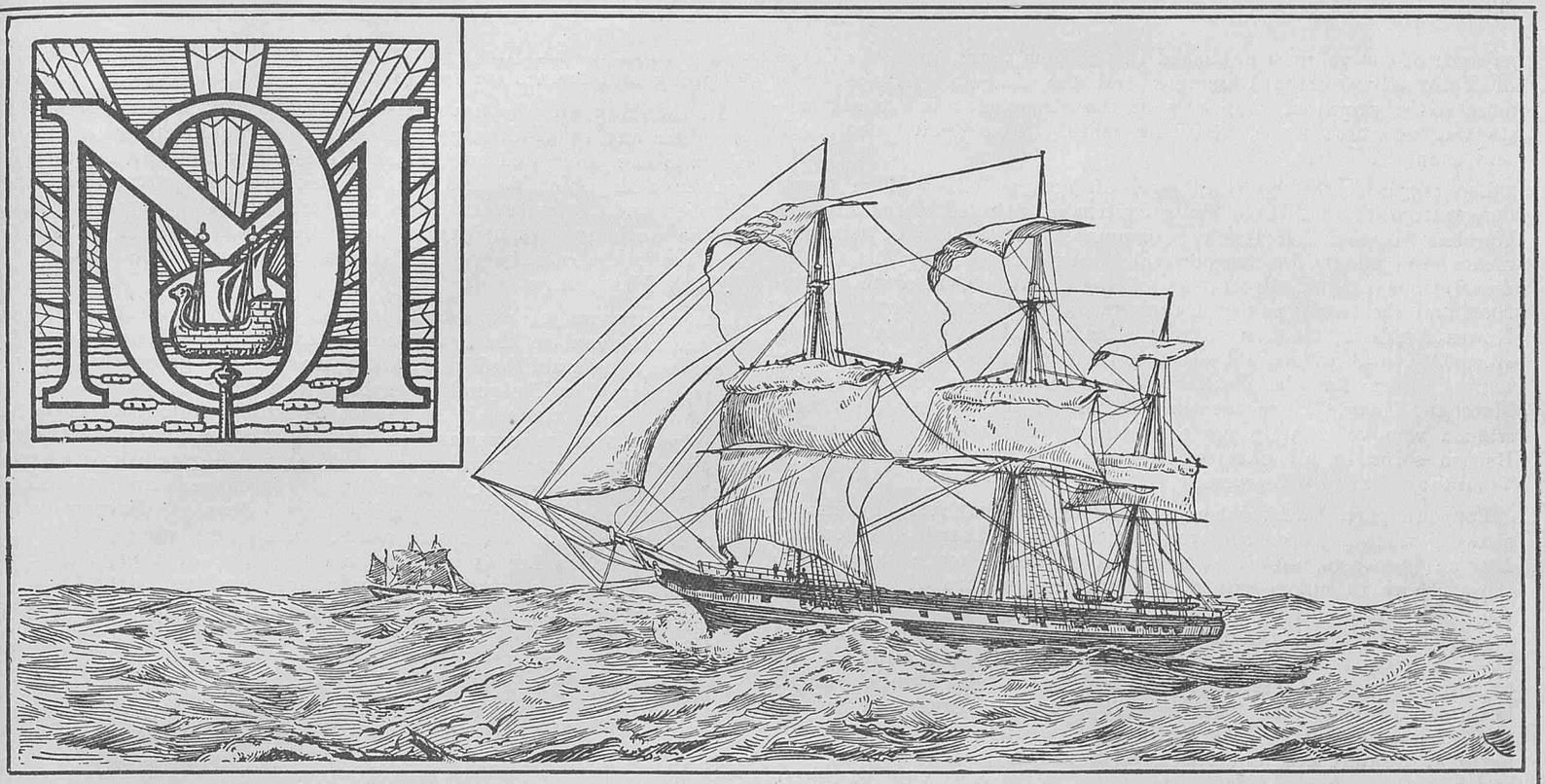
M.O. 262.



VOL. VII. No. 84. THE MARINE OBSERVER. DECEMBER, 1930.

TABLE OF PRINCIPAL CONTENTS.

VOLUME VII.

With this number of THE MARINE OBSERVER which completes the seventh volume the index is published and title page provided.

All concerned are reminded that a specially made binding cover may be purchased from the Stationery Office and it is hoped that all observing ships will take the precaution of having their numbers for the past year bound. Each year there are only a limited number of MARINE OBSERVERS printed and it is desirable that as many complete volumes as possible, whether ship's equipment, privately owned or official property, should be preserved.

To bind the year's twelve numbers of THE MARINE OBSERVER to the best advantage we recommend that in each of the numbers the cover, advertisement pages, list of Voluntary Observing Ships and North Atlantic Ice Chart containing information which is not permanent or which may be repeated, should be dispensed with. When these have been removed there will remain pages numbered in sequence throughout each number, also pages unnumbered containing lithographic charts which follow the numbered pages as they are published in the monthly numbers. These should be placed in the volume cover and bound.

Most hearty thanks to all who have contributed to this volume of THE MARINE OBSERVER—not only those whose names appear in it—but all those who have helped in its production afloat and ashore by providing information ready for press, data which have been used in compiling the information published and also those who have assisted in preparing the information for press and those who have printed it.

Though this volume may be somewhat smaller in bulk than that of last year and may not contain quite so much information

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as some of the volumes published in previous years, in it the Corps of Voluntary Marine Observers and the Marine Division have more to be proud of than any of the others, for it records substantial advances made, resulting mainly from their good work and example.

Looking back through the pages of VOLUME VII will be found descriptions of the World Wide System of Selected Ships Routine Wireless Weather Telegraphy Communication, details of improvements in marine meteorological work from May 1st, 1930, descriptions of the 5th edition of the MARINE OBSERVER'S HANDBOOK and the new ATLAS OF CURRENTS ON THE TRADE ROUTES OF THE NORTH ATLANTIC, the first current atlas published by Great Britain since 1897, and an account of the establishment of a Port Meteorological Office for the Port of London under an officer of the Merchant Navy. These are the outcome of the fine work of those seamen who voluntarily perform marine meteorological service in British ships in all parts of the world known as the Corps of Voluntary Marine Observers.

For our part, this volume of THE MARINE OBSERVER, by simply showing what has been achieved by the British Corps of Voluntary Marine Observers, serves as a record of efforts made to convince those ashore in many countries of the true nature of sea service, the need for simplicity in the conduct of this work at sea, with seamanlike methods, and to show how marine meteorology may be made a greater factor in safe navigation while assisting in the progress of general Meteorological science without duplication in keeping records at sea. That is to say that the example of British seamen was stressed. This work in connection with two International Conferences and one British Empire Conference in 1929 was more than enough for one year and we have no wish to repeat such an experience. If this has been of some avail in obtaining more suitable handling of meteorological service for British shipping and seamen we are rewarded.

In thanking all who have helped to make THE MARINE OBSERVER a success and in winding up this volume we would appeal again to all who are interested in Marine Meteorology to provide suitable matter with which to still further improve our journal. In the October and November numbers we wrote about the practical side of the work and its utility to the Merchant Navy and we would stress the desirability of all at sea considering this aspect of Marine Meteorology.

More accounts of experiences in which meteorological work has proved beneficial in the navigation of the ship are desired, so that these may be published and so be made more generally known. There is nothing like good example in this work at sea and unless it is widely known at sea it cannot be widely followed. There is still room for improvement in the illustration of THE MARINE OBSERVER and good photographs, sketches, diagrams and charts are always welcome. Colour is not reproduced and therefore reproduction will be greatly facilitated if sketches, diagrams and charts are made in black and white, indian ink being preferable. Charts should as far as possible be of the size of a page in THE MARINE OBSERVER so that undue reduction need not be made.

Particular attention is invited to the Errata on page 262 of this number.

Again we thank most heartily all those who have contributed to THE MARINE OBSERVER.

MARINE SUPERINTENDENT.

London.

September 10th, 1930.

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.

LOCAL OBSERVATIONS OF THE SET AND DRIFT OF THE GULF STREAM.

THE following chart and remarks by Lieutenant W. E. ALLEN, R.N.R., Principal Observing Officer, Cable Ship *Dominia*, Captain V. CAMPOS, O.B.E., are of special interest and speak for themselves. Whereas the set and drift of current obtained during a run can only indicate the general flow of the water at and near the surface over a line joining the Positions **From** and **To** these observations indicate current at definite positions.

" The accompanying chart shows the area over which *Dominia* obtained current observations in the Gulf Stream during December, 1929, February, May and June, 1930, and gives diagrammatically the result of these observations, the full details of which are given in the Meteorological Logs covering those periods.

" The observations were in all cases made at Buoys and are therefore very reliable.

" On the chart each position is designated by a letter, below which is given the number of days on which observations were taken and the greatest and least rate of current experienced at each position. The shaded areas shown at certain positions give the extreme limits in direction of the current observed at the individual position, and the long arrows show the mean direction and average rate in knots. At positions D, G and F currents were only ascertained on one day at each place. The observations at E were obtained from information supplied by another vessel.

" On examining the arcs at positions A, B and C, where observations were carried out over a number of days, there appears to be a definite change in the mean direction of the current from the E.N.E. towards the S.S.E. as one moves eastward from A to C.

" The observations at A it will be noticed were made during the months of January and February, while those at B and C were taken in May and June, it might therefore be supposed that this change in direction is seasonal; that this is not so, is borne out by the fact that the currents observed at E were experienced during a period overlapping the observations at B. The observations at F and G also support this suggested change in direction as they were taken on the same day with an interval of 12 hours between them.

" It was also found that when making long runs on East and West courses the North and South components of the stream neutralised each other, the nett set experienced being eastward, when however short runs of 10 to 20 miles were made the full effect of the North and South component was felt.

" The observations were examined with a view to finding if there was any relationship between the variations in direction and rate of the Stream at the various positions, and the local meteorological conditions such as direction and changes of wind and sea water temperatures.

" This examination gave a negative result and there appears to be no correlationship between these phenomena, and no means of foretelling the probable direction of the current within the limits of the shaded area.

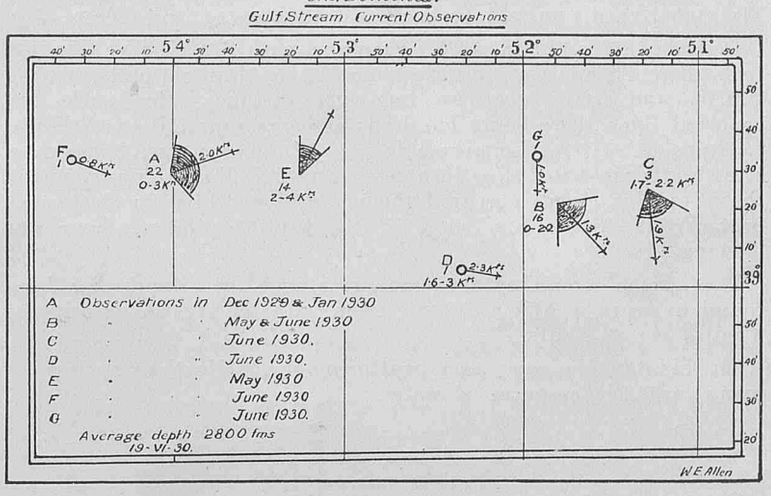
" That the Gulf Stream may at times run westward in a more easterly longitude than that covered by the chart is suggested by observations at position C where a current setting 200° 1.7 Kts. was observed.

" The method of obtaining the current observations at all positions excepting " E " was to place the ship about one cable from a moored Buoy and then to so adjust the course and speed of engines to maintain that Buoy on a bearing and at a constant distance.

" The set was obtained by noting the direction of the ship's head, any wind effect, if any, being easily allowed for as the current was generally strong enough to cause a wake past the buoy. It is considered that the set as logged is within at the most five degrees of the true set. Of course the stronger the current the truer the observed set would be.

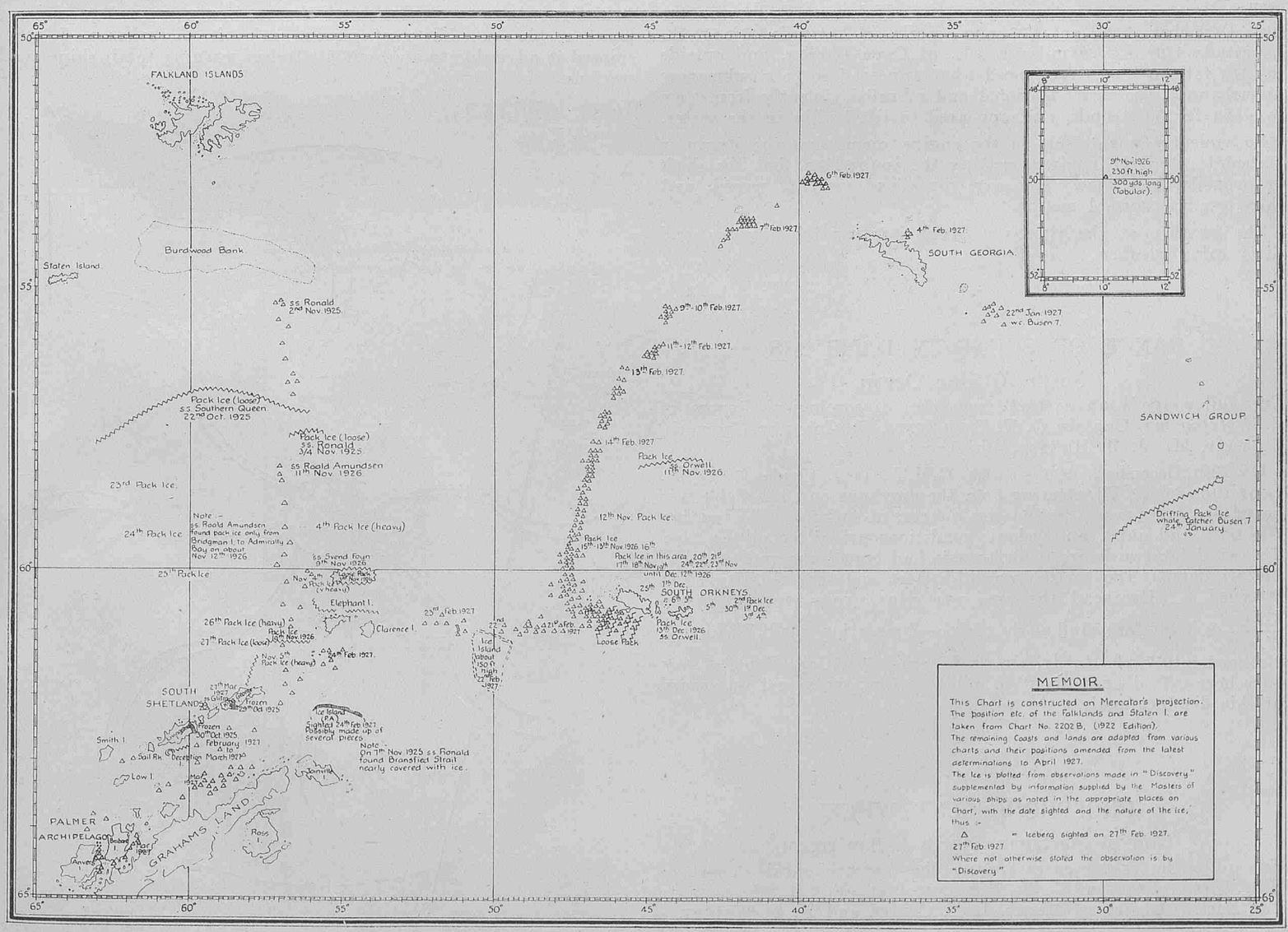
" The drift was obtained by means of the Chernekuff submerged log which, by the aid of a stop watch, gives the rate at which a vessel is steaming *through* the water, *not* the speed of engines which on account of the wind effect was greater. The Impeller of the log was about 20 feet below the sea surface. It is difficult to give a probable error for the rate of the current as logged, taking everything into consideration however they should be within 0.2 Kts. of the correct drift.

" Only currents taken under favourable conditions were entered in the logs."



SOUTHERN OCEAN ICE CHART.

Copy of Chart constructed by Lieut.-Commander J. M. CHAPLIN, R.N., from information collected by Commander J. R. STENHOUSE, D.S.O., O.B.E., D.S.C., R.N.R., and Officers of R.R.S. *Discovery* and others 1925–27.



ICE AND CURRENTS IN THE VICINITY OF BISCOE ISLANDS.

Southern Ocean.

THE following is an extract from the Meteorological Log of R.R.S. *William Scoresby*, Captain R. L. V. SHANNON. Far South on WILKINS Expedition. Observer Mr. J. G. BOWERS, 2nd officer:—

December 17th, 1929, at 1625. Seaplane, with SIR HUBERT WILKINS took off and made towards Flandres Bay on Danco Coast, turning S.S.W. and flying coatwise for some distance. Ice pack was reported thick there being hundreds of bergs round Biscoe islands. Latitude 67° 17′ S., Longitude 68° 45′ W. There was, however, a stretch of clear water close inshore. On return flight it was reported that Cumulus clouds obscured the mountains, whilst to Eastwards over Weddell Sea a Sly. wind estimated at 50 miles per hour was blowing.

The general trend of the currents round the islands has been found to be in a N.N.E.(T) direction with an average velocity of 8 miles per 24 hours.

On this date the pack ice is scattering to the Northwards leaving many large clear spaces of water.

SUBMARINE DISTURBANCE.

South Australian Waters.

THE following report from S.S. *Kiwitea*, Captain M. MACKENZIE, has been received from Commander G. D. WILLIAMS, D.S.O., R.D., R.N.R., Deputy Director of Navigation, New South Wales, Marine Meteorological Agent at Sydney.

The above-named vessel on voyage from Hobart to Sydney on the 28th December, 1929, at 11.35 a.m., while in Latitude 40° 41′ S., Longitude 149° E., 29 miles E.S.E. of Cape Barron, and outside the 100 fathom line, experienced what appeared to be a submarine disturbance. The vessel trembled and vibrated violently from stem to stern for 30 seconds, and appeared to lift bodily in the water.

So violently was it felt in the engine room, that the Engineer rushed to stop the engines, getting the impression that the shaft or propeller had gone. However, the vibrations then ceased, and ship resumed normal motion.

The weather at the time was fresh Easterly, choppy sea and dirty rainy weather.

RANGE OF SOUND IN DAMP AIR.

North Atlantic Ocean.

THE following is an extract from the Meteorological Report of S.S. *Metagama*, Captain D. T. CARR-JONES, St. Johns to Greenock. Observer, Mr. J. B. HEWSON, 4th Officer.

On 28th December, 1929, at 1030 G.M.T., in Latitude 43° 06′ N. Longitude 65° 50′ W., steering 090°, the diaphone on Cape Sable was heard distinctly over a period of a quarter of an hour. The weather was mild and quiet, anticyclonic conditions prevailing at the time. The wind for two hours prior to this had been light and variable, the air damp. The horizon was indistinct and the visibility never exceeded 6. Overhead the sky was clear except for occasional $\frac{\text{Ci-Cu}}{\text{W.S.W.}}2$. Surface wind at the time of observation was S.W. force 3. Barometer 1017 mb. steady, air 41° F., sea 39° F. Cape Sable at this time bore 027° distant about 20 miles, so that the signal was heard at this distance against the wind.

PHOSPHORESCENT WHEEL.

Gulf of Martaban, North Indian Ocean.

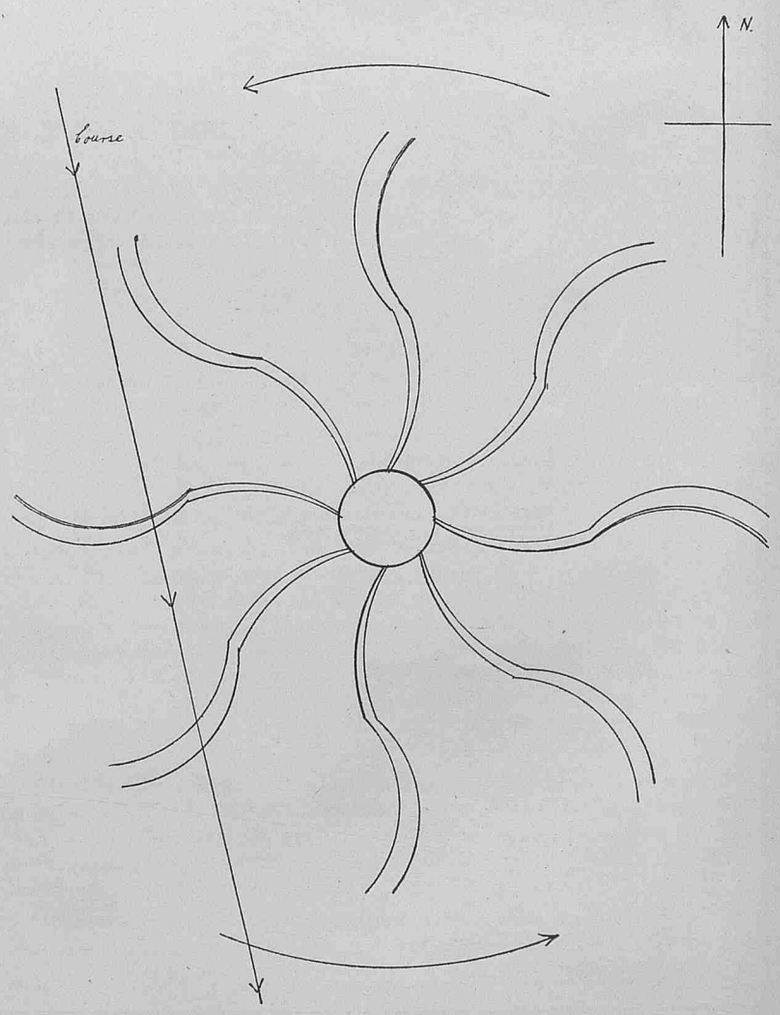
THE following is an extract from the Meteorological Report of S.S. *Talma*, Captain R. W. HOCKING, R.D., R.N.R., Calcutta to Far East. Observers, Messrs. L. T. CARTER and H. F. WRIGHT.

At 1845 G.M.T., 28th December, 1929, when in Latitude 14° 15′ N., Longitude 96° 41′ E., the vessel entered what appeared to be an area of unusual phosphorescent disturbance.

At first what appeared like small globules of phosphorescence rising from below and breaking at the surface were observed, later these gradually assumed an appearance almost like flashes of lightning under the water, which rapidly formed into regular beams, curved as curved spokes of wheel might be and of a width at the ship of about 30 feet, and revolving rapidly from right to left, at the rate of two a second, timed as the beams passed the bridge, around a distant centre which could not actually be seen clearly but appeared to be about five miles off. This centre passed ahead of the ship being first observed on the port beam and from there drawing slowly ahead of and across the bows of the ship fading gradually till on the starboard bow when the whole phenomenon finally disappeared. For a short period when the centre was on the port bow the beams appeared revolving in the opposite direction, this latter phase was not clearly marked as the beams had already begun to fade at that time. The beams could clearly be followed on both sides of the ship though the illumination was much greater on the side nearest the centre of revolution (port), their brilliance on that side being dazzling; the whole phenomenon lasting 15 minutes.

The vessel at the time was in 50 fathoms of water over a bottom composed mostly of fine sand and mud with shingle here and there, the compass remained entirely unaffected and no difference was noticed in the steering. The weather at the time being cloudless and calm with smooth sea and steady barometer.

It was later reported from the engine room that at this time the revolutions dropped considerably and the main engines were straining. As this straining of the engines appeared to me to point to the possibility of marine volcanic disturbance, I considered it advisable to send out a wireless warning to all ships and stations.



PHOSPHORESCENT BANDS.

North Atlantic Ocean.

The following in an extract from the Meteorological Report of S.S. *Pareora*, Captain J. O. Evans, Durban to Falmouth. Observer, Mr. T. M. Fenwick, 3rd Officer.

December 29th, 1929, in position with Cape Verde Light bearing S. by E. distant 12 miles, ship's time 7.45 p.m. (2005 G.M.T.), ship passed through a remarkably phosphorescent area, consisting of perfectly straight and parallel bands lying in an East and West direction. The bands varied in width from about 20ft. to about 60ft. and extended as far as could be seen towards the land and for about two to three miles to seaward of vessel. These bands were met with at irregular intervals, until 8.20 p.m. ship's time, when the phenomenon entirely disappeared. Weather: Barometer 29.92 in. Wind N. force 3. Sea N.N.E.2. Temperature: air 73° F., sea 71° F. Visibility very good. The temperature of sea surface had fallen considerably since Noon when 76° F. was recorded. Clouds showed an almost perfect fan-shaped formation of A-Cu. (Amt. 3) radiating from N.E. by N.

PHOSPHORESCENCE.

Arabian Sea.

The following is an extract from the Meteorological Report of S.S. *Devon*, Captain G. Kinnell, Colombo to Suez. Observer, Mr. G. Chaplin, 3rd Officer.

December 20th, 1929, in Latitude 7° 55′ N., Longitude 73° 34′ E., 7.30 p.m. at ship, barometer 29.888 in. Temperature: Air 80° F., Sea 82° F., Wind N.N.W.1, sea slight, swell N.Westerly slight, observed abnormal phosphorescence appearing in small patches having a diameter of about 6 ft. and suddenly spreading to a diameter of from 100 to 400 ft., obtaining an intense brilliance and gradually fading. These patches appeared frequently until 9.15 p.m., when all traces of phosphorescence disappeared. The barometer remained steady throughout and no change was noticed in either sea or air temperature. Course 281°, speed 12.5 knots, 10.23 p.m. Minikoi Island abeam bearing N.11°E.(T) 14 miles.

FOG BANK.

North Atlantic Ocean.

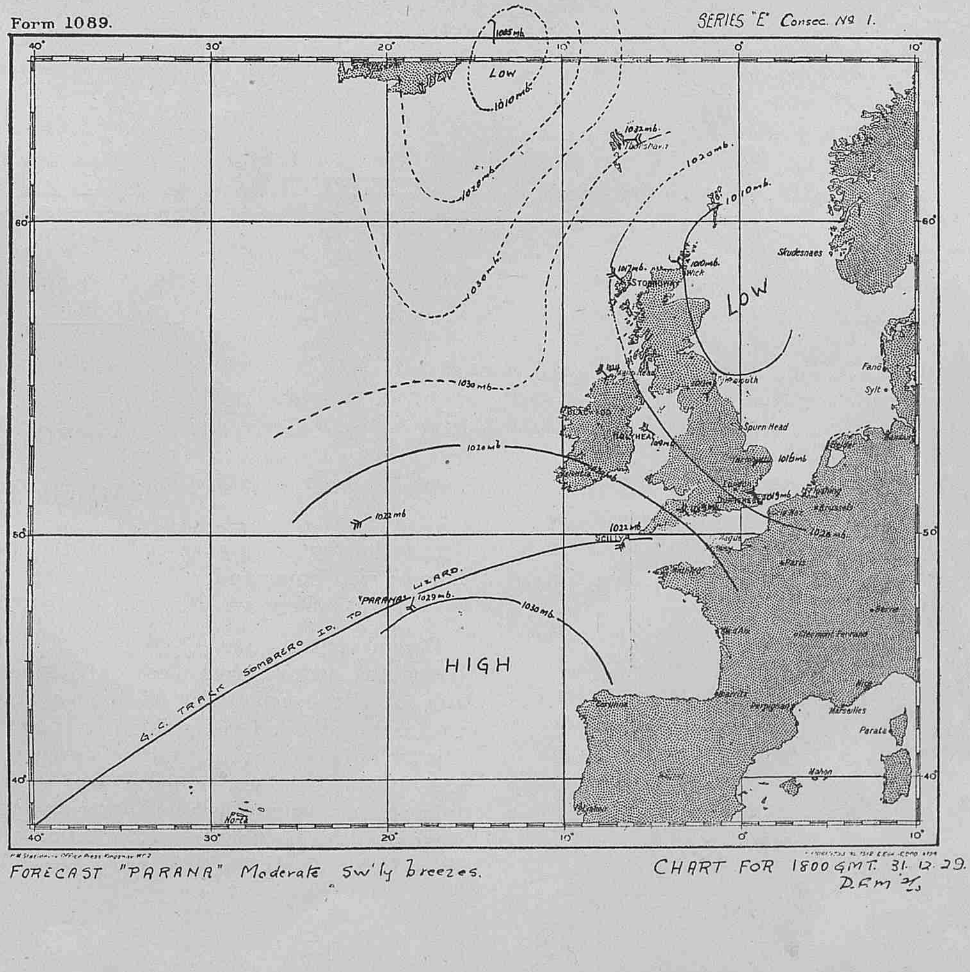
The following is an extract from the Meteorological Report of S.S. *Hydaspes*, Captain P. E. Williams, Norfolk Va. to Cape Town. Observer, Mr. J. W. Charles, 2nd Officer.

On December 17th, 1929, at 3.0 p.m., A.T.S., Position: Latitude 36° 30′ N., Longitude 75° 20′ W. Course 129°, 10.0 knots, the ship ran into a clearly defined bank of thick fog, running in a North and South direction from horizon to horizon, and not more than 120 feet in height. The fog was dense for about five miles, reducing the visibility to 0, it then gradually cleared, the ship being in perfectly clear atmosphere by 4.0 p.m. The sky was about half covered with thin Ci-St. moving from South, and the sun was shining brightly. The wind was North, Force 2. Temperatures, Wet Bulb 54° F., Dry Bulb 57° F. Water surface 54° F. and unchanging.

WEATHER CHART MADE AT SEA.

Eastern North Atlantic.

Weather Chart (one of a series) made at sea on board S.S. *Parana*, Commander C. E. Kathkins, R.N.R., West Coast of North America to Hamburg via Panama and West Indies, by Mr. D. F. Macfadyen, 2nd Officer.



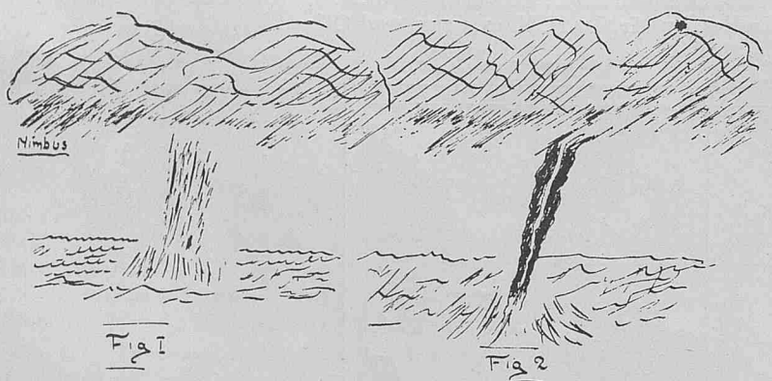
ABNORMAL RAIN

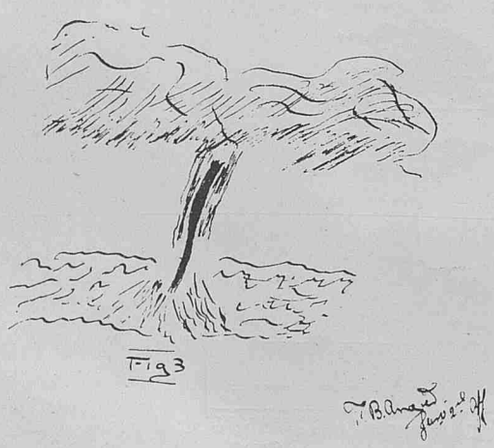
In Red Sea.

THE following is an extract from the Meteorological Report of M.V. *Glenbeg*, Captain L. NEWING, United Kingdom to Far East. Observer, Mr. F. B. ANGIER.

13th December, 1929; on passage from Perim to Suez: M.V. *Glenbeg*, being between Jebel Zukur and Centre Peak Islands, about 01.00 (A.T.S.), observed masses of A-Cu. to the N.W. gradually changing to A-St. and moving from a W.N.W'ly. direction, wind at sea level being S'ly. force 4, but backing; Barometer 29.84 in., temperature 79° F. By 03.00 sky was completely covered with Cu-Nb., and vivid lightning was observed all round the horizon, also occasional peals of thunder, wind still backing but force reduced to 3. At 04.40 commenced to rain, lightly at first but gradually becoming heavier, and by 05.00 rain was equal to tropical downpour with light variable airs. Jebel Teir should have been abeam, distant off five miles at 06.40, but was not seen, until weather cleared about 07.30, when the island could be seen astern, Barometer then 29.89 in., temperature 74° F. By 08.00 a breeze had sprung up from the North, force 2, and although vessel passed through no more rain during the forenoon watch, the sky was covered with Cu-Nb., and rain was visible at various points on the horizon in all directions.

At 12.10 being then in Latitude 16° 19′ N., Longitude 41° 04′ E., observed waterspout forming about three miles to the Southward, from a bank of Nb. (angular height 10°). At first the edges of the spout were rather ragged, as in FIGURE 1, but two minutes later a well-defined spout had formed with a light line running down the centre as shown in FIGURE 2. By 12.14 the light core of the spout was darkening and the outer part was gradually disappearing upwards, FIGURE 3. At 12.16 the spout was about five miles to the Southward and gradually being lost in a heavy rain squall; Barometer 29.86 in., temperature 81° F., wind North force 3, slight N'ly. sea and moderate N'ly. swell. Weather gradually cleared up and by the evening was normal again.





MIRAGE.

Lobos Island.

THE following is an extract from the Meteorological Report of S.S. *Clan Macbean*, Captain J. BOAG, U.S.A. to River Plate, Observer, Mr. W. THOMPSON, 3rd Officer.

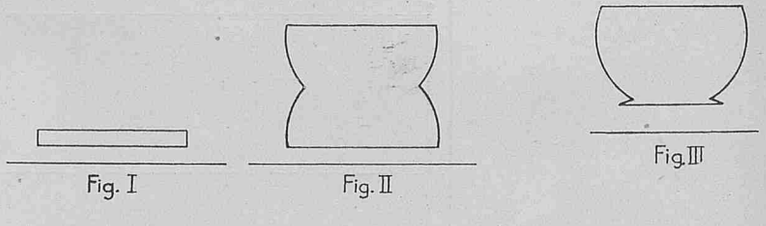
December 25th, 1929, 09.07 A.T.S. Exceptionally clear mirage occurred at Lobos Is. when it bore S.73°W.(T). Distant 22 miles. The image appeared inverted, the summit being 1′ 30″ above horizon. The actual island was then hidden by light haze on water. Everything was clear in detail and colour. The mirage cleared at 9.50 a.m., when the island was 12 miles distant. During this period, the whole coast from C. Polonio to Maldonado was distorted. Temperatures: Air 74° F., Sea surface 70.5° F., Barometer 29.92 in.

ABNORMAL REFRACTION.

Red Sea.

THE following is an extract from the Meteorological Report of S.S. *Port Wellington*, Captain C. N. JONES, Sydney to Suez, Observer Mr. L. J. SKAILES, 3rd Officer.

On December 22nd, 1929, about 10.30 p.m. A.T.S. in Latitude 25° 57′ N., Longitude 35° 12′ E., the moon rising presented rather an unusual spectacle. When first observed it looked like an oblong block as in FIGURE I, which gradually changed until it looked somewhat similar to an egg-cup as in FIGURE II. This in turn gave place to an image similar to that shown in FIGURE III until the lower reflected image disappeared altogether. The whole phenomenon occupied about five minutes. Throughout the night all distant lights appeared as two, one vertically over the other. The weather at the time of observation was normal. Wind N.N.W. force 3. Barometer 30.02 in. Air Temperature 68° F., Water Temperature 73° F. Sky cloudless. Visibility during day had been very good.



RAINBOW.

North Atlantic Ocean.

THE following is an extract from the Meteorological Report of S.S. *Lancastria*, Commander J. C. TOWNLEY, R.D., R.N.R., Queenstown to Halifax, Observer Mr. G. H. HUTCHINSON, 3rd Officer.

December 12th, 1929, 3.00 p.m. Observed very brilliant rainbow describing an arc from close on Starboard Quarter to close on fore side of Starboard Wing of bridge and another one of about 10° radius larger, and yet a third one again 10° larger, but only faint. The colours in the main bow were in order, red, orange, yellow, green, blue, indigo, violet. Red being the most luminous, but immediately below the violet was another deep band of violet about same width as bow. Approximate position Latitude 50° N., Longitude 33° W.

METEORS.

Red Sea.

THE following is an extract from the Meteorological Report of S.S. *Laomedon*, Captain J. HATFIELD, Suez to Penang.

December 28th, 1929, at 23.20 A.T.S. 2055 G.M.T. Latitude 23° 14′ N., Longitude 36° 55′ E. Observed a brilliant meteor which appeared in the vicinity of α Hydræ and travelled towards Regulus in a N.N.E'ly direction leaving a brilliant greenish white tail behind it. Its track was practically parallel to the horizon. The meteor itself was visible for 3 seconds and was of about the same magnitude as Venus. Its tail was plainly visible to the naked eye for one minute and for a further 30 seconds with the aid of glasses. Nine minutes later a second meteor started close to Dubhe and travelled towards the constellation of Ursa Minor. It was of much less brilliance than the previous one (approximately the same as Sirius) and its tail was only visible for 15 seconds.

CAPTAIN W. H. PARKER, C.B.E., R.D., R.N.R.

By one of his Officers.

WALTER HENRY PARKER commenced his sea career in 1882 at the tender age of 13 as an apprentice in the Barque *Loweswater* of Liverpool in which ship he completed his "time" and passed for 2nd mate in 1887. He displayed gallantry early for in 1886 while still an apprentice he was awarded a silver medal for jumping overboard and saving life and it is only due to his modesty that particulars are not given here.

He was second mate of the Barque *Lobo* and ships *Jessomene* and *Southern Chief*, mate of the Barque *Bells*, mate and for a time acting master of the Brig *Rio Loge* and 2nd mate and mate of the Barque *Anglo Norman*.

After passing for master in 1892 he joined the service of the Asiatic S.N. Co. as 4th Officer and was quickly promoted to 3rd Officer and then 2nd Officer but resigned to return to sail and became mate of the four-masted Barque *Cairniehill*.

In 1894 he joined the Pacific Steam Navigation Co., and after five years in their West Coast service was appointed to H.M.S. *Excellent* for gunnery and torpedo courses at Whale Island, Portsmouth, and performed 12 months training as Acting-Lieutenant R.N.R. in H.M.S. *Hermione* on the China Station, where he saw active service in the Boxer Rising of 1900 and gained the China Medal.

Returning to the service of the P.S.N. Co. in 1901 he was appointed 2nd Officer of R.M.S. *Oruba* in the Orient-Pacific Line and very soon his genial nature and sterling worth became recognized in the Australian passenger service. In 1902 upon promotion to Chief Officer he was transferred back to the West Coast of South America service.

Further service in the Royal Navy followed in 1904 and 1905 when he was Lieutenant R.N.R. in H.M. Ships *Aeolus*, *Victorious* and *New Zealand* after which he returned to the Orient-Pacific Line as Chief Officer of R.M.S. *Oroya*.

In 1906 the Royal Mail Steam Packet Co. took over the Pacific ships of the Orient-Pacific Line which became for a short time the Orient-Royal Mail Line and Captain PARKER transferred in *Oroya* to that service as her commander. He commanded the following ships of the Royal Mail Steam Packet Company's fleet, *Catalina*, *Balantia*, *Tamar*, *Denbighshire*, and *Pardo*.

In July, 1915, Commander PARKER, R.N.R., was called up for service in H.M. Fleet and appointed in command of H.M. Yacht *Medusa*, Auxiliary Patrol. He was promoted to Captain R.N.R. in July, 1917, and served as Commodore of Convoys until the end of the war. In 1919 he was created a Commander of the Order of the British Empire (Military) for his services. Returning to the service of the Royal Mail Steam Packet Co., in 1920, Captain PARKER commanded *Parana*, *Nariva*, *Chignecto*, *Orbita*, *Ohio*, *Araguaya* and *Andes*.

In April, 1927, the White Star Line became part of the Royal Mail Combine. *Ohio* was transferred and renamed *Albertic*, Captain PARKER rejoining her in command and he subsequently commanded the White Star Ships *Homeric* and *Olympic*.

On December 31st, 1929, he was retired in accordance with the age limit.

Amongst Captain PARKER'S activities, hydrographic survey work should be mentioned, he made a number of sketch surveys in South American and West Indian waters. He was a member of the Corps of Voluntary Marine Observers from 1920 until his retirement. An enthusiast in ocean current work he had a number of excellent awards to his credit. He was one of the founders of the Honourable Company of Master Mariners.

Always a very able man, Captain PARKER was an extraordinary fine seaman, being able to take command in any situation without hesitation, knowing what to do and when to do it.

A strict disciplinarian, Captain PARKER always found time to be genial and entertaining to passengers and officers alike, and no officer hesitated when he knew him to go to him in any trouble or difficulty, being sure of kindness and sound advice.

The desire of every officer upon leaving his ship was to have the pleasure of sailing with him again, and the Merchant Service has lost by his retirement one of its best Commanders.

We wish him every success and good luck now that he has his anchor down for good ashore, and many years of happy retirement after his long labours at sea in all parts of the world.

C. J. G.

The Master of the *Olympic* 1929.

CAPTAIN W. H. PARKER, C.B.E., R.D., R.N.R.

INDIAN OCEAN CURRENTS.

IV—Currents on the Tracks during N.E. Monsoon Months and General Summary.

The S.E. Trade Current.—This current, experienced on the Colombo track, is steadier and stronger from November to April than during the remainder of the year. It is still, however, a weak current, with mean drifts of from 3 to 8 miles per day, though between Latitude 20° S. and 30° S. on the Colombo track currents up to 24 miles per day are not uncommon, and a few exceed this strength.

The South Equatorial Current.—The strength of this current is not the same on the three tracks. West of the Chagos Archipelago it is strongest during February to April while on the Colombo track it is weakest during this quarter. A mean drift of 16.7 miles per day in November to January is shown in Latitude 10° S. to 12° S., Longitude 92° E. to 96° E., west of the Keeling Islands. This is the greatest mean drift in any part of the South Equatorial Current for the whole year. One or two examples of reverse sets in this current may be found on the charts of mean arrows.

In the preceding article it was remarked that there is a region occupied by variable currents between the South Equatorial Current and the Counter-Equatorial Current in May to July between Latitude 4° S. and 8° S. The region of variable current referred to extends over four degrees of latitude and is crossed by the direct Perim tracks between Longitude 64° E. and 80° E. Variable currents in this region may also be seen in the chart for November to January. We shall see later that the Counter-Equatorial Current on the direct Perim tracks is strongest during the quarters May to July and November to January. The region of variable current between the Counter-Equatorial Current and the South Equatorial Current therefore develops in those quarters in which the Counter-Equatorial Current is strongest.

The set of the South Equatorial Current is south-westerly on all the tracks during November to January. It is also south-westerly on the Colombo track in February to April.

The N.E. Monsoon Current, Arabian Sea.—This current is weaker and more variable than the S.W. Monsoon Current flowing in the same region during May to October. The N.E. Monsoon Current in the Arabian Sea is strongest in longitudes west of 60° E. in November to January. There is a remarkable difference between the first and fourth quarters in the region near the equator. In November to January there is a complete change in Latitude 4° N., west of Longitude 68° E., from a weak westerly Monsoon Current to a strong easterly Counter-Equatorial Current. In February to April, on the other hand, between Latitude 4° N. and the equator the westerly current strengthens, flowing with mean drifts of from 11 to 26 miles per day. This strong westerly current flows in a region which is occupied by the Counter-Equatorial Current all the rest of the year, and this seasonal change will be dealt with more fully later in the present article.

In the Gulf of Aden, currents are stronger and set more westerly in November to January than in February to April. East of Aden between the coast and Latitude 13° N. the mean drift is 18 miles per day in November to January.

The East African Coast Current.—During February to April this current flows with mean drifts of from 7 to 14 miles per day, it being much weaker than during the S.W. Monsoon season. In November to January this current is reversed, between Latitude 8° N. and 10° N., the flow being S.W., 12.3 miles per day. Between Latitudes 10° N. and 12° N. there is a weak offshore set in this quarter.

The Counter-Equatorial Current.—During February to April, as already stated, this current is replaced by a westerly one, north of the equator and west of Longitude 68° E. In this quarter, in Latitude 2° N. to 0° a sharp contrast of current will be noted. In Longitude 64° E. to 68° E. the set is W.N.W., 20.6 miles per day, while in Longitude 68° E. to 72° E. it is N.E., 20.8 miles per day. The Counter-Equatorial Current on the direct Perim tracks is stronger in February to April than it is in November to January, the mean drifts exceeding 30 miles per day in places.

Current South of Ceylon.—Between Ceylon and Latitude 4° N. a Monsoon Current flows westerly during November to April, most strongly in November to January, in which quarter the westerly current is as strong as the easterly current in this region during the S.W. Monsoon period. Between Latitude 4° N. and the equator the drifts are weak during the N.E. Monsoon months. Between the equator and Latitude 6° S. on the Colombo track the easterly Counter-Equatorial current is experienced.

Maximum Drifts.—The strongest actual current observed in the Gulf of Aden during the period 1910 to 1928 was that experienced by S.S. *Kurmark* on November 20th, 1921, in Latitude 13° 01′ N., Longitude 46° 25′ E., S.76°W., at the rate of 46 miles per day. The strongest current observed north of Sokotra, between Longitudes 51° E. and 64° E., was that experienced by S.S. *Clan Ross* on April 23rd, 1923, in Latitude 12° 15′ N., Longitude 56° 19′ E., S.75°E., at the rate of 32 miles per day. As regards the rest of the ocean the maximum drifts observed on the Colombo to Perim track were somewhat greater than those observed on the Leeuwin to Perim tracks. On the Colombo track the strongest current was experienced by S.S. *Elpenor* on November 10th, 1923, in Latitude 11° 24′ N., Longitude 55° 01′ E., N.72°W., at the rate of 88 miles per day. On the direct track the strongest current was experienced by S.S. *Port Adelaide* on November 27th, 1926, in Latitude 1° 07′ N., Longitude 65° 54′ E., S.75°E., at the rate of 82 miles per day.

Seasonal Variations of the Currents of the Indian Ocean.—The currents in the regions covered by the tracks have been divided into sections which are shown in FIGURES 1 and 2. The mean set and drift for each section has been computed for the half-years November to April and May to October. The results are given in the figures; the mean drifts are in miles per day and the arrows denoting the mean sets are of equal length throughout.

From FIGURES 1 and 2 we see that all the currents north of the equator are stronger in the half-year May to October, as also are the South Equatorial Current and the South Indian Ocean Connecting Current. The only currents which are stronger in the half-year November to April are the Counter-Equatorial, the S.E. Trade Current and the current in the neighbourhood of Cape Leeuwin.

The mean set and drift for each quarter has also been computed for each current section and the results are shown in TABLE 1. These results must only be regarded as approximations, owing

TABLE 1.

Indian Ocean.

Mean Quarterly Resultant Current (drift in miles per day). Current areas above the line drawn across the table are in North Latitude, those below in South Latitude.

Current.	February to April. N.E. Monsoon.		May to July. S.W. Monsoon.		August to October. S.W. Monsoon.		November to January. N.E. Monsoon.	
	Mean Set and Drift.	Number of Observations.	Mean Set and Drift.	Number of Observations.	Mean Set and Drift.	Number of Observations.	Mean Set and Drift.	Number of Observations.
Gulf of Aden	N. 63° W. 4	712	N. 70° E. 7	515	N. 52° E. 6	453	N. 87° W. 7	456
East African Coast Current	N. 11° E. 10	63	N. 44° E. 18	35	N. 43° E. 28	29	S. 47° E. 1	43
Sokotra I	N. 41° W. 3	406	N. 61° E. 14	293	N. 66° E. 20	309	N. 77° W. 6	309
Sokotra II	S. 29° W. 7	5	S. 57° E. 13	43	S. 56° E. 18	38	N. 71° W. 12	9
Arabian Sea I	N. 70° W. 3	792	N. 77° E. 9	544	N. 82° E. 8	534	S. 84° W. 8	569
Arabian Sea II	N. 65° W. 4	1,008	S. 68° E. 7	793	S. 57° E. 5	676	N. 49° W. 3	740
Ceylon	S. 79° W. 5	143	S. 87° E. 12	114	N. 87° E. 14	117	S. 68° W. 13	114
Counter-Equatorial I	N. 72° E.* 10*	75*	N. 84° E. 14	97	N. 84° E. 9	151	N. 88° E. 17	143
Counter-Equatorial II	N. 88° E. 9	240	S. 83° E. 7	217	N. 89° E. 6	218	N. 82° E. 8	233
S. Equatorial I	N. 70° W. 8	39	S. 80° W. 8	58	S. 66° W. 5	96	S. 47° W. 3	72
S. Equatorial II	N. 76° W. 5	97	N. 70° W. 4	47	S. 31° W. 6	80	S. 67° W. 6	109
S. Equatorial III	S. 45° W. 3	342	S. 68° W. 5	312	S. 75° W. 8	377	S. 78° W. 6	344
S.E. Trade	N. 38° W. 3	382	S. 52° W. 0	312	N. 13° W. 1	458	N. 38° W. 3	431
S. Indian Ocean Connecting Current	N. 60° E. 4	67	N. 71° E. 3	92	N. 42° E. 4	87	N. 10° W. 2	77
Leeuwin	S. 44° E. 5	90	S. 46° E. 3	84	S. 62° E. 2	113	S. 15° W. 1	76

* For this quarter a part only of this area is taken in computing the mean current.

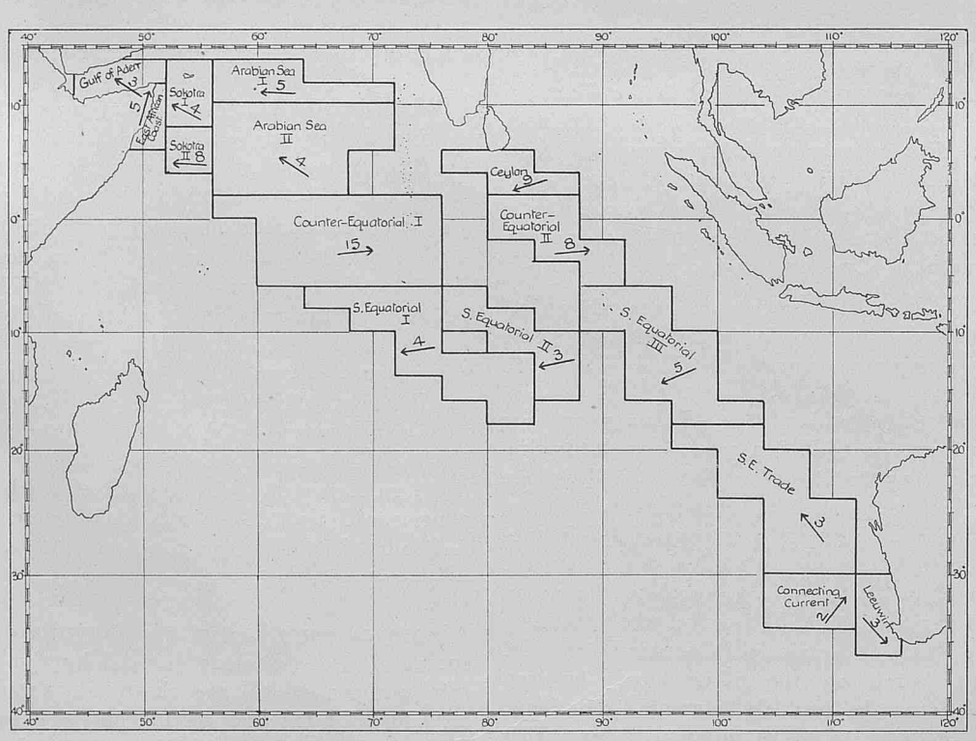


Figure 1.— Mean Current, November to April (N.E. Monsoon). Mean Drift in miles per day.

to the differences in the number of observations and the distribution of the currents, but they will serve to show the larger seasonal variations. The sections chosen cover practically the whole of the tracks with the exception of the area of weak and variable current lying towards the centre of the high-pressure area on the direct Perim tracks, in southern latitudes. All the sections north of the equator exhibit marked seasonal variations both of set and drift. These variations have long been well-known, in connection with the seasonal changes of the Monsoons, but the table provides for the first time a general idea of the relative sets and drifts in different areas and seasons.

A few special points of interest in TABLE 1 will now be mentioned. In the **Gulf of Aden, Arabian Sea I,** and the region south of **Ceylon,** the N.E. Monsoon Current during November to January is as strong as the S.W. Monsoon Current in the same regions during May to October. The current therefore only weakens in these areas during the quarter February to April.

In the case of the **East African Coast Current** and the areas called **Sokotra I and II** the greatest mean drift occurs in August to October, *i.e.* late in the S.W. Monsoon period. In spite of this

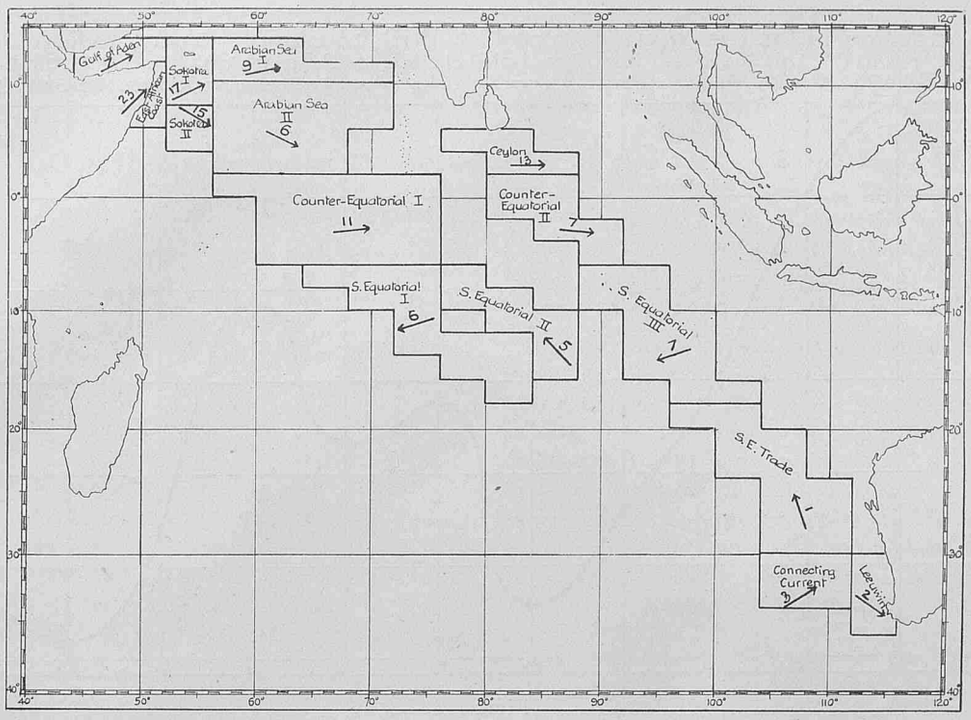


Figure 2.—Mean Current, May to October (S.W. Monsoon). Mean Drift in miles per day.

increase in strength the sets remain the same as those during May to July.

Of the equatorial currents and those in southerly latitudes the **Counter-Equatorial Current I**, on the direct Perim track is the strongest. It differs from the currents north of the equator in having two periods of maximum strength, one in May to July and one in November to January. This current is remarkably constant in set, particularly from May to January. As explained in the footnote to TABLE 1 a part only of the area Counter-Equatorial I has been used in computing the mean set and drift for the quarter February to April. The area of westerly current in this region during this quarter has been excluded. If the mean for the whole area is taken, it works out at N.2°E., 3 miles per day. This result is of no practical value, since the observations of easterly and westerly current almost entirely cancel one another. FIGURES 1 and 2 show that the easterly flowing Counter-Equatorial Current on the direct Perim track is strongest during the months of the N.E. Monsoon.

Counter-Equatorial Current II, on the Colombo track, is not so strong, but is equally steady all through the year.

The South Equatorial Current is variable in set and drift but on the whole it is somewhat stronger during the months of the S.W. Monsoon. Taking all three sections into account the mean set is usually S. of W.

The S.E. Trade Current.—The mean set and drift of this weak current is the same in February to April as it is in November to January in spite of the differences shown in the various squares of the charts. The seasonal changes of this current follow those of the S.E. Trade Wind. Reference to the Meteorological Charts of the East Indian Seas will show that the S.E. Trade Wind is stronger in this region during the period of the N.E. Monsoon and that during the period of the S.W. Monsoon the Trade Wind moves northward towards the equator. The Trade Wind does not blow south of Latitude 25° or 26° S. during the height of the S.W. Monsoon.

The South Indian Ocean Connecting Current.—The area included is a very small portion of this current, which is the northern part of the great Southern Ocean Drift and which forms the southern part of the circulation round the high-pressure area. It is shown to be somewhat stronger than the S.E. Trade Current and to set north-easterly, except during November to January, so passing into the north-westerly set of the S.E. Trade Current.

The current in the neighbourhood of **Cape Leeuwin** sets mainly towards the shore, the mean drift decreasing as the year advances.

The results of a number of special investigations which have been made are given below.

Current in the Arabian Sea during the S.W. Monsoon.—In the inset charts, which will be found in the lithographic pages at the end of the present number of the MARINE OBSERVER, the current in a part of the Arabian Sea has been separately computed for each of the four months June to September, in areas of two by four degrees, corresponding to those of the main charts. The region covered is Latitude 10° N. to 0°, Longitude 60° E. to 76° E. In a number of the squares there are no observations or only one observation; these latter have not been inserted. The belt between Latitude 2° N. and 0° shows a strong easterly Counter-Equatorial Current in June, which is completely displaced by a westerly current of moderate strength in July. In August the Counter-Equatorial again flows, much weaker, west of Longitude 68° E. In September no information is charted for this belt, but of three single currents observed two were easterly and one westerly. The existence of this streak of westerly current between Latitude 2° N. and 0° in July was previously known; it is clearly shown on the Admiralty Current Chart for that month, where it appears only as a streak, not extending south of the equator. In order to determine whether the observations now available confirmed the narrow limits of this current, the chart for July was continued as far as Latitude 4° S. The results, which are not published here, entirely confirm the Admiralty Chart in this respect, the current between the equator and Latitude 4° S. in these longitudes being variable and rather weak.

Reversal of the Counter-Equatorial Current on the Direct Perim Tracks.—This has been already referred to. The region of Latitude 4° N. to 0°, Longitude 56° E. to 68° E. and Latitude 0° to 2° S., Longitude 60° E. to 64° E. shows a strong westerly current on the chart for February to April, the region being mainly occupied by the easterly Counter-Equatorial Current during the rest of the year. The component of the drift of current in an east or west direction has been computed for each month of the year and the result is given in FIGURE 3. The easterly Counter-Equatorial flows in this area during the greater part of the year but the set is

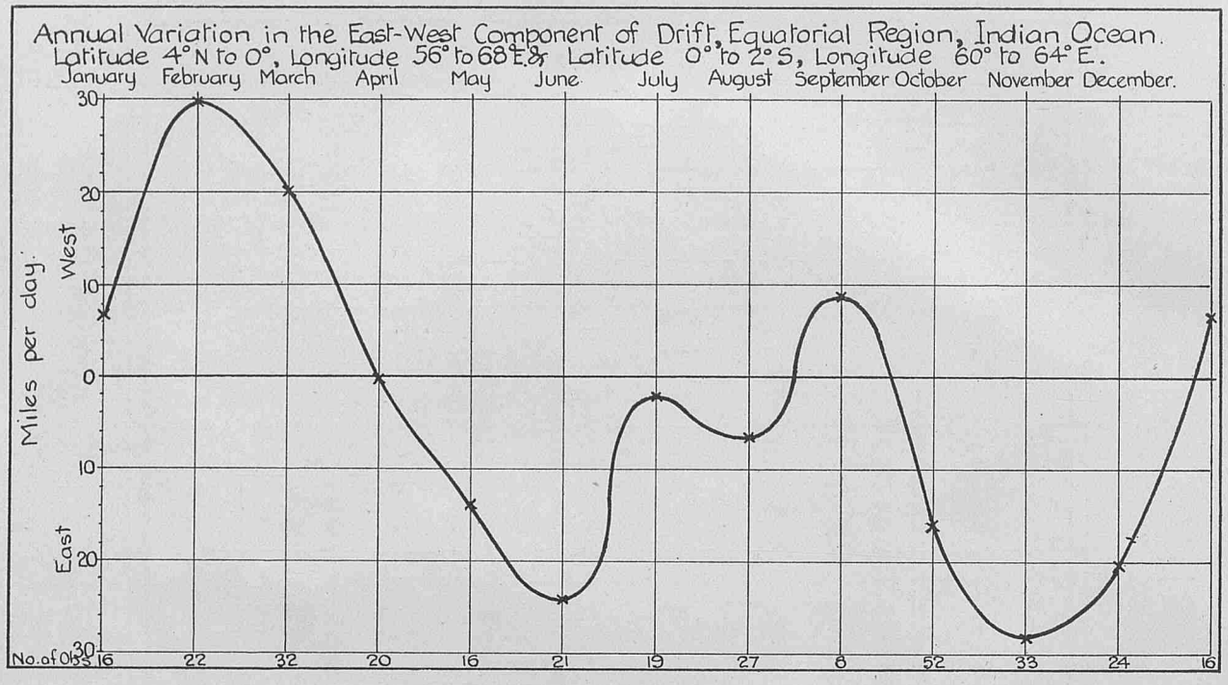


Figure 3.

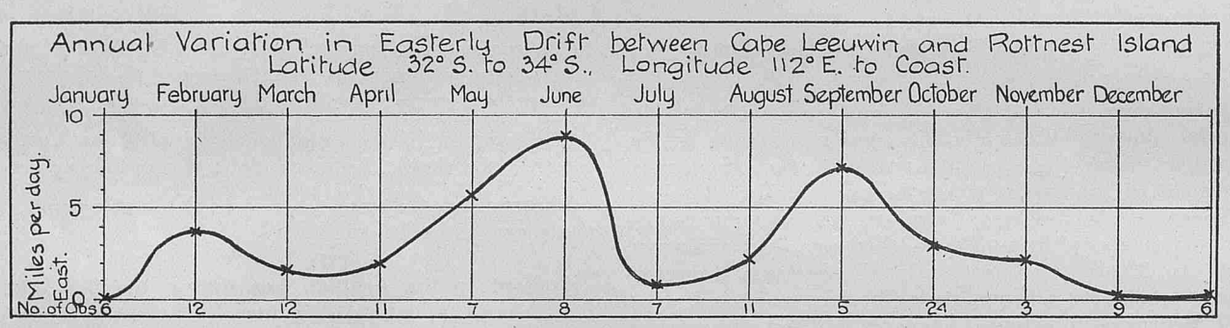


Figure 4.

westerly in the months of January to March inclusive, and also to a lesser degree in September. There is therefore a transitory North Equatorial Current in this region during the early part of the year. It is a strong current in February, the westward drift reaching a mean value of 29.8 miles per day. The greatest eastward drift is 28.2 miles per day in November. Westerly current in this region is shown in the Admiralty Current Charts for January to March, but not in September.

Set in the neighbourhood of Ras Al Ara.—For this investigation all current observations whose mid-positions lay between Latitude 12° 20′ N. and the coast, between Longitude 44° 00′ E. and 44° 10′ E., were examined. There were 21 observations during the period 1910-1928 and the mean current for the whole year works out at N.88°W., 7.6 miles per day. Only 3 of the 21 currents have an easterly component. Of the available current observations some set towards and some away from the land, and the currents are weakest in July to October. As Ras Al Ara is in Longitude 44° E. and as this is the most westerly point of the current charts, no currents experienced westward of the promontory are included in this statement.

Set between Cape Leeuwin and Rottnest Island.—There is a definite easterly set towards the land along this coast in all months except December and January, as shown in FIGURE 4, where the east component is given for each month. For this investigation all currents in the region of Latitude 32° S. to 34° S., Longitude 112° E. to the coast were used, a total of 115 currents in the year. The greatest eastward set is 9.0 miles per day in June, derived from eight observations.

Set between Cape Leeuwin and D'Entrecasteaux Point.—An investigation of all currents experienced in the period 1910 to 1928 between Latitude 34° S. and 35° S. and Longitude 114° E. and 116° E. show quite definitely that the mean set in this region is S.E. or S.S.E. A few of the actual currents show components in a northerly direction, mostly small.

Relation of the Indian Ocean Currents to Wind Direction.—It has been shown above that the set of the currents north of the equator depend upon the Monsoons, with the exception of the East African Coast Current where the effect is mainly one of altered drift. We have also seen how the S.E. Trade Current varies with the changes of the S.E. Trade Wind. The Counter-Equatorial Current, on the other hand, is a current which appears to be mainly independent of the wind, though it is possible that the increase of strength in November to April is connected with the blowing of the N.W. Monsoon. The origins of the Indian Ocean currents as a whole cannot, however, be fully dealt with in the present stage of the investigation.

Comparison of Indian Ocean Currents with those of other Oceans.—In the second article on Currents on the Tracks from Panama to Australian and New Zealand Ports, MARINE OBSERVER, Volume V, 1930, page 254, a table showing the mean drift for each quarter of the South Equatorial Currents of the Atlantic and the Pacific was published. The sections of equatorial current considered were those on the eastern sides of the ocean. The table is republished below with the addition of the section South Equatorial Current III of the Indian Ocean.

TABLE 2.

Mean Drifts of the South Equatorial Currents of the Atlantic, Pacific and Indian Oceans (Miles per day).

——	February to April.	May to July.	August to October.	November to January.
Atlantic Ocean 3° N. to 6° S. (Cape Route).	7	12	8	8
Pacific Ocean 2° N. to 6° S. (Panama to Australia etc.).	11	11	15	11
Indian Ocean 6° S. to 18° S. (Colombo Route).	3	5	8	6

We thus see that the South Equatorial Current of the Indian Ocean is the weakest. It has already been stated that the S.E. Trade Drift of the Indian Ocean is weaker than the corresponding drift, the Benguela Current, of the South Atlantic, and it is also weaker than the N.E. Trade Drift of the North Atlantic. The most conspicuous difference between the Indian Ocean and the Atlantic Ocean is to be found in the Counter-Equatorial Current. In the Indian Ocean this forms the strongest of all the currents in the equatorial region, while the corresponding current of the North Atlantic, the Guinea Current, is weaker than the Equatorial Currents of that ocean. Furthermore, although the Indian Ocean Counter-Equatorial Current is reversed in about Longitude 60° E. in February to April, it nevertheless flows over a much greater extent of the ocean than the Counter-Equatorial Current of the North Atlantic, which, though always easterly on the Cape Route, is reversed for nearly half the year on the South American Route.

General Remarks.—In main outline the trend of the currents shown on the older current charts agree with those of the MARINE OBSERVER Charts. The variability of Indian Ocean currents will be seen from the roses to be not less than that in the other oceans dealt with in the MARINE OBSERVER. Even in the areas of weakest current, drifts of 25 miles per day or over may be occasionally experienced. Several examples of the drift of buoys and other objects across the ocean have been published in the MARINE OBSERVER. It is hoped to refer to these at a later stage of the investigation when the currents of the Indian Ocean have been more fully charted.

MEAN SEA SURFACE TEMPERATURES, MEDITERRANEAN AND BLACK SEAS.

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

THE following notes draw attention to some of the outstanding features disclosed by an examination of the monthly sea surface temperature charts of the Mediterranean and Black Seas, which have appeared in this Journal during the present year.

Conditions in the Mediterranean and Black Seas, enclosed as these seas are within great continental land masses, differ completely from those which prevail in oceanic areas generally. The sea undergoes far less variation of temperature between day and night, and between summer and winter than the surrounding land areas, so that the relative conditions of sea and land are subject to frequent changes, with consequent changeable and sometimes stormy weather.

The currents of the Mediterranean are, to a large extent, purely drift currents of a temporary nature caused by the wind where it has been continuous from any one quarter; current therefore as a factor in the distribution of sea surface temperature is of less importance than in regions where definite stream currents exist.

Throughout the year sea temperature is higher in the eastern basin of the Mediterranean than in the western basin.

The mean sea temperature is at its maximum in August, almost the whole of the sea being above 75°, with the exception of comparatively small areas around the Gulf of Lions and the approach to Gibraltar. In the Eastern Levant it reaches 83°.

From the charts of maximum and minimum recorded temperatures for this month, it will be seen that there is a much larger range of temperature in the west than in the east. On the south coast of Spain there is a range of 21°, the lowest recorded temperature being 60° and the highest 81°; while east of Long. 30° E. the greatest range is 9°, 75° to 84°, east of Port Said.

In the Black Sea mean sea temperature varies from 72° to 75°.

Mean sea temperature is at its lowest in February, when it ranges from 53° in the Gulf of Genoa and 52° at the head of the Adriatic Sea to 63° in the Levant. Generally mean sea temperature is more uniform over the Mediterranean than in August.

In February the difference between the highest and lowest recorded temperatures off the south coast of Spain is only 9° to 10°, as against 21° in August; while around Port Said the difference is from 10° to 14° in February as against 9° in August.

In the Black Sea, where the winters are very severe, mean sea temperature in February falls as low as 32° near Odessa, while in the southern and eastern portions it ranges from 44° to 47°. These low temperatures extend through the Sea of Marmara and Dardanelles, through which there is a general outflow of water from the Black Sea.

The seasonal variation of mean sea temperature in the Black Sea is thus much greater than in any other part of the area charted, the difference between midsummer and midwinter temperatures near Odessa being as much as 41°. Over nearly the whole of the Mediterranean the difference between summer and winter mean temperature is from 16° to 20°, except near Gibraltar where the difference is 12°.

The variation of temperature month by month is generally slight, except from April to June, during which period the sea temperature definitely rises several degrees per month; and during October to December when temperature falls by a like amount. In other months of the year, the rise or fall of temperature does not exceed two or three degrees.

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, page 27, Vol. VII, No. 73.

For full particulars of "Selected Ships" Routine Meteorological Reports with Schedule for Communication, see pages 22 to 24, Vol. VII, No. 73.

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

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 24, Vol. VII, No. 73 (January, 1930, 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 XIII. 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 below. The procedure given on pages 22 to 24, Vol. VII, No. 73, should be adhered to as far as possible. In some cases it may be necessary for B "Selected Ships" to make their reports to a certain station, see List pages 230-231.

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.

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 14 OF VOL. VII, NO. 73, 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 XIII).	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, 0430 and 1030 G.M.T. Roll call thus—Weather begins—Call signs of chosen "Selected Ships"—Weather ends.
	Chatham Mass.	Lat. 41° 42′ N. Long. 70° 00′ W.	WCC.		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 GMT 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 0600 and 1800 G.M.T. observations to CQ.
	Horta, Azores.	Lat. 38° 32′ N. Long. 28° 38′ W.	CTH.		125 kc/s. (2400 metres).	North Atlantic South of Latitude 38° N. and East of Longitude 40° W.	Radio Horta.	Weather only, up to seven groups, preferably No. 3 Supplementary Groups.	No control—all British "A Selected Ships" within area should report in accordance with Schedule.
Mediterranean and Red Sea.									
South Atlantic.									
Indian Ocean.									

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.				
North Pacific and China Sea.	Cape d'Aguilar, Hong Kong.	Lat. 22° 12′ 39″N. Long. 114°15′19″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.									

WIRELESS STATIONS DETAILED TO RECEIVE 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.	

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

(Continued.)

Ocean.	Station.	Position.	Call Sign.	Telegraphic address of Meteorological Centre desiring information.	Information desired.	Notes.
Indian Ocean.	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.			
	Mauritius.	Lat. 20° 23′ S. Long. 57° 35′ E.	VRS.	Observatory Mauritius.	Weather 4 universal groups and first of No. 6 Supplementary Groups.	
North Pacific and China Sea.	Cape d'Aguilar, Hong Kong.	Lat. 22° 12′ 39″ N. Long. 114°15′19″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.	Apia, Rarotonga and Chatham Island relay to New Zealand. Rarotonga keeps watch 6.30 to 13.30 G.M.T. Chatham Island 4.30 to 12.30 G.M.T. Remainder cover schedule. Reports desired through nearest station when "B Selected Ships" are within 1,000 miles of New Zealand.
	Wellington.	Lat. 41° 16′ 26″ S. Long. 174°01′00″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.*			

* The New Zealand Meteorological Office desires B "Selected Ships" to make their reports to these stations.

II.—WIRELESS WEATHER SIGNALS.

WIRELESS WEATHER BULLETINS.

Chile.

C. W. Issues.

Santiago Central, W.T. Station.—Approximate Latitude 33° 26′ S., Longitude 70° 38′ W.

Call Sign.—**CCS.**

Wave length.—3000 metres C.W.

Times of transmission.—0130 and 1600 G.M.T.

The message issued at 0130 G.M.T. is based upon 1800 G.M.T. observations and the 1600 G.M.T. message is based on the 1200 G.M.T. observations at a selection of the following coast stations :—

Indicator Letter.	Station.	Position (approximate). Latitude.	Longitude.
AR	Arica	18°28′S.	70°20′W.
AN	Antofagasta	23°39′S.	70°25′W.
AS	Aysen	45°26′S.	72°59′W.
BO	Puerto Bories	51°45′S.	72°32′W.
CA	Caldera	27°04′S.	70°52′W.
CS	Constitucion	23°27′S.	70°37′W.
CQ	Coquimbo	29°57′S.	71°20′W.
CO	Corral	39°53′S.	73°35′W.
GA	Galera	40°00′S.	73°45′W.
GF	Guafo	43°35′S.	74°45′W.
IQ	Iquique	20°13′S.	70°10′W.
JF	Juan Fernandez	33°42′S.	78°45′W.
ME	East Mocha	38°23′S.	73°53′W.
PM	Puerto Montt	41°30′S.	72°58′W.
PA	Punta Arenas	53°08′S.	70°56′W.
TL	Taltal	25°26′S.	70°31′W.
TU	Tumbes	36°37′S.	73°07′W.
VD	Valdevia	39°48′S.	73°48′W.
VP	Valparaiso	33°06′S.	71°40′W.
SA	Santiago	33°26′S.	70°38′W.

The bulletins consist of three parts :—

Part I.—General Inference, "*en clair*" (Spanish).

Part II.—Gives the observations of a selection of the above coast stations in code.*

Part III.—Is a forecast (based on land station reports only) for the following 24 hours, "*en clair*" (Spanish).

No information as to the area for which these forecasts are intended is available.

Argentina.

C.W. Issue.

Buenos Aires-General Pacheco W/T Station, approximate Latitude 34° 37′ S., Longitude 58° 22′ W., call sign **LPD**, broadcasts a weather bulletin, "*en clair*," in Spanish, at 0205 G.M.T., on a wave-length of 1,000 metres C.W. The bulletin will contain a weather forecast for the ensuing 24 hours for the Rio de la Plata.

Brazil.

Spark Issues.

The Brazilian W/T coast stations given in the list below transmit, **every four hours,** the state of weather and sea, as well as the force and direction of the wind. The elements so transmitted are direct observations made at the W/T stations. They are sent in Portuguese "*en clair.*"

W/T Station.	Position (approx.). Latitude.	Longitude.	Call Sign.	Times of Sending. G.M.T.
S. Luiz (Maranham)	2° 32′ S.	44° 17′ W.	PXM	0300, 0700, etc., etc.
Natal	5° 47′ S.	35° 18′ W.	PXN	0330, 0730, etc., etc.
Olinda (Pernambuco)	8° 01′ S.	34° 51′ W.	PPO	0345, 0745, etc., etc.
Amaralina (Bahia)	13° 01′ S.	38° 28′ W.	PPA	0315, 0715, etc., etc.
Fernando Noronha	3° 51′ S.	32° 25′ W.	PXF	0315, 0715, etc., etc.
Santos	23° 56′ S.	46° 20′ W.	PPS	0245, 0645, etc., etc.
Florianopolis	27° 36′ S.	48° 34′ W.	PPF	0315, 0715, etc., etc.
Junçaõ (Rio Grande do Sul)	32° 04′ S.	52° 07′ W.	PPJ	0345, 0745, etc., etc.

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

Rio de Janeiro W/T station, approximate Latitude 22° 59′ S, Longitude 43° 11′ W., call sign **PPR**, broadcasts weather reports similar to the above stations at 1200, 1500 and 2100 G.M.T. on 600 metres spark

This station also broadcasts daily two special weather bulletins at 0100 and 2100 G.M.T. on 600 metres spark.

These bulletins are divided into three parts ; the first part contains 1200 G.M.T. observations in code* of various Brazilian, Uruguayan and Argentine meteorological stations given below ; the second part contains upper air observations in code ; the third part contains detailed weather forecasts in Portuguese, "*en clair.*"

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

WIRELESS STORM WARNINGS.

South America.

Chile.

Spark Issues.

Valparaiso W/T Station, call sign **CCE**, broadcasts storm warnings when necessary, after a weather bulletin at 0130 and 1730 G.M.T. on a wave length of 1,000 metres (spark).

* No information is available up to time of going to press as to changes of Key Letters or Code, following the Conference of Safety of Life at Sea, 1929, and the International Meteorological Conference at Copenhagen, 1929.

III.—WIRELESS TIME SIGNALS.

Chile.

C.W. Issue.

W/T Station.	Call Sign.	Wave-length Metres.	G.M.T. of Time Signal.
Valparaiso Lat. 33° 01′ 04″ S. Long. 71° 39′ 27″ W.	**CCE**	1,100 (C.W.).	h m s h m s 00 55 00–01 00 00

SYSTEM.—The Time Signal commences at 00h. 55m. 00s. G.M.T. and continues for 5 mins.

The method of transmission is similar to that used by U.S.A., see diagram, p. 183, Vol. VII, No. 80, with the exception that the final signal of the last minute is replaced by a dot.

NOTES.—(1) Sent daily except Sundays.

(2) Time Signal controlled by the Hydrographic Office.

(3) In the event of failure or irregularities in the Time Signal the word "Señal nula" (Signal annulled) will be made three times in succession, one minute after 0100 G.M.T.

Brazil.

I.C.W. Issues.

W/T Station.	Call Sign.	Wave-length Metres.	G.M.T. of Time Signal.
Rio de Janeiro—Arpoador Lat. 22° 59′ 19″ S. Long. 43° 11′ 26″ W.	**PPR**	1,000 (I.C.W.).	h m s 14 00 00 and 24 00 00

The Time Signals are relayed from Rio de Janeiro Observatory in accordance with the New International system of W/T Time Signals.

The procedure is as follows:—

G.M.T.	Signal.	Meaning.
h m s — h m s 13 / 23 — 56 05 to 13 / 23 — 56 50	— — — every alternate 5 seconds.	
57 00 „ — 57 49	— ·— — ·— — ·— etc.	
55 56 57 58 59 60		Time
57 55 „ — 58 00	— — — — — —	Signal.
58 08 „ — 58 10	— ·	
58 18 „ — 58 20	— ·	
58 28 „ — 58 30	— ·	
58 38 „ — 58 40	— ·	
58 48 „ — 58 50	— ·	
55 56 57 58 59 60		Time
58 55 „ — 59 00	— — — — — —	Signal.
59 06 „ — 59 10	— — ·	
59 16 „ — 59 20	— — ·	
59 26 „ — 59 30	— — ·	
59 36 „ — 59 40	— — ·	
59 46 „ — 59 50	— — ·	
13 / 23 — 59 55 „ — 14 / 24 — 00 00	55 56 57 58 59 60	Time
	— — — — — —	Signal.

The duration of the dash is one second, and that of the dot 0.2 of a second. The final dot, therefore, terminates at

14h / 24h 00m 00.2s, G.M.T.

In the event of failure, the time signals are transmitted thirty minutes later—the word "Correção" being sent in conjunction with this series of signals.

IV.—VISUAL STORM WARNINGS.

South America.

Chile.

Valparaiso.

From 15th April to 15th October, annually.—The following signals are exhibited from the Maritime Government Building:—

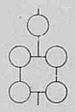
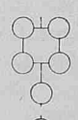
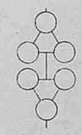
By day.	By night.	Barometer.	Signification.
Flag D (Int.), close up ...	—	30·05	Fine weather.
Flag D (Int.), half-mast...	—	30·00	
Flag D (Int.), low down...	—	29·95	
One ball, close up ...	One blue light ...	29·94	Variable.
One ball, half-mast ...	Two blue lights ...	29·90	
One ball, low down ...	Three blue lights...	29·85	
Two balls, close up ...	One red light ...	29·74	Storms or bad weather.
Two balls, half-mast ...	Two red lights ...	29·65	
Two balls, low down ...	Three red lights ...	29·60	
No day signal	One red light and one blue light, hoisted in a vertical line.	Barometer falling rapidly.	

Argentina.

Buenos Aires.

The following storm signals for the Rio de la Plata are exhibited, when necessary, from a flagstaff on the roof of the Ministry of Agriculture, situated near Dock No. 1:—

Signals for Local Gales—Probable up to the Next Day.

By day.	By night.	Meaning.
		Gale from N.W. quadrant.
		Gale from S.W. quadrant.
		Gale from N.E. quadrant.
		Gale from S.E. quadrant.
		Hurricane.
		Caution. Gales predicted are imminent or may occur on same day.

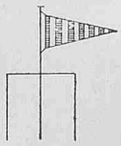
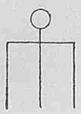
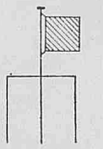
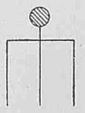
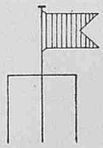
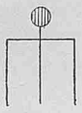
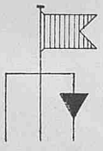
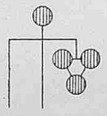
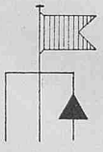
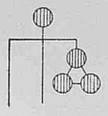
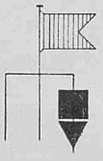
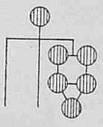
Uruguay.

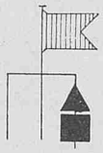
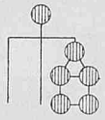
Montevideo.

The following signals are exhibited from a flagstaff at the north-west angle of the **Custom House** to indicate the approach of storms or bad weather:—

By day.—Red and white flag hoisted *under* the national flag.
By night.—Red light in place of the flag.

The following signals are exhibited as necessary from the **Observatory semaphore**, 137 feet above mean sea level:—

By day.	By night.	Meaning.
		Fair weather.
		Changeable.
		Bad weather.
		Southerly winds, strong.
		Northerly winds, strong.
		Southerly gale.

By day.	By night.	Meaning.
		Northerly gale.

Brazil.

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

By day.	By night.	Meaning.
		Wind from any quarter, dangerous for small craft.
		Strong winds from S.E.
		Strong winds from N.E.
		Strong winds from N.W.
		Strong winds from S.W.

At Rio de Janeiro the signals are exhibited from the Time Signal Tower at the Observatory daily, also at Copacabana Fort, on the western side of the approach to the harbour, and from Ilha das Cobras; at Santos from the signal station on Monte Serrat; and at Cape Frio, from the signal station.

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

Special Notices Regarding Personnel.

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

Obituary.

On October 5th, 1930, H.M. Airship *R. 101* came down near Beauvais in France and was destroyed by fire. There was heavy loss of life. Of 54 persons on board no less than 48 perished, including—

The Right Honourable Lord THOMSON, Secretary of State for Air.

Air Vice Marshal Sir SEFTON BRANCKER, Director of Civil Aviation.

Wing Commander COLMORE, Director of Airship Development.

Lieutenant Colonel RICHMOND and Major SCOTT, Assistant Directors of Airship Development.

Flight Lieutenant H. C. IRWIN, Captain of the Airship.

Squadron Leader E. L. JOHNSTON, Master Mariner, navigating officer and Mr. M. A. GIBLETT, Meteorologist.

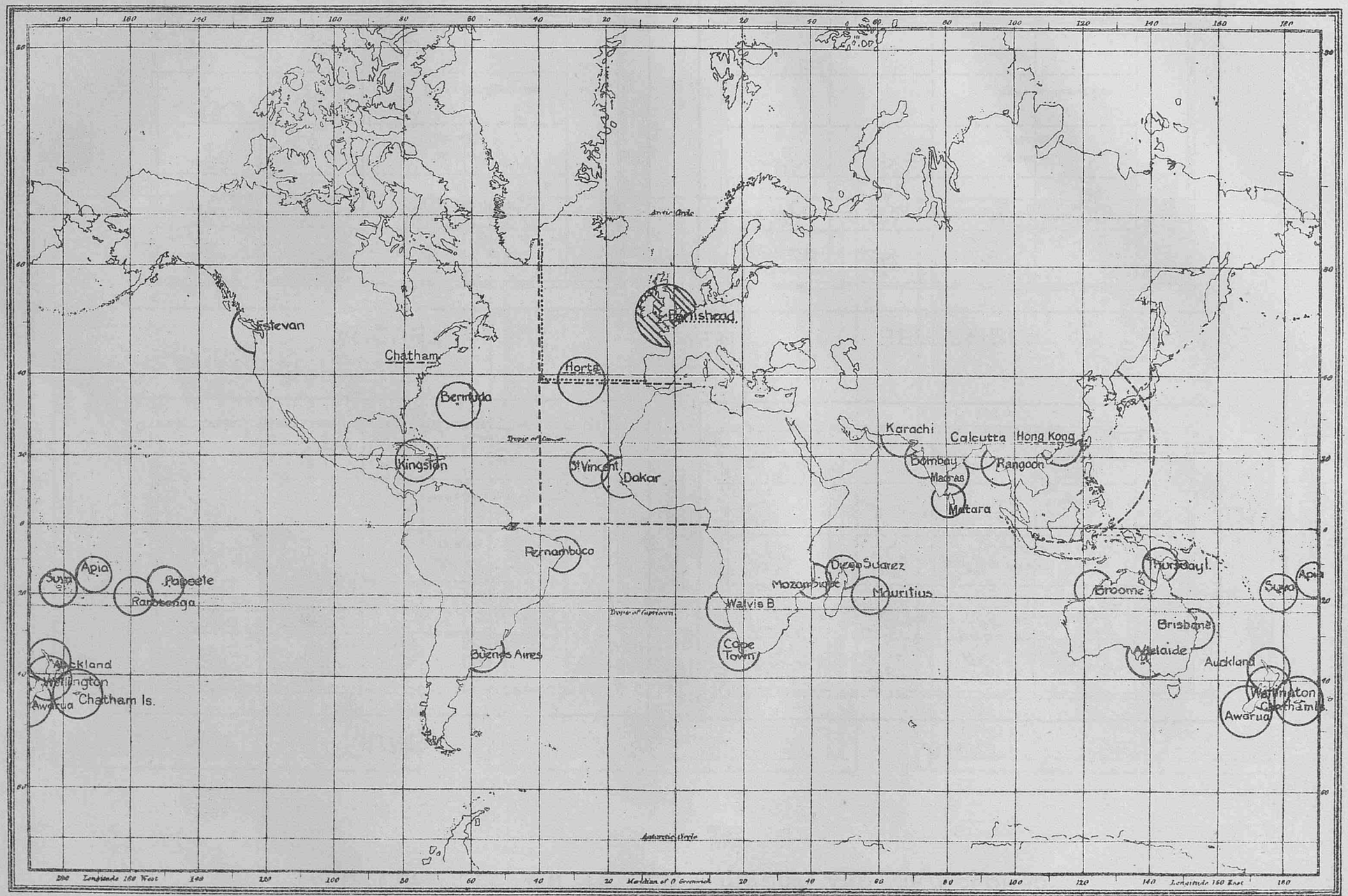
The Chamber of Shipping of the United Kingdom has expressed the feeling throughout the Merchant Navy in the following words:—

"The Shipping industry is deeply sensible of the pioneer spirit and high courage of the late Minister for Air, his distinguished colleagues and the gallant crew of the airship, and joins the whole nation in paying its tribute to those qualities so devoted to the service of the State and its sorrow in the disaster which has befallen them."

Squadron Leader JOHNSTON and Mr. GIBLETT were well known to many members of the corps of Voluntary Marine Observers and the Marine Division, Squadron Leader JOHNSTON being a merchant service officer and a contributor to the Marine Observer. Mr. GIBLETT was for some time a school master on board H.M.S. *Worcester*, he also made many friends when travelling with the Airship mission to visit the Dominions in ships of the Voluntary Observing Fleet in 1928.

Chart XIII – SHIPS' WIRELESS WEATHER SIGNALS.

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



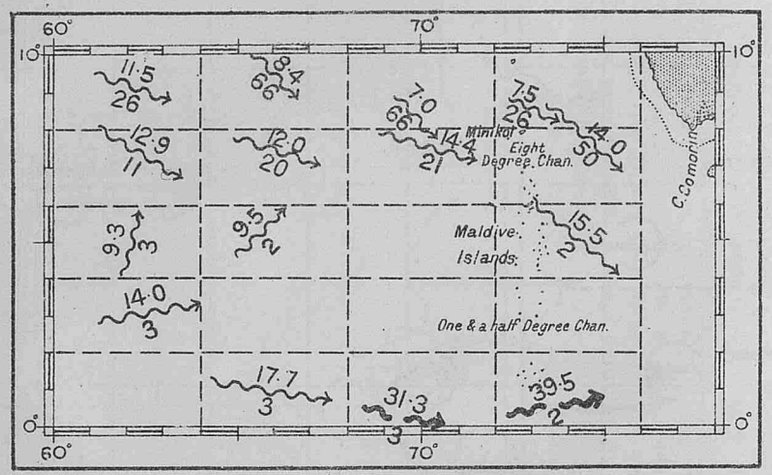
The dotted line indicates the area in which British "A Selected Ships" report under control to Portishead. The small shaded circle indicates the area from which reports are prohibited to Portishead.

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

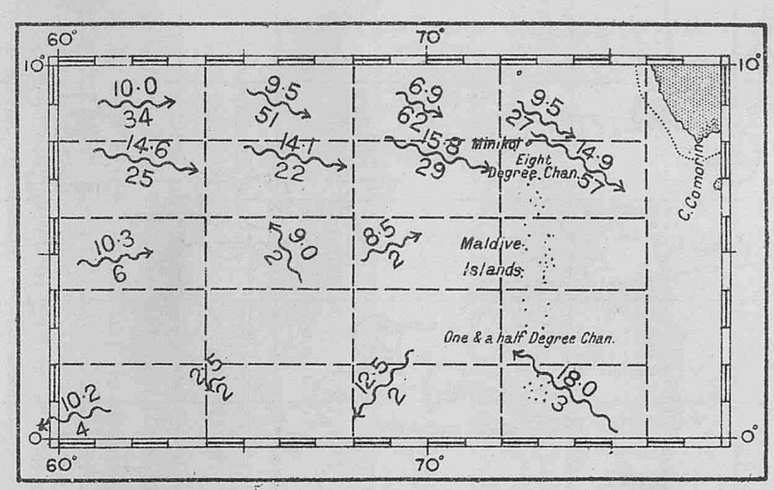
The full-line circles indicate the areas round islands and coast stations which could receive spark "Selected Ships" reports to C.Q.

Charts of Monthly Mean Current, Arabian Sea, during the S.W. Monsoon Peroid. Inset Charts accompanying Charts of Currents on the Tracks from Cape Leeuwin to Perim direct, and via Colombo.

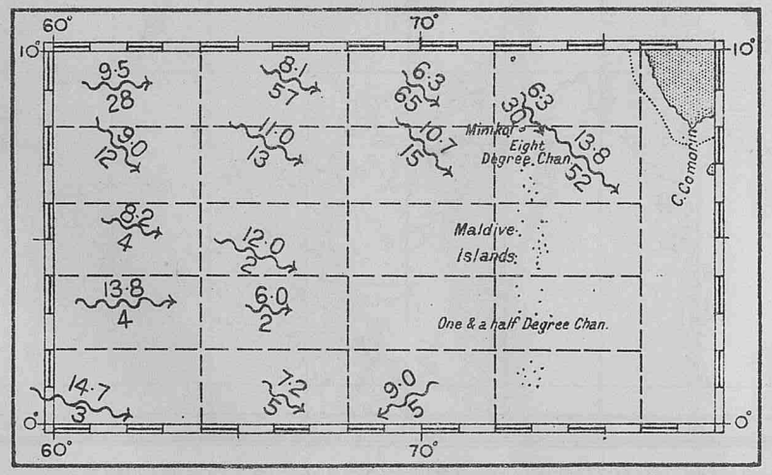
JUNE



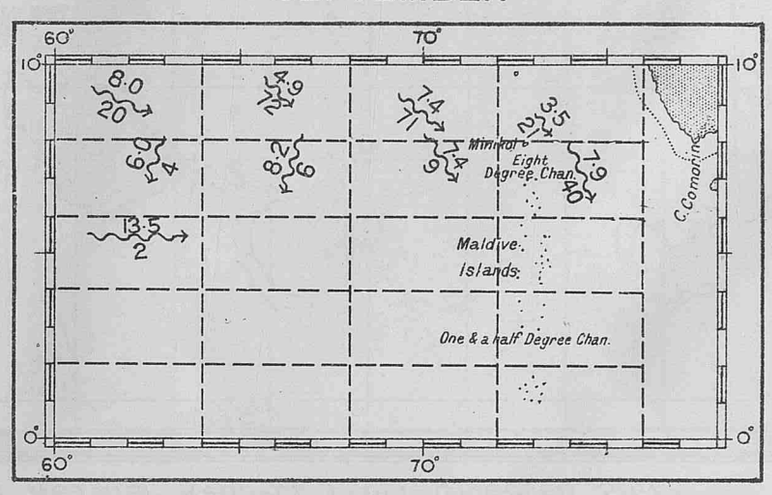
JULY.



AUGUST,



SEPTEMBER



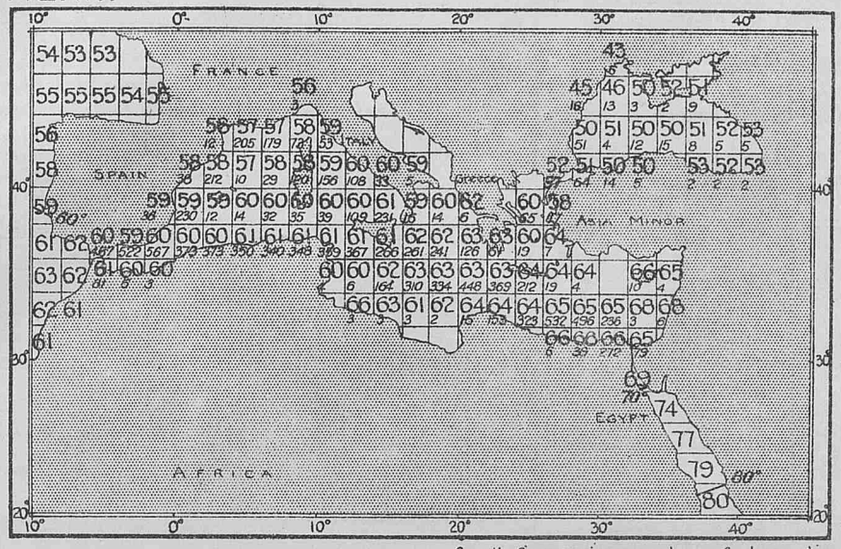
Computed from observations of British Ships during the years 1910-1928.

MEDITERRANEAN SEA

SEA SURFACE TEMPERATURES

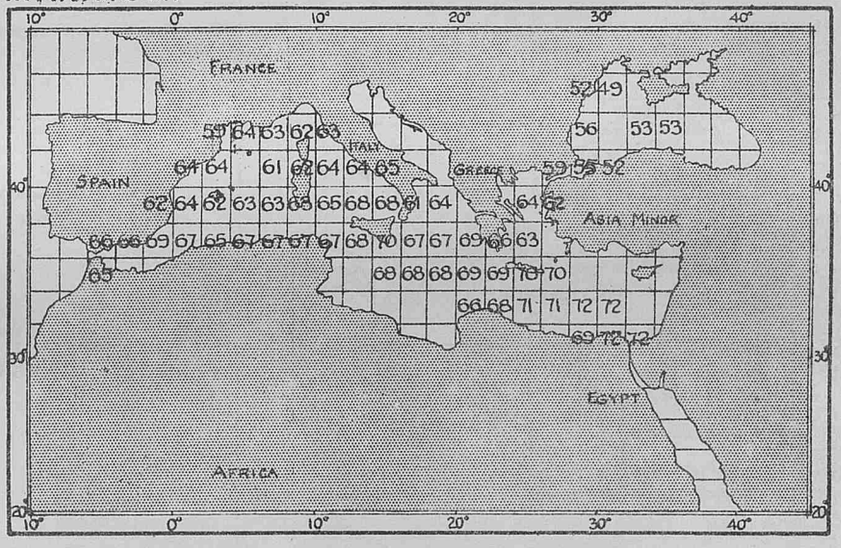
DECEMBER

MEAN.

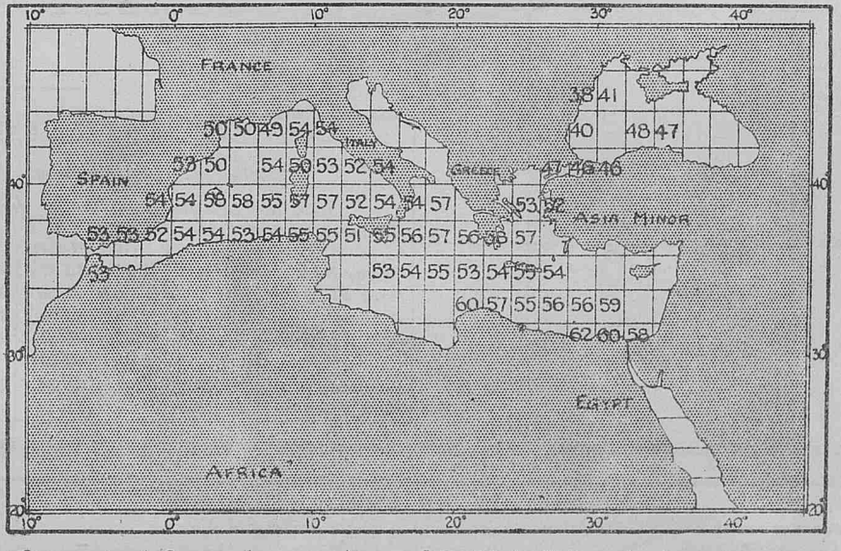


Small figure gives number of observations.

MAXIMUM.



MINIMUM.



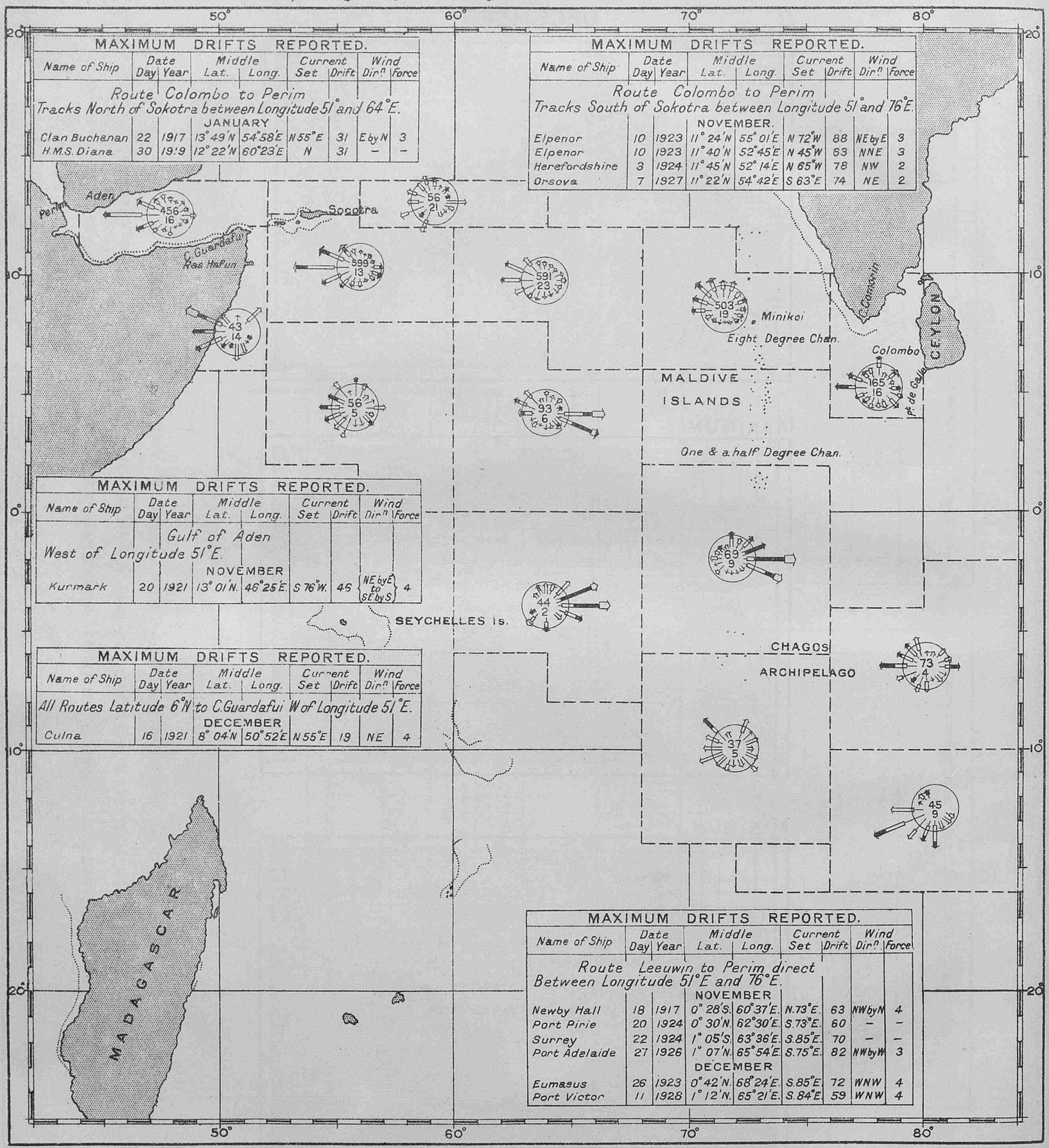
Computed from observations of British Ships during the years 1900-1914 in the Mediterranean and Black Seas.

Maximum and Minimum figures are not shown unless the Mean Temperature has been computed from not less than 12 observations.

CURRENTS ON THE TRACKS FROM CAPE LEEUWIN TO PERIM, DIRECT AND VIA COLOMBO, (WESTERN PORTION).

NOVEMBER, DECEMBER AND JANUARY.

Observations of ships regularly observing for the British Meteorological Office 1910-1928.



MAXIMUM DRIFTS REPORTED.

Route Colombo to Perim
Tracks North of Sokotra between Longitude 51° and 64° E.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dirn	Wind Force
			JANUARY					
Clan Buchanan	22	1917	13° 49' N	54° 58' E	N 55° E	31	E by N	3
H.M.S. Diana	30	1919	12° 22' N	60° 23' E	N	31	–	–

MAXIMUM DRIFTS REPORTED.

Route Colombo to Perim
Tracks South of Sokotra between Longitude 51° and 76° E.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dirn	Wind Force
			NOVEMBER.					
Elpenor	10	1923	11° 24' N	55° 01' E	N 72° W	88	NE by E	3
Elpenor	10	1923	11° 40' N	52° 45' E	N 45° W	63	NNE	3
Herefordshire	3	1924	11° 45' N	52° 14' E	N 65° W	78	NW	2
Orsova	7	1927	11° 22' N	54° 42' E	S 63° E	74	NE	2

MAXIMUM DRIFTS REPORTED.

Gulf of Aden
West of Longitude 51° E.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dirn	Wind Force
			NOVEMBER					
Kurmark	20	1921	13° 01' N.	46° 25' E.	S 76° W.	45	NE by E to SE by S	4

MAXIMUM DRIFTS REPORTED.

All Routes Latitude 6° N to C. Guardafui W of Longitude 51° E.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dirn	Wind Force
			DECEMBER					
Culna	16	1921	8° 04' N	50° 52' E	N 55° E	19	NE	4

MAXIMUM DRIFTS REPORTED.

Route Leeuwin to Perim direct
Between Longitude 51° E and 76° E.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dirn	Wind Force
			NOVEMBER					
Newby Hall	18	1917	0° 28' S.	60° 37' E.	N. 73° E.	63	NW by N	4
Port Pirie	20	1924	0° 30' N.	62° 30' E.	S. 73° E.	60	–	–
Surrey	22	1924	1° 05' S.	63° 36' E.	S. 85° E.	70	–	–
Port Adelaide	27	1926	1° 07' N.	65° 54' E.	S. 75° E.	82	NW by W	3
			DECEMBER					
Eumaeus	26	1923	0° 42' N.	68° 24' E.	S. 85° E.	72	WNW	4
Port Victor	11	1928	1° 12' N.	65° 21' E.	S. 84° E.	59	WNW	4

EXPLANATION OF CURRENT ROSES.

The current roses are drawn from observations within the pecked lines.

Arrows flow with the current, length represents frequency, thickness strength.

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

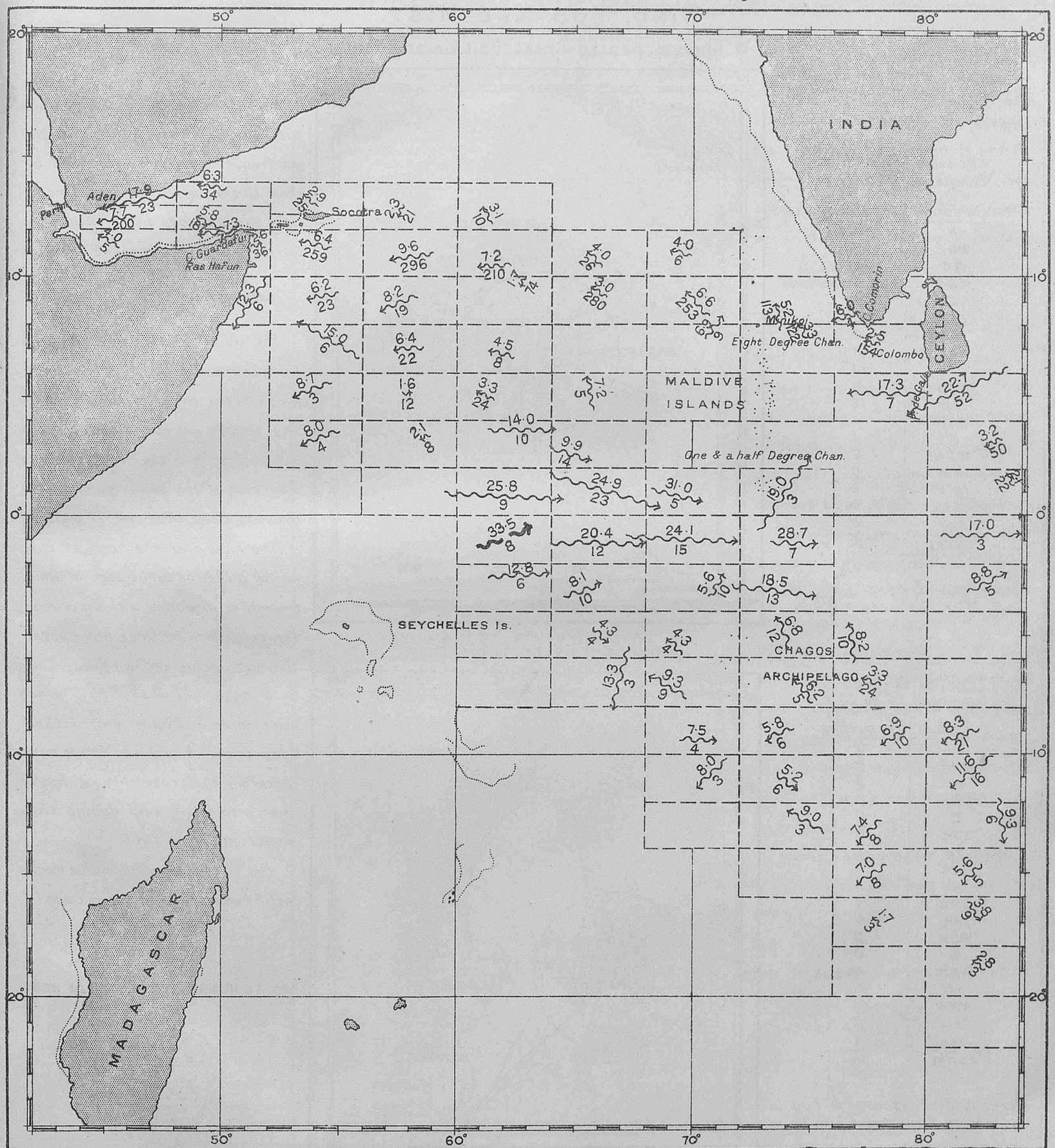
Distance from tail of arrow to circle represents 5%. Scale 0 10 20 30 40 50%

The upper figure in centre of rose gives total number of observations, the lower figure the percentage frequency of currents less than 6 miles per day.

CURRENTS ON THE TRACKS FROM CAPE LEEUWIN TO PERIM, DIRECT AND VIA COLOMBO, (WESTERN PORTION).

NOVEMBER, DECEMBER AND JANUARY.

Observations of ships regularly observing for the British Meteorological Office 1910-1928.



EXPLANATION OF CURRENT ARROWS.

The arrows flow with the current and represent the resultant of currents observed within the pecked lines. The centre of each arrow lies in the mean position of observation. The figures above the arrows give the velocity of current in miles per day; the figures below the arrows the number of observations.

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

DECEMBER

WIND, FOG AND MIST.

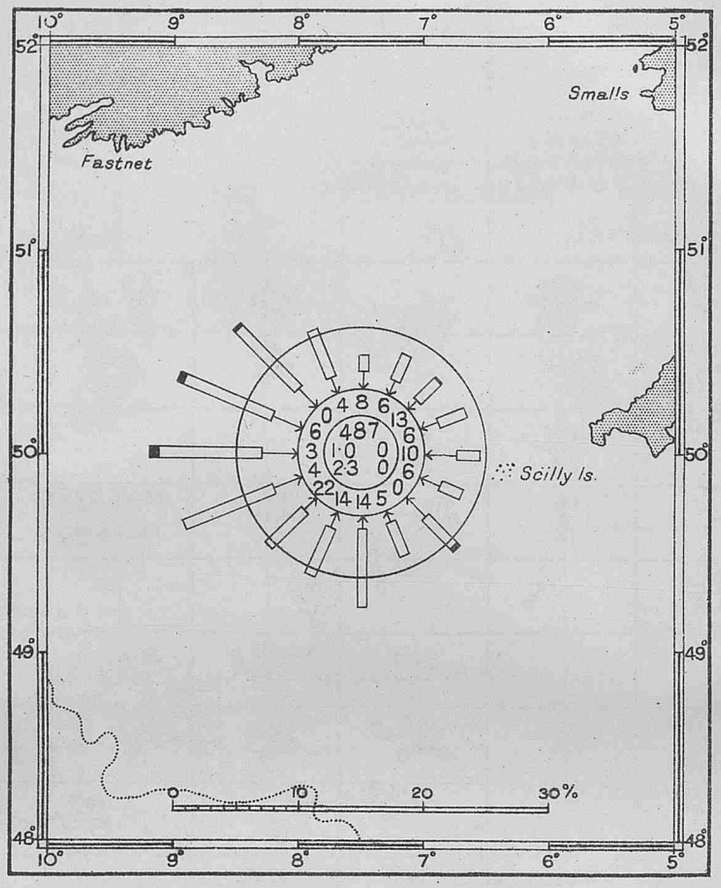
S.W. Approaches to Great Britain and Ireland

Frequency of fog per thousand observations for each 2 points of compass, 1921 to 1928.

Latitude 48° to 52° N.
Longitude 5° to 10° W.

Direction.	Frequency.
N	2
NNE	2
NE	4
ENE	2
E	4
ESE	2
SE	0
SSE	2
S	10
SSW	8
SW	12
WSW	4
W	4
WNW	6
NW	0
NNW	2
Calm	0
Var.	0
TOTAL	64

Percentage Frequency of Fog and Mist for area = 6·4 %.

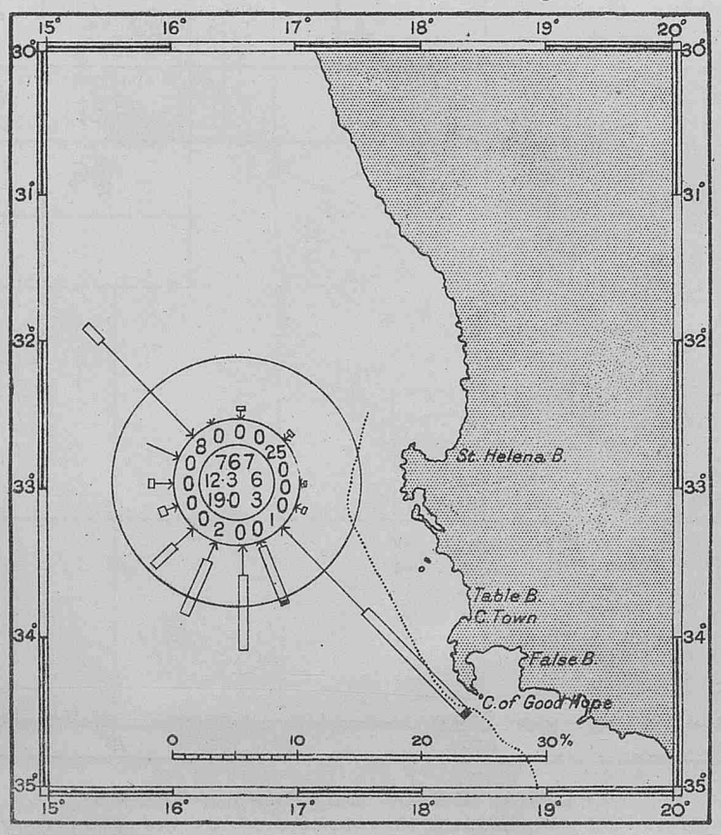


Approaches to Table Bay.

Latitude 30° to 35° S.
Longitude 15° to 20° E.

Direction.	Frequency.
N	0
NNE	0
NE	3
ENE	0
E	0
ESE	0
SE	1
SSE	0
S	0
SSW	1
SW	0
WSW	0
W	0
WNW	0
NW	10
NNW	0
Calm	8
Var.	7
TOTAL	30

Percentage Frequency of Fog and Mist for area = 3·0 %.



EXPLANATION.

The arrows in the roses fly with the wind and show by their length the frequency of the winds and by their thickness the various forces, light winds forces 1 to 3, moderate winds 4 to 7 and gales 8 to 12.

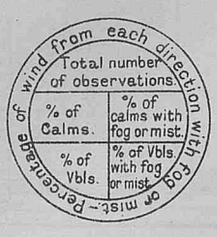
Gales — Moderate — Light

The outer circle supplies a scale for estimating the frequency of winds from any direction. From the heads of the arrows to the circumference of the circle represents 5 per cent of the whole number of observed winds. (100 per cent = 10° longitude).

The figure at the head of the arrow gives the percentage of wind from that direction with fog or mist, for example :- In December in the S.W. Approaches to Great Britain & Ireland on all occasions when S.W'ly winds were observed 22 per cent of them were accompanied with fog or mist, therefore the probability of fog or mist with a S.W. wind during this month is about 1 in 5.

Fog is most probable in this month with S.W. winds the percentage being 1·2.

KEY TO NUMBERS IN CENTRE OF ROSES.



Compiled from observations of British Ships received since the adoption of the Hollerith system of extraction covering the years 1921 to 1928.

ANNUAL.

WIND, FOG AND MIST.

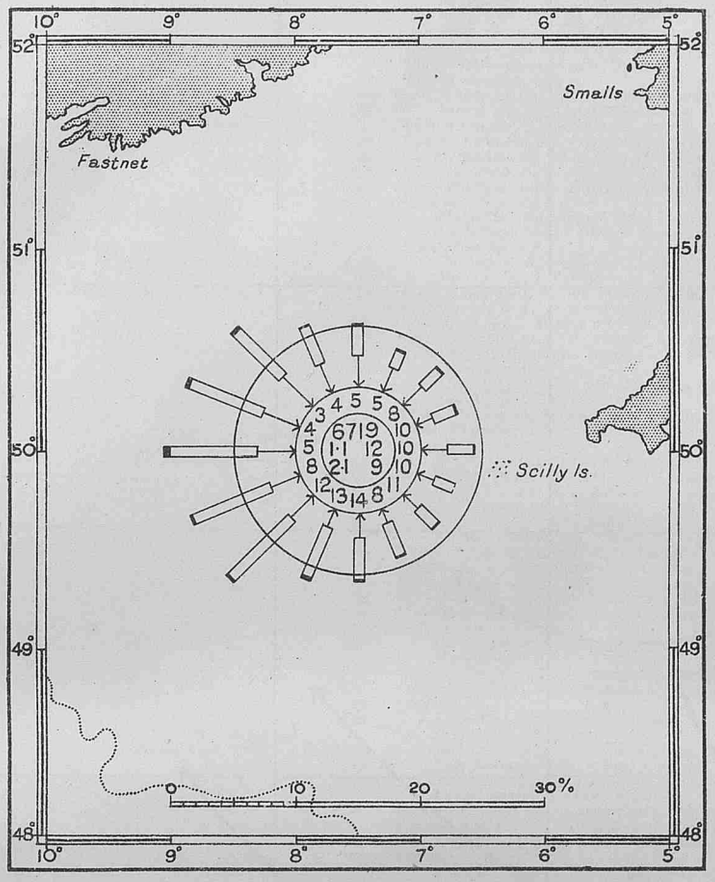
S.W. Approaches to Great Britain and Ireland

Frequency of fog per thousand observations for each 2 points of compass, 1921 to 1928.

Latitude 48° to 52° N.
Longitude 5° to 10° W.

Direction.	Frequency.
N	3
NNE	2
NE	3
ENE	3
E	4
ESE	4
SE	4
SSE	3
S	7
SSW	8
SW	11
WSW	8
W	5
WNW	4
NW	3
NNW	2
Calm	1
Var.	2
TOTAL	77

Percentage Frequency of Fog and Mist for area = 7·7 %.

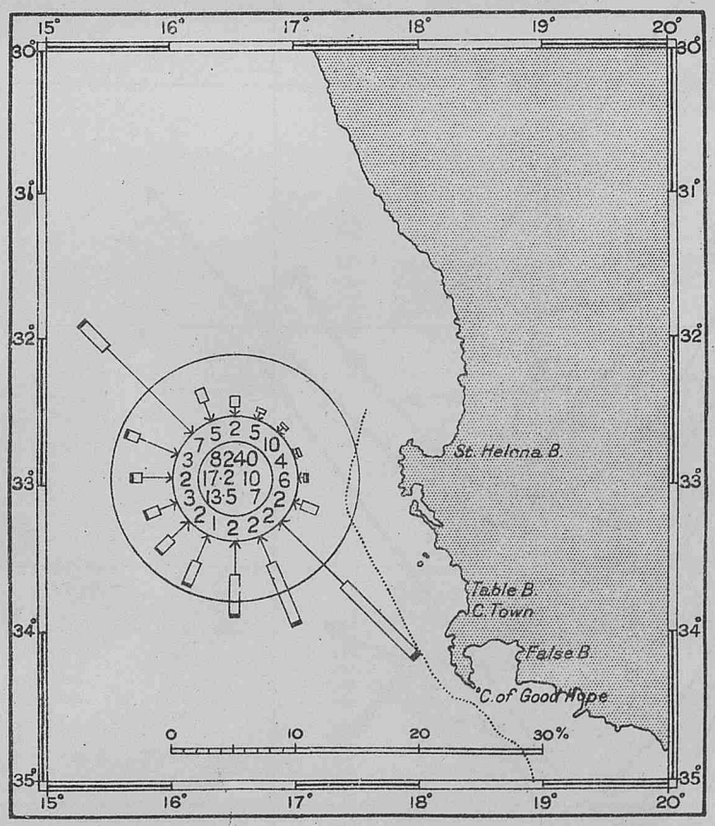


Approaches to Table Bay.

Latitude 30° to 35° S.
Longitude 15° to 20° E.

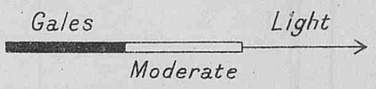
Direction.	Frequency.
N	1
NNE	0
NE	1
ENE	0
E	1
ESE	0
SE	2
SSE	2
S	1
SSW	1
SW	1
WSW	1
W	1
WNW	2
NW	9
NNW	1
Calm	17
Var.	9
TOTAL	50

Percentage Frequency of Fog and Mist for area = 5·0 %.



EXPLANATION.

The arrows in the roses fly with the wind and show by their length the frequency of the winds and by their thickness the various forces, light winds forces 1 to 3, moderate winds 4 to 7 and gales 8 to 12.

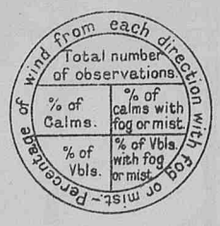


The outer circle supplies a scale for estimating the frequency of winds from any direction. From the heads of the arrows to the circumference of the circle represents 5 per cent of the whole number of observed winds. (100 per cent = 10° longitude).

The figure at the head of the arrow gives the percentage of wind from that direction with fog or mist, for example :- In the year in the S.W. Approaches to Great Britain & Ireland on all occasions when Southerly winds were observed 14 per cent of them were accompanied with fog or mist, therefore the probability of fog or mist with a S'ly wind during the year is about 1 in 7.

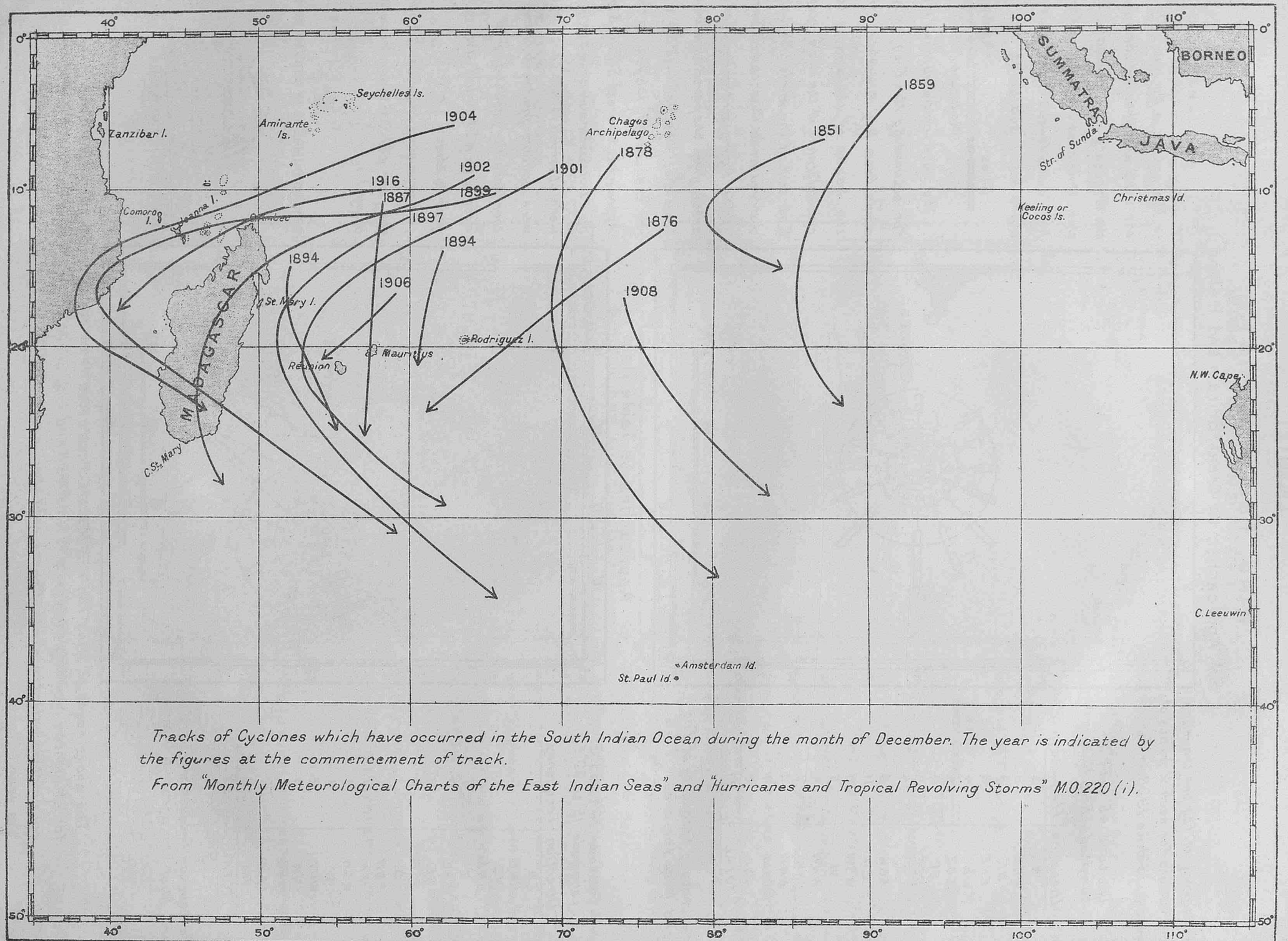
Fog is most probable throughout the year with S.W. winds, the percentage being 1·1.

KEY TO NUMBERS IN CENTRE OF ROSES.



The above roses of Wind, Fog and Mist are constructed from observations of British Ships for all months covering the years 1921 to 1928 and may prove of interest when used in conjunction with the monthly roses published in each number of "The Marine Observer" during the year.

CYCLONE TRACKS OF THE SOUTH INDIAN OCEAN.



Tracks of Cyclones which have occurred in the South Indian Ocean during the month of December. The year is indicated by the figures at the commencement of track.

From "Monthly Meteorological Charts of the East Indian Seas" and "Hurricanes and Tropical Revolving Storms" M.O.220 (i).

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

Ps.1322/2140. Wt.94A. D.25. Gp.908. 1250. 10/30.

A.

B.

C.

D.

E

N.

O.

P.

R.

S.

T.

U.

V.

W.

LIST OF ILLUSTRATIONS APPEARING IN THE TEXT.

LIST OF PLATES PRODUCED BY LITHOGRAPHIC PROCESS, INCLUDING CHARTS AND OTHER LARGE DIAGRAMS WHICH APPEAR IN EACH NUMBER.

After page 36, January number :—
Ships' Wireless Weather Signals, Chart II.
Wind and Fog Roses, S.W. Approaches to Great Britain and Ireland and Approaches to Table Bay, January.
Mean Sea Surface Temperature Charts, Mediterranean, January.
Cyclone Tracks of the South Indian Ocean during the years 1886–1917, January.

After page 56, February number :—
Ships' Wireless Weather Signals, Chart III.
Currents on the Tracks from Cape Leeuwin to Perim direct and via Colombo (Eastern Portion) February, March, April.
Wind and Fog Roses, S.W. Approaches to Great Britain and Ireland and Approaches to Table Bay, February.
Mean Sea Surface Temperature Charts, Mediterranean, February.
Cyclone Tracks of the South Indian Ocean during the years 1886–1917 ,February.

After page 76, March number :—
Ships' Wireless Weather Signals, Chart IV.
Currents on the Tracks from Cape Leeuwin to Perim direct and via Colombo (Western Portion) February, March, April.
Wind and Fog Roses S.W. Approaches to Great Britain and Ireland and Approaches to Table Bay, March.
Mean Sea Surface Temperature Charts, Mediterranean, March.
Cyclone Tracks of the South Indian Ocean during the years 1886–1917, March.

After page 98, April number :—
Ships' Wireless Weather Signals, Chart V.
Wind and Fog Roses S.W. Approaches to Great Britain and Ireland and approaches to Table Bay, April.
Mean Sea Surface Temperature Charts, Mediterranean, April.
Cyclone Tracks of the South Indian Ocean during the years 1886–1917, April.
Chart A. General Drift of Icebergs.
Chart B. Compiled Drifts of Icebergs 1914–1926.
Chart C. Limits of Ice, Western North Atlantic.
Chart D. Phenomenal Positions of Ice.

After page 118, May number :—
Ships' Wireless Weather Signals, Chart VI.
Currents on the Tracks from Cape Leeuwin to Perim, direct and via Colombo (Eastern Portion) May, June, and July.
Wind and Fog Roses, S.W. Approaches to Great Britain and Ireland and Approaches to Table Bay, May.
Mean Sea Surface Temperature Charts, Mediterranean, May.

After page 140, June Number :—
Ships' Wireless Weather Signals, Chart VII.
Marsden Charts Nos. I and II, showing number of Sets of observations extracted between April 1st, 1929 and March 31st, 1930 and April 1st 1920 and March 31st, 1930.
Chart No. III.—Chart of the World, showing positions of Selected Ships at Sea with mercurial Barometers and their wireless installations, June 1st, 1929.
Currents on the Tracks from Cape Leeuwin to Perim, direct and via Colombo (Western Portion) May, June and July.
Wind and Fog Roses, S.W. Approaches to Great Britain and Ireland and approaches to Table Bay, June.
Mean Sea Surface Temperature Charts, Mediterranean, June.

After page 164, July number :—
Ships' Wireless Weather Signals, Chart VIII.
Wind and Fog Roses, S.W. Approaches to Great Britain and Ireland and approaches to Table Bay, July.
Mean Sea Surface Temperature Charts, Mediterranean, July.

After page 184, August number :—
Ships Wireless Weather Signals, Chart IX.
Currents on the Tracks from Cape Leeuwin to Perim, direct and via Colombo (Eastern portion) August, September and October.
Wind and Fog Roses, S.W. Approaches to Great Britain and Ireland and Approaches to Table Bay, August.
Mean Sea Surface Temperature Charts, Mediterranean, August.
Charts of Monthly Mean Current for the Region South of Ceylon during S.W .Monsoon Period, May to October.

After page 200, September number :—
Ships' Wireless Weather Signals, Chart X.
Currents on the Tracks from Cape Leeuwin to Perim, direct and via Colombo (Western Portion), August, September and October.
Charts of Mean Current for the Region of Sokotra and Cape Guardafui during S.W. Monsoon, July, August and September.
Wind and Fog Roses, S.W. Approaches to Great Britain and Ireland and approaches to Table Bay, September.
Mean Sea Surface Temperature Charts, Mediterranean, September.

After page 218, October number :—
Ships' Wireless Weather Signals, Chart XI.
South Pacific Hurricanes, Chart A.
South Pacific Hurricanes, Chart B.
Wind and Fog Roses, S.W. Approaches to Great Britain and approaches to Table Bay, October.
Mean Sea Surface Temperature Charts, Mediterranean, October.

After page 236, November number :—
Ships' Wireless Weather Signals, Chart XII.
Currents on the Tracks from Cape Leeuwin to Perim, direct and via Colombo (Eastern Portion), November, December, January.
Wind and Fog Roses, S.W. Approaches to Great Britain and Ireland and approaches to Table Bay, November.
Mean Sea Surface Temperature Charts, Mediterranean, November.
Cyclone Tracks of the South Indian Ocean, November.

After page 256, December number :—
Ships' Wireless Weather Signals, Chart XIII.
Inset Charts of Monthly Mean Current, Arabian Sea, S.W. Monsoon Period.
Mean Sea Surface Temperature Charts, Mediterranean, December.
Currents on the Tracks from Cape Leeuwin to Perim, direct and via Colombo (Western portion), November, December and January.
Wind and Fog Roses, S.W. Approaches to Great Britain and Ireland and Approaches to Table Bay, December and Annual.
Cyclone Tracks of the South Indian Ocean, December.

LIST OF WIRELESS WEATHER TELEGRAPHY TABLES WHICH APPEAR IN THE JANUARY NUMBER.

INTERNATIONAL SHIPS' WIRELESS WEATHER TELEGRAPHY CODE.

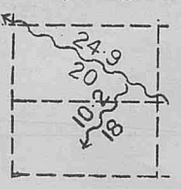
(Commencing 1st May, 1930.)

ERRATA.

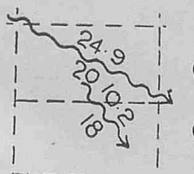
Volume VII, No. 83.

Currents on the Tracks from Cape Leeuwin to Perim, Direct and via Colombo (Western Portion) August, September and October. Chart showing current arrows.

In the area Latitude 4° N. to 8° N., Longitude 52° E. to 56° E.,

the currents given thus 

should be



(S. 63° E., 24.9 miles per day, 20 observations.)

(S. 38° E., 10.2 miles per day, 18 observations.)

NOTICES.

IMPORTANT.

The special attention of Marine Observers is invited to the list of Agents overleaf, also to the notice headed "Marine Meteorology."

The Port Meteorological Officers and Agencies exist for the purpose of assisting in the collection and dissemination of Marine Meteorological information and to encourage the practical application of meteorology in the Merchant Navy.

Much time and correspondence may be saved by consulting the Port Meteorological Officers and Agents at ports.

Ships using ports where there are Agencies should hand their Meteorological Logs, Form 915, to the Agents. The Ships' Meteorological Record Form 911 should in all cases be sent direct to the Meteorological Office in London. (Wireless Registers Form 138 used in "Selected Ships" should always accompany the Meteorological Log or Record.)

The Agents have all Forms, including Logs and Outline Charts required for the work at sea and have the necessary gear for equipping ships for keeping the Meteorological Log and replacing defective instruments. It is hoped that greater use will be made of the advantages now offered at the Agencies for the benefit of shipping and seamen.

The Captains and Officers of regular observing ships are requested to refer intending Marine Observers to the appropriate Marine Agent, Port Meteorological Officers or to the Marine Superintendent in London. Ports with Agencies are allotted an appropriate number of places in the list of regular observing ships, and it is intended that the observing fleet should be well and fairly distributed, not only in the different trades so as to maintain the best geographical distribution of observations, but also amongst ships sailing from different ports and amongst the different types and owners so that the number of ships to which we are limited shall be the best possible representation of the British Merchant Navy.

A certain number of observing ships (in accordance with the national proportion of the World tonnage) are detailed as "Selected Ships" for the purpose of Organised Ships' Weather Telegraphy, *see* List of Voluntary Observing Ships.

COVER FOR MARINE OBSERVER.

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

The arrangements for assembling the numbers for binding is described in this Number, page 237.

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

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.

ICE CHART.

WESTERN NORTH ATLANTIC.

LETTERS OF TRANSATLANTIC TRACKS INDICATE.

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

(E) From 1st December to 14th February, inclusive.

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

SYMBOLS USED ON THE CHART.

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

Clarke City
Anticosti
Heath Pt. Lt. V.
Fame Pt.
Father Pt.
GULF OF ST. LAWRENCE
NEWFOUNDLAND
Magdalen Is.
Grindstone I.
St. Paul
C. Ray
Grosse I.
Quebec
Prince Edward Is.
Cape Breton Is.
Sydney
St. Pierre
Montreal
St. John
NOVA SCOTIA
Lurcher Lt V
C. Sable
Sable Is.
Boston
New York
Nantucket Lt V
B
VCN
Belle Is.
VCL
St. Anne
C. Norman
VAR
VAV
VAU
VDR
VCT
HYS
VCE
St. John's
Virgin Rocks

PHENOMENAL POSITIONS OF ICE.

Date.	Ship or Source of Report.	Position. Lat.	Position. Long.	Remarks.
Dec. —, 1903	S.S. Lord Antrim ...	42°00′N.	55°00′W.	Ice.
,, 22, 1915	S.S. Carolyn	42°53′N.	57°39′W.	Large Berg.
,, 16, 1920	S.S. Oriana	43°53′N.	44°39′W.	Berg.
,, 16, 1927	S.S. Ascania... ...	47°52′N.	40°50′W	Four large Bergs.
		(Approximate).		

Reports of Ice sighted between October 1st and October 31st, 1930, which have been received by the Meteorological Office, are shown by the Symbols plotted in the position reported, the figures indicating the day of the month.

ICE IN GREENLAND WATERS.

SUMMARY OF INFORMATION FROM CABLEGRAM RECEIVED FROM DANISH METEOROLOGICAL INSTITUTE, COPENHAGEN.

October 11.....Free of ice 30 miles off Cape Farewell, Julianehaab Bay free of ice.

Limit of ice reported to Meteorological Office DECEMBER 1930

1322/2140. Wt. 944. D.25. Gp.808. 1050. 10/30.

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

NOTICES.

MARINE METEOROLOGY.

CO-OPERATION OF SHIPOWNERS, MASTERS AND MATES.

Captains and officers who wish to co-operate regularly with the Meteorological Office should apply to the appropriate Port Meteorological Officers or Agents, a list of these gentlemen with addresses given below. 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 may be obtained from H.M. Stationery Office direct, or through any booksellers, price 2s. 6d.

The names of vessels regularly observing for the Meteorological Office, London, together with their Commanders and Observing Officers, are given monthly in THE MARINE OBSERVER, which may be obtained from H.M. Stationery Office, price 2s., 2s. 2d. post free.

The Captains and Officers of regular observing ships constitute the Corps of Voluntary Marine Observers. For certain branches of this work tested instruments are lent to the Captains of British ships registered at ports in Great Britain. A certain number of Regular Observing ships are detailed as "Selected Ships" for the purpose of the World Wide Scheme of Routine Ships' Wireless Weather Telegraphy Reporting. These "Selected Ships" are indicated monthly in the "Fleet List" in THE MARINE OBSERVER by a number.

Only ships registered at Ports in Great Britain will, in future, be included in the Meteorological Office, London, "Fleet List."

Marine Observers are asked to send in their Meteorological Log through the appropriate Port Meteorological Officer or Agent (accompanied by Form 138 in the case of "Selected Ships") at intervals of not more than six months. The Meteorological Record Form 911 (accompanied by Form 138 in the case of "Selected Ships") should be posted direct to the Meteorological Office, London, at the end of each voyage.

When sending in the Meteorological Log or Record, Regular Observing ships will render great assistance if they will notify the Port Meteorological Officer or Agent of their requirements.

The Port Meteorological Officers and Agents inspect official instruments at regular intervals, replacing those which are defective.

Where ships' instruments are found by comparison to be reliable they may be used for the work of "Selected Ships." A reliable mercurial barometer is essential as part of the equipment of a "Selected Ship."

A copy of THE MARINE OBSERVER is sent monthly to the Captain of every observing ship for the information and guidance of the officers doing this work. He is also supplied with THE MARINE OBSERVER'S HANDBOOK and such charts and atlases as are considered necessary as Meteorological equipment for the Work of a Regular Observing ship in a particular trade.

WIRELESS AND WEATHER AN AID TO NAVIGATION, published by H.M. Stationery Office, which affords information and guidance for the practical application of Marine Meteorology to Navigation, may be purchased through any bookseller, price 5s.

Returns made by Regular Observing ships are acknowledged monthly in THE MARINE OBSERVER, and a list of those Commanders and Officers who have performed specially fine work is published yearly in THE MARINE OBSERVER and Excellent Awards are made to them.

The work done by Regular Observing Ships in making written returns, and by "Selected Ships" in broadcasting routine information by W/T, together with "Weather Shipping" Bulletins broadcast from the shore, conforming with the recommendations of the International Convention of Safety of Life at Sea, 1929, provide the necessary information for the use of all shipping. Thus by shipowners encouraging the specialist work in those of their ships whose names appear in THE MARINE OBSERVER, this Voluntary Work under the supervision of the Meteorological Office provides a service to all shipping at minimum cost to the National funds.

Shipowners are asked to facilitate the forwarding of postal matter from the Air Ministry addressed to the Captains of their ships.

LATE PRESS.

DERELICTS AND FLOATING WRECKAGE.

Date.	Position. Latitude.	Position. Longitude.	Description.
	BALTIC.		
9.10.30	57°56′N.	11°18′E.	Wreckage.
	NORTH SEA.		
8.10.30	53°27′N.	0°51′E.	Obstruction.
19.10.30	57°58′N.	6°23′E.	Floating elevator about 100 feet long with lattice work superstructure about 75 feet high and with control box on same, hull about 3 feet out of water and abandoned. Dangerous to navigation.
16.10.30	51°17′N.	1°58′E.	Plank bridge afloat, dangerous to navigation.
	ENGLISH CHANNEL.		
1.10.30	50°27′N.	0°30′E.	Empty floating lifeboat and big case.
7.10.30	49°10′N.	4°—W.	Floating spar, painted red, about 30 feet long, dangerous to navigation.
21.10.30	5 m. out from Dieppe.		Floating spar, 40 feet long.
21.10.30	49°52′N.	5°12′W.	Red buoy adrift.
	IRISH SEA.		
24.10.30	31 m. W. of South Stack.		Large round buoy covered with growth resembling a mine with no horns.
	NORTH ATLANTIC.		
3.10.30	36°08′N.	40°10′W.	Red conical buoy, no marks visible.
5.10.30	48°09′N.	4°29′W.	Floating red conical buoy.
7.10.30	48°09′N.	5°30′W.	Conical buoy, dangerous to navigation.
7.10.30	34°34′N.	70°14′W.	Red gas and whistle buoy in good condition.
10.10.30	46°53′N.	6°51′W.	Spherical buoy surmounted with white staff and twin lamps, drifting on its side, large growth of weed on under-water portion.
14.10.30	47°44′N.	6°50′W.	Large can buoy, dangerous to navigation.
14.10.30	42°41′N.	9°36′W.	Red buoy.
15.10.30	39°20′N.	70°12′W.	Buoy with white pyramidal superstructure and a black cross on top.
17.10.30	49°05′N.	8°54′W.	Floating mast with guys attached, about 25 feet long, dangerous to navigation.
19.10.30	49°32′N.	6°18′W.	Red spherical lightbuoy with light working, dangerous to navigation.
24.10.30	42°32′N.	9°25′W.	Numerous casks adrift, dangerous to navigation.
25.10.30	48°25′N.	9°25′W.	Hull of a sailing vessel, dangerous to navigation.
25.10.30	42°09′N.	9°10′W.	Top of a steamer's chart room with compass and binnacle attached and board fixed on rail, may be Spanish steamer *FITO*.
	CARIBBEAN SEA.		
1.10.30	9°57′N.	82°40′W.	Partly submerged tree trunk about 40 feet long.
11.10.30	16°26′N.	74°39′W.	Spar about 2 feet in diameter projecting vertically 3 feet out of water.
	GULF OF MEXICO.		
9.10.30	26°40′N.	89°59′W.	Red mooring buoy.
	NORTH PACIFIC.		
1.10.30	27°30′N.	140°57′W.	Log about 15 feet long and 3 feet in diameter.
4.10.30	44°55′N.	124°55′W.	Log about 30 feet long and 3 feet in diameter.

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