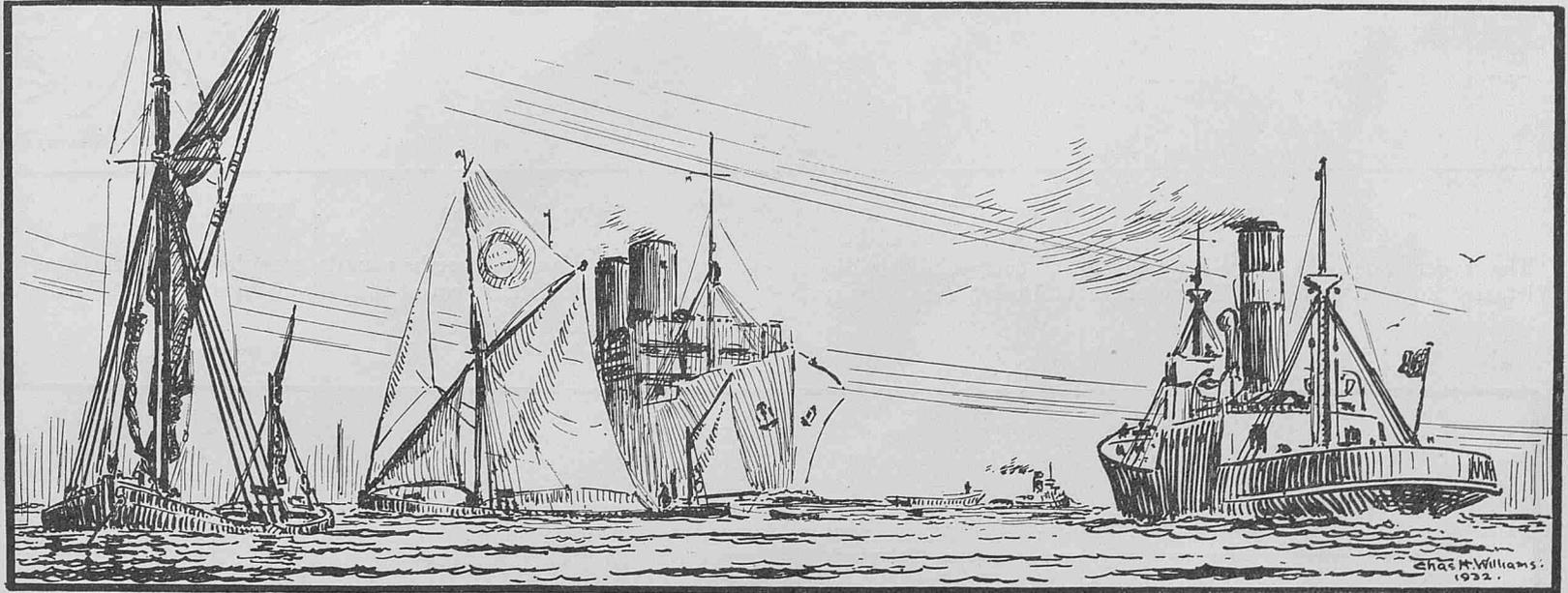
October 14th, 1931, while approaching Fremantle (04-08 Watch) from the westward abnormal magnetic disturbance was experienced with Standard and Steering compasses (Kelvin Dry Card) swinging about 12° each side of course. Average period of vibration was about 10-12 seconds. Vessel was about two miles north of Rottnest Island.

LONDON RIVER AND THE PORT METEOROLOGICAL OFFICE.

PREPARED BY C. H. WILLIAMS, PORT METEOROLOGICAL OFFICER.

LONDON RIVER is the World's greatest sea-port, and nowhere is one likely to see a greater variety of ships, large and small. Many readers of THE MARINE OBSERVER are no doubt well acquainted with the River, and I am sure they will agree that it has many interesting features. Certainly the Thames has played an important part in

the history of London, and indeed, of England, having been a great trading centre since the days when the Romans were here. All kinds of Maritime ventures and expeditions have sailed from here in days gone by, many commanded by famous seamen.



Nowadays Merchant ships from all parts of the World call here, and it is the home port of the vessels of many great shipping companies. Some idea of the enormous trade of London River is obtained from the fact that during 1931 over fifty-six million tons net of shipping used the Port. The docks and wharves are under the control of the Port of London Authority, whose "territory" extends from Teddington to the Nore, about sixty-five miles of river. From St. Katherine's Dock, near the Tower of London, to Tilbury Docks is a distance of about twenty-five miles, and beyond Tilbury are the great oil wharves at Thameshaven. A large transshipment trade is carried on, and sailing barges and coastal craft are always to be seen. The brown-sailed spritsail barge has been a feature of the River for generations, as can be seen by old prints and drawings.

Both in the days of sail and nowadays knowledge of probable changes in the weather has been a matter of the utmost importance to all who are connected with the shipping industry. A considerable number of British "deep water" ships have for years observed regularly for the Meteorological Office, some with official instruments lent for the purpose, and some using their own instruments, and a great mass of weather data has been collected. Some old established shipping companies have been associated with the collection of Meteorological data by their ships ever since organized Marine Meteorology by a department of the British Government was started in 1854, after the International Conference held that year at Brussels.

It is remarkable, considering the importance of knowledge of the winds and currents of the World to the seamen and merchants of this and other great ports, that no really systematic collection of weather data over all the oceans was undertaken until about the middle of the nineteenth century, and that for hundreds of years

previously the weather knowledge and experience of navigators had, as a rule, died with them.

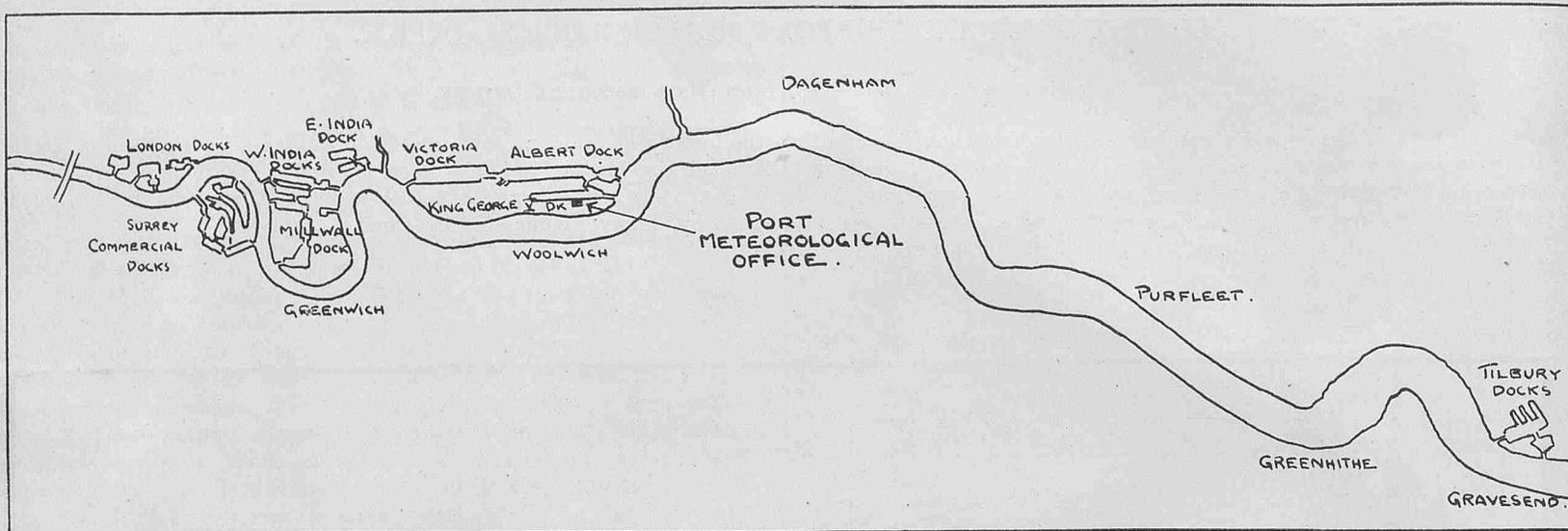
The continuous collection for the last seventy-five years of weather and current data over all the oceans, by the voluntary efforts of British seamen to improve knowledge of the seas for navigation, is a monumental piece of work.

The decrease in the number of ships "Posted Missing" at Lloyds in recent years, is, of course due to the use by seamen of the many scientific aids to navigation, of which a knowledge of probable weather and ocean current conditions to be encountered must have played some part.

Shortly after the International Convention on Safety of Life at Sea, held in 1929, the British Meteorological Office decided to establish a Port Office at the London Docks, similar to the one started in Liverpool in 1921, and like that office, with a seaman in charge. In March, 1930, the writer of these notes left the sea, where he had been in the service of the Union-Castle Line, and was put in charge of the Port Meteorological Office a month later, after a short course of instruction at the Air Ministry.

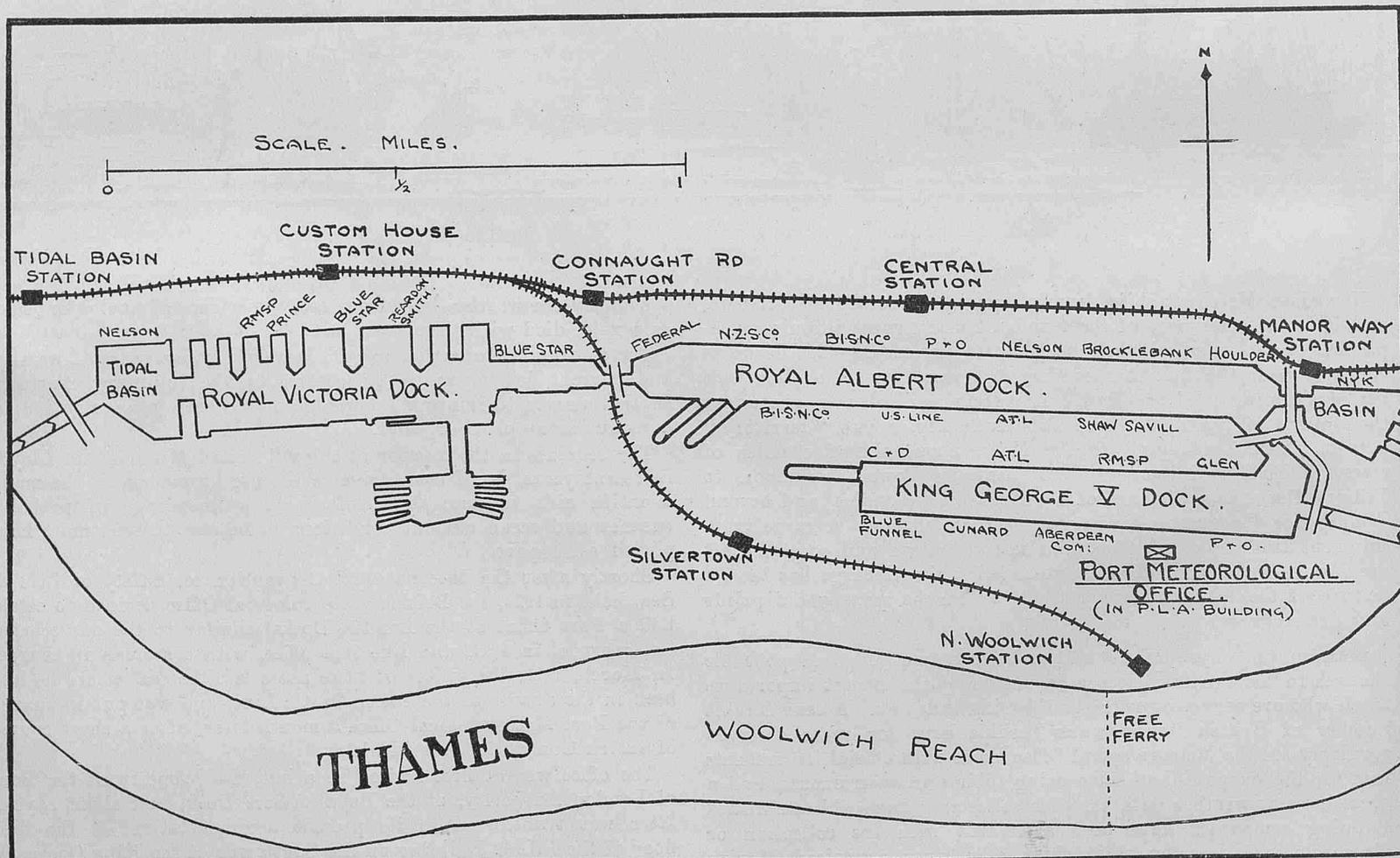
The office was at first housed in a hut, the property of the Port of London Authority, at the Royal Albert Dock, and about a year later was transferred to its present accommodation on the first floor of the P.L.A. Building on the South side of the King George V Dock. Thus ship's Captains and Officers interested in "Weatherology" (as the late Captain LECKY called it in his "Wrinkles in Practical Navigation"), have a branch of the Marine Division of the Meteorological Office situated at the Docks, and easy of access, and close touch can be kept between the Meteorological Office and the ships that do the voluntary observing.

Below is a small scale plan of the Thames from London Bridge to Tilbury, from which it can be seen that the Office is centrally situated for its work.



The larger scale plan of the Royal group of docks (i.e., the Royal Victoria, Royal Albert, and King George V. Docks) shows the posi-

tion of the Office and the berths usually occupied by the ships of the various Companies. The nearest Railway Station is North Woolwich.



The Port of London Authority, as well as arranging the accommodation, have granted facilities for my assistant and myself to visit all the docks and wharves of the Port.

A number of Captains and Officers of Observing Ships have visited the Office, and no doubt more will do so as its position and uses become known. In the Office, copies of Meteorological Charts, Ocean Current Charts, and books dealing with weather subjects may be

seen, also examples of simple weather charts such as can be drawn at sea. The Daily Weather Report, Ice Information, and other notices affecting ships and shipping are displayed, and the error of any ship's barometer can be ascertained by comparison with a Standard instrument in the Office.

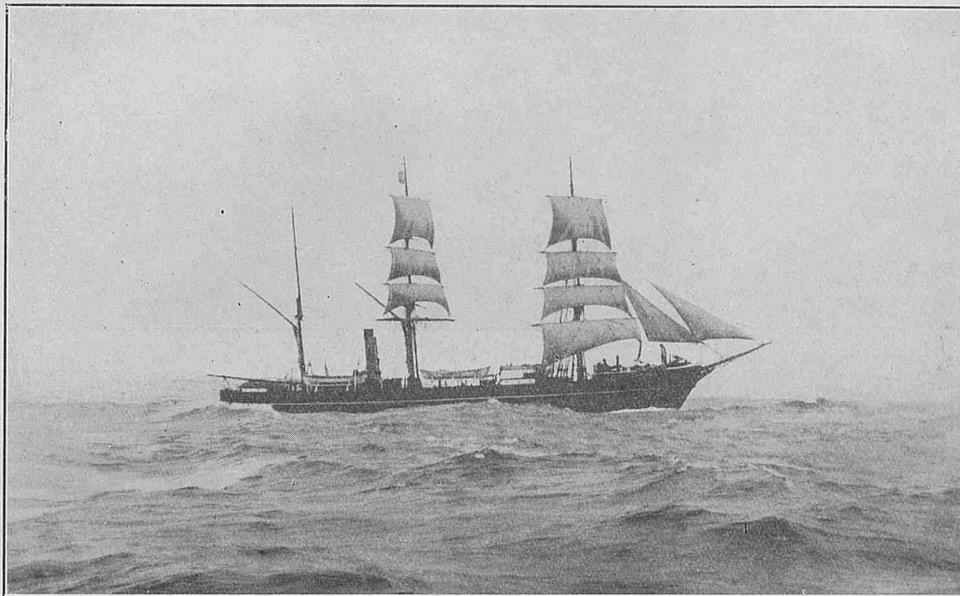
With the development in the use by ships of Wireless weather information in all parts of the World, it is now of greater importance

than ever before that their barometers should be good ones, mercurial for preference, and that the error, if any, should be known to the navigating staff.

During the two years that the Office has been in existence, many vessels of all kinds, from liners to trawlers, have been boarded and a number of old shipmates and friends met. Among the most interesting ships visited have been the old *Discovery*, Captain Scott's

famous ship, the Research ships *Discovery II* and *William Scoresby*, and a few of those rare visitors to London River nowadays, the big square rigged sailing ships.

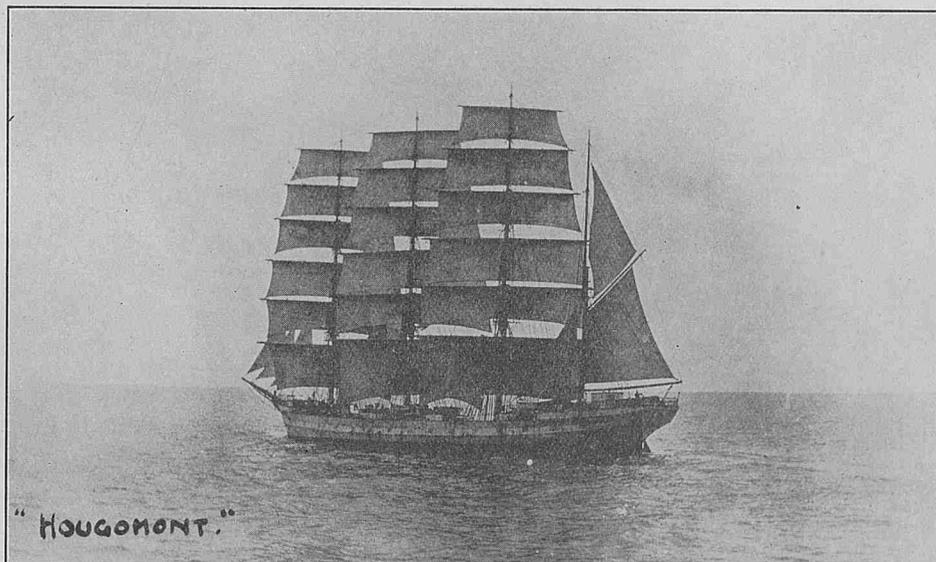
The *Discovery* arrived from the Antarctic in 1931 and is still in the East India Dock. The photograph below shows her as a barque, but she is now a barquentine, having been cut down in rig for handiness during her last voyage.



The Research ships *Discovery II* and *William Scoresby* both keep Meteorological Logs, and their photographs of clouds and icebergs, and reports of ice conditions in the far South, must be well known to readers of the MARINE OBSERVER.

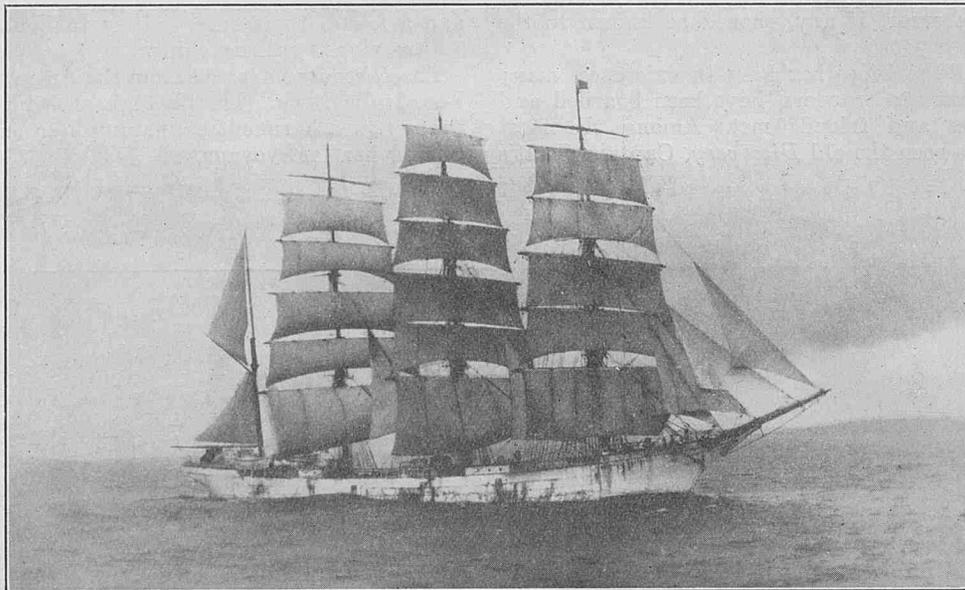
Of the big "Cape Horners" that arrived in the River last year, the four-masted barque *Hougomont* was of special interest to me, as I

served my time and was third mate of her (and made my first acquaintance with the Meteorological Log) a good many years ago, when she was a British Ship. Occasions must be rare now when anyone has the opportunity of visiting again the sailing ship he was an apprentice in, and I greatly enjoyed my visit to the old ship.



The *Hougomont* has recently (April 20th, 1932) been dismantled off the South coast of Australia, and only managed to make Adelaide on May 8th under jury rig with great difficulty. It is reported that she is to be scrapped, so that is the end of her.

The *Archibald Russell*, also once British, but now owned in Finland, was also here last year. She was the last big sailing ship to be built for British owners, and was launched in 1905.



In bringing these notes to a close, I would like to thank those Captains and Officers who have notified me by telephone or by post of their requirements, or of the day most convenient for a visit to

their ships, and have so saved my assistant and myself many unnecessary journeys.

SOUTHERN ICE REPORTS.

During the Year 1931—October.

No reports of ice, sighted in the Southern Ocean during the month of October, 1931, have been received at the Meteorological Office.

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

WEATHER SIGNALS.

I.—SHIPS' WIRELESS WEATHER SIGNALS.

Urgent Meteorological reports should be made at any time. Any ship at any time encountering a tropical revolving storm should report to all ships and the appropriate station, continuing to report at intervals of three hours so long as the ship remains under the influence of the storm.

Ships experiencing gales in which the wind reaches Force 10 or above in the Beaufort Scale should inform all ships within range.

Ships encountering Ice or other navigational dangers should report immediately to all ships and the appropriate station; see instructions for Danger to Navigation Signals for all ships, pages 28 and 29, Vol. IX, No. 97.

For full particulars of "Selected Ships" Routine Meteorological Reports with Schedule for Communication, see pages 13 to 16, Vol. IX, No. 97.

See List of W/T Stations detailed to receive reports from **A Selected Ships** with particulars up to date below, also on Chart X.

In parts of the world where such stations and particulars are not given, British **A Selected Ships** should make their reports to **CQ**

on 2100 metres (143 kc/s) as stated on page 15, Vol. IX, No. 97 (January, 1932, MARINE OBSERVER).

B Selected Ships broadcast their reports to C.Q. on 600 m. spark, and these may be intercepted by the stations ringed in on Chart XI. In making these reports to C.Q. "B Selected Ships" should make special endeavour to ensure that the report is received at these shore stations. With a view to assisting Meteorological Services who have provided information and to ensuring that routine reports from all "Selected Ships" within range of certain coast stations may be received by those services a list of stations specially detailed to receive reports from "B Selected Ships" is also given on pages 191 and 192. The procedure given on pages 13 to 16, Vol. IX, No. 97, should be adhered to as far as possible.

According to agreement reached by the International Meteorological Conference, 1929, all arrangements for the co-operation of shipping in Voluntary Marine Meteorological work are to be made through the Meteorological Services of the different countries in which the ships are registered, in accordance with the agreed upon International plan for all parts of the World, following the International Convention for Safety of Life at Sea, 1929.

WIRELESS STATIONS DETAILED TO RECEIVE ROUTINE CODED WEATHER REPORTS FROM "A SELECTED SHIPS."

Request for Information.

THE ATTENTION OF METEOROLOGICAL SERVICES IS INVITED TO THE INVITATION GIVEN ON PAGE 13 OF VOL. IX, No. 97, JANUARY MARINE OBSERVER.

Ocean.	Station.	Position.	Call Sign.	Frequency and Wave Length.		Area and limits covered by Station.	Telegraphic address of Meteorological Centre.	Information required—Limit of Groups.	Notes.			
				For Station to call up "Selected Ships."	For "Selected Ships" to report to Station.							
North Atlantic and North Sea.	Portishead.	Lat. 51° 28' 41" N. Long. 2° 47' 30" W.	GKU.	149 kc/s. (2013 metres).	143 kc/s. (2100 metres).	North Sea and Eastern North Atlantic East of Longitude 40° W. and North of Latitude 38° N., but not within 300 miles of station. (see Chart XL)	Weather London.	Weather only, up to seven groups, preferably No. 3 Supplementary Groups.	Control system. "Selected Ships" chosen to report in given order notified by station daily at 2230, 0330, and 1030 G.M.T. Roll call thus—Weather London—call sign of chosen "Selected Ships" to report through GKU at schedule times on 2100 m. Radio Horta—call sign of ships to report through CTH at schedule times on 2400 m.			
	Chatham Mass., Sayville N.Y. Rockland. West Palm Beach.	Lat. 41° 42' N. Long. 70° 00' W. Lat. 40° 45' N. Long. 73° 06' W. Lat. 44° 09' N. Long. 69° 13' W. Lat. 26° 42' N. Long. 80° 02' W.	WCC. WSL. WAG. WMR.	142.9 kc/s. (2098 metres).	North Atlantic West of Longitude 40° W.	Observer Washington.	Weather only. First four groups of observations taken at 0000 and 1200 G.M.T. only required.	No control. All British "A Selected Ships" within area to address their 0000 and 1200 G.M.T. observations to Observer Washington and their 1800 G.M.T. observations to CQ in accordance with schedule				
	Horta, Azores.	Lat. 38° 32' N. Long. 28° 38' W.	CTH.						125 k/cs. (2400 metres).	125 kc/s. (2400 metres).	"A Selected Ships" indicated by roll call made through Portishead to report to Horta—E'n. N. Atlantic, east of long. 40° W. and N. of lat. 38° N. "A Selected Ships" S. of lat. 38° N.—N. Atlantic from lat. 10° to 38° N. eastward of long. 40° W.	Weather only, up to seven groups, preferably No. 3 Supplementary Groups.	"A Selected Ships" in the E'n. N. Atlantic, N. of lat. 38° N., chosen to report to Horta will be indicated by a special roll call made through Portishead daily at 2230, 0330 and 1030 G.M.T. immediately following the roll call of selected ships chosen to report to Weather London. These ships should report to CTH in the order indicated in accordance with schedule and on 2400 m. S. of 38° N., no control all British "A Selected Ships" within area should report in accordance with schedule.

WIRELESS STATIONS DETAILED TO RECEIVE ROUTINE CODED WEATHER REPORTS FROM
"A SELECTED SHIPS."

(Continued.)

Ocean.	Station.	Position.	Call Sign.	Frequency and Wave Length.		Area and limits covered by Station.	Telegraphic address of Meteorological Centre.	Information required—Limit of Groups.	Notes.
				For Station to call up "Selected Ships."	For "Selected Ships" to report to Station.				
Mediterranean and Red Sea.									
South Atlantic.	Slangkop (Cape Town)	Lat. 34° 08' 46" S. Long. 18° 19' 18" E.	ZSC	—	143 kc/s. (2100 metres).	South Atlantic Westward of 25° E. and within a range of about 2,000 miles of station.	Met.	Weather only. Four universal groups and first group of No. 6 Supplementary groups.	No control. Only 0600 G.M.T. observation required. All British "A Selected Ships" within area should report, commencing at 0618 G.M.T.
Indian Ocean.	Jacobs (Durban).	Lat. 29° 55' 51" S. Long. 30° 58' 38" E.	ZSD	—	143 kc/s. (2100 metres).	Indian Ocean S. of 20° S. and Eastward of 25° E. and within a range of about 2,000 miles of station.	Met.	Weather only. Four universal groups and first group of No. 6 Supplementary groups.	No control. Only 0600 G.M.T. observations required. All British "A Selected Ships" within area should report, commencing at 0618 G.M.T.
	Bombay.	Lat. 19° 04' 55" N. Long. 72° 49' 54" E.	VWB	—	143 kc/s. (2100 metres).	Arabian Sea N. of line C. Comorin to Ras Fartak.	Weather.	Weather only. No. 6 Supplementary groups.	All British "A Selected Ships" are requested, when convenient, to report 0000 G.M.T. observations commencing at 0018 G.M.T. in addition to schedule times.
	Madras.	Lat. 12° 59' 17" N. Long. 80° 10' 56" E.	VWM	—	143 kc/s. (2100 metres).	Bay of Bengal N. of line C. Comorin to Achin Head.	Weather.	Weather only. No. 6 Supplementary groups.	All British "A Selected Ships" are requested when convenient, to report 1200 G.M.T. observations commencing at 1218 G.M.T. in addition to schedule times.
	Colombo.	Lat. 6° 55' 14" N. Long. 79° 52' 46" E.	VPB	130 kc/s. (2300 metres).	143 kc/s. (2100 metres).	Indian Ocean South of a line Ras Fartak, C. Comorin and Achin Head, and within a range of about 1500 miles.	Obs.	Weather only. No. 6 Supplementary groups preferred.	No control— all British "A Selected Ships" within area should report in accordance with Schedule.
	Mombasa.	Lat. 4° 03' 11" S. Long. 39° 39' 51" E.	VPQ	—	125 kc/s. (2400 metres).	From Ras Hafun to Lat. 20° S. when westward of the Colombo area.	Weather Nairobi.	Weather only. No. 6 Supplementary groups.	No control— all British "A Selected Ships" within area should report 0600 G.M.T. observations.
	Perth.	Lat. 32° 01' 51" S. Long. 115° 49' 31" E.	VIP	125 kc/s. (2400 metres).	143 kc/s. (2100 metres).	Indian Ocean and Southern Ocean between Long. 105° and 135° E.; but not within 100 miles of the coast.	Weather.	Weather only. No. 6 Supplementary groups.	No control— all British "A Selected Ships" within area should report in accordance with Schedule. Reports not required for observation times not starred on Chart I, p. 15, Vol. IX. No. 97 (January).
North Pacific and China Sea.	Cape d'Aguilar, Hong Kong.	Lat. 22° 12' 39" N. Long. 114° 15' 11" E.	VPS.		125 kc/s. (2400 metres).	China Sea and North Pacific to about 1,500 miles from station.	Royal Observatory.	Weather only, preferably No. 6 Supplementary Groups.	No control— all British "A Selected Ships" within area should report in accordance with Schedule.
South Pacific.	Sydney.	Lat. 33° 46' 00" S. Long. 151° 03' 09" E.	VIS	125 kc/s. (2400 metres).	143 kc/s. (2100 metres).	S. Pacific, Coral and Tasman Seas and Southern Ocean between Long. 135° and 160° E.; but not within 100 miles of the coast.	Weather.	Weather only. No. 6 Supplementary groups.	No control— all British "A Selected Ships" within area should report in accordance with Schedule. Reports not required for observation times not starred on Chart I, p. 15, Vol. IX. No. 97 (January).

WIRELESS STATIONS DETAILED TO INTERCEPT ROUTINE CODED WEATHER REPORTS FROM
"B SELECTED SHIPS."

Ocean.	Station.	Position.	Call Sign.	Telegraphic address of Meteorological Centre desiring information.	Information desired.	Notes.
North Atlantic.	Horta, Azores.	Lat. 38° 32' N. Long. 28° 38' W.	CTH.	Radio Horta	Weather only, up to 7 groups, preferably No. 3 Supplementary Groups.	
South Atlantic.	Salinas	Lat. 0° 35' 00" S. Long. 47° 18' 45" W.	PPL.	Meteoro Rio.	Weather only, including supplementary groups.	
	S. Luiz	Lat. 2° 31' 48" S. Long. 44° 16' 51" W.	PXM.			
	Fortaleza	Lat. 3° 46' 21" S. Long. 38° 32' 26" W.	PPC.			
	Natal	Lat. 5° 46' 41" S. Long. 35° 18' 24" W.	PXN.			
	F. Noronha	Lat. 3° 50' 24" S. Long. 32° 24' 48" W.	PXF.			
	Olinda	Lat. 8° 00' 35" S. Long. 34° 51' 00" W.	PPO.			
	Amaralina	Lat. 13° 00' 12" S. Long. 38° 30' 45" W.	PPA.			
	Abrolhos	Lat. 17° 57' 30" S. Long. 38° 41' 05" W.	PXH.			
	Victoria	Lat. 20° 10' 00" S. Long. 40° 17' 46" W.	PPT.			
	Rio	Lat. 22° 53' 42" S. Long. 43° 13' 24" W.	PPR.			
	Santos	Lat. 23° 56' 27" S. Long. 46° 19' 28" W.	PPS.			
	Florianopolis.	Lat. 27° 36' 00" S. Long. 48° 30' 18" W.	PPF.			
	Junçao	Lat. 32° 04' 00" S. Long. 52° 07' 00" W.	PPJ.			
Indian Ocean.	Jacobs (Durban).	Lat. 29° 55' 51" S. Long. 30° 58' 38" E.	ZSD	Met.	Weather only, 4 universal groups and first group of No. 6 Supplementary groups.	
	Algoa Bay (Port Elizabeth).	Lat. 33° 57' 16" S. Long. 25° 35' 30" E.	ZSQ	Met.	Weather only, 4 universal groups and first group of No. 6 Supplementary groups.	
	Calcutta.	Lat. 22° 33' 31" N. Long. 88° 20' 16" E.	VWC.	Weather.	Weather only up to 6 groups, No. 6 Supplementary Groups preferred.	
	Rangoon.	Lat. 16° 45' 57" N. Long. 96° 11' 51" E.	VTR.			
	Madras.	Lat. 12° 59' 17" N. Long. 80° 10' 56" E.	VWM.			
	Bombay.	Lat. 19° 04' 55" N. Long. 72° 49' 54" E.	VWB.			
	Karachi.	Lat. 24° 51' 05" N. Long. 67° 02' 32" E.	VWK.			
	Matara.	Lat. 6° 01' 07" N. Long. 80° 35' 39" E.	GZP.			
	Mombasa.	Lat. 4° 03' 11" S. Long. 39° 39' 51" E.	VPQ.	Weather Nairobi.		
	Dar-es-Salaam.	Lat. 6° 50' 38" S. Long. 39° 17' 24" E.	ZBZ.	Weather Nairobi.		
	Mauritius.	Lat. 20° 23' S. Long. 57° 35' E.	VRS.	Observatory Mauritius.	Weather 4 universal groups and first of No. 6 Supplementary Groups.	
	Geraldton.	Lat. 28° 47' 15" S. Long. 114° 36' 24" E.	VIN	Weather.	Weather only, including No. 6 Supplementary Groups.	
	Esperance.	Lat. 32° 01' 51" S. Long. 121° 53' 34" E.	VIE			

WIRELESS STATIONS DETAILED TO INTERCEPT ROUTINE CODED WEATHER REPORTS FROM
" B SELECTED SHIPS."

(Continued.)

Ocean.	Station.	Position.	Call Sign.	Telegraphic address of Meteorological Centre desiring information.	Information desired.	Notes.
North Pacific and China Sea.	Cape d'Aguilar, Hong Kong.	Lat. 22° 12' 39" N. Long. 114° 15' 11" E.	VPS.	Royal Observatory.	Weather only, preferably No. 6 Supplementary Groups.	
South Pacific.	Auckland.	Lat. 36° 50' 36" S. Long. 174° 46' 08" E	ZLD.	Weather Wellington.	Weather only, up to 7 groups.	
	Wellington.	Lat. 41° 16' 26" S. Long. 174° 45' 55" E	ZLW.			
	Awarua.	Lat. 46° 30' 27" S. Long. 168° 22' 21" E.	ZLB.			
	Chatham Island.	Lat. 43° 57' 02" S. Long. 176° 31' 04" W.	ZLC.			
	Rarotonga.	Lat. 21° 11' 54" S. Long. 159° 48' 51" W.	ZKR.			
	Apia.	Lat. 13° 15' 17" S. Long. 170° 49' 42" W.	ZMA.			
	Thursday I.	Lat. 10° 35' 14" S. Long. 142° 12' 43" E.	VII	Weather	Weather only, including No. 6 Supplementary Groups.	
	Townsville	Lat. 19° 16' 09" S. Long. 146° 49' 47" E.	VIT			
	Brisbane	Lat. 27° 25' 34" S. Long. 153° 07' 19" E.	VIB			
	Melbourne	Lat. 37° 46' 56" S. Long. 144° 52' 09" E.	VIM			
	Adelaide	Lat. 34° 51' 14" S. Long. 138° 31' 55" E.	VIA			

II.—WIRELESS WEATHER SIGNALS. WIRELESS WEATHER BULLETINS.

Australia.

C.W., I.C.W. and Spark Issues.

WEATHER reports and forecasts issued by the Commonwealth Meteorological Bureau are broadcast *en clair* by Australian W/T stations as follows, special reports and warnings being broadcast immediately on receipt by the W/T Stations serving the area affected, when dangerous weather prevails or is expected.

Perth W/T Station.

Approximate, Latitude 32° 02' S. Longitude 115° 50' E.

Call sign, **VIP**. Wavelength 600 metres (I.C.W.).

At 0415 and 1100 G.M.T., Mondays to Saturdays, inclusive, weather forecasts are broadcast.

Each forecast is for the following 24 hours, except on Saturdays when it is for 48 hours.

In addition to the above, 0100 and 0700 G.M.T. observations of barometric pressure, wind direction and force, weather, and state of the sea at Fremantle and Cape Leeuwin on week-days and 0100 and 1000 G.M.T. observations of the same elements on Sundays, are broadcast. Other coastal reports and reports from shipping are included when necessary.*

At 0030 G.M.T., on 2,400 metres (C.W.), weather forecast of the previous evening is broadcast for the information of distant shipping.

Geraldton W/T Station.

Approximate, Latitude 28° 47' S. Longitude 114° 36' E.

Call sign, **VIN**. Wavelength 670 metres (spark).

At 0200 and 1200 G.M.T., Mondays to Fridays, inclusive, weather forecasts for the following 24 hours are broadcast.

At 0200 G.M.T. on Saturdays, a weather forecast for the following 48 hours is broadcast.

In addition to the above 0000 and 0600 G.M.T. observations of barometric pressure, wind direction and force, weather and state of the sea, at Fremantle and Cape Leeuwin are broadcast, Mondays to Fridays; 0000 G.M.T. observations on Saturdays; 0000 and 0900 G.M.T. observations on Sundays.*

Broome W/T Station.

Approximate, Latitude 17° 58' S. Longitude 122° 14' E.

Call sign, **VIO**. Wavelength 600 metres (spark).

Weather forecasts are broadcast at 1400 G.M.T.*

From 16th April to 16th December no separate forecast is broadcast for Sundays; the forecast issued on Saturdays is therefore for the following 48 hours.

Wyndham W/T Station.

Approximate, Latitude 15° 27' S. Longitude 128° 07' E.

Call sign, **VIW**. Wavelength 720 metres (I.C.W.).

At 0130 and 1130 G.M.T., Mondays to Fridays, inclusive, weather forecasts for the following 24 hours are broadcast.*

At 0130 G.M.T. on Saturdays, a weather forecast for the following 48 hours is broadcast.

Darwin W/T Station.

Approximate, Latitude 12° 27' S. Longitude 130° 50' E.

Call sign, **VID**. Wavelength 600 metres (spark).

At 1200 G.M.T. broadcasts a 24 hours Weather forecast for the N.W. coast of Western Australia, Gulf of Carpentaria and E. coast of Queensland. From 16th April to 16th December the Sunday weather report and forecast for the coast of Queensland are suspended and the forecast broadcast on Saturdays is therefore for the following 48 hours.

Thursday Island W/T Station.

Approximate, Latitude 10° 35' S. Longitude 142° 13' E.

Call sign, **VII**. Wavelength 720 metres (I.C.W.). Ships may obtain the 0500 G.M.T. weather report for the coast of Queensland and a forecast for the ensuing 24 hours upon application to the above W/T Station.

* When available, the 0000 G.M.T. observations of barometric pressure, wind and weather at Kupang (Timor) are also broadcast from the above four stations.

Cooktown W/T Station.

Approximate, Latitude 15° 28' S. Longitude 145° 16' E.

Call Sign, **VIC**. Wavelength 760 metres (spark).

Ships may obtain weather information similar to above (Thursday I.) upon application to Cooktown W/T Station.

Townsville W/T Station.

Approximate, Latitude 19° 16' S. Longitude 146° 50' E.

Call sign, **VIT**. Wavelength 600 metres (I.C.W.).

At 1100 G.M.T. The 0500 G.M.T. weather report for the coast of Queensland and a forecast for the following 24 hours is broadcast daily, except Sundays.

At 1100 G.M.T. on Sundays, from 16th December to 16th April, only, the 2300 G.M.T. weather report for the coast of Queensland, and a 24 hours' forecast issued by the Brisbane Weather Bureau are broadcast. If an atmospheric disturbance is reported the broadcast is made immediately upon receipt of the information from the Weather Bureau. The forecasts on Saturdays from 16th April to 16th December are for the ensuing 48 hours.

Willis Islets W/T Station.

Approximate, Latitude 16° 18' S. Longitude 149° 59' E.

Call sign, **VIQ**. Wavelength 730 metres (spark).

From about mid November to 30th April this W/T station broadcasts particulars of barometric pressure, wind direction and force, amount of cloud, weather, state of sea and swell at Willis Island, *en clair*, as follows:—

At 0645 G.M.T., containing observations of 0600 G.M.T.

At 1045 G.M.T., " " " 0800 "

At 2330 G.M.T., " " " 2200 "

During stormy weather the 1045 G.M.T. broadcast will contain 1000 G.M.T. observations.

Rockhampton W/T Station.

Approximate, Latitude 23° 24' S. Longitude 150° 30' E.

Call sign, **VIR**. Wavelength 720 metres (spark).

Ships may obtain the 0500 G.M.T. weather report for the coast of Queensland and a forecast for the ensuing 24 hours, upon application to the above W/T Station.

Brisbane W/T Station.

Approximate, Latitude 27° 26' S. Longitude 153° 07' E.

Call sign, **VIB**. Wavelength 600 metres (I.C.W.).

Between 0200 and 0230 G.M.T., broadcasts, the 2300 G.M.T. coastal weather report and a 6 hours' forecast. Ships can also obtain this information on request.

At about 1200 G.M.T. daily (except Sundays), or earlier if requested, the 0500 G.M.T. coastal weather report and a forecast for the ensuing 24 hours are broadcast. On Saturday the forecast is for 48 hours.

Sydney W/T Station.

Approximate, Latitude 33° 46' S. Longitude 151° 03' E.

Call sign, **VIS**. Wavelengths as given below.

Between 2300 and 0030 G.M.T. this W/T station broadcasts on a wavelength of 600 metres (I.C.W.) a 2300 G.M.T. weather report of coastal conditions and a 24 hours' forecast if the Weather Bureau is in receipt of sufficient information in time; if not, the report and forecast will be broadcast between 0200 and 0300 G.M.T. on a wavelength of 2,400 metres (C.W.). The foregoing broadcasts are made daily, except Sundays.

At 1030 G.M.T., repeated at 2230 G.M.T., on wavelengths of 2,400 metres (C.W.) and 600 metres (I.C.W.), respectively, a summary of the coastal weather reports and a 24 hours' forecast are

broadcast. Ships may also obtain this information on application to Sydney W/T Station after 0630 G.M.T. daily, except on Saturdays and Sundays. On Sundays at 1030 G.M.T., repeated at 2230 G.M.T., a 24-hour forecast and coastal weather report are broadcast on 2,400 metres (C.W.) and 600 metres (I.C.W.) respectively.

Melbourne W/T Station.

Approximate, Latitude 37° 47' S. Longitude 144° 52' E.

Call sign, **VIM**. Wavelength 600 metres (I.C.W.).

At 0200 G.M.T. (1) The 2300 G.M.T. observations of barometric pressure, wind direction and force, weather, state of the sea at Cape Borda, Cape Northumberland, Wilson's Promontory, Bruni Island and Jervis Bay. Reports from other coastal stations or from ships are on occasion broadcast in lieu of reports from one or more of the usual stations, or may be supplied in addition thereto.

(2) Brief information regarding any disturbance affecting, or likely to affect, weather in the Great Australian Bight, south-eastern Australian waters, or the Tasman Sea.

(3) A forecast for the ensuing 24 hours.

The foregoing broadcasts are made daily except on Sundays.

At 1100 G.M.T. daily, including Sundays, a weather forecast for the ensuing 24 hours is broadcast. In special circumstances this forecast is accompanied by reports from selected coastal stations.

King Island W/T Station.

Approximate, Latitude 39° 56' S. Longitude 143° 52' E.

Call sign, **VIK**. Wavelength 760 metres (spark).

Transmits weather report on request.

Hobart (Tasmania) W/T Station.

Approximate, Latitude 42° 52' S. Longitude 147° 19' E.

Call sign, **VIH**. Wavelength 720 metres (spark).

Ships may obtain a summary of 2300 G.M.T. coastal weather reports on application to the W/T Station, after about 0030 G.M.T., daily (Sundays excepted). A 24 hours' forecast may also be obtained on application after about 0330 G.M.T. The forecast issued on Saturdays is for the ensuing 48 hours.

Adelaide W/T Station.

Approximate, Latitude 34° 51' S. Longitude 138° 32' E.

Call sign, **VIA**. Wavelength 600 metres (I.C.W.).

Ships may obtain a summary of 2330 G.M.T. coastal weather reports and a 24 hours' forecast on application to the W/T Station, after 0200 G.M.T. daily, except on Sundays.

A later forecast is broadcast at 1130 G.M.T. for the following 24 hours preceded by a statement of meteorological conditions at 0530. On Saturdays the forecast is for 48 hours and the statement omitted.

Esperance W/T Station.

Approximate, Latitude 33° 52' S. Longitude 121° 54' E.

Call sign, **VIE**. Wavelength 680 metres (spark).

At 0300 and 1300 G.M.T., Mondays to Fridays, inclusive; Saturdays at 0300 only; broadcasts weather forecasts for the following 24 hours. Saturday's forecast is for the following 48 hours.

In addition to the forecasts, observations of barometric pressure, wind direction and force, weather, state of the sea at Fremantle and Cape Leeuwin are broadcast. These observations are taken at 0100 and 0700 G.M.T., Mondays to Fridays; at 0100 G.M.T. on Saturdays; and at 0100 and 1000 G.M.T. on Sundays.

British New Guinea (Papua).

(Spark Issue.)

Samarai W/T Station.

Approximate, Latitude 10° 36' S. Longitude 150° 40' E.

Call sign, **VIJ**. Wavelength 720 metres (spark).

Ships may obtain a weather forecast on application to the W/T Station.

New Britain—Rabaul (Bitapaka) W/T Station.

Approximate, Latitude 4° 24' S. Longitude 152° 19' E.

Call sign, **VJZ**. Wavelength 2,400 metres (C.W.).

At about 0600 G.M.T., daily. The 2300 G.M.T. weather report for the coast of Queensland and a 24 hours' forecast are broadcast. Ships may also obtain this information on application to the W/T Station. From 16th April to 16th December, no forecast is broadcast on Sundays; the forecast issued on Saturdays is therefore for 48 hours.

South Pacific Ocean Islands.

Fiji Islands.

Suva W/T Station, approximate Latitude 18° 09' S., Longitude 178° 28' E., call sign **VRP**, broadcasts a weather bulletin, containing observations taken at 0330 and 2030 G.M.T., at the following stations, on a wavelength of 600 metres (I.C.W.), directly after the Apia broadcast (see below) at 0835 and 2335 G.M.T. (0835 G.M.T. only sent from 1st May to 31st October), Sundays 0845 only:—

	Latitude (approx.)	Longitude (approx.)
Apia, Samoa	13° 51' S.	171° 48' W.
Nukualofa (Tonga Islands)	21° 08' S.	175° 12' W.
Fila (New Hebrides)	16° 00' S.	168° 00' E.
Norfolk Island	28° 58' S.	168° 03' E.
Suva (Fiji Islands)	18° 09' S.	178° 28' E.

The bulletin is sent *en clair* and consists of:—

Name of the observation station.

Barometric reading (corrected) in inches and hundredths.

Dry and wet bulb thermometer readings (in whole degrees F.).

Direction (True) and force of the wind (Beaufort Scale).

State of weather by Beaufort Scale.

Example:—

Suva 30.08 79 75 E.N.E. 5 or, break sign (— — — —)

Apia 30.16 80 78 E.N.E. 3 bc, break sign

Nukualofa, etc., etc., the bulletin ending with the observation time, 0330 or 2030 G.M.T., as the case may be.

Samoa.

Apia W/T Station, approximate Latitude 13° 50' S., Longitude 171° 50' W., call sign **ZMA**, broadcasts a similar bulletin to that explained above at 0830 and 2330 G.M.T. on a wavelength of 2000 metres (spark) (Sundays excepted). The station observations are the same as in the Suva message with the addition of the following:—

	Latitude (approx.)	Longitude (approx.)
Vavau (Tonga Islands)	18° 39' S.	173° 59' W.
Rarotonga (Cook Islands)	21° 12' S.	159° 48' W.
Papeete	17° 29' S.	149° 29' W.

WIRELESS STORM WARNINGS.

Australia.

(C.W., I.C.W. and Spark Issues.)

Storm warnings are broadcast by the Australian W/T stations as follows:—

For approximate positions of the Stations *see* pp. 193 and 194.

Perth, call sign **VIP**, wavelengths 600 metres (I.C.W.) and 2400 metres (C.W.).

Geraldton, call sign **VIN**, wavelength 670 metres (spark).

Broome ,	„	VIO ,	„	600	„	„
Wyndham ,	„	VIW ,	„	720	„	(I.C.W.)
Darwin ,	„	VID ,	„	600	„	(spark).

The above W/T Stations broadcast special warnings of the approach of cyclonic storms of tropical origin, including information regarding barometric pressure at stations on the N.W. coast of W. Australia, immediately upon receipt from the Weather Bureau.

- Thursday Island, call sign **VII**, wavelength 720 metres (I.C.W.).
- Cooktown, " **VIC**, " 760 " (spark).
- Rockhampton, " **VIR**, " 720 " "
- Brisbane, " **VIB**, " 600 " (I.C.W.).

The above W/T Stations broadcast special storm warnings, immediately upon receipt from the Weather Bureau, and thereafter during the regular W/T watches kept by coastal vessels until receipt of later information from Brisbane Weather Bureau.

Special storm warnings may also be obtained, if the information is available, upon application to any of the W/T stations.

Willis Islets, call sign **VIQ**, wavelength 730 metres (spark), broadcasts storm warnings during the months November to April inclusive.

Sydney, call sign **VIS**, wavelength 600 metres I.C.W., broadcasts special storm warnings, immediately on receipt. They are repeated at intervals until receipt of later information from the Weather Bureau.

Melbourne, call sign **VIM**, wavelength 600 metres (I.C.W.), broadcasts special storm warnings immediately on receipt from the Weather Bureau.

Flinders Island, call sign **VIL**, wavelength 740 metres (I.C.W.), broadcasts storm warnings immediately on receipt.

King Island, call sign **VIK**, wavelength 760 metres (spark), broadcasts storm warnings immediately on receipt.

Hobart (Tasmania), call sign **VIH**, wavelength 720 metres (spark), broadcasts special storm warnings, immediately on receipt from the Weather Bureau and at hourly intervals thereafter until 1000 G.M.T.

Adelaide, call sign **VIA**, wavelength 600 metres (spark).

Esperance, " **VIE**, " 680 " " " broadcast special storm warnings immediately on receipt from the Weather Bureau.

British New Guinea (Papua).

Port Moresby, call sign **VIG**, wavelength 720 metres spark, broadcasts special warnings of disturbances on the Queensland coast on any hour when occasion warrants.

Samarai, call sign **VIJ**, wavelength 720 metres (spark), broadcasts special storm warnings immediately on receipt and thereafter in the regular watches kept by coastal vessels, until further information is received from the Brisbane Weather Bureau.

Special storm warnings may also be obtained, if the information is available, upon application to the W/T stations.

New Britain.

Rabaul, call sign **VJZ**, wavelength, 2,400 metres (C.W.) broadcasts special warnings of disturbances on the Queensland coast at any hour when occasion warrants.

South Pacific Ocean Islands.

During the Hurricane Season (November 1st to April 30th).

Fiji Islands.

Suva W/T Station, call sign, **VPD**, broadcasts hurricane warnings, when necessary, immediately after the weather bulletins which are transmitted soon after 0835 and 2335 G.M.T., on a wavelength of 600 metres (I.C.W.).

Samoa.

Apia W/T Station, call sign **ZMA**, broadcasts, when necessary, information concerning hurricanes in addition to the weather bulletins at 0830 and 2330 G.M.T., on a wavelength of 800 metres (I.C.W.). The message is sent *en clair* and commences with the general call to all stations, e.g. :--

QST. " Hurricane centre 200 miles N.W. of Suva at noon, 27th February, Apia time and date, travelling south."

French Oceania.

Papeete (Tahiti), approximate Latitude 17° 29' S., Longitude 149° 29' W., call sign **FPB**, broadcasts information concerning hurricanes &c. at 0500 and 2200 G.M.T. and at other times when necessary on a wavelength of 2,000 metres (spark). The safety signal **TTT**, repeated at short intervals ten times on full power, is first sent out followed by the message which is repeated three times with intervals of ten minutes.

III.—WIRELESS TIME SIGNALS.

Australia.

Station.	Call Sign.	Wave-length (metres).	G.M.T.	System.
Perth Lat. 32° 01' 51" S. Long. 115° 49' 31" E.	VIP	600 (I.C.W.).	0057-0100 1257-1300	(See Time Signal Figure, p. 125, Vol. IX, No. 102). Controlled by Perth Observatory. (See Fig. as above). Transmitted automatically by the standard clock of the Adelaide Observatory.
Adelaide Lat. 34° 51' 14" S. Long. 138° 31' 55" E.	VIA	600 (I.C.W.).	0027-0030 1227-1230	

Melbourne W/T Station, Latitude 37° 46' 56" S., Longitude 144° 52' 09" E., call sign, **VIM**, wavelength 600 metres (I.C.W.).

Wireless time signals are broadcast from Melbourne W/T Station in accordance with the New International System of W/T time signals at the following times:—

G.M.T.					
h.	m.	s.	h.	m.	s.
1	57	00	to	2	00
13	57	00	,,	14	00

The transmission of each series of signals is similar, the procedure being as follows:—

G.M.T.						Signal.			
h.	m.	s.	h.	m.	s.				
1	57	00	to	13	57	50	— — — — — etc.		
57	55	"	58	00	{	55 56 57 58 59 60	Time Signal.		
58	08	"	58	10	{	• • • • •			
58	18	"	58	20	{	— — — — —			
58	28	"	58	30	{	• • • • •			
58	38	"	58	40	{	— — — — —			
58	48	"	58	50	{	• • • • •			
58	55	"	59	00	{	55 56 57 58 59 60	Time Signal.		
59	06	"	59	10	{	• • • • •			
59	16	"	59	20	{	— — — — —			
59	26	"	59	30	{	• • • • •			
59	36	"	59	40	{	— — — — —			
59	46	"	59	50	{	• • • • •			
1	59	55	to	2	00	00	{	55 56 57 58 59 60	Time Signal.
13	59	55	,,	14	00	00	{	• • • • •	

New Zealand.

The Dominion Observatory, Wellington, Latitude 41° 17' 04" S., Longitude 174° 46' 04" E., call sign ZLY, broadcasts time signals daily, on 600 metres (I.C.W.) as follows:—

The transmitting key at the W/T station is automatically operated by the Standard Time Clock of the Dominion Observatory (Latitude 41° 17' 03.8" S., Longitude 174° 46' 00.0" E.).

The first time signal is at 23h. 00m. 00s., G.M.T., and is repeated at the 1st, 2nd, 4th and 5th minutes.

There is no time signal at 23h. 03m. 00s.

Each time signal commences exactly at the beginning of the minute and lasts for *three seconds*, approximately:—

G.M.T.		Signal.
h. m. s.	h. m. s.	
22 58 00 to 22 58 55		ZLY (every 15 seconds, the dash being of two seconds duration).
22 59 10 to 22 59 50		Time signal. etc.
23 00 00 to 23 00 03		Time signal.
23 00 12 to 23 00 50		Time signal. etc.
23 01 00 to 23 01 03		Time signal.
23 01 13 to 23 01 50		Time signal. etc.
23 02 00 to 23 02 03		Time signal.
23 02 14 to 23 03 50		Time signal. etc.
23 04 00 to 23 04 03		Time signal.
23 04 09 to 23 04 50		Time signal. etc.
23 05 00 to 23 05 03		Time signal.

AR ZLY VA.

In addition to the above, the undermentioned time signals are broadcast on Tuesdays and Fridays, except on New Zealand Government holidays, by the Dominion Observatory, Wellington.

The conditions governing the transmission are similar to those given above.

The first time signal is at 9h. 00m. 00s. (G.M.T.), and is repeated at the 1st, 2nd, 4th and 5th minutes.

There is no time signal at 9h. 03m. 00s. Each signal commences exactly at the beginning of the minute, and lasts for *three seconds*, approximately.

Special Notices Regarding Personnel.

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

CAPTAIN F. ASHBY GRAVES.

CAPTAIN F. ASHBY GRAVES, commander of the R.M.M.V. *Highland Monarch* has retired after 48 years' service afloat, during 38 years of which he has held command.

He commenced his sea career in 1884 as an apprentice in Messrs. J. Houston's four masted ship *Cawdor*, and served for ten years in this vessel as Apprentice, 3rd, 2nd, and 1st Mate. He was then promoted to command and had charge of the ship *Duncow* under the same House Flag for a further 3½ years.

G.M.T.		Signal.
h. m. s.	h. m. s.	
8 58 00 to 8 58 55		ZLY (every 15 seconds, the dash being of two seconds duration).
8 59 10 to 8 59 50		Time signal. etc.
9 00 00 to 9 00 03		Time signal.
9 00 12 to 9 00 50		Time signal. etc.
9 01 00 to 9 01 03		Time signal.
9 01 13 to 9 01 50		Time signal. etc.
9 02 00 to 9 02 03		Time signal.
9 02 14 to 9 03 50		Time signal. etc.
9 04 00 to 9 04 03		Time signal.
9 04 09 to 9 04 50		Time signal. etc.
9 05 00 to 9 05 03		Time signal.

AR ZLY VA.

NOTE.—(1) Other signals which are transmitted by hand in addition to the automatic time signals must *not* be used as time signals.

(2) The signals are relayed by Wellington W/T Station (VLW).

(3) All hand Key signals, except in the 58th minute, terminate on the 50th second, to enable the observer to take the signal accurately.

HONG KONG.

AMENDMENT.

WIRELESS WEATHER BULLETINS.

C.W. and I.C.W. issues.

VOL. IX. No. 103, p. 141.

Delete Part III Forecast for the sea districts indicated on the chart below, and cancel chart showing these districts on p. 142.

Substitute the following:—

Part III Forecast for the sea districts:—

- A. Shanghai to Turnabout.
- B. Turnabout to Hong Kong.
- C. Hong Kong to Gap Rock.
- D. Hong Kong to Hainan Straits.
- E. North China Sea (between Hong Kong and latitude 16° N.).

OBITUARY.

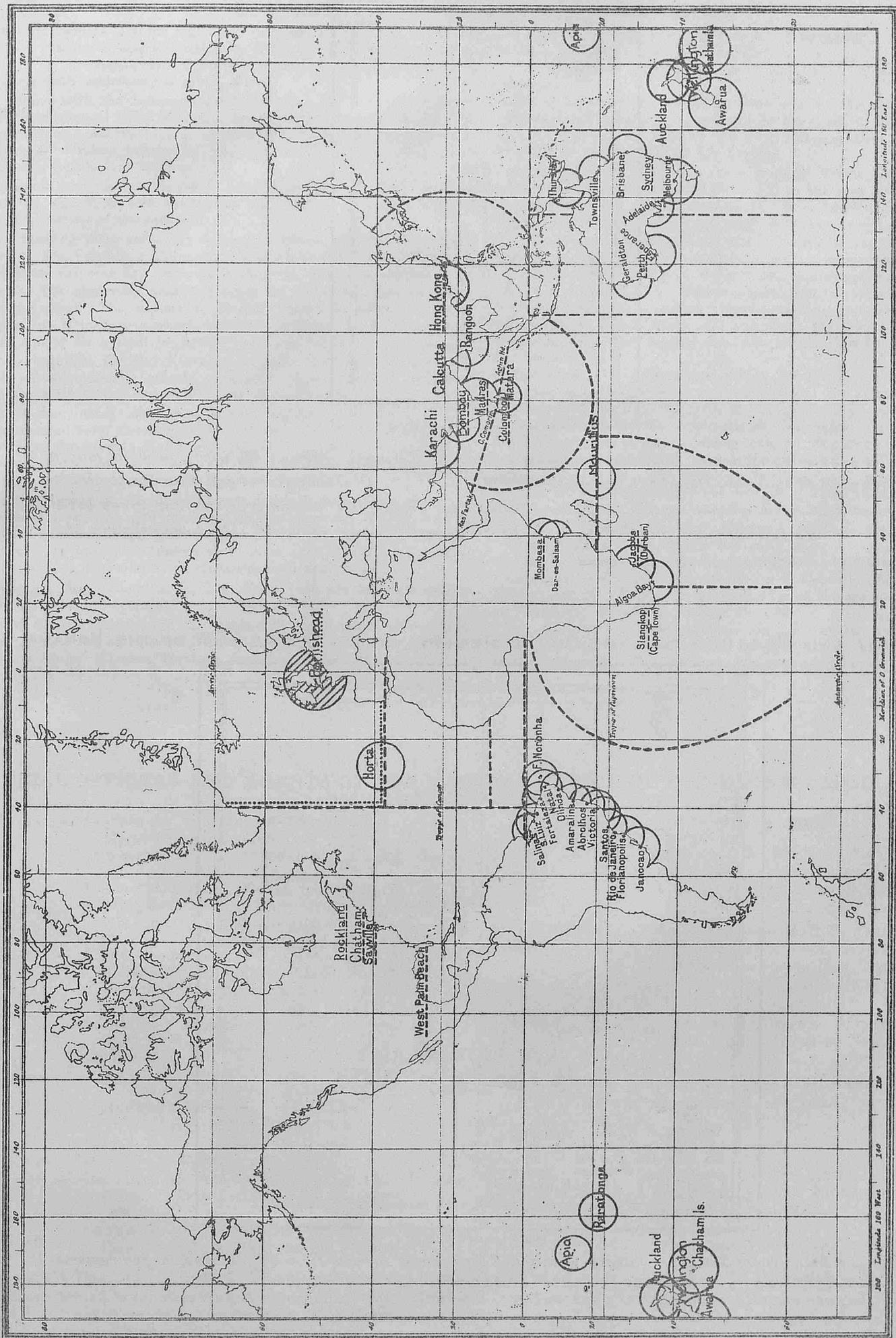
THE sudden death of Captain S. D. PRICHARD, M.B.E., which took place at his home in Holyhead recently is noted with regret.

Commencing his sea career in 1885 in the ship *Scottish Glen*, he remained in sail for some years before transferring to steam when he joined the Anglo American Oil Company.

In 1904 he transferred to the London and North Western Railway Company, and four years later gained command of one of the company's cargo steamers. He was appointed to the passenger service in 1920 and on retirement two years ago was Commodore Captain of the Fleet. Up to the time of his retirement he had been a regular member of the Corps of Voluntary Marine Observers since 1925.

Chart XI - SHIPS' WIRELESS WEATHER SIGNALS.

Stations for Reception of Routine Wireless Weather Reports from "Selected Ships."



The full circles indicate the areas round islands and coast stations which are detailed to intercept "Selected Ships" reports made to G.C. on 600 metres.

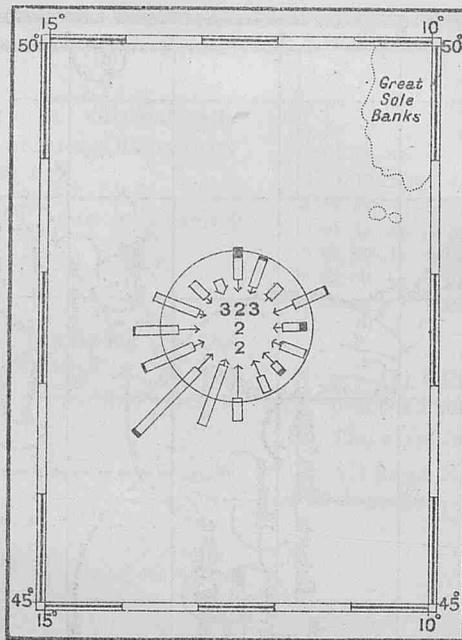
The small shaded areas round stations detailed to receive reports from "Selected Ships" indicate where these ships should not report on account of congestion.

A pecked line indicates the reporting area round stations in other countries to which British "Selected Ships" should report. The names of such stations being underlined with a pecked line.

The dotted line indicates the area in which British "Selected Ships" report under control to Portishead.

OCTOBER

WIND FOR THE OCEAN REGION ADJACENT TO THE S.W. APPROACHES TO GREAT BRITAIN.



EXPLANATION.

The wind rose is drawn from observations within the 5 square. Arrows fly with the wind, length represents frequency, thickness strength.

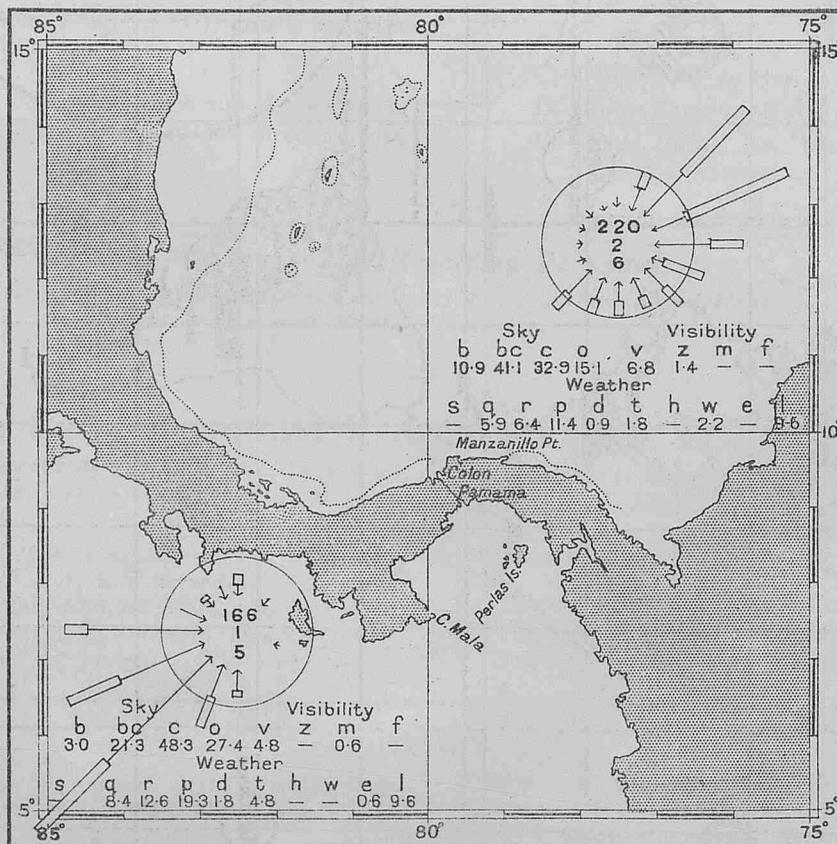
GALE	MODERATE	LIGHT
8-12	4-7	1-3

 Distance from head of arrow to circle represents 5%. Scale:-

10%	20%	

 The upper figure in the centre of the rose gives total number of observations; the middle figure, the percentage frequency of calms; the lower figure the percentage frequency of variable winds.

WIND, FOG, MIST AND WEATHER FOR THE OCEAN REGIONS TO THE N.E. AND S.W. OF THE PANAMA CANAL.



EXPLANATION.

The wind roses are drawn from Sea observations within the 5 squares. Arrows fly with the wind, length represents frequency, thickness strength.

GALES	MODERATE	LIGHT
8-12	4-7	1-3

 Distance from head of arrow to circle represents 5%. Scale:-

10%	20%	

 The upper figure in the centre of the rose gives total number of observations, The middle figure the percentage frequency of calms, and the lower figure the percentage frequency of variable winds. The percentage frequency of types of weather are shown in the lower half of each 5 square by the figures beneath each of the letters of the Beaufort weather notation. For example in the 5 square Latitude 10° to 15° N, Longitude 75° to 80° W, bc was logged 41 times in every 100 observations while q was logged about 6 times.

Compiled from observations of British Ships received since the adoption of the Hollerith system of extraction covering the years 1921-1930.

MARINE METEOROLOGY.

Co-operation of Shipowners, Masters and Mates.

Captains and Officers of ships registered in Great Britain and Northern Ireland, who wish to co-operate regularly with the Meteorological Office should apply to the appropriate Port Meteorological Officer or Agent, a list of whom, with addresses, is given below.

In accordance with the International Convention for Safety of Life at Sea, the Meteorological Office arranges for certain "Selected Ships" to take meteorological observations at specified hours, and to transmit such observations by wireless telegraphy, for the benefit of other ships and the various meteorological services.

Arrangements are also made for a limited number of ships to keep meteorological logs in certain trades for the purpose of completing the meteorological survey of the oceans.

Ships performing these voluntary duties are known as Observing Ships; the whole as the Voluntary Observing Fleet; and the commanders and officers of these ships as the Corps of Voluntary Marine Observers.

At present the observing fleet is limited to a number not exceeding 366 observing ships. The number of British "Selected Ships" is determined upon the British proportion of world tonnage, on the assumption that there should be a total of 1,000 "Selected Ships" of all nations.

The observing fleet list indicating which are "Selected Ships," with the names of commanders, officers, and other particulars, is published in THE MARINE OBSERVER and kept up to date monthly.

A general description of marine meteorological work, including the particulars desired from intending marine observers, is given in Chapter I of THE MARINE OBSERVER'S HANDBOOK, 5th Edition, which is supplied to all observing ships, and may also be obtained from H.M. Stationery Office, direct, or through any bookseller, price 2s. 6d.

THE MARINE OBSERVER is sent monthly to the captain of every observing ship, for the information and guidance of his observing officers, and in the case of "Selected Ships," the wireless operators also. The Captains of observing ships are also supplied on request with charts, and atlases, according to trade, if available, as meteorological equipment.

Ships keeping the Meteorological Log, Form 915, are lent a complete set of official tested instruments.

"Selected Ships," other than meteorological log keeping ships, keep the Ships' Meteorological Record, Form 911. All "Selected Ships" also keep the Ships' Wireless Weather Register, Form 138.

No observing ship is detailed as a "Selected Ship" unless she has on board a reliable mercurial barometer.

Official tested instruments are lent to "Selected Ships" when necessary.

The commanders of observing ships keeping the meteorological log are requested to return it (accompanied by Form 138 in the case of "Selected Ships") through the appropriate Port Meteorological Officer or Agent at intervals of not more than five months.

Commanders of observing ships keeping Forms 911 are requested to return them (accompanied by Form 138 in the case of "Selected Ships") by post direct to the Meteorological Office, London, at the end of each voyage, or at intervals of not more than two months.

These forms have the address and "On His Majesty's Service" printed upon them, and should be folded for posting accordingly.

The Port Meteorological Officers and Merchant Navy Agents inspect official instruments in Meteorological log ships half-yearly, and in "Selected Ships" quarterly, when possible; and they will replace defective gear. These officers will also check the accuracy of barometers in observing ships, but marine observers should themselves frequently check by comparison.

The work of the British observing fleet, that of the observing fleets of other nations party to the Convention for Safety of Life at Sea, together with Weather Shipping Bulletins and Gale and Hurricane Warnings conforming to the International Convention for Safety of Life at Sea, provide the necessary information for shipping. Thus a world wide service for all shipping, at the minimum cost to national funds, is provided. Shipowners are asked to facilitate this voluntary work which is done by the commanders and officers of their ships.

Shipowners will greatly assist by facilitating the forwarding of postal matter from the Air Ministry addressed to the Captains of ships.

Ships which are not regular observing ships are advised to procure the DECODE for use with the International Code for Wireless Weather Messages from Ships, M.O. Pubn. 329, which can be obtained from H.M. Stationery Office, price 3d. This gives a description of the system of communication of "Selected Ships," as well as the DECODE.

For guidance in the practical use of wireless weather intelligence, WIRELESS AND WEATHER AN AID TO NAVIGATION may be obtained from H.M. Stationery Office, through any bookseller, price 5s.

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

LONDON	Captain L. A. BROOKE SMITH, R.D., R.N.R., Marine Superintendent. Commander J. HENNESSY, R.D., R.N.R., Senior Nautical Assistant. Room 324, Adastral House, Kingsway, W.C.2. (Telephone No.: Holborn 3434 Extension 421). Nearest station Temple, District Railway.	Agents (contd.).
THAMES	Lieut. Commander C. H. WILLIAMS, R.N.R., Port Meteorological Officer, P.L.A. Building, King George V Dock (south side), London, E.16. (Telephone No.: Albert Dock 2659. Telegraphic Address: Barometric Aldock, London).	FORTH Captains C. G. BONNER, V.C., D.S.C., and D. AITCHISON, Leith Salvage and Towage Co., Ltd., 2, Commercial Street, Leith.
MERSEY	Commander M. CRESSWELL, R.N.R., Port Meteorological Officer, Dock Office, Liverpool. (Telephone No.: Bank 8959. Telegraphic Address: Meteorite, Liverpool).	HONG KONG, China. Lieut. Commander G. B. R. RUDYERD-HELPMAN, R.N., Superintendent, Admiralty Chart and Chronometer Depot, H.M. Dockyard. (Telephone No.: 108 Dockyard).
	Agents.	HUMBER Captain A. M. BROWN, Ellerman Wilson Line Office, Hull. (Telephone No.: Central 2180).
BELFAST	Captain J. MCINTYRE, Harbour Master, Harbour Office. (Telephone No.: Belfast 4090).	SOUTHAMPTON Captain Sir BENJAMIN CHAVE, K.B.E., Room 35. Royal Mail Lines, Ltd.
BRISTOL CHANNEL	Captain T. JOHNSTON, Technical College, Cathays Park, Cardiff. (Telephone No.: Cardiff 6813).	SYDNEY, New South Wales. Commander G. D. WILLIAMS, D.S.O., R.D., R.N.R., Deputy Director of Navigation. Captain R. G. BLAYNEY. Customs House. (Telephone No.: B6421).
CLYDE	Mr. ROBERT CLEARY, Master Mariner, The Clutha Stevedoring Co., Ltd., Princes Dock, Glasgow. (Telephone No.: 513 Ibrox).	TYNE Captain J. J. MCEWAN, Marine School, South Shields.

ICE CHART.

WESTERN NORTH ATLANTIC.

LETTERS OF TRANSATLANTIC TRACKS INDICATE

NOTE.—In case of necessity owing to extreme southerly drift of ice, operative dates will be fixed for Track A.

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

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

ROUTE NOTICES.

For latest information *re* Tracks see pages 80 and 81 of Vol. IX, No. 100, April, 1932, Number.

SYMBOLS USED ON THE CHART.

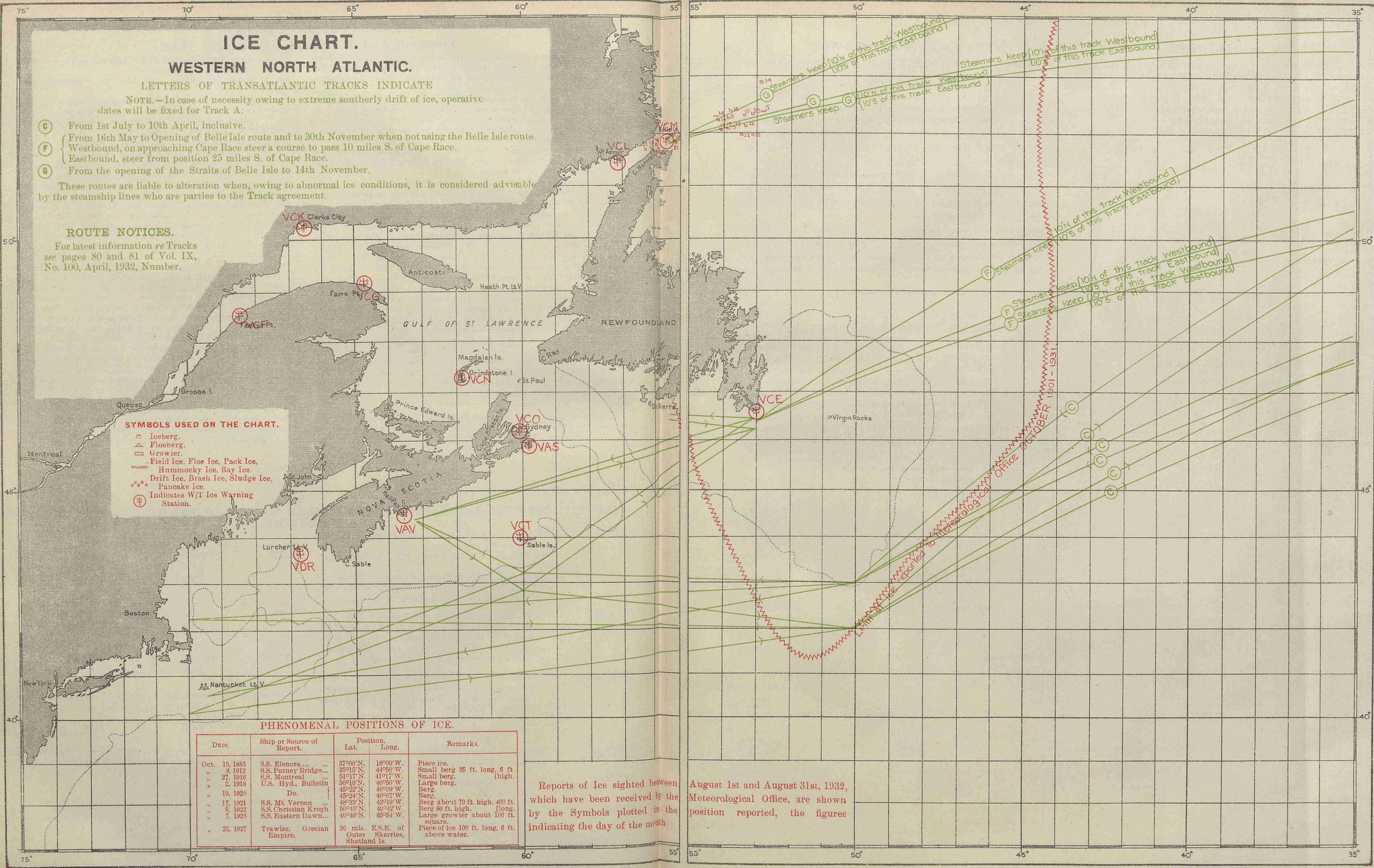
- ▣ Iceberg.
- △ Floeberg.
- Growler.
- Field Ice, Floe Ice, Pack Ice.
- Hummocky Ice, Bay Ice.
- Drift Ice, Brash Ice, Sludge Ice.
- Pancake Ice.
- ⊕ Indicates W/T Ice Warning Station.

PHENOMENAL POSITIONS OF ICE.

Date.	Ship or Source of Report.	Position.		Remarks.
		Lat.	Long.	
Oct. 15, 1883	S.S. Elenora ...	37°00' N.	18°00' W.	Piece ice.
" 8, 1912	S.S. Putney Bridge...	35°15' N.	44°50' W.	Small berg 35 ft. long, 6 ft. high.
" 27, 1916	S.S. Montreal	51°17' N.	41°17' W.	Small berg.
" 2, 1918	U.S. Hyd., Bulletin	50°10' N.	40°50' W.	Large berg.
" 19, 1920	Do.	45°22' N.	40°09' W.	Berg.
" 17, 1921	S.S. Mt. Vernon	45°24' N.	40°07' W.	Berg.
" 5, 1922	S.S. Christian Krogh	48°23' N.	42°19' W.	Berg about 70 ft. high, 400 ft. long.
" 7, 1923	S.S. Eastern Dawn...	50°43' N.	40°42' W.	Large growler about 100 ft. square.
" 23, 1927	Trawler, Grecian Empire.	30 mls. E.S.E. of Outer Skerries, Shetland Is.		Piece of ice 100 ft. long, 6 ft. above water.

Reports of Ice sighted between August 1st and August 31st, 1932, which have been received by the Meteorological Office, are shown in the position reported, the figures indicating the day of the month.

Reports of Ice sighted between August 1st and August 31st, 1932, Meteorological Office, are shown in the position reported, the figures indicating the day of the month.



NOTICES.

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 Meteorological 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.

GREAT BRITAIN.

Wireless Telephony (R/T) Issues.

"Weather Shipping" Bulletin.

Temporary Arrangement.

During the Promenade Concert Season Aug. 6th to Oct. 1st, inclusive, it has been found necessary to change the time of broadcasting the parts of the "Weather Shipping" bulletin broadcast through Daventry, from 2115 G.M.T. to 2055 G.M.T. Sunday remaining 2100 G.M.T.

DESPATCH OF INFORMATION

REQUIRED IMMEDIATELY FOR THE CONDUCT OF THE WORK AT SEA.

Shipowners, Marine Superintendents and all concerned in the despatch of mails to Ships abroad are asked to kindly facilitate the despatch and delivery of postal matter received at their offices from the Meteorological Office and Air Ministry Publication Depot to their Ships abroad.

This matter addressed to the Commanders of Ships contains information which is required for the Conduct of Marine Meteorological Work at Sea and is most effective if received by the Commanders at the earliest possible date.

Much of the information referred to is published in the Marine Observer and is of a seasonal nature. This journal also contains advice to Regular Observing Ships which enables them to perform voluntary service by Wireless Communication for the benefit of all shipping.

ILLUSTRATIONS FOR THE MARINE OBSERVER.

When making sketches, charts or plans, Marine Observers will give us great assistance if they will give consideration to reproduction in THE MARINE OBSERVER.

The size of any chart or drawing should not, if possible, exceed that of a page of THE MARINE OBSERVER, and if charts and drawings of all kinds are made with Indian Ink upon white drawing paper their reproduction will be greatly facilitated.

When photographs are sent in it would give us great assistance if they are accompanied by the plate or film, which will be returned if desired.

DERELICTS AND FLOATING WRECKAGE.

Date.	Position.		Description.
	Latitude.	Longitude.	
NORTH SEA.			
13.8.32	14 miles N 50°E of North Hinder.		Buoy, white top.
18.8.32	Spurn Light Vessel		Floating object apparently jetty piles drifting north easterly direction, dangerous to navigation.
18.8.32	1½ miles SW by W Sunk Light Vessel.		Log 8-10 ft. long, apparently attached to some wreckage.
24.8.32	3.3 miles E by S Ruytzen Light Vessel.		Black drifting buoy.
27.8.32	51°44' N | 2°51' E		Spherical buoy, dangerous to navigation.
ENGLISH CHANNEL.			
7.8.32	NE of Varne Light Vessel.		Wreckage consisting of hatch covers, broken life buoys and all kinds of timber spread over an area of about a square mile.
28.8.32	48°10' N	5°09' W	Black conical buoy.
28.8.32	49°43' N	2°52' W	Spherical buoy, Top marks staff and flag with shape each side, lower end of staff marked 2 TELEGRAPH in white, dangerous to navigation.
28.8.32	5 miles S from Dover		Capsized small vessel, dangerous to navigation.
BAY OF BISCAY.			
4.8.32	14 miles S 64°W of La Coubre		Red conical buoy.
NORTH ATLANTIC.			
2.8.32	33°22' N	76°28' W	Three spars painted buff, one floating horizontally about 20 ft. long and two similar in appearance were projecting about 6 ft. out of the water.
5.8.32	39°51' N	74°—W	Wreckage consisting of the bottom of a barge.

Date.	Position.		Description.
	Latitude.	Longitude.	
North Atlantic—contd.			
6.8.32	41°51' N	61°16' W	Large derelict barge, bottom up.
6.8.32	41°59' N	9°25' W	Partly submerged wreck of fishing vessel <i>ASANIA</i> .
8.8.32	32°01' N	77°40' W	Mooring buoy.
10.8.32	26°32' N	87°20' W	Large tree stump with roots, projecting upward about 3 ft. out of water.
10.8.32	28°46' N	88°23' W	Large tree trunk floating upright and projecting about 3 ft. out of water.
11.8.32	21°34' N	66°—W	Mast projecting about 8 ft. out of water and attached to submerged wreckage.
13.8.32	40°15' N	73°51' W	Log about 30 ft. long and 2 ft. in diameter.
16.8.32	43°10' N	68°24' W	Heavy spar about 30 ft. long.
18.8.32	48°—N	7°50' W	Three masted schooner <i>SHOAL FISHER</i> of Barrow, abandoned in sinking condition, decks awash, dangerous to navigation.
NORTH PACIFIC.			
2.8.32	33°40' N	123°43' W	Large square timber.
3.8.32	32°55' N	125°14' W	Log.
3.8.32	33°07' N	124°07' W	Log.
3.8.32	32°52' N	125°39' W	Black can buoy.
4.8.32	7°06' N	81°44' W	Partly submerged hull of a barge, about 40 ft. long and 10 ft. wide.
11.8.32	48°17' N	123°17' W	Derelict about 40 ft. long.
GULF OF MEXICO.			
16.8.32	28°39' N	91°47' W	Red nun buoy.

LIST OF VOLUNTARY OBSERVING SHIPS

FLEET LIST.

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 records received, are given with the date and description of last log, register or record 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 records 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 366.

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

Explanation of Abbreviations.

Unless otherwise stated, vessels on the following list are s.s.—M.V. indicates Motor Vessel; S.T. = Steam Trawler.

M.L. = Equipped with tested Instruments lent by the Meteorological Office for keeping Meteorological Logs.

W.T. = Equipped wholly or partly with tested Instruments lent by the Meteorological Office for reporting in code by W/T in the International Selected Ship system.

No. = No Meteorological Office instrumental equipment on board.

M = Ship's barometer *mercurial*.

A = Ship's barometer *aneroid*.

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

To indicate the nature of the wireless apparatus of Selected Ships—

†† preceding ship's name indicates fitted for long range continuous wave transmission and reception.

*† = Short range transmission and long range continuous wave reception.

** = Short range transmission and reception.

The numbers preceding the names of ships are for identification purposes, when observations are re-transmitted in synoptic messages by wireless or cable, and are not intended for use at sea.

Selected Ships.

Those ships in this list which have a number and symbols indicating W/T apparatus before their names are "Selected Ships" invited to make by W/T, reports of observations taken at arranged G.M. Times to "All Ships."

Name of Vessel.	Captain.	Observing Officers.	Meteorological Equipment.	Line.	Last Log, Register, or Record Contributed. Received up to 19.8.32.	Date Received.
122 †† <i>Acva</i> , M.V.	Shooter, J. C.	R. B. Ellis	W.T.-M.	Elder Dempster	Forms 911 & 138 1.6.32 to 9.7.32	15.7.32
155 *† <i>Achilles</i>	Cosker, W.	C. Broad, J. Simpson	W.T.	A. Holt	Form 915 5.9.31 to 19.1.32	23.1.32
055 *† <i>Actor</i>	Whyte, D. L.	G. Penston, E. Pearce, P. Harrow.	No. M.	Harrison	Forms 911 & 138 27.1.31 to 31.1.32	19.2.32
123 †† <i>Adda</i> , M.V.	Lawson, J. H.	E. Moore, G. Baker	W.T.-M.	Elder Dempster	Form "915" 16.6.32 to 23.7.32	27.7.32
273 *† <i>Adrastus</i>	Lloyd, R.	S. R. Evans, J. P. Makepeace, F. E. Jackson.	M.L.	A. Holt	Form "915" 3.3.32 to 4.4.32	24.6.32
050 †† <i>Adriatic</i>	Freeman, C. P., R.D., Commr., R.N.R.		W.T.	White Star	Forms 911 & 138 4.7.32 to 23.7.32	27.7.32
090 *† <i>Aeneas</i>	Wallace, W. K.	G. H. Smith, W. Williams, R. A. Hanney.	"	A. Holt	" " 25.5.32 to 13.8.32	17.8.32
166 *† <i>Agamemnon</i>	Beswick, W., D.S.C., Commr., R.N.R.	W. K. Hole, W. G. Harrison, O. Thomas.	"	"	" " 15.6.32 to 5.7.32	11.8.32
<i>Albon</i>	Evans, L.		M.L.	Booth		
127 *† <i>Albion Star</i>	Hopper, G. E.	R. White, W. H. Gore	No. M.	Blue Star	Forms 911 & 138 18.12.31 to 6.3.32	21.6.32
080 †† <i>Alcantara</i> , M.V.	Clarke, E., R.D., Commr., R.N.R.	W. W. Dovell, T. Davies, R. Smith.	W.T.	R.M.S.P.	" " 5.6.32 to 10.7.32	4.8.32
178 *† <i>Alipore</i>	Carter, E. A. J. W., R.D. Commr., R.N.R.	J. A. Hunter, — Hugo, — Chanday.	No. M.	P. & O.	" " 11.6.32 to 26.6.32	18.7.32
175 †† <i>Almanzora</i>	Shillitoe, B., R.D. Commr., R.N.R.	E. W. Martin, F. J. Brett, J. G. Scott.	W.T.	R.M.S.P.	" " 22.5.32 to 4.7.32	6.7.32
012 †† <i>Almeda Star</i>	Turner Russell, W.	L. S. Hassell, O. G. Russell, C. N. Williams.	No. M.	Blue Star	" " 8.5.32 to 21.6.32	2.7.32
103 †† <i>Andalucia Star</i>	Vernon, R.	R. H. K. Bartley, F. Graham, E. R. Pearce.	" M.	"	" " 19.6.32 to 3.8.32	8.8.32
079 *† <i>Antiochus</i>	Dougall, A. T.	B. L. Parker, W. Murray, C. F. Lock.	W.T.	A. Holt	" " 27.5.32 to 24.6.32	25.7.32
209 †† <i>Aorangi</i> , M.V.	Spring-Brown, J. F.	E. Anderson, D. H. Richards, S. H. Crawford.	M.L.	Canadian-Australasian	Form 915 3.3.31 to 17.6.32	18.8.32
120 †† <i>Apapa</i> , M.V.	Beith, A.	V. E. Thomas, S. S. Franklin	W.T.-M.	Elder Dempster	Forms 911 & 138 29.6.32 to 3.8.32	8.8.32
029 †† <i>Appam</i>	Draper, J. M.	W. M. M. Hutchings, O. Owens, B. C. Haigh.	W.T.	"	" " 18.5.32 to 27.6.32	28.6.32
017 †† <i>Aquitania</i>	Irving, R. B., O.B.E., R.D., Capt., R.N.R.	E. A. Divers, G. V. Locke, J. O. Chambers.	"	Cunard	" " 11.7.32 to 22.7.32	25.7.32
115 †† <i>Arandora Star</i>	Moulton, E. W.	H. F. Partridge, R. C. Freamer, J. L. Anderson.	No. M.	Blue Star	Form 912 23.6.32 to 29.7.32	19.8.32
<i>Architect</i>	Mowat, I.	G. Dewar	" M.	Harrison	Form 911 14.12.31 to 21.3.32	5.4.32
293 *† <i>Ariguani</i>	Seudamore, J. H. H., D.S.C., R.D., Commr., R.N.R.	G. McKee, W. Ireland, A. Crone.	W.T.	Elders & Fyffes	Forms 911 & 138 14.6.32 to 17.7.32	26.7.32
144 †† <i>Arlanza</i>	Huff, G. F.	B. A. Gammon, A. E. Randle, H. V. Todd.	"	R.M.S.P.	" " 25.6.32 to 9.8.32	11.8.32
081 †† <i>Armadae Castle</i>	Whitfield, G. J.	W. Pace, A. H. Parry, L. G. May.	"	Union Castle	" " 21.5.32 to 10.7.32	13.7.32

LIST OF VOLUNTARY OBSERVING SHIPS

iii

Name of Vessel.	Captain.	Observing Officers.	Meteoro-logical Equipment.	Line.	Last Log, Register, or Record Contributed. Received up to 19.8.32.	Date Received.
233 *† <i>Clan Mackellar</i> ...	Waterhouse, J. ...	J. J. Stormont, E. E. Arthur, W. C. Dazell.	W.T.	Clan ...	Forms 911 & 138 5.6.32 to 25.6.32	22.7.32
004 *† <i>Clan Macnair</i> ...	Holman, W. G. ...	F. H. Petheridge A. Woodrow, J. F. Vooght.	"	" ...	" " 20.3.31 to 11.6.32	13.6.32
001 *† <i>Clan Macphee</i> ...	Giles, H. J., R.D., Capt., R.N.R.	R. G. Bagnall ...	"	" ...	Form 911 25.4.32 to 17.5.32	31.5.32
163 *† <i>Clan Macgart</i> ...	West, W. F. ...	F. H. Houghton, H. Lockyer	"	" ...	Forms 911 & 138 13.6.32 to 2.6.32	25.7.32
002 *† <i>Clan Macwhirter</i> ...	O'Bryne, C. E. ...	M. J. Lewis. ...	"	" ...	" " 27.5.32 to 26.5.32	4.7.32
003 *† <i>Clan Malcolm</i> ...	George, L. S. ...	A. Lynch, K. Banks, N. N. Birtley.	"	" ...	" " 31.7.32 to 10.8.32	18.8.32
283 *† <i>Clan Morrison</i> ...	Porterfield, W. M., Lt-Commr., R.N.R.	A. Hambley, E. Croucher, A. G. Beynon.	"	" ...	" " 17.6.32 to 28.6.32	8.8.32
259 *† <i>Clan Sinclair Colonial</i> ...	Cater, H. ... Harrendon, W. E. ...	D. McAllister ... W. Moore, A. P. Brown, A. Smart.	No. M.	Harrison ...	Form 911 1.5.32 to 24.5.32 " 14.4.32 to 26.6.32	16.6.32 29.6.32
298 *† <i>Comedian</i> ...	Cadogan, A. ...	F. M. Eales, W. G. Ellis ...	" M.	" ...	Forms 911 & 138 8.4.32 to 28.4.32	9.5.32
185 *† <i>Comorin</i> ...	Cartright, C. W., D.S.C.	R. E. Tucker, I. M. S. Sinclair, K. W. Richardson.	" M.	P. & O. ...	Form 911 21.3.32 to 2.6.32	3.6.32
198 *† <i>Contractor</i> ...	Owen, W. T. ...	N. F. O'Neill, L. Seddon, R. Myles.	" M.	Harrison ...	Forms 911 & 138 3.5.32 to 4.6.32	7.6.32
049 ** <i>Coptic, M.V.</i> ...	Williams, G. ...	J. G. James, P. Saville, W. Burt.	W.T.	Shaw, Savill & Albion	" " 4.7.32 to 6.8.32	9.8.32
258 †† <i>Corfu</i> ...	French, F. E., R.D., Captain, R.N.R.	" ...	W.T.-M.	P. & O. ...	Form 912 4.7.32 to 6.8.32	9.8.32
100 *† <i>Cornwall</i> ...	Reilly, H. E. ...	R. S. Miller, C. Saul, G. V. Harrison.	M.L.	Federal ...	Form 915 1.2.32 to 26.5.32	1.7.32
006 †† <i>Coronado</i> ...	Thorburn, R. A., R.D., Commr., R.N.R.	A. Magill, K. H. Mackay, H. Holmes.	W.T.	Elders & Fyffes ...	Forms 911 & 138 24.6.32 to 22.7.32	25.7.32
214 *† <i>Counsellor</i> ...	Jackson, J. ...	A. A. Heaton, J. Davidson, J. L. Curle.	No. M.	Harrison ...	" " 13.4.32 to 15.7.32	9.8.32
036 *† <i>Cumberland</i> ...	Maltby, T. L. ...	J. McCulloch, S. R. Leggett, J. Brooke Smith.	W.T.	Federal ...	Form 915 4.3.32 to 14.6.32	20.6.32
285 *† <i>Custodian</i> ...	O'Connor, T. ...	W. H. Corlett, J. D. Williams, J. Glen.	No. M.	Harrison ...	Form 912 4.5.32 to 14.6.32 Forms 911 & 138 9.4.32 to 7.7.32	20.6.32 20.7.32
169 *† <i>Dalgoma</i> ...	Beeching, P. H. ...	B. M. Bentall, E. Hale, D. MacCullum.	No. M.	British India ...	Forms 911 & 138 3.6.32 to 25.6.32	19.7.32
016 †† <i>Darro</i> ...	Matthews, G. P. ...	F. Jeyes ...	W.T.-M.	R.M.S.P. Co. ...	Form 911 22.6.32 to 8.8.32	16.8.32
011 †† <i>Descado</i> ...	Buret, J. F. C. ...	L. T. Peterson, H. Sang, A. Osborn.	"	" ...	Forms 911 & 138 24.4.32 to 16.6.32	24.6.32
117 †† <i>Desna</i> ...	Green, J. ...	W. Eddington, A. Nichols ...	No. M.	Federal ...	" " 4.6.32 to 13.6.32	16.7.32
252 *† <i>Devon</i> ...	Clarke, P. B., D.S.C.	G. Chaplin, J. D. Marks, G. McLannahan.	"	" ...	" " 14.5.32 to 28.6.32	7.7.32
<i>Dieppe Director</i> ...	Lidbetter, W. ... Worthington, B. ...	E. A. Biles, E. Hill ... A. E. Rogers, H. W. Jones, M. G. O'Brien.	C.C. No. M.	Southern Railway ... Harrison ...	Telegraphic Report 19.8.32 ... Forms 911 & 138 5.1.32 to 28.4.32	19.8.32 28.5.32
138 *† <i>Discovery II, R.R.S</i> ...	Carey, W. M., Commr., R.N.	R. A. B. Ardley, A. L. Nelson, L. C. Hill.	M.L.	Falkland Is. Govt. ...	Form 915 5.1.32 to 4.3.32	7.4.32
136 *† <i>Dorie Star</i> ...	Mills, D. H. ...	L. Vernon, H. Butt, J. McLean	No. M.	Blue Star ...	Form 911 2.11.31 to 25.1.32	11.2.32
275 *† <i>Dramatist</i> ...	Meek, A. J. ...	G. H. Howard, I. W. Page, R. L. Bryde.	" M.	Harrison ...	Forms 911 & 138 16.6.32 to 22.7.32	2.8.32
142 †† <i>Duchess of Atholl</i> ...	McQueen, D. S. ...	A. E. Shergold, C. E. Duggan, E. Glennie.	W.T.-M.	Canadian Pacific	" " 16.7.32 to 19.7.32 ... Form 912 " 16.7.32 to 19.7.32 ...	8.8.32 3.8.32
152 †† <i>Duchess of Bedford</i> ...	Sibbons, H. ...	L. Outram, F. Stell ...	"	"	Forms 911 & 138 26.6.32 to 11.8.32 ... Form 912 26.6.32 to 11.8.32 ...	15.8.32 15.8.32
151 †† <i>Duchess of Richmond</i> ...	Freer, A., R.D., Capt., R.N.R.	J. B. Hewson, E. N. Lloyd	"	"	Forms 911 & 138 10.7.32 to 27.7.32 ... Form 912 10.7.32 to 27.7.32 ...	30.7.32 30.7.32
143 †† <i>Duchess of York</i> ...	Stuart, R. N., V.C., D.S.O., R.D., Commr., R.N.R.	D. Parsons, S. W. Keary, R. M. Stapleton.	"	"	Forms 911 & 138 3.7.32 to 21.7.32 ... Form 912 3.7.32 to 21.7.32 ...	29.7.32 29.7.32
098 †† <i>Dunbar Castle, M.V.</i> ...	Vincent, E. S., R.D., Commr., R.N.R.	T. W. McAllen, J. W. S. Brooks, J. A. Ferguson.	W.T.	Union Castle ...	Forms 911 & 138 18.3.32 to 21.5.32	21.5.32
<i>Dunrobin</i> ...	Ramsay, J. D. ...	T. J. Hewlett ...	No. A.	Glen & Co. ...	Form 911 15.4.31 to 13.5.32	7.6.32
052 *† <i>Dunster Grange</i> ...	Wilson, G. F. ...	J. Allerton, E. G. Raynor, D. Murray.	" M.	Houlder ...	Forms 911 & 138 24.4.32 to 28.6.32	1.7.32
102 *† <i>Duquesa</i> ...	Frost, C. R. ...	E. W. Denman, F. D. Jones, H. W. Brammell.	" M.	Furness Withy ...	" " 2.4.32 to 2.6.32	8.6.32
215 *† <i>Durenda, M.V.</i> ...	Blencowe, J. ...	T. R. Jackson, G. H. Davies...	" M.	British India ...	" " 30.11.31 to 12.2.32	19.2.32
077 †† <i>Edinburgh Castle</i> ...	Gilbert, E. F. ...	L. H. Farrow, T. Campbell	W.T.	Union Castle ...	Forms 911 & 138 7.5.32 to 26.6.32	28.6.32
107 *† <i>El Argentino, M.V.</i> ...	Ellis, F., D.S.C.	W. Findlay, J. Burch, C. G. Adlard.	No. M.	Houlder ...	" " 29.2.32 to 3.5.32	3.6.32
<i>Eldonpark</i> ...	Burns, R. ...	" ...	" M.	J. & J. Denholm ...	" ...	" ...
009 *† <i>Elmworth, M.V.</i> ...	Dick, J. ...	" ...	" M.	R. S. Dalglish ...	Forms 911 & 138 24.5.32 to 8.6.32	25.7.32
158 *† <i>Elpenor</i> ...	Wilson, R. J. ...	J. Macfarlane, F. Vose, F. Stott.	W.T.	A. Holt ...	" " 18.2.32 to 23.6.32	29.6.32
108 *† <i>Elstree Grange</i> ...	Williams, W. E. ...	P. A. Hawkesworth ...	No. M.	Houlder ...	" " 16.2.32 to 28.4.32	12.5.32
109 *† <i>El Paraguayo</i> ...	Owen, R. ...	G. Fletcher, F. Rice, R. L. Aldridge.	" M.	" ...	" " 7.3.32 to 13.5.32	19.5.32
110 *† <i>El Uruguayo</i> ...	McNamara, T. ...	F. E. Hailstone ...	" M.	" ...	" " 8.2.32 to 15.4.32	18.4.32
088 *† <i>Empire Star</i> ...	Owen, G., R.D., Lt-Commr., R.N.R.	R. Thorne, R. McKraith, P. H. Hunt.	W.T.	Blue Star ...	Form 915 21.2.32 to 28.5.32	1.6.32
066 †† <i>Empress of Australia</i> ...	Griffiths, E., Lt-Commr., R.N.R.	O. F. Pennington, E. Roberts, A. H. Pigott.	"	Canadian Pacific ...	Forms 911 & 138 2.6.32 to 7.7.32	9.7.32
034 †† <i>Empress of Britain</i> ...	Latta, R. G. ...	W. P. Phillips, J. H. Tudor, N. W. Duck.	"	"	Form 912 " 14.7.32 to 25.7.32 ... Form 915 2.1.32 to 1.6.32 ...	13.8.32 27.7.32 28.7.32
154 †† <i>Empress of Canada</i> ...	Hailey, A. J., Lt-Commr., R.N.R.	F. Poole, C. F. Aintree, G. W. R. Graves.	M.L.	"	" " 25.6.31 to 5.1.32	28.5.32
153 †† <i>Empress of Japan</i> ...	Robinson, S. C. B.E., R.D., Commr., R.N.R.	R. Goss, R. Walfenden ...	"	"	" " 25.6.31 to 5.1.32	28.5.32
<i>Explorer</i> ...	Allan, J. ...	A. Stout ...	"	Scottish Fishery Brd.	Form 911 8.5.32 to 11.5.32	2.6.32

LIST OF VOLUNTARY OBSERVING SHIPS

Name of Vessel.	Captain.	Observing Officers.	Meteoro-logical Equipment.	Line.	Last Log. Register, or Record Contributed. Received up to 19.8.32.	Date Received.
076 *† <i>Largs Bay</i> ...	Jermyn, W. M. ...	F. B. Marsden ...	No. M.	Aberdeen Common-wealth.	Forms 911 & 138 15.10.31 to 25.11.31	15.2.32
112 *† <i>La Rosarina</i> ...	Bearpark, L. ...	T. C. Townsend, S. W. Howell, S. Gorlett.	" M.	Houlder ...	" " 20.3.32 to 28.5.32	31.5.32
267 *† <i>Lassell</i> ...	Leicester, F. S. ...	A. N. Blundell, — Sweeney, — Christie.	W.T.	Lampont & Holt ...	" " 3.5.32 to 28.7.32	3.8.32
064 †† <i>Laurentie</i> ...	Jackson, W. H. P. ...	H. Solomon, J. Dray, A. Thompson.	"	White Star ...	Forms 911 & 138 10.7.32 to 14.7.32	23.7.32
083 *† <i>Lautaro, M.V.</i> ...	Kite, E. ...	J. Lloyd Jones, J. Williams, C. Stowe.	No. M.	Pacific S.N. Co. ...	Form 912 10.7.32 to 14.7.32 Forms 911 & 138 8.1.32 to 10.2.32	23.7.32 27.2.32
251 *† <i>Limerick</i> ...	Molyneux, P. L. ...	J. Trotter, N. A. Thomas ...	" M.	Federal... ...	" " 13.4.32 to 10.5.32	23.5.32
093 *† <i>Llandaff Castle</i> ...	Hutchings, A. H. ...	J. M. Goode ...	W.T.	Union Castle ...	" " 20.5.32 to 25.7.32	29.7.32
097 †† <i>Llangibby Castle, M.V.</i>	Nicholl, D. ...	G. W. Lloyd ...	"	" " ...	" " 26.3.32 to 28.5.32	31.5.32
094 *† <i>Llandovey Castle</i>	Morgan, A. O., R.D., Commr., R.N.R.	H. S. Warren ...	"	" " ...	" " 26.4.32 to 27.6.32	2.7.32
216 *† <i>Llanstephan Castle</i>	Bickford, C. N. ...	I. A. Wilson, S. Smith ...	"	" " ...	" " 2.5.32 to 30.6.32	5.7.32
084 *† <i>Lobos, M.V.</i> ...	Good, W. T. ...	J. Williams ...	No. M.	Pacific S.N. Co. ...	" " 18.7.32 to 2.8.32	18.8.32
137 *† <i>Logician</i> ...	Herschel, R. J. ...	E. L. Stockley, J. Wallis, W. R. Mackenzie.	" M.	Harrison ...	" " 7.3.32 to 2.6.32	7.6.32
008 *† <i>Losada, M.V.</i> ...	Ridyard, A. ...	L. W. Hutchinson ...	" M.	Pacific S.N. Co. ...	" " 14.4.32 to 25.4.32	28.5.32
013 *† <i>Macharda</i> ...	Hanna, R. G. ...	C. Lindsay Miller, C. Parry, G. A. Jackson.	No. M.	Brocklebank ...	Forms 911 & 138 17.1.32 to 15.2.32	7.3.32
232 *† <i>Madura</i> ...	Morton, R. A. ...	A. Usher, W. Bain, L. G. Tolfree.	" M.	British India... ..	" " 8.5.32 to 1.6.32	23.6.32
078 *† <i>Magician</i> ...	Bury, E. R. ...	W. E. Shotton, R. F. Hart ...	" M.	Harrison ...	" " 20.6.32 to 8.8.32	16.8.32
141 *† <i>Mahia</i> ...	Andrews, C. M. ...	G. Sangwin, M. P. Congdon, J. Jackson.	W.T.	Shaw, Savill & Albion	" " 24.12.31 to 14.4.32	18.4.32
140 *† <i>Mahratta</i> ...	Colombine, T. F. ...	T. C. Eddy, H. F. Scoins, W. J. Wilson.	No. M.	Brocklebank ...	" " 18.7.32 to 27.7.32	4.8.32
014 *† <i>Mahronda</i> ...	Whitham, F. ...	W. Le Brocq, M. Melville, H. Willington.	" M.	" ...	" " 11.4.32 to 11.5.32	17.5.32
015 *† <i>Mahsud</i> ...	Kershaw, R. W. ...	S. Richardson, J. R. Paisley, H. Gillespie.	" M.	" ...	" " 7.3.32 to 31.5.32	6.6.32
042 *† <i>Maimoa</i> ...	Johnson, J. W. ...	M. Bennett, E. J. Baker, W. R. Rogers.	M.L.	Shaw, Savill & Albion	Form 915 8.2.32 to 24.5.32 ...	2.6.32
054 †† <i>Majestic</i> ...	Trant, E. L., R.D., Commr., R.N.R.	F. Murphy, R. B. O'Brien, E. A. Stuart.	W.T.	White Star ...	Forms 911 & 138 2.7.32 to 31.7.32	5.8.32
018 *† <i>Makalla</i> ...	Maughan, J. W. ...	A. C. Hocking, J. Richardson	No. M.	Brocklebank ...	" " 21.5.32 to 23.6.32	29.6.32
225 ** <i>Makura</i> ...	MacDonald, D. ...	A. P. Cousin, J. Billingham, J. H. Johnson.	M.L.	Canadian-Australasian	Form " 915" 23.12.31 to 2.5.32 ...	5.7.32
019 *† <i>Malakuta</i> ...	Adamson, F. L. ...	H. Simpson ...	No. M.	Brocklebank ...	Forms 911 & 138 11.5.31 to 2.12.31	29.1.32
020 *† <i>Malancha</i> ...	Cochran, G. N. ...	L. F. Dodson, A. Hill, R. Penston.	" M.	" ...	" " 15.2.32 to 16.3.32	11.4.32
236 ** <i>Malayan Prince</i>	Holloway, J. ...	" " " " " " " "	M.L.	Prince ...	" " " " " " " "	" " " " " " " "
219 *† <i>Malda</i> ...	Denne, G. H. A. ...	D. Macfadyen, F. M. Ben- castle, K. K. Boyd.	No. M.	British India ...	Forms 911 & 138 18.10.31 to 12.1.32	15.1.32
195 †† <i>Maloja</i> ...	Browning, J. B. R.D., Commr. R.N.R.	R. E. Baldwin - Wiseman, G. R. Peters, J. J. Manning.	W.T.-M.	P. & O. ...	" " 30.1.32 to 4.5.32	11.5.32
196 †† <i>Malwa</i> ...	Britten, P. O. ...	F. E. Berner ...	No. M.	" ...	Form 911 30.4.32 to 17.6.32 ...	23.6.32
053 *† <i>Mamaar</i> ...	Thowless, E. ...	A. L. Harrop, J. Robinson, R. G. Widdon.	" M.	Brocklebank ...	Form 911 & 138 20.7.31 to 9.10.31	21.10.31
<i>Manchester Brigade</i>	Stott, C. H. ...	E. F. Bonnaud, J. Eccles, G. L. Southern.	M.L.	Manchester Liners ...	Form 915 8.8.31 to 15.2.32 ...	19.2.32
<i>Manchester Com- merce.</i>	Linton, P. ...	T. Makin, F. L. Osborne, R. W. Pickersgrill.	"	" " " " {	Form " 912" 1.2.32 to 30.7.32 ...	9.8.32
023 †† <i>Mandala</i> ...	Parkin, J. W. ...	R. Buret, R. Christmas, E. A. Stuart.	No. M.	British India... ..	Forms 911 & 138 19.4.32 to 29.4.32	11.6.32
146 *† <i>Mandasor</i> ...	Richardson, T. ...	H. Fosbrooke, F. C. Madden, J. B. Leigh.	" M.	Brocklebank ...	" " 22.5.32 to 15.6.32	18.7.32
220 *† <i>Manela</i> ...	Maples, S. H. ...	W. F. Solly, T. M. Robertson	" M.	British India ...	" " 21.5.32 to 27.6.32	1.7.32
022 *† <i>Manipur</i> ...	Fulcher, H. D. ...	J. L. Rodger ...	" M.	Brocklebank ...	" " 6.2.32 to 8.3.32	4.4.32
221 *† <i>Manora</i> ...	Hudson, H. T., R.D., Commr. R.N.R.	H. MacIntyre, H. Treseder, H. Brown.	" M.	British India... ..	" " 11.7.32 to 23.7.32	8.8.32
177 *† <i>Mantola</i> ...	James, D. F. ...	W. R. Day, S. Henderson, H. I. Fisher.	" M.	" " ...	" " 12.5.32 to 22.7.32	29.7.32
197 †† <i>Mantua</i> ...	Hignett, R.D., Commr. R.N.R.	C. S. Pirie, J. A. Wilde, G. du Fosse.	W.T.-M.	P. & O. ...	" " 3.4.32 to 11.5.32	17.5.32
299 ** <i>Marella</i> ...	Mortimer, S. ...	A. W. Blair, D. Pemberton, A. G. W. Thomas.	M.L.	Burns Philp ...	Form 915 7.11.31 to 21.2.32 ...	5.7.32
222 †† <i>Margha</i> ...	Kitson, G. A. ...	J. Small, G. Wright, P. Vaughan.	W.T.	British India... ..	Forms 911 & 138 25.6.32 to 7.7.32	22.7.32
104 *† <i>Marquesa</i> ...	Smiles, R. S. ...	J. Wetherall ...	No. M.	Furness Houlder ...	" " 14.3.32 to 21.5.32	25.7.32
021 *† <i>Masula</i> ...	Fitt, W. A. ...	J. L. Richardson, W. Aseroff, P. Sims.	" M.	British India ...	" " 23.2.32 to 3.5.32	9.5.32
251 *† <i>Matakana</i> ...	Gordon, H. R. ...	H. Thompson, D. L. G. Turner, J. G. Allin.	W.T.	Shaw, Savill & Albion	" " 1.4.32 to 10.7.32	13.7.32
023 *† <i>Matheran</i> ...	Mulcahy, J. J. ...	S. S. Slade, J. F. Butterworth, W. Cowrie.	No. M.	Brocklebank ...	" " 9.6.32 to 10.7.32	13.7.32
223 *† <i>Matiana</i> ...	Green, F. V. ...	L. A. Bunn, J. S. Thomson, D. Robertson.	" M.	British India... ..	" " 24.5.32 to 28.6.32	30.6.32
024 *† <i>Matra</i> ...	Cornish, N. P. ...	G. Shaw, W. Robertson, G. Henshaw.	" M.	Brocklebank ...	" " 4.1.32 to 6.5.32	21.5.32
032 †† <i>Mauretania</i> ...	Peel, R. V., R.D., Capt. R.N.R.	R. H. C. Crawford, E. W. Connell, L. R. Sharpe.	W.T.	Cunard ...	" " 3.7.32 to 8.8.32	10.8.32
101 †† <i>Melita</i> ...	Stewart, A. ...	G. Mowatt, C. D. Watt, F. W. S. Roberts.	W.T.-M.	Canadian Pacific ...	Form 911 17.7.32 to 15.8.32 ...	18.8.32
278 *† <i>Middlesex</i> ...	Almond, J. G. ...	G. C. Hocart, J. R. Ricketts, J. Clarke.	W.T.	Federal ...	Form 915 8.2.32 to 5.6.32 ...	11.6.32
224 †† <i>Minnetonka</i> ...	Gates, T. F., C.B.E.	W. S. Harrison, H. E. D. McCartney, T. W. Pullan.	W.T.-M.	Atlantic Transport {	Forms 911 & 138 26.6.32 to 13.8.32 ...	15.8.32
157 †† <i>Minnewaska</i> ...	Claret, F. H., O.B.E., R.D., Commr., R.N.R.	E. Penzelly, D. Davies, F. Mummery.	"	" " ...	Forms 911 & 138 15.7.32 to 30.7.32	2.8.32
194 †† <i>Moldavia</i> ...	Allin, C. H. C. ...	T. E. Heath, J. K. Crone, E. J. Kerridge.	"	P. & O. ...	" " 10.7.32 to 4.8.32	9.8.32
199 †† <i>Mongolia</i> ...	Rhodes, H. R. ...	H. Tee, H. C. Slinn, G. K. Fox.	"	" ...	" " 11.6.32 to 15.6.32	18.6.32

Name of Vessel.	Captain.	Observing Officers.	Meteoro-logical Equipment.	Line.	Last Log, Register, or Record Contributed Received up to 19.8.32.	Date Received.
260 *† Monowai ...	Toten, A. T. ...	L. B. Elhert, E. W. Gibson, L. P. Bourke.	M.L.	Union S.S. of N.Z. ...	Form 915 25.11.31 to 8.4.32 ...	1.6.32
148 †† Montcalm ...	Martin, W. ...	W. P. Haines, T. L. Gillette, Rothwell, A. ...	W.T.-M.	Canadian Pacific ...	Forms 911 & 138 21.7.32 to 6.8.32 ...	9.8.32
149 †† Montclare ...	Turnbull, J., C.B.E., R.D., Capt. R.N.R.	R. Newsom, J. Shearer, J. Soames, A. Watt.	W.T.	" " ...	Form 912 21.7.32 to 6.8.32 ...	9.8.32
150 †† Montrose ...	Dott, J. F. ...	A. Mackie, J. Saunders ...	W.T.-M.	" " ...	Forms 911 & 138 3.7.32 to 28.7.32 ...	8.8.32
164 †† Mooltan ...	Morton, A. J. ...	R. M. Richardson, N. H. Thompson, A. D. Dennis.	"	P. & O. ...	Form 912 29.5.32 to 30.6.32 ...	4.7.32
290 *† Musician ...	Bostock, O. ...	K. H. Davies, H. Philpott, S. H. Diamond.	No. M.	Harrison ...	Form 911 11.7.32 to 14.8.32 ...	17.8.32
					Forms 911 & 138 8.5.32 to 10.8.32	18.8.32
					" " 18.3.31 to 12.5.32	18.5.32
073 *† Nagara ...	Falconer, A. C. ...	E. N. Giller, J. B. Brown, G. D. Bonner.	No. M.	R.M.S.P. Co. ...	Forms 911 & 138 5.5.32 to 25.6.32	28.6.32
201 †† Naldera ...	Harrison, R., D.S.O., R.D., Capt. R.N.R.	P. Tonkin, S. H. Baldwin, J. Brown ...	W.T.	P. & O. ...	" " 17.4.32 to 20.5.32	25.7.32
286 *† Natia ...	Womersley, H. ...	F. Thacker, P. A. Yeatman, G. B. Medlycott.	No. M.	R.M.S.P. ...	" " 5.3.32 to 18.6.32	27.6.32
227 *† Nardana ...	Reilly, J. V. ...	D. B. Lattin, A. Woodward, H. Grace.	" M.	British India ...	Form 915 1.11.31 to 17.3.32 ...	23.3.32
202 †† Narkunda ...	Cadiz, F. G., D.S.C.	J. Travis, G. Randall, G. Copeland.	W.T.-M.	P. & O. ...	Forms 911 & 138 18.4.32 to 1.7.32	2.7.32
027 *† Nebraska ...	Bridges, A. E. ...	H. L. Bowkes, C. K. Brown, P. R. Cocks.	No. M.	R.M.S.P. Co. ...	" " 24.1.32 to 19.4.32	27.4.32
162 *† Nestor ...	Adcock, F. ...	P. Elder, W. Pearce, J. M. Kirk.	W.T.	A. Holt ...	Form 915 22.1.32 to 1.5.32 ...	6.5.32
210 ** Niagara ...	Martin, W. ...	G. H. Kime, D. A. Menlove, J. W. S. Madden.	M.L.	Canadian- Australasian	" 10.12.31 to 26.3.32 ...	27.5.32
256 *† Norfolk ...	McNish, R. L. H., D.S.O., Lt.-Commr., R.N.R.	J. Lunnon, K. M. L. Jones, G. E. Mason.	"	Federal ...	" 18.4.32 to 26.7.32 ...	8.3.32
297 *† Northumberland ...	Upton, H. L., D.S.C., R.D., Commr., R.N.R.	H. S. Cashmore, G. B. Cathie, H. I. Phillips.	No. M.	" ...	Forms 911 & 138 27.2.32 to 27.5.32	2.6.32
231 *† Nuddea ...	Ramsay, D. M. ...	D. A. Jones, T. Hodgkinson, B. Emmerson.	" M.	British India ...	Form 912 21.4.32 to 8.5.32 ...	2.6.32
					Forms 911 & 138 4.5.32 to 8.6.32	4.7.32
294 †† Olympic ...	Binks, J. W., R.D., Lt.-Commr., R.N.R.	O. N. Tugwell, G. Brooks, L. Thompson.	W.T.	White Star ...	Forms 911 & 138 14.7.32 to 27.7.32	29.7.32
243 *† Opawa, M.V. ...	Robinson, F. W. ...	H. D. Horwood, H. P. Williamson, R. H. Chapman.	No. M.	New Zealand Shipping	Form 915 30.11.31 to 23.3.32 ...	13.4.32
170 †† Orama ...	Matheson, C. G., D.S.O., R.D., Capt. R.N.R.	B. W. Gordon, C. H. Denton	W.T.	Orient ...	Forms 911 & 138 22.2.32 to 24.5.32	1.6.32
Orari ...	Ashworth, F. ...	J. H. Underwood ...	No. M.	New Zealand Shipping	" " " " " " " "	"
086 †† Oreoma ...	Benson, E. W. ...	T. R. Scott, H. J. Jones, H. D. Dillon.	W.T. M.	Pacific S.N. Co. ...	Forms 911 & 138 2.8.31 to 30.9.31	7 10.31
087 †† Orduna ...	Galloway, M. ...	P. L. Hockey, W. Horsfall, H. B. Reece.	"	" " ...	" " 15.3.32 to 19.5.32	27.5.32
171 †† Orford ...	Kennedy, G. S. ...	C. E. Hubert ...	"	Orient ...	Form 911 8.4.32 to 10.5.32 ...	17.5.32
174 †† Ormonde ...	James, L. V., D.S.C.	T. L. Shurrock, N. Smith, C. Blake.	W.T.	" ...	Forms 911 & 138 6.3.32 to 7.6.32	16.6.32
172 †† Oronsay ...	Cameron, E. P., R.D., Commr., R.N.R.	R. B. Stannard, C. W. Pinckney	"	" ...	" " 3.4.32 to 6.7.32	13.7.32
173 †† Orontes ...	O'Sullivan, F. R. ...	J. M. Swanson, W. L. Mackay	W.T.-M.	" ...	" " 4.1.32 to 5.4.32	11.4.32
105 †† Orsoun ...	Hubbard, L. F. ...	J. L. Skilling, J. D. Birch, E. V. Bilger.	W.T.	" ...	" " 25.1.32 to 26.4.32	6.5.32
206 *† Otiira ...	Johnson, J. W. ...	" " " " " " " "	No. M.	Shaw, Savill & Albion	" " " " " " " "	"
156 †† Otranto ...	Stanton, H. G., C.B.E., R.D., Commr., R.N.R.	A. E. Coles, A. Addison, E. M. McKay.	W.T.-M.	Orient ...	Forms 911 & 138 1.5.32 to 2.8.32	6.8.32
Pacific Enterprise	Newman, G. W. A. ...	" " " " " " " "	M.L.	Furness Withy ...	" " " " " " " "	"
279 *† Pacific Exporter ...	Holland, C. B., R.D., Commr., R.N.R.	W. Edmonds ...	W.T.	" " ...	Forms 911 & 138 12.2.32 to 4.5.32	20.6.32
Paneras ...	Reynolds, W. ...	W. H. Cross, L. A. Sayers, S. Adams.	M.L.	Booth ...	Form 915 26.7.31 to 9.3.32 ...	15.3.32
Paris	Hill, A. ...	T. Mahoney ...	C.C.	Southern Rly. ...	Telegraphic Report. 18.8.32 ...	18.8.32
Patrician ...	Lowe, J. ...	W. E. Williams ...	No. M.	Harrison ...	Form 911 24.1.32 to 15.6.32 ...	25.7.32
058 †† Pennland ...	Making, V. L. ...	C. H. Otterson, G. T. Boyle, J. Cross.	W.T.	Red Star ...	Forms 911 & 138 4.7.32 to 22.7.32	25.7.32
204 *† Peshawur ...	Roche, C. B. ...	P. Haworth, J. A. Hunter, A. Nicklen.	No. M.	P. & O. ...	Form 912 6.6.32 to 25.6.32 ...	27.6.32
Phemius ...	Dodds, R. ...	" " " " " " " "	M.L.	A. Holt ...	Form 915 2.8.31 to 2.12.31 ...	7.12.31
238 *† Piako ...	Aslin, E. P. C. ...	A. E. Williams, C. A. Cremin, J. F. Clement.	No. M.	New Zealand Shipping	Forms 911 & 138 6.2.32 to 26.5.32	1.6.32
039 *† Planter ...	Ling, J. T. ...	W. S. Eustance, J. J. Devereux, W. H. Slaughter.	"	Harrison ...	Form 912 27.2.32 to 30.4.32 ...	1.6.32
040 *† Port Adelaide ...	Williams, R. ...	E. N. T. Lawrey, F. W. Elgar, D. F. Morgan.	W.T.	Commonwealth & Dominion.	Forms 911 & 138 8.5.32 to 13.7.32	16.7.32
255 *† Port Alma ...	Hayter, S. W. ...	E. E. Roswell, E. Wheeler, J. Moate.	"	" " " " ...	" " 28.2.32 to 13.6.32	18.6.32
128 *† Port Auckland ...	Robinson, C. A. ...	A. G. Rhind, G. C. Langford, A. Brown.	"	" " " " ...	Form 915 23.1.32 to 18.5.32 ...	26.5.32
268 *† Port Bowen ...	Brown, A. H. ...	F. R. Gorman, T. L. Kidwell, T. Soames.	"	" " " " ...	" " 21.12.31 to 21.5.32 ...	9.6.32
130 *† Port Caroline ...	Hearn, G. W. ...	E. W. R. Young, J. G. Thorn, R. E. Garner.	"	" " " " ...	Forms 911 & 138 7.1.32 to 29.3.32	5.4.32
131 *† Port Darwin ...	Steele, H. ...	K. D. Morgan, G. W. Horton, L. B. Philpott.	"	" " " " ...	Form 915 5.11.31 to 26.3.32 ...	31.3.32
133 *† Port Dunedin, M.V.	Mason, W. S., D.S.C.	G. Lovegrove, W. Eastoe, H. Duckling.	M.L.	" " " " ...	Forms 911 & 138 24.3.32 to 6.7.32	14.7.32
					Form 915 4.3.32 to 16.7.32 ...	29.7.32

LIST OF VOLUNTARY OBSERVING SHIPS

Name of Vessel.	Captain.	Observing Officers.	Meteoro-logical Equipment.	Line.	Last Log, Register, or Record Contributed. Received up to 19.8.32.	Date Received.
101 *† Port Fremantle, M.V.	Gilling, W.	A. Naismith, G. F. Parnett, E. J. H. Gorley.	M.L.	Commonwealth and Dominion.	Form 915 21.11.31 to 28.7.32 ...	17.3.32
176 *† Port Gisborne, M.V.	Higgs, W. G.	R. B. Linklater, L. J. Skailes, C. E. Midwinter.	"	" " " {	Form " 16.4.32 to 28.7.32 ...	4.8.32
135 *† Port Hunter ...	Durham, R. S., D.S.C.	G. T. C. Harris, C. R. Townshend, P. A. Mundy.	"	" " " {	Form 912 16.4.32 to 4.7.32 ...	5.8.32
129 *† Port Wellington ...	Jones, C. N.	W. B. Hopkins	W.T.	" " " {	Form 915 9.1.32 to 30.4.32 ...	5.5.32
106 *† Princesa ..	Friend, A. B.	F. Poulson, E. Loughheed, O. Sheard.	No. M.	Houlder "	Form 911 26.8.31 to 4.1.32 ...	11.1.32
163 *† Protesilaus ...	Williams, J. P.	A. Anderson, W. C. McGuigan, E. R. Owen.	M.L.	A. Holt	Forms 911 & 138 20.6.32 to 6.7.32	9.7.32
205 †† Rajputana ...	Holland, R.	G. Aspinall, H. M. Askin, C. F. Wright.	W.T.-M.	P. & O.	Form 915 6.10.31 to 11.4.32 ...	24.6.32
063 *† Rancher ...	McCullum, J.	G. Harvey, C. F. Minshull, A. O. Lewis.	No. M.	Harrison	Forms 911 & 138 30.1.32 to 28.4.32	9.5.32
228 †† Ranchi ...	Brooks, C., D.S.O., R.D., Commr., R.N.R.	T. A. Sargeant	" M.	P. & O.	" " 29.2.32 to 12.5.32	17.5.32
257 †† Rangitlata, M.V. ...	Hunter, J. L. B.	J. Oxnard, D. Chadwick, L. Griffith.	W.T.-M.	New Zealand Shipping {	" " 4.4.32 to 6.7.32	11.7.32
240 †† Rangitiki, M.V. ...	Barnett, H.	H. Hill, L. F. Malcouronne, J. V. Halliday.	"	" " " {	Form 912 12.3.32 to 13.6.32	23.6.32
207 †† Ranpura ...	Furlong, G. H. S., R.D., Capt. R.N.R.	F. Ferguson, R. A. Perry, H. Toon.	No. M.	P. & O.	Forms 911 & 138 17.1.32 to 25.4.32	29.4.32
071 †† Rawalpindi ...	Stringer, R.H., O.B.E., R.D., Commr., R.N.R.	E. C. White, D. West, H. V. Forbes.	W.T. M.	"	" " 6.3.32 to 7.6.32	16.6.32
247 *† Recorder ...	Egerton, J. J.	A. S. Milne, H. C. Blyth, A. Robertson.	No. M.	Harrison	" " 20.2.32 to 25.5.32	3.6.32
132 *† Reina del Pacifico, M.V.	Kite, E.	W. A. Hearle, R. Bridson, J. K. Campbell.	" M.	Pacific S.N. Co.	" " 22.5.32 to 12.8.32	19.8.32
239 *† Remuera ...	Wilde, H. J.	F. Cooke, A. J. Angell, A. D. Wilson.	M.L.	New Zealand Shipping	" " 19.4.32 to 8.6.32	13.6.32
Rhexenor ...	Stout, G. L.	G. Edge	No. A.	A. Holt	Form 915 6.5.32 to 13.8.32	17.8.32
Rolher ...	Sherwood, R. H.	H. L. Marshall, T. W. Westerdale.	W.T.	Goole Steam Shipping	Form 911 12.6.32 to 26.7.32	3.8.32
062 *† Royal Star ...	Walsh, W.	A. F. Day, J. Higgin, J. W. McHugh.	No. M.	Blue Star	Forms 911 & 138 25.6.32 to 13.8.32	17.8.32
246 *† Ruahine ...	Kinnell, G.	A. Hocken, R. Warren, L. Mercer.	W.T.	New Zealand Shipping	Form 915 24.12.31 to 16.3.32	23.3.32
St. Helier ...	Pitman, R.	T. E. Martin	C.C.	G.W. Railway ...	Forms 911 & 138 23.4.32 to 30.5.32	4.6.32
St. Julien ...	Richardson, L.	H. O. Freeman	No. A.	Bunch Steam Fish- ing Co. {	Telegraphic Report 15.8.32 ...	15.8.32
St. Minver, S.T. ...	Hatton, A.	"	"	" " " {	Form 911 18.8.32 ...	18.8.32
St. Patrick ...	Sanderson, C. W.	T. D. Thomas	C.C.	G. W. Railway ...	Form 912 19.7.32 to 15.8.32	19.8.32
038 †† Samaria ...	Malin, R. G., Lt-Commr., R.N.R.	F. G. Watts, J. A. Myles, H. Hudson.	W.T.	Cunard	Form 912 19.7.32 to 15.8.32	19.8.32
061 *† Saxon Star ...	Griffiths, G. A.	K. Griffiths	"	Blue Star	Telegraphic Report 13.7.32	13.7.32
291 *† Scholar ...	Peterkin, A. G.	T. E. Steel, D. O. Percy	No. M.	Harrison	Forms 911 & 138 4.7.32 to 22.7.32	26.7.32
033 †† Scotia ...	O'Neill, J.	W. H. Hughes	C.C.	L.M. & S. Railway ...	Form 912 4.7.32 to 22.7.32	26.7.32
033 †† Seythia ...	Oram, B. B., R.D., Commr., R.N.R.	W. H. Stewart, A. Bridge- water, H. L. Pryse.	W.T.	Cunard	Form 911 & 138 11.7.32 to 30.7.32	3.8.32
211 *† Shropshire, M.V. ...	English, G. L.	D. Hetherington, I. D. Minto, G. W. Dobson.	"	Bibby	Form 912 13.6.32 to 2.7.32	8.7.32
121 *† Siamese Prince ...	Jones, E. E.	"	M.L.	Prince	Forms 911 & 138 24.4.32 to 13.6.32	20.6.32
230 *† Somerset ...	Pilcher, C. R.	C. Edgecombe, H. M. Knight, H. V. G. Hastings.	"	Federal	Form 911 & 138 24.4.32 to 13.6.32	20.6.32
277 *† Spero ...	Montgomery, H.	H. W. Vickers, A. Kirk	"	Ellerman Wilson ...	Telegraphic Report 13.8.32	13.8.32
Stephen ...	Barlow, F. P.	J. Whayman, G. H. Daniels, W. W. Torkington.	"	Booth	Forms 911 & 138 11.7.32 to 30.7.32	3.8.32
270 †† Strathaird ...	Townshend, W. P., R.D., Capt. R.N.R.	R. H. Hand, H. Fitzmarshall, W. J. Alington.	W.T.-M.	P. & O.	Form 912 13.6.32 to 2.7.32	8.7.32
044 *† Tacoma City ...	Paul, H.	T. J. Paull	M.L.	Reardon Smith ...	Forms 911 & 138 15.5.32 to 23.7.32	26.7.32
229 *† Tactician ...	Trinick, F., O.B.E. ...	E. P. Simmons, A. Frew, S. Leyland.	No. M.	Harrison	Form 911 24.12.31 to 2.6.32	9.6.32
045 †† Tainui ...	McIntosh, A.	G. A. Harvey, J. Worrall, D. Pickersgill.	M.L.	Shaw, Savill & Albion	Forms 911 & 138 10.4.32 to 20.7.32	26.7.32
081 *† Tairoa ...	Grayston, E. T., D.S.C., R.D., R.N.R.	G. L. Almond, W. Thowless, L. B. Miller.	W.T.	" " " {	Form 915 23.4.32 to 6.8.32	16.8.32
046 †† Tamaroa ...	Hartman, W. H.	L. R. Bull, R. R. Roseman, F. Luiyen.	W.T.-M.	" " " {	" " 26.3.32 to 28.6.32	7.7.32
264 ** Tanda ...	Pilcher, E. T., Lt-Commr., R.N.R.	B. W. Dun, F. O. Colvin, G. Chadwick Smith.	M.L.	E. & A. S.S. Co. ...	Forms 911 & 138 29.1.32 to 8.5.32	11.5.32
165 *† Tantalus, M.V. ...	Melling, C. F.	E. Saville, W. B. Hailstone, L. A. Munday.	W.T.	A. Holt	Form 915 2.12.31 to 29.2.32	28.5.32
047 *† Taranaki, M.V. ...	Wood, C., D.S.C.	A. C. Jones, B. M. Morris, C. Stewart.	"	Shaw, Savill & Albion	Forms 911 & 138 24.6.32 to 18.7.32	8.8.32
Tasmania ...	Williams, J. W.	"	W.T.	New Zealand Shipping	" " 9.6.32 to 6.7.32	8.8.32
069 *† Tekoa ...	McNish, R. H. L., D.S.O., Lt-Commr., R.N.R.	C. W. Roberts	No. M.	" " {	Form 911 30.12.31 to 25.1.32	15.2.32
048 †† Themistocles ...	Elford, H. C.	F. G. Muggleston, A. S. Marshall, J. W. Best.	W.T.-M.	Aberdeen Common-wealth.	Forms 911 & 138 10.7.31 to 3.3.32	20.4.32
007 *† Thistleghen ...	Whitfield, G.A., O.B.E.	S. B. Davis, G. L. Hethering- ton.	No. M.	Allan Black & Co. ...	" " 14.2.32 to 5.6.32	9.6.32

Name of Vessel.	Captain.	Observing Officers.	Meteoro-logical Equipment.	Line.	Last Log, Register, or Record Contributed. Received up to 19.8.32.	Date Received.
161 *† <i>Titan</i>	Elford, W. J.	F. B. Smith, A. K. Sanderson, B. L. Parker.	W.T.	A. Holt	Forms 911 & 138 22.11.31 to 25.3.32	30.3.32
244 *† <i>Tongariro</i>	Hamilton, F. S.	E. A. Quick, D. Baldwin, H. Dawson.	M.L.	New Zealand Shipping	Form 915 6.2.32 to 13.5.32	23.5.32
025 †† <i>Transylvania</i>	Bone, D. W.	A. Middleton, J. Lefevre, J. O. Dunn.	W.T.	Anchor	Forms 911 & 138 5.6.32 to 26.6.32	23.6.32
288 *† <i>Traveller</i>	Barrow, W. T. C.	R. Ledger	No. M.	Harrison	Form 912 5.6.32 to 26.6.32	28.6.32
119 *† <i>Trojan Star</i>	Griffin, G. A.	L. S. Hassell, K. Griffiths, D. W. Marshall.	" M.	Blue Star	Forms 911 & 138 5.6.32 to 4.8.32... ..	8.8.32
245 *† <i>Turakina</i>	Laird, J.	H. G. Lettis, E. G. Williams, J. Reeve.	" M.	New Zealand Shipping	" " 29.11.31 to 18.4.32	30.4.32
276 †† <i>Tuscania</i>	Rome, W. B.	J. Noble, G. Squires, G. Robertson.	W.T.	Anchor... ..	" " 18.6.32 to 24.7.32	26.7.32
					Form 912 18.6.32 to 24.7.32	26.7.32
113 *† <i>Upwey Grange, M.V.</i>	Goodrick, H. P.	A. Bradbury, G. T. Hurst, P. J. Walper.	No. M.	Houlder	Forms 911 & 138 12.4.32 to 13.6.32	21.6.32
292 †† <i>Viceroy of India</i>	Thornton, E. J., R.D., Capt., R.N.R.	R. H. Turner, M. F. Shute, E. R. Physick.	W.T.-M.	P. & O.	Forms 911 & 138 8.5.32 to 8.6.32... ..	13.6.32
242 ** <i>Waiolapu</i>	Davis, — ... ..	...	M.L.	Union S.S. Co. of N.Z.	...	5.5.32
263 ** <i>Wairuna</i>	Hender, W. H.	J. B. Williams, R. E. Suckling.	"	" " "	Form 915 7.12.31 to 3.3.32	5.5.32
005 †† <i>Warwick Castle</i>	Owens, G.	P. Chissold, W. D. Roach, J. Wilson.	W.T.	Union Castle	Forms 911 & 138 18.6.32 to 7.8.32	9.8.32
060 †† <i>Westernland</i>	Doughty, J. H.	J. H. Mackie, J. L. McLaren, W. F. Godwin.	"	Red Star	Form 912 " 18.7.32 to 6.8.32	8.8.32
056 *† <i>Westmoreland</i>	Holland, E. ... ..	...	"	New Zealand Shipping	Form 912 " 19.6.32 to 9.7.32	11.7.32
208 †† <i>Winchester Castle M.V.</i>	Morton Betts, W.	G. F. Moon, A. G. Patey.	"	Union Castle	Forms 911 & 138 14.5.32 to 3.7.32	5.7.32
096 †† <i>Windsor Castle Worthing</i>	Kerbey, J. H. Marmery, S.	H. Close C. Munton, F. Balcombe	O.C.	" " Southern Railway	" " 11.6.32 to 31.7.32 Telegraphic Report 17.8.32	28.3.32 17.8.32
043 ** <i>Zealandic, M.V.</i>	Elford, H. C.	P. Horwood, J. Thompson, B. Morris.	W.T.	Shaw, Savill & Albion	Forms 911 & 138 14.3.32 to 6.5.32	9.5.32
<i>Conway, H.M.S.</i>	Richardson, F. A., D.S.C., Commr., R.N.	The Senior Cadets	Cadets' M.L.	...	Cadets' Met. Log. 24.4.32 to 25.7.32	2.8.32
<i>Pangbourne Nautical College</i>	Tracy, A. F. G., Commr., R.N.	" "	"	...	Cadets' Met. Log. 21.4.32 to 16.7.32	29.7.32
<i>Worcester, H.M.S.</i>	Steele, G. C., V.C., Commr., R.N.	" "	"	...	Cadets' Met. Log. 6.5.32 to 27.7.32	
<i>Abaco</i> ... ..	...	The Keepers	Lighthouse Register.	...	Lighthouse Register 1.1.32 to 30.6.32	4.8.32
<i>Cay Lobos</i> ... ..	...	" ... ..	"	...	Lighthouse Register 1.1.32 to 30.6.32	4.8.32
<i>Double Headed Shot</i> ... ..	...	" ... ..	"	...	Lighthouse Register 1.1.32 to 30.6.32	4.8.32
<i>Inagua</i> ... ..	...	" ... ..	"	...	Lighthouse Register 26.2.31 to 5.9.31	6.10.31
<i>Sombrero</i> ... ..	...	" ... ..	"	...	Lighthouse Register 1.1.32 to 30.6.32	28.7.32
<i>Walling Island</i> ... ..	...	" ... ..	"	...	Lighthouse Register 1.1.32 to 30.6.32	4.8.32
<i>Cape Pembroke (Falkland Is.)</i> ... ..	...	" ... ..	"	...	Lighthouse Register 1.7.31 to 31.12.31	18.2.32

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 31.7.32.	Date Received.
<i>Dakaran</i>	Hannaford, W.	A. A. Johnson	Leyland	Water Samples	10.6.32
<i>Darian</i> ... ..	...	W. R. Vaughan ... ..	...	" " ... ..	18.9.31
<i>Darro</i>	Matthews, G. P.	F. R. Jeyes	R.M.S.P. Co.	" "	11.6.32
<i>Davision</i>	Thomas, R.	H. B. Peters	Leyland	" "	27.6.32
<i>Dorelian</i>	Hughan, C.	A. F. Wood	" "	" "	12.7.32
<i>Hilary</i>	Buck, R. H., R.D., Capt., R.N.R.	F. H. Good	Booth	" "	4.6.32

October, M.O., 1932.

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

MARINE METEOROLOGY, ATLASES, BOOKS AND MEMOIRS.

CHARTS:—

ATLANTIC (NORTH AND SOUTH):—

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

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

ATLANTIC (NORTH):—

Atlas of Currents on the Main Trade Routes of the North Atlantic. (No. 323, 1930. 6s. 6d.) (29¼ × 19½ in.)

Meteorological Charts of the North Atlantic for each month of the year, giving normals of Pressure, Air and Sea Surface Temperature and Ocean Currents, with Frequencies of Winds, also Ice Limits. (No. 149A, 1923.) 1s. each (35 × 22½ in.). Sold by J. D. Potter, 145, Minories, E.1.

Synchronous Weather Charts of the North Atlantic and the adjacent Continents, 1st August, 1882, to 3rd September, 1883. Parts I to IV (33 sheets each). (No. 71, 1886) 17s. each Part. (26 × 22 in.)

Charts of Meteorological Data for Square 3, Lat. 0°-10° N., Long. 20°-30° W. (20 × 13½ in.) and Remarks to accompany the Monthly Charts, which show the Best Routes across the Equator for each Month, &c. (17 × 16½ in.) (No. 20, 1874). 20s.

Discussion of the Meteorology of that Part of the Atlantic lying North of 30° N., for the eleven days ending 8th February, 1870. With Charts (No. 13, 1872). 5s. (4to.)

ATLANTIC (SOUTH):—

Wind Charts for the Coastal Regions of South America, from information collated and prepared in the Meteorological Office. (No. 159, 1902.) (27 × 20½ in.) (Published by the Admiralty.)

The relation between Pressure, Temperature, and Air Circulation over the South Atlantic Ocean. By M. W. Campbell Hepworth, C.B., R.D., Captain R.N.R., Marine Superintendent. (No. 177, Second Edition, 1917.) 1s. (8vo.)

BAFFIN BAY AND DAVIS STRAIT:—

Monthly Meteorological Charts of Baffin Bay and Davis Strait. (No. 221, 1917.) 8s. (30 × 25½ in.)

CHARTS:—*continued.*

INDIAN OCEAN:—

Meteorological Charts of the East Indian Seas for each month of the year, giving Normals of Pressure, Air and Sea Temperatures and Ocean Currents, with Frequencies of Winds. (No. 181A, 1923.) 1s. each. (35 × 22½ in.) Sold by J. D. Potter, 145, Minories, E.1.

Monthly Current Charts for the Indian Ocean, from information collated and prepared in the Meteorological Office. (No. 124, 1896.) (20 × 24½ in.) (Published by the Admiralty.)

PACIFIC OCEAN:—

Quarterly Current Charts for the Pacific Ocean, from information collated and prepared in the Meteorological Office. (No. 134, 1897.) (26½ × 28½ in.) (Published by the Admiralty.)

Wind Charts for the Coastal Regions of South America, from information collated and prepared in the Meteorological Office. (No. 159, 1902.) (27 × 20½ in.) (Published by the Admiralty.)

RED SEA:—

Meteorological Charts of the Red Sea. (No. 106, 1895.) 21s. (22 × 13½ in.)

SOUTHERN OCEAN:—

Meteorological Charts of the Southern Ocean between the Cape of Good Hope and New Zealand. (No. 123, 1917.) 7s. 6d. (12½ × 9½ in.)

BOOKS:—

Wireless and Weather, An Aid to Navigation, with Appendices. (No. 297, 1928.) 5s. (4to.)

The Marine Observer's Handbook. Fifth Edition. (No. 218, 1930.) 2s. 6d. (8vo.)

PAMPHLET:—

Decode for use with the International Code for Wireless Weather Messages from Ships. Second Edition. (No. 329, 1931.) 3d. (8vo.)

GEOPHYSICAL MEMOIRS (4to.):—

19. **Hurricanes and Tropical Revolving Storms**. By Mrs. E. V. Newnham, M.Sc. With an Introduction on "The Birth and Death of Cyclones," by Sir Napier Shaw, F.R.S. (No. 220i, 1922.) 12s. 6d.

28. **The Doldrums of the Atlantic**. By C. S. Durst, B.A. (No. 254h, 1926.) 1s. 6d.

The Admiralty Publications are on sale by J. D. POTTER, 145, Minories, London, E.1.

The other Publications mentioned in this list, unless otherwise marked, can be purchased directly from

H.M. STATIONERY OFFICE at the following addresses:—

Adastral House, Kingsway, London, W.C.2; 120, George Street, Edinburgh; York Street, Manchester;

1, St. Andrew's Crescent, Cardiff; 15, Donegall Square West, Belfast;

or through any Bookseller.

[To face page viii.]

LET BY STATE OF THE REPUBLIC OF TEXAS
AND AGRICULTURAL COMMISSION
OF THE STATE OF TEXAS

REPORT OF THE COMMISSIONERS

1900

The Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, have the honor to acknowledge the receipt of the report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900.

The report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900, is hereby published in full, and is to be read and considered by the people of the State of Texas, and the Agricultural Commission of the State of Texas, as a part of the public record of the State of Texas, and the Agricultural Commission of the State of Texas.

The Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, have the honor to acknowledge the receipt of the report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900.

The Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, have the honor to acknowledge the receipt of the report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900.

The Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, have the honor to acknowledge the receipt of the report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900.

The Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, have the honor to acknowledge the receipt of the report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900.

The Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, have the honor to acknowledge the receipt of the report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900.

The Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, have the honor to acknowledge the receipt of the report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900.

The Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, have the honor to acknowledge the receipt of the report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900.

The Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, have the honor to acknowledge the receipt of the report of the Commission on the part of the State of Texas, and the Agricultural Commission of the State of Texas, for the year 1900.