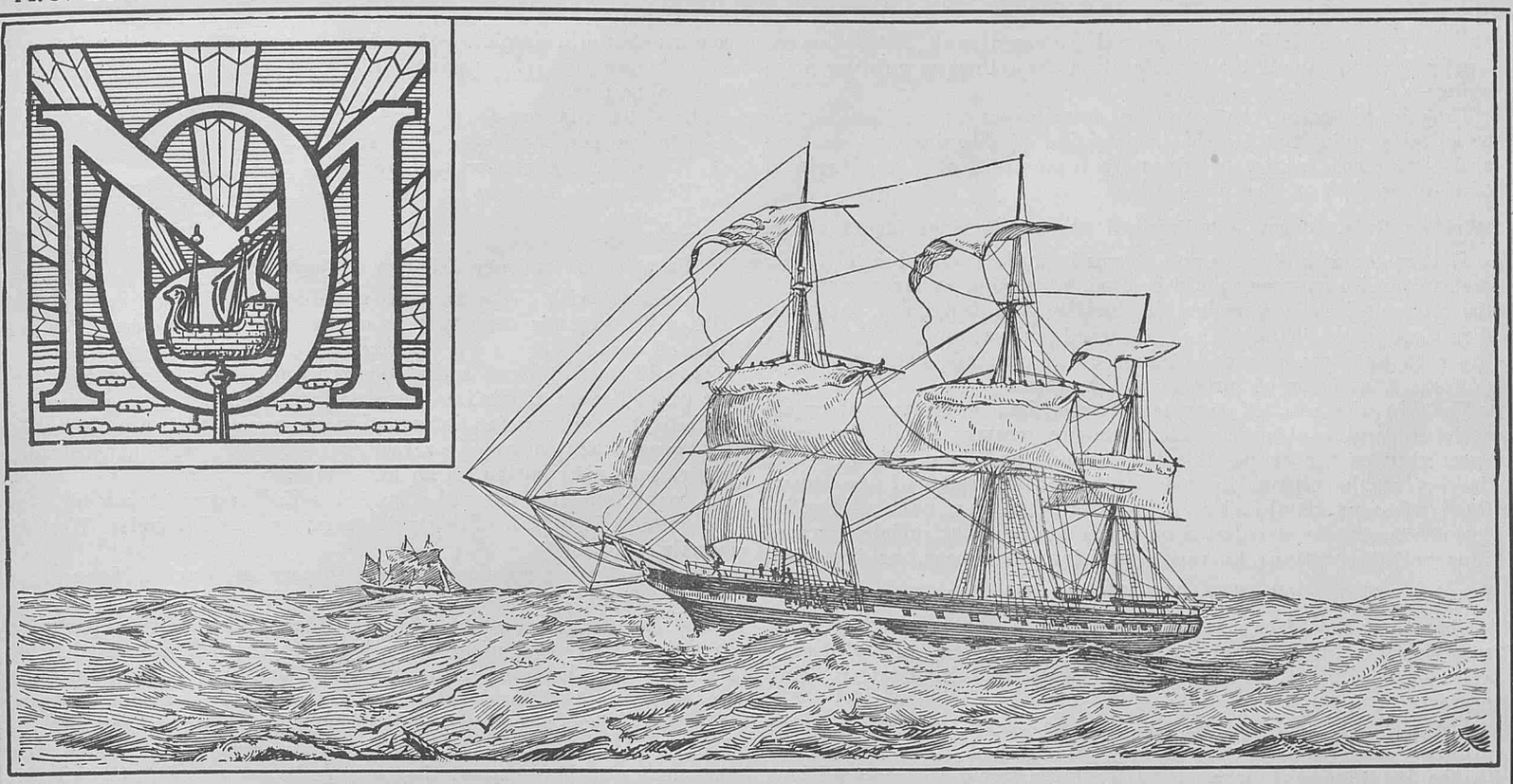
M.O. 262.



VOL. VII. No. 74. THE MARINE OBSERVER. FEBRUARY, 1930.

TABLE OF PRINCIPAL CONTENTS.

WIRELESS WEATHER SIGNALS.

In the January number the Universal International Ships Wireless Weather Telegraphy Code was published and some account was given of the agreements reached by the International Meteorological Conference following the International Convention of Safety of Life at Sea, 1929.

This code will be brought into use in British " Selected Ships " on May 1st next and from the same day it will be used for coast station reports in the British Isles for the Wireless Weather Shipping Bulletin.

The only actual difference in the code tables to be used from May 1st, 1930, for these British coast station reports is in the Present Weather table.

Table VI, page 28, Volume VII, No. 73, gives Present Weather abridged for British " Selected Ships." With it requisite information can be given of weather at sea in all parts of the world. For British coast station reports in the Weather Shipping Bulletin the same abridged table will be used, without the figures 18 and 19, which refer to Tropical Storms.

In the decode the full Present Weather table is given because it is for use not only for decoding reports from British ships and stations, but for decoding reports from Foreign Selected Ships and coast stations in all parts of the world.

With the view to obtaining uniformity in reports from the shore as far as possible in different parts of the world, the International Conference recommended that in collective messages for ships at sea the second and third groups of the report should be in the form—

DDFww BBVTT

which are the third and fourth groups for ships reports. The contents and arrangement of the first group is not prescribed for by International agreement for coast station reports to ships at sea.

Experience indicates that the information given for coast stations in the British " Weather Shipping " Bulletin is that which is most desirable for shipping and seamen, no more and no less, and therefore, but for the re-arrangement of the groups and the change of Present Weather table to fall into line with International agreement, the British " Weather Shipping " Bulletin which was originally adopted after obtaining a consensus of nautical opinion will remain as it is.

Care should be taken to remember this change of key on and after May 1st, 1930, the key will then be I_nABBV DDFww.

During the great developments which have been made in the last 10 years in signalling weather from shore by Wireless to ships at sea, a great many representations have been made by British Seamen as to their requirements. Opportunity was therefore taken

(5938) Wt. 88—13 1050 & 200 12/29 P. St. G. 4/ 1

at the recent British Empire and International Meteorological Conferences to submit for consideration the following guiding principles—

That in all cases, clear, concise descriptions of weather signals be suitably published for the information of shipping and seamen; and that ample notice be given by means of Notice to Mariners of changes, **before** they are made.

Wireless Gale, Storm, and Tropical Storm Warnings for Shipping.

That in the case of gales and storms in middle and high latitudes, a clear concise message should be used, specifying as far as possible, the nature of the depression, its locality and movement, the wind direction, with changes, and a broad estimation of force, over the area or areas warned, distinction being made between a gale of force 8, and one of force 10 and upwards.

That in the case of tropical storms, i.e., hurricanes, tropical cyclones, and typhoons, a clear concise message should be used, specifying as far as possible the latitude and longitude in whole degrees of the centre, its movement, and intensity of the storm. Such messages should clearly indicate when any part of the information contained is based on deduction, without sufficient actual reported observations to verify position, movement, or intensity.

Routine Wireless Weather Bulletins for Shipping.

That these should be clear and concise, and that when practicable they should contain actual observations of a limited number of suitably disposed coast stations, salient points used for landfall being preferred.

The elements included should only be those necessary for the mariner. Information of visibility to seaward from the station in the International Scale in parts of the world where conditions of visibility vary, and those elements which are necessary for the construction of a simple weather chart in conjunction with "Selected Ships" reported observations, and for general information for safe navigation.

These elements are generally:—

Station Distinguishing number.
Wind, True Direction and Force.
Barometric pressure.
Weather.
Visibility.
Barometric tendency (change of barometer).

On coasts within the tropics, visibility may often be replaced with advantage by departure from the barometric normal for the time of day.

In addition to these actual observations, short period forecasts for defined areas of wind and one or two other elements (preferably visibility) necessary for information in navigation, are desirable.

A general statement of prevailing conditions, with general idea of pressure distribution, is an advantage.

A small selection of well disposed ships' reports repeated after the bulletin is useful. Brevity is necessary in all Wireless Weather signals.

These and other recommendations concerning Marine Meteorology in aid of navigation are still under consideration.

The Corps of Voluntary Marine Observers, with the knowledge that their views and wishes have been represented, are asked to do their part by leading in the matter of bringing into general use on May 1st, 1930, and after, the Universal International Ships' Wireless Telegraphy Code and other changes which go with it. Though at first these may be irksome to some, in a shorter time than may now be apparent they may make matters not only simpler for seamen, but produce greater efficiency.

CURRENTS AND NAVIGATION IN THE INDIAN OCEAN.

The first section of the Quarterly Charts of Currents on the Tracks from Cape Leeuwin to Perim direct and via Colombo will be found in this number. As usual with the first appearance in the year of our work in charting currents systematically along the trade routes of the World we call for the views of Commanders experienced in navigating the routes being charted.

If these charts, like those before them, are to be of real use to navigation, it is necessary that we should endeavour to co-ordinate individual experience with the information obtained from statistical data by research.

Computation and theory may fail to bring out facts which are known to those constantly encountering current along a particular route. Now is the time that we desire the knowledge and advice of those in the best position to give it, i.e., the Captains of regular observing ships constantly navigating these waters. They are requested to forward their remarks as soon as possible.

Not only are their views regarding ocean currents desirable, but by sending in their experience and ideas as to the best routes to follow in the different seasons of the year, information may be published which will be valuable to many.

It is now over 15 years since I last navigated these waters, and though one has memories of little dodges we had to get the best of current, wind and weather, there must now be many others which have since been developed.

Two things stand out which, though known to regular traders, may be useful to strangers upon these routes, and mentioning them here may help to bring out others.

The first is that during the S.W. monsoon season, May to September, when the current often sets with great strength to the Eastward between the Equator and Ceylon, when bound from Fremantle to Colombo, we used to steer for a position on the Equator considerably to the Westward of the meridian cut at the Equator by the rhumb line between Rottnest and Galle. Thus if and when a strong Easterly set was felt North of the Equator it was less to our disadvantage than if we had not previously made good Westing, even in fast mail steamers. Therefore we propose, if time permits, to make a more particular investigation of the seasonal and other variations of the currents in this region.

The other thing is the old question of which is the better route during the S.W. monsoon from Colombo to Perim, North or South of Sokotra. Though this matter has been well investigated and much proof in favour of the latter has been published in this JOURNAL, we hope to throw further light upon the currents in the region to the Eastward of Guardafui and Southward of Sokotra.

There are, of course, such questions as, is it worth while to work on the Great Circle between Colombo and Fremantle, or The Leeuwin and Guardafui? On the former the saving is but three miles, but many contend it is well worth while, and, may be the reason is that this gives a wide berth to Cocos which is not a desirable place to make at night.

MARINE SUPERINTENDENT.

November, 1929.

THE MARINE OBSERVER'S LOG.

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

CURRENT IN CHINA SEA.

THE following is an extract from the Meteorological Report of S.S. *Euryades*, Captain J. FINDLAY, Coasting China, Observer Mr. W. K. HOLE, 3rd Officer.

"20th-22nd February, 1929, bound Hong Kong from Singapore, the following current was experienced. Wind steady throughout, N.E. force 4. Sea N.E.4. Swell N.E.3. Sea temperature 82° F. On the morning of February 23rd, sea temperature fell to 76° F. and current commenced setting to south."

From		To		From		To		Drift.	Set.
Day.	Time.	Day.	Time.	Lat.	Long.	Lat.	Long.		
20th	Noon	21st	Noon	7°32′N.	108°16′E.	11°28′N.	110°58′E.	22	N. 17° E.
21st	Noon	21st	6 10 pm.	11°28′N.	110°58′E.	12°38′N.	111°31′E.	10	N. 11° E.
21st	6.10 pm.	22nd	5.46 am.	12°38′N.	111°31′E.	14°52′N.	112°35′E.	12½	N. 14° E.
22nd	5.46 pm.	22nd	Noon	14°52′N.	112°35′E.	16°00′N.	113°13′E.	4	N. 22° E.

NOTE—By comparing these currents with the roses for the China Sea published on the back of the Monthly Meteorological Charts for the East Indian Seas for 1918 it is seen that while the resultant currents in the region referred to are south-westerly, a number of sets between N. and E. have been observed. This applies to the region north of Latitude 10° N. The rose for Latitude 5° N. to 10° N. Longitude 105° E. to 110° E. shows a much smaller proportion of N.E. sets, with drifts not exceeding 15 miles per day so that the first of the four currents observed by S.S. *Euryades* was of exceptional strength.

CURRENT.

Talisei Island, Molucca Strait.

THE following is an extract from the Meteorological Log of S.S. *Changte*, Captain F. C. GAMBRILL, Hong Kong to Melbourne.

"February 21st, 1929, approaching Talisei Island Lighthouse from Northwards—vessel experienced strong set S.50°W. True 11 miles in 15 hours."

PHOSPHORESCENCE.

North Atlantic Ocean.

THE following is an extract from the Meteorological Report of S.S. *Saxon*, Captain P. G. SHILSTON, R.D., R.N.R., Southampton to Cape Town, Observer Lieutenant E. V. QUICKENDEN, R.N.R.

"February 8th, 1929, 04.15 A.T.S. (0530 G.M.T.) Latitude 15° 20′ N., Longitude 17° 44′ W. Wind N.E. force 4. Moderate N.E. sea and swell. Sea temperature 68° F. Fine cloudless weather. Observed at 4.15 a.m. ahead what appeared to be a thin bluish white line stretching right across the water, which on approach proved to be a band of phosphorescence in an E.N.E.-W.S.W. (true) direction from horizon to horizon, about 50 feet wide and in almost a straight line, composed of a mass of small particles of phosphorescence and studded with large globular lights. The peculiarity was that no sign of phosphorescence was seen either before or after crossing this phenomenon."

South Atlantic Ocean.

THE following is an extract from the Meteorological Report of S.S. *Scholar*, Captain A. G. PETERKIN, London to Cape Town, Observer, Mr. G. BAKER, 3rd Officer.

"February 8th, 1929, 23.20 A.T.S., Latitude 17° 44′ S., Longitude 3° 41′ E. Heavy overcast sky, St./St.-Cu. Slight S.S.E. sea and moderate southerly swell. Wind south, force 3. Sea water temperature 70° F. Observed unusually large globules of phosphorescence, many exceeding 8 feet in diameter while subsidiary irregular ones intermingled. The bow wave during this period was richly illuminated, with myriads of duller, bluish white ribbons shooting off from it. This phenomenon lasted only three minutes with intervals of from four to seven seconds between successive patches, but throughout the latter end of the watch stray patches became conspicuous from time to time. The patches could be distinguished about 50 to 60 yards ahead of the vessel as misty hues in the inky darkness."

HURRICANE IN THE SOUTH PACIFIC.

REPORT by Captain M. L. SINGLETON, Auxiliary Ketch *Endeavour*, Rotuma to Suva, forwarded by Captain E. W. G. TWENTYMAN, Harbour Master, Suva, Fiji.

"Herewith I have pleasure to forward to you an account of the hurricane, the centre of which passed over the A.K. *Endeavour* at and between 5 p.m. and 8.20 p.m., 19th February, 1929.

"On Saturday, 16th February, 1929, we sailed from Rotuma at 7 p.m. Moderate N'ly breeze, considerable N.W. swell, Barometer 29.62 in., 10 p.m., similar conditions, Barometer 29.64 in.

"Sunday, 17th February, Barometer 29.61 in. at 4 a.m. Noon position Latitude 14° 07′ S., Longitude 176° 59′ E., Barometer 29.62 in., fresh N. by E. breeze, considerable swell, moderate sea. 4 p.m., Barometer 29.60 in.

"Monday, 18th February, 1929. Wind variable from N. by W. to N.N.E. woolpacks and occasional heavy rain squalls, sea rough, Barometer 4 a.m. 29.60 in. No sights obtainable 10 a.m. Barometer 29.60 in., wind N.N.E. fresh. 4 p.m., Barometer 29.59 in. Position by deduced reckoning was eight miles West of the Island of Viwa at 2.40 p.m. I had previously thought that the fall of the barometer was due to the Northerly winds and rain. I now made up my mind to consider it as the start of a hurricane. I would have 'hove to' on the port tack, but as I had no sights, and land was obscured, I considered if I 'hove to,' I had every reason to fear drifting among the reefs, as in other vessels of this type in which I've had command I have often drifted as much as 20 miles per diem. I decided to run with the wind on the port quarter. On lowering the foresail, however, the peak halyards carried away followed rapidly by all the hoops. The wind by this time had risen to gale force. The gaff and sail blew over the side, and, as we went to try and grapple with it, owing to bad steering, the wind came on the other quarter and lifted the gaff and sail to the masthead and immediately dashed it down again smashing the bulwarks, etc. With only Fijian sailors at my disposal I realised the impossibility of saving the gaff and sail and the probability of considerable damage being done to the side of the vessel and the crew so I reluctantly gave orders to cut the sail away from the boom. At 10 p.m., Barometer 29.56 in.

"Tuesday 19th, February, 1 a.m. A huge sea struck us smashing in the doors of the engine room and W.C. on the port side. While repairing engine room door another sea came aboard bursting the partition between the W.C. and engine room, flooding the latter. As engine room pump could not cope with the water, we manned the deck pumps, but after about one hour the engine stopped. I had no option but to heave to which I did under part mizen. Barometer, then 2 a.m., was 29.52 in.

"The crew were trying to repair doors and pump ship, etc. Heavy confused sea, by which I mean it was running two ways, sometimes from right abeam and sometimes from right aft. Wind at heavy gale force with frequent heavy rain squalls. Barometer at 4 a.m. 29.50 in., 10 a.m. Barometer 29.46 in., 11.20 a.m. 29.42 in., noon 29.38 in., 4 p.m. 28.89 in., 5 p.m. 28.74 in. Wind and sea suddenly subsided to a dead calm. There was weird colouring of a dull red on the clouds to the **Eastward** and underneath the red were peculiar shades of green and yellow that I can only describe as sickening. I gave orders to secure everything as quickly as possible, but before we were half finished doing so, at 5.40 p.m. a breeze sprung up from the south-west rapidly increasing until at 6 pm. it was terrific, with increase during squalls which at first came with scarcely an interval between them. I experienced considerable difficulty in breathing. The wind lifted continuous sprays over the ship, which struck my face, arms and legs with a force that I can only describe as if an average strong person was pelting me with handfuls of small pebbles. Seas were breaking over the bulwarks continually. Suddenly the life boat was lifted in the air from the starboard side of the deck and dashed overboard. I cannot swear to it, but as I saw no sea break at about the time, I concluded it was the wind that lifted it.

"The bowsprit, which I had noticed jerking violently, snapped off close to the heel and the forestay snapped. At 8.20 p.m. the wind and sea dropped and at 9 p.m. practically it was calm with a big heavy swell. I wish to state that I was particularly taking notice of the sea and there was absolutely no pyramidal sea as described in the old 'Law of Storms' of our day. The wind and sea ceased at 5 p.m. and immediately went to calm at 5.40 p.m.; it resumed from a gentle breeze to redoubled gale and the sea accommodated itself to the new direction of the wind. At 8.20 p.m. the barometer rose to 28.80 in. and continued rising slowly.

"On Wednesday, 20th February, I got observations in beautiful clear weather making my noon position Latitude 20° 20′ S. and Longitude 177° 14½′ E. at 2.7 p.m., having cleared the water from the engine room we resumed our passage to Suva arriving at 6.30 p.m.

"On comparing barometer with yours in the Harbour Office at Suva, I found mine to be 0.18 in. too high.

"Trusting that this account will be of interest to you, as the experience was much too interesting to me.

"As the *Endeavour* is only a little 54 ton ketch, I consider it reflects great credit on her builders that, battered as she is, she is still afloat. The ship's barometer is an aneroid."

CHANGES IN CUMULO-NIMBUS CLOUD.

Indian Ocean.

THE following is an extract from the Meteorological Report of S.S. *Malwa*, Commander R. H. STRINGER, O.B.E., R.D., R.N.R., London to Yokohama, Observer Mr. F. D. SHAW, 4th Officer.

"February 20th, 1929, at 16.28 A.T.S., in Latitude 5° 50′ N., Longitude 93° 26′ E., the centre of a small squall of rain, falling from the base of a Cu-Nb. cloud, passed over the vessel from the N.E. This squall was for some time afterwards seen to be moving rapidly away to the S.W. (Wind N.E., force 3). When at a distance of some ten miles from the ship (16.42), two water spouts were observed forming from the Eastern extremity of the cloud's base. In about five minutes these two passed through all the stages of a water-spout's life. Nothing of them was visible at 16.52. At this latter time I first noticed that the top of the Cu-Nb. cloud was becoming formless and ragged, and the whole of the upper part of the cloud was obviously swelling upwards and outwards. The altitude of the top of the cloud was at this time about 12°. In less than ten minutes the altitude had increased to 25°, though the cloud was obviously some miles farther away from the ship. Just before it reached its maximum altitude, the top of the cloud appeared to pass through a stratum of Cirro-Cumulus: whether this was so or whether it was merely an optical effect caused by the extreme tenuity (then) of the upper limit of the swelling cloud I cannot say. Nevertheless, as the cloud grew upwards, first, certain small Alto-Stratus cloudlets and later portions of Cirro-Cumulus lying in the neighbourhood of the upper limits of the cloud were seen to disappear and fade completely away, leaving a patch of clear blue sky above the cloud. It first reached its greatest altitude at 17.05, but the same process continued for some time afterwards while the cloud went away to the South Westward. At this time too, the upper limit of the cloud became hardened and more distinct, and assumed the appearance of the top of an immense Cu-Nb. with a huge and rather tenuous 'anvil extension' to the North Westward. The upper limit of the cloud had the appearance of travelling backwards to the North Eastward; and at 17.28 a rift was observed at an altitude of 15°; and gradually the upper part of the cloud rose and flattened itself into a stratum resembling A-St. while the lower part was lost as a small Cu-Nb. to the South West. The anvil extension mentioned above was so tenuous that more distant banks of Ci-Cu. could be observed (faintly) through it.

"At 17.45 the smoky upper edge of the cloud had covered the sun, which had then an altitude of 25° 10′, and at the same time a magnificent rainbow was observed to the Eastward; the upper part of the bow had an altitude of 30° 10′ (middle of green) and the colours (in to out) were: Faint Purple, Faint Green, Bright Purple, Very Bright wide Green, Faint Yellow, Very Bright wide Orange; and a second bow with an angular radius 11° 35′ greater (middle of green to middle of green) outside the first one. The colours in the outer bow were: Faint broad Orange, Faint Yellow, Faint broad Green. The bow was, so far as could be seen, caused entirely by the sun through the smoky, tenuous upper limit of the expanding cloud."

WEATHER CHARTS MADE AT SEA.

South Pacific.

Weather Chart made at sea on board S.S. *Ruapehu*, Captain A. W. MCKELLAR, R.D., R.N.R., Wellington, N.Z., to Balboa, by Mr. L. F. MALCOURONNE, 3rd Officer, who makes the following remarks.

"The accompanying weather chart illustrates one of the many depressions which are met with during the summer months in the South Pacific, south of latitude 30° S. Most of these cross the Tasman Sea, pass over New Zealand and out into the ocean, but from observations received from other ships it appears that the depression under consideration originated in the tropics, and followed approximately the track shown, filling in as it progressed.

"On the 24th January, ten days previous to the present date, the New Zealand Meteorological Office reported a cyclone to be recurving near Fiji. Assuming this to be the same low pressure area, the average rate of progression would be 180 miles per day. The following are the weather reports received from 'Observing Ships' in the vicinity, and from which the chart is constructed:—

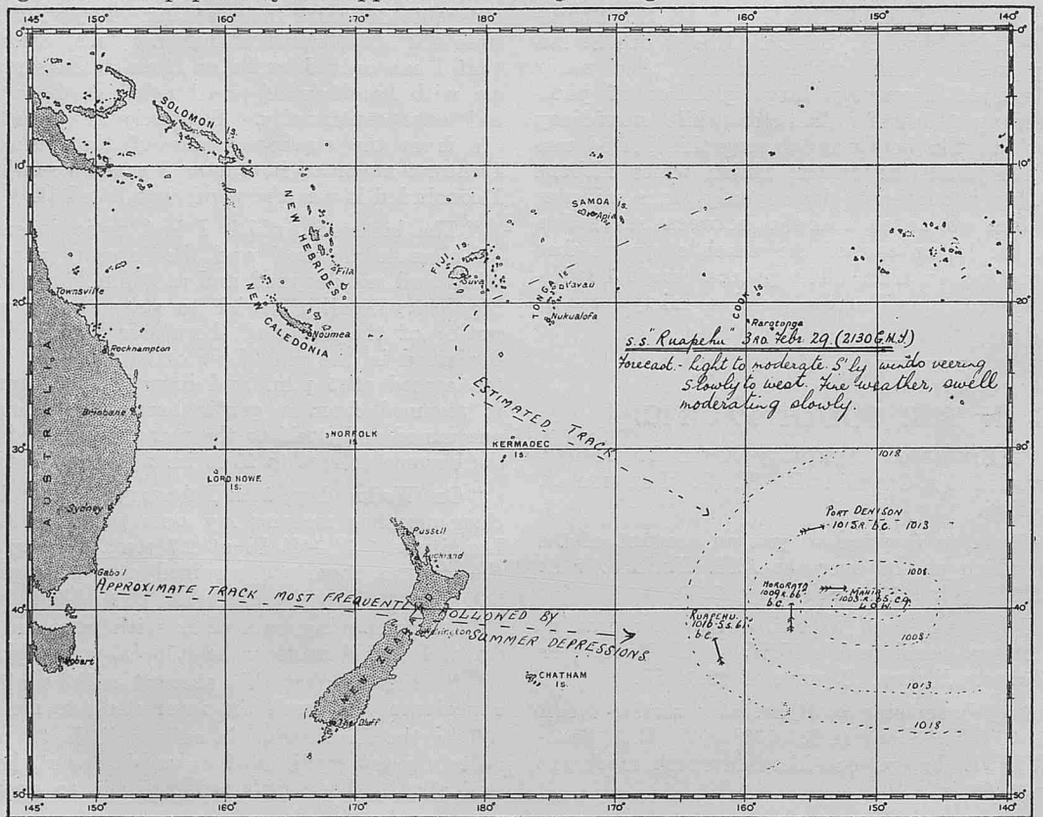
'Weather 34° 40′ S., 154° 20′ W., barometer 1013.1.R., W.S.W. 5, b, past weather N.W. 6, rough seas, *Port Denison.*'

'Weather 39° 22′ S., 156° 40′ W., barometer 1009.1.R., S. 7, c.q.R., past weather wind backed from N.N.W., *Hororata.*'

'Weather 38° 38′ S., 152° 55′ W., barometer 1003.R., W. 5, c.p., past weather wind veering S. to W., *Mahia.*'

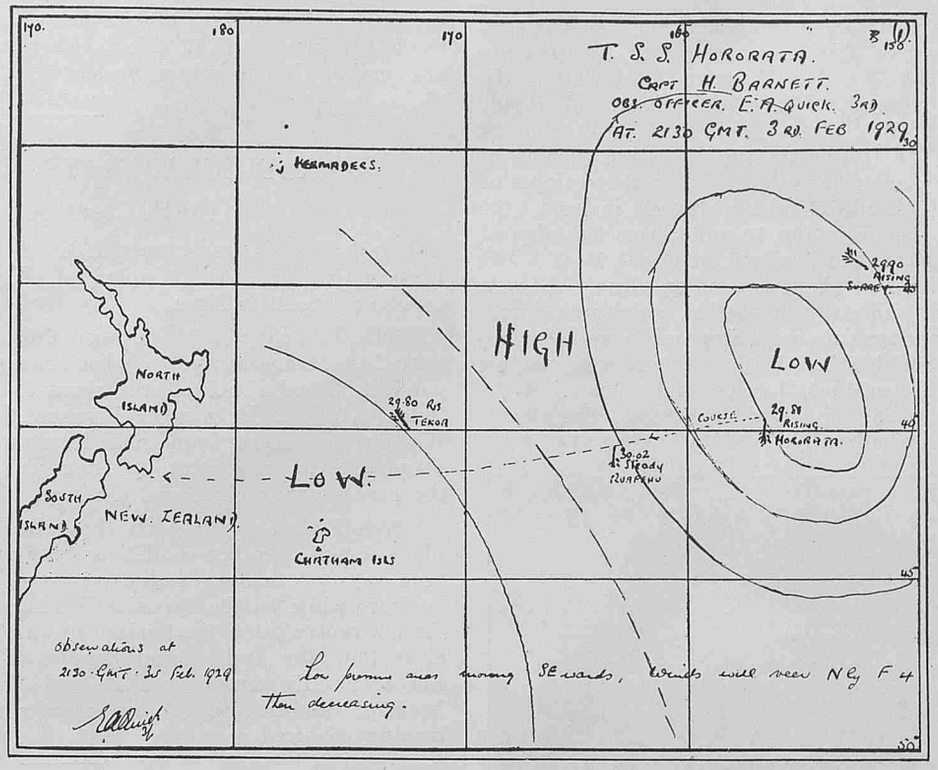
"The *Port Denison* and *Mahia* bound N.E., *Hororata* S.W.

"A very heavy E.S.E. swell being the only indication of a depression the *Ruapehu* had, it gave a great deal of satisfaction to locate the centre and probable weather to be encountered. This would not have been possible without the assistance of reports from 'Selected Ships,' which are enjoying a deserved popularity and appreciation amongst navigators in the South Pacific."



According to *Ruapehu's* Meteorological Log, the wind was S'ly veering to S.W. force 2, weather fine cloudy, South Easterly swell moderating from heavy to rough.

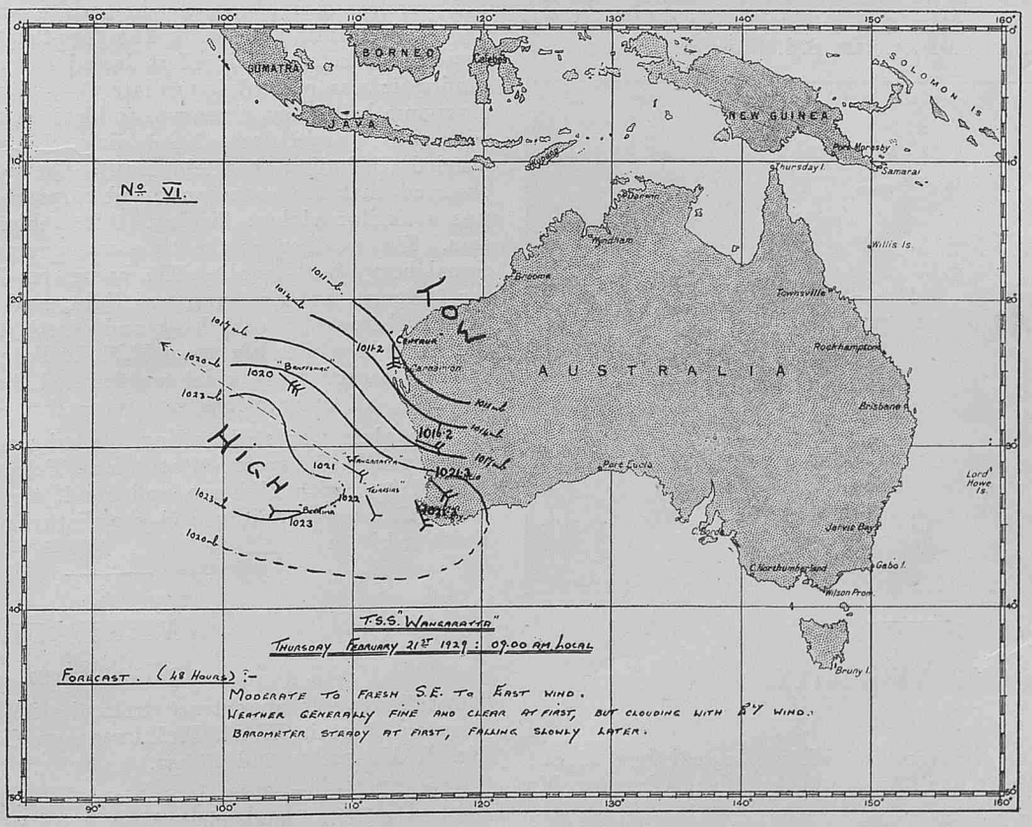
The Weather Chart below for the same date was similarly made at sea on board S.S. *Hororata*, Captain H. BARNETT, Balboa to New Zealand by Mr. E. A. QUICK, 3rd officer, from reports broadcast by " Selected Ships ".



According to *Hororata's* Meteorological Report the wind remained from S. by W. during the day veering to N.N.W. force 4 the next morning.

Australian Waters.

Weather Chart made at sea on board S.S. *Wangaratta*, Captain W. SCUTT, Melbourne to Suez, by Mr. S. R. MILLARD, 2nd Officer.

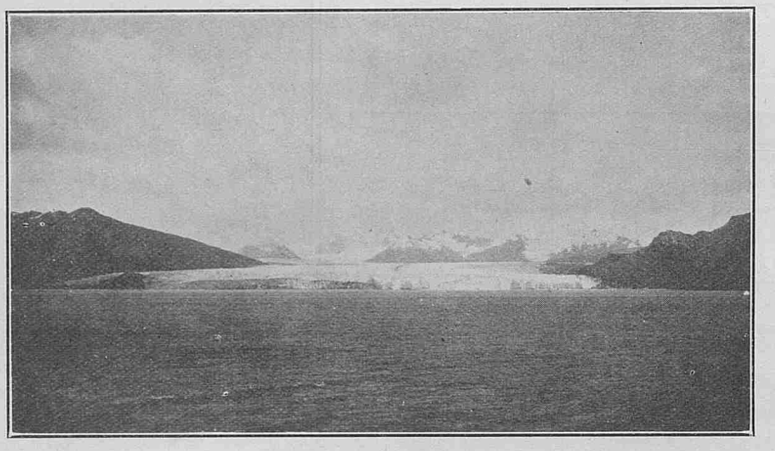


According to *Wangaratta's* Meteorological Log, during the next 24 hours S. Easterly winds force 3 to 4 were experienced with fine clear weather.

PHOTOGRAPH OF GLACIER.

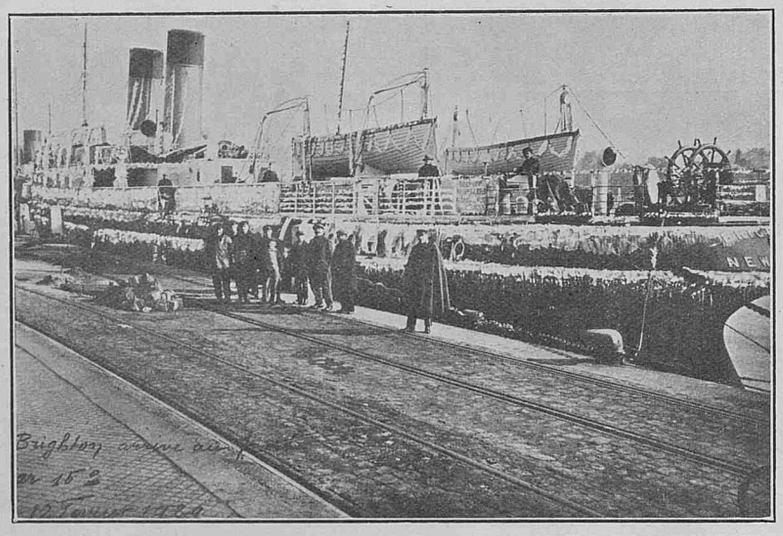
Ainsworth Bay, Admiralty Sound, Tierra del Fuego.

THE accompanying photograph has been received from S.S. *Orduna*, Captain T. DANIEL, Liverpool to West coast of South America via Magellan, and was taken by Mr. R. ECKFORD, 3rd Officer, in Ainsworth Bay, Admiralty Sound, Tierra del Fuego (Latitude 54° 26′ S., Longitude 69° 36′ W.), on 8th February, 1929, at 09.22 Argentine Standard Time. It illustrates the very fine glacier at the head of this bay. "The glacier flows down the northern slopes of the Mount Darwin range of mountains whose altitude is from 4,000 to 6,000 ft. The summit of the range lies 10 miles from the edge of the glacier, which represents a mean gradient of about 1—12. The photograph, taken at a distance of about two miles, clearly shows a dark ridge of earth debris carried down by the ice, which was closely examined by telescope. Measurements were impossible with instruments at hand without a reliable base-line. The survey of this locality is very inaccurate. Several small pieces of ice floated at the foot of the ice cliff, apparently having calved therefrom. The glacier surface was deeply scored longitudinally."



PHOTOGRAPH OF S.S. "BRIGHTON" ICED-UP.

THE accompanying photograph of S.S. *Brighton*, "iced-up" on her arrival at Dieppe on 12th February, 1929, during the cold spell, has been received from Captain S. MARMERY, S.S. *Worthing*.



NIGHT VISIBILITY.

Java Sea.

THE following is an extract from the Meteorological Log of S.S. *Marella*, Captain S. MORTIMER, Australia to Java, Observer Mr. A. G. HILL, 2nd Officer.

"26th February, 1929, 2 a.m. Abnormal visibility experienced. Mount Cheremai (10,099 ft.) visible with the naked eye at a distance of 55 miles. Pronounced lunar halo; diameter measured with sextant 44° (approx.). Position at 1.10 a.m. (Mid Java Standard time), Boompjes Island Light 020°, 10 miles. Brilliant stars, red lightning in West. Barometer 1010.3 mb, Wind W/N, force 1, Clouds Ci/Ci-St/Cu amount 7. 3 a.m. Cheremai just visible at a distance of 61 miles. Lunar halo disappeared at about 3.15 a.m."

ANTI-SOLAR RAYS AND AURORA.

North Coast of Scotland.

THE following is an extract from the Meteorological Report of Fishery Cruiser *Norna*, Captain J. WRIGHT, Scottish Coast Patrol, Observer Mr. T. R. NESS.

"25th February, 1929, between 0800 and 0830 G.M.T. Barometer 30.00 in. Temperature (in wheelhouse) 37° F.—probably about 33° outside. Wind E.S.E., force about 5. Cloud amount 8 to 9, snow laden Nimbus. Patches of blue mostly to Westward and North Westward. Observed anti-solar rays radiating from a centre bearing about N.W. (magnetic). Phenomenon lasted about half-an-hour, the rays showing clear and distinct.

"26th February, 1929, on the following morning, observed same phenomenon, weather conditions similar. At one time observed the true rays of the sun radiating from the sun downwards towards horizon, while on the opposite bearing clear brilliant rays radiating from a centre below the horizon upwards. The same evening, with a clear blue sky and several degrees (F) of frost, Aurora Borealis played vividly across the N.E. and Northern part of the sky from horizon, diminishing to thin streaks in the zenith, a curtain of moving coloured rays."

ST. ELMO'S FIRES.

Mediterranean Sea.

THE following is an extract from the Meteorological Report of S.S *Mongolia*, Captain G. H. S. FURLONG, London to Sydney, Observer Mr. A. H. COLE, 2nd Officer.

"On February 3rd, 1929, in Latitude 36° 20′ N., Longitude 20° 00′ E., at 4.30 a.m. (0330 G.M.T.) St. Elmo's Fire was prevalent. The wireless aerial was glowing white and appeared the size of an 8-inch manila hawser. The fore-truck, also a jackstay, were similarly affected. This effect lasted for about five minutes (presuming it was noticed immediately), and when it had attained its maximum brilliancy, there was suddenly a terrific explosion coupled with such a vivid flash of lightning, that for the moment we were blinded (including the Helmsman). On regaining our sight it was observed that the corposants had almost disappeared, when there was a similar violent display. After this, no further 'Fire' was seen. The weather at the time was overcast with sleet and occasional heavy hail squalls. The barometer had been falling steadily for 24 hours, but the wind was light, and continually veering and backing between South, East and North West. Three hours after the wind blew steadily from E.N.E., Force 7, after which it continually backed from which we deduced that it was a cyclonic disturbance, all observations satisfying this conclusion.

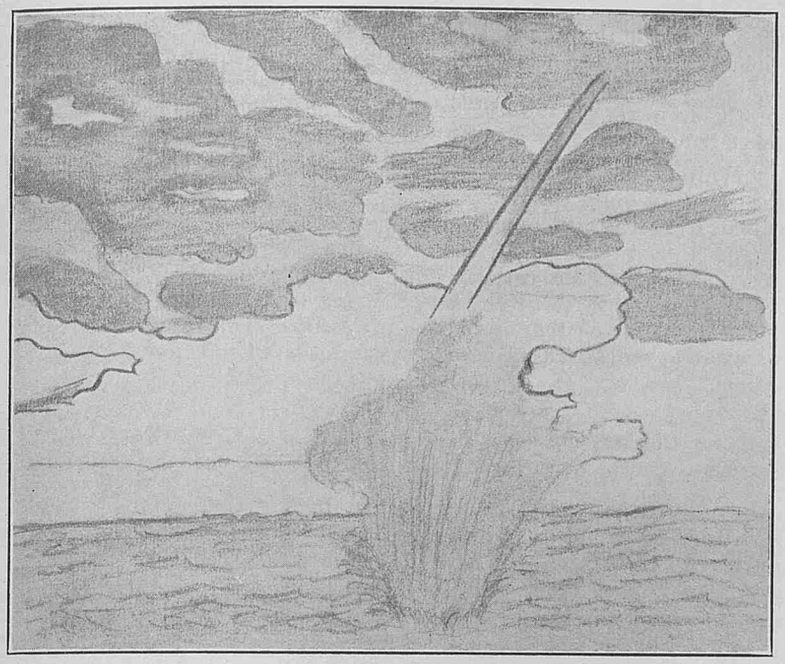
"The glass was still falling, its minimum reading being 29.134 inches which was recorded at 4 a.m. February 4th. The wind was N.N.W. 8-9, with high sea and swell, cloudy and fine. The barometer then rose rapidly and the disturbance passed ahead to the Eastward."

WATERSPOUT.

Indian Ocean.

THE following is an extract from the Meteorological Log of S.S. *Arracan*, Captain W. M. F. MACFARLANE, Calcutta to Suez, Observer Mr. J. MORRISON, 2nd Officer.

"19th February, 1929, at 8.37 a.m. A.T.S. (0343 G.M.T.) in Latitude 6° 43′ N., Longitude 77° 01′ E., a disturbance of water with heavy whirling spray, revolving in a clockwise manner, was observed 0.5 miles distant, travelling in a North to South direction.



"The sky prior to and during this phenomenon was heavily clouded thus:—Cu-Nb. 4/10, St-Cu. 4/10 and Cu. 2/10, Barometer 1013.5 mb. Temperature Dry Bulb 81°, Wet 77°. Sea Temperature 84° F. 8.39 a.m. rain commenced to fall. 8.43 a.m. observed well-defined waterspout coming from a cloud formation of Cu-Nb. clouds. 8.45 a.m. rain ceased. 8.48 a.m. waterspout disappeared—Duration 11 minutes."

METEOR.

New Zealand Waters.

THE following is an extract from the Meteorological Log of S.S. *Port Melbourne*, Captain T. KIPPINS, D.S.C., at anchor Gisborne Roads, New Zealand, Observer Mr. F. W. ELGAR, 4th Officer.

"26th February, 1929, 04.38 N.Z.S.T. (1638 G.M.T., 25th February) at anchor Gisborne Roads, observed to N.N.E. meteor of extraordinary brilliance. Its appearance was similar to a green flare—so vivid was colour (green) and brilliance. Its track appeared to be perpendicular to the earth lasting but a few seconds. The weather at this time was calm, smooth sea, no swell, visibility good. Barometer 1005.3 mbs. and the weather for the previous days had been exceptionally fine and clear."

SQUALLS AT SEA.—II.

PREPARED IN THE MARINE DIVISION BY E. W. BARLOW, SENIOR PROFESSIONAL ASSISTANT.

Arched Squalls.—It seems to be necessary to make a separate category of squalls which have the arch cloud and therefore the general appearance of line-squalls but which do not show the characteristic changes of wind, pressure and temperature associated with the latter, and which are not simple thunderstorms. These squalls occur in tropical and probably also in temperate regions, but their mode of formation is unknown. In the past the term "arched squalls" no doubt covered these squalls as well as the varieties of line-squall dealt with above. A few examples of arched squalls taken from the Marine Observer's Log published in THE MARINE OBSERVER are given here. On 25th April, 1926, S.S. *Elpenor*, Captain G. LESLIE, D.S.C., observed an arched squall in Latitude 1° 39′ N., Longitude 104° 38′ E. (Volume IV, 1927, page 65). On 11th September, 1927, an arched squall was observed by S.S. *Maloja*, Captain G. MANLEY, in Latitude 4° 40′ S., Longitude 89° 20′ E. (Volume V, 1928, page 179). The cloud arch on this occasion had a remarkable spiral structure, resembling the "lay" of a rope. On 13th May, 1923, a double arched squall, the clouds joined only at the extreme east and west points, was observed by S.S. *Elpenor*, Captain T. R. EVANS, in Latitude 28° 46′ N., Longitude 122° 26′ E. (Volume I, 1924, page 63). On 3rd August, 1926, S.S. *Auditor*, Captain W. T. OWEN, observed an arched squall with lightning and rain, a fall of temperature and a rise of pressure, but no change of wind direction (Volume I, 1927, page 149). Sometimes a definite arch of cloud may occur without any squall or instrumental change being observed. Such a case may be found, with a drawing of the cloud, in Volume IV, 1927, page 148-9, observed by S.S. *Empress of Scotland*, Captain E. GRIFFITHS, in Latitude 53° 24′ N., Longitude 37° 47′ W.

The Northers of the Gulf of Tehuantepec, strong winds or gales resulting from the flow of air from anticyclonic areas over the Southern United States and Mexico through the mountain passes of Central America, are sometimes ushered in by an arched squall cloud with light or heavy rain and a more or less sudden increase of wind. In the first part of this article it was stated that squalls at the onset of a local or general wind were not regarded as squalls in the ordinary sense of the word. An exception is made, however, in the case of the Northers because it is desirable to collect as much information as possible about arched squalls. The following observation of an arched squall of slight intensity in this region reported by S.S. *Nictheroy*, Captain A. COCKS, is quoted from a paper by W. E. HURD on "Northers of the Gulf of Tehuantepec" published in U.S.A. Monthly Weather Review, May 1929. "While west of the Gulf of Tehuantepec late on the 27th of January, 1928, the wind experienced was light south-easterly and sea oily calm. Quoting from the report: 'At 10.20 p.m. a black cloud shaped as an arch rose from the eastern horizon. At 10.45 p.m. this cloud passed over the ship; by then it had assumed the shape of a perfect curve which extended from the northern to the southern horizon, the width of the cloud being that of a rainbow, the sky otherwise being cloudless, with stars, even those at the lowest altitude, showing brightly. Soon after the cloud passed, it was seen to lose the arch formation and commence to break up into small fleecy clouds, which very quickly disappeared and the sky was again cloudless. About 10 minutes later the wind came from the E.S.E. at force 3, accompanied by considerable easterly swell'." By 8 a.m. on 28th January a fresh gale was blowing from N.E. by E.

Squalls of the Doldrums.—The Doldrums in all oceans are well-known to be regions liable to frequent and often violent squalls. The sky is normally overcast and the air humid and oppressive. Doldrum squalls may come from any direction, with or against the wind, and several may be visible at once. The following description of squalls in the Doldrums is taken from JACK LONDON'S "The Cruise of the *Snark*." "Here and there squalls passed across the circle of the sea. All day we watched them, now to port or starboard, and again ahead or astern. But never one came near enough to wet us. In the afternoon a big one bore down upon us. It spread out across the ocean as it approached, and we could see it emptying thousands of gallons into the salt sea . . . but the squall broke in half, one part passing on ahead, the other drawing astern and going to leeward."

The majority of Doldrum squalls are probably not accompanied by thunderstorms, but thunderstorms do occur in the Doldrums and the origin of these storms is probably convectional, due to the uprising of heated air from the surface. In this part of the oceans the

conditions more closely resemble those of thunderstorm formation by the rising of air from heated land surfaces than anywhere else at sea. It is probable, however, that squalls having the characteristics of line-squalls occur also in the Doldrums. The region is a kind of meeting place for air which has come from widely separated regions, perhaps from different hemispheres, and which has therefore different physical qualities. There is thus likely to be a good deal of eddy formation and the normal squall of the Doldrums may be due to this cause. It is also possible that the convergence of one such air mass upon another might result in a line-squall. A description of a North Atlantic Doldrum squall showing all the line-squall characteristics in mild degree will be found in MARINE OBSERVER, Volume IV, 1927, page 127. This squall was observed by S.S. *Windsor Castle*, Captain H. STRONG, in Latitude 6° 19′ N., Longitude 14° 15′ W. on 10th July, 1926. In a paper by Dr. C. E. P. BROOKS and H. W. BRABY entitled "The Clash of the Trades in the Pacific," published in the Quarterly Journal of the Royal Meteorological Society, Volume XLVII, 1921, page 1, the results of the meeting of the N.E. and S.E. Trades in the equatorial regions of the Western Pacific are discussed. The S.E. Trade is shown to be the warmer wind during the wet season January to June and it would therefore rise over the cooler N.E. Trade, with the possible formation of line-squalls. Examples of Doldrums squalls, not of the line-squall type, are given below. On 23rd November, 1924, S.S. *Nariva*, Captain T. J. C. BURET, observed a squall in Latitude 3° N., Longitude 27° W. (MARINE OBSERVER, Volume II, 1925, page 175). On 5th January, 1927, a number of ships observed squalls in the Doldrums of the Indian Ocean between Longitudes 80° E. and 90° E. (Volume V, 1928, page 5).

Thunderstorm Squalls.—Excluding the thunderstorms associated with line-squalls and those of the hot region of the Doldrums, other thunderstorms occur at sea. Their normal mode of formation differs from that of the convectional thunderstorm of warm summer days on land and is due to the cooling of the upper air by influx of a cold current, the surface temperatures remaining unchanged. The summer land thunderstorm is often preceded by a squall of wind blowing outwards along the surface from the storm, but it is probable that there is usually no definite squall associated with the typical thunderstorm at sea. A special case, however, needs to be mentioned, the tornadoes of the West Coast of Africa which are of land formation but whose effects are experienced at sea in the neighbourhood. Here the wind flows outward from the front of the storm at about the time the rain commences. The following description of the West African tornadoes is taken from the Admiralty Pilot, Africa, Part I. "They are of short duration, usually blow offshore and are generally most frequent at the commencement and termination of the rainy season. Their approach is generally indicated by a well-defined and regular arch of dark clouds, from which thunder and lightning constantly proceed; a dense white cloud in the centre of the arch foretells a powerful blast. During the lull which follows a tornado, and while the wind is resuming its usual moderate force (a period sometimes of three hours) a perpendicular stream of rain descends and is attended by rapid peals of crashing thunder, with scarcely an interval between them, and by vivid forked lightning, which seems to proceed from all quarters at once." These storms are of quite a different type to the violent whirlwinds experienced in the interior of the United States to which the same name has been given. It should also be noted that the cloud arch observed in the West African tornado does not entitle this to be placed in the category of arched squalls, cloud arches often appearing in thunderstorms in any part of the world.

Thunderstorms with squalls up to Beaufort Force 10 may occur in the central latitudes of the Red Sea during November. See MARINE OBSERVER, Volume IV, 1927, page 209.

White or Clear Squalls.—Admiral SMYTH defines a white squall thus:—"This furious and dangerous gust occurs in clear weather, without any other warning than the white foam it occasions on the surface of the sea, and a very thin haze . . . . It is very destructive to the flying-kite school, and many lives have been sacrificed by it." White squalls are quite definite phenomena, but it is difficult to find descriptions of actual occurrences. They occur mostly in tropical or sub-tropical regions, such as in the Indian Ocean and in the Trade Wind regions, and are usually not very violent, though the wind may reach Beaufort force 7 or 8. The white squalls of the Aegean Sea are well-known and occur chiefly on the leeward side of the islands. The following description is taken from Admiralty Pilot, Mediterranean, Volume IV:—

"White squalls.—The Grecian archipelago is more particularly the scene of those sudden gusts of wind named white squalls, so called from their frequent occurrence under a cloudless sky, and their action in causing the sea to assume a white appearance. They are due to the wind rushing down from the high land on the leeward side, and striking the water at an angle when they churn up the sea and cut off the tops of the waves into a spray, which gives a peculiar appearance that once seen cannot be mistaken.

"They are sometimes very violent, but their duration is short. They were particularly dangerous in the days of sailing vessels, but now that sailing ships have been almost entirely superseded by steamers, cause more inconvenience than danger."

PIDDINGTON in "The Sailors' Horn Book" thus refers to white squalls:—"The white squalls, so well-known to seamen . . . appear to be straight-lined winds of excessive violence, but which are seen approaching, and in fact named from their whitening the horizon with foam, like a mass of breakers, or from appearing at first like a white cloud." He quotes the following as an example of a white squall off New York, from an American newspaper in 1852, the month not being stated:—

"On the 3rd inst., as the revenue cutter *Taney*, Lieut. MARTIN, was proceeding down the bay, she was suddenly struck by a white squall and capsized, and immediately filled. Lieut. MARTIN and officers, and some of the crew, who were twelve in number, were taken off by the steamer *Thomas Hunt*, and brought to the city. Five men were drowned. The steam-boat *Hunt*, which was coming close on at the time, and pilot boats, *The Yankee*, and No. 8, then in the vicinity, saved the commander, two lieutenants, and the pilot, with thirteen of the crew. Two arm chests were picked up by the *Yankee* full 150 yards from the wreck. When struck by the squall the *Taney* was about a mile below Governor's Island. The squall seemed to fall aboard almost vertically, causing her to capsize and fill in an instant. So limited was the extent and duration of the squall that pilot-boats and other vessels, within 150 yards of the spot, were becalmed at the time, and immediately afterwards scarcely more than a breath of air could be perceived. Captain MARTIN also stated that it was so sudden that not a ripple was observed to indicate its approach."

PIDDINGTON also refers to the "bull's-eye squall" of the West Coast of Africa. This squall "which the Portuguese describe as first appearing like a bright white spot at or near the zenith, in a perfectly clear sky and fine weather, and which rapidly descending, brings with it a furious white squall or tornado, may be a strongly marked kind of these (white) squalls." From the description, these squalls do not appear to be connected with the West African tornado, described above, but modern accounts are lacking.

Under the heading of line-squalls it was shown above how a variety of line-squalls due to the inflow of the sea breeze, for example in the coastal districts of Egypt, gave what was in appearance a white squall.

Coastal Squalls.—A few of the squalls which have been described in this article are in reality coastal squalls, depending on the presence of land. The white squalls of the Aegean Sea and the West African Tornado are examples of coastal squalls. There are also cases of local winds of short duration, commencing as a squall, an instance of which is the sand-laden Khamsin of the Gulf of Aden. Other types of coastal squalls exist which cannot be placed in the categories of squalls already dealt with, but space does not permit more than a brief reference to them here. Minor squalls occur from the wind blowing on to the sea through gaps or valleys in hills and mountains or round capes and promontories. There is also the class of katabatic winds, due to the fall by gravitation of cold air down land slopes at night. We have seen that in the case of the Malacca Strait this cool wind produces a line-squall, the Sumatra. In other situations it may be felt as a squall of simpler type.

Squall Irregularities.—Curious irregularities of the wind have been observed at sea and a number of such instances are recorded in ALLINGHAM'S "Manual of Marine Meteorology," 3rd Edition. Some of these examples have no connection with our present subject, referring to different winds being experienced by ships at short distances from one another and even to different winds being felt in different parts of the same ship. The examples selected for quotation below are, however, cases in which the irregularity has been associated with a definite squall. The experience of the ship *Castle Rock* has already been quoted. "On 6th June, 1894, the *Loch Tay*, Captain MARTIN, was in Latitude 41° S., Longitude 56° E. Her sails on the foremast were aback at the same time as those on main and mizen were ramping full. This lasted for about five minutes, and the wind, both before and after the flaw, was a fresh westerly breeze. On 3rd November, 1894, the *Othello*, Captain PRICE, in Latitude 33° N., Longitude 10° W., had her fore and main-top-gallant masts whipped clear out during the passage of a cumulus cloud with slight rain. The squall lasted less than two minutes, and the full force was not felt on deck. Previously the wind was light from north-west; and the squall was followed by a fresh gale for two hours. On 18th April, 1897, in Latitude 3° S., Longitude 27° W., the *Brenhilda*, Captain BAXTER, was struck by a squall which was not felt aft, but only forward. Jib-boom went at the cap with all head-sails, while aft all was serene."

Conclusion.—It will be noticed that waterspouts have not been referred to in this article. In the first place the subject is too large and secondly they are hardly squalls in the usual sense of the term, though actually composed of a rotating column of air. They occur mainly in association with line-squalls and thunderstorms.

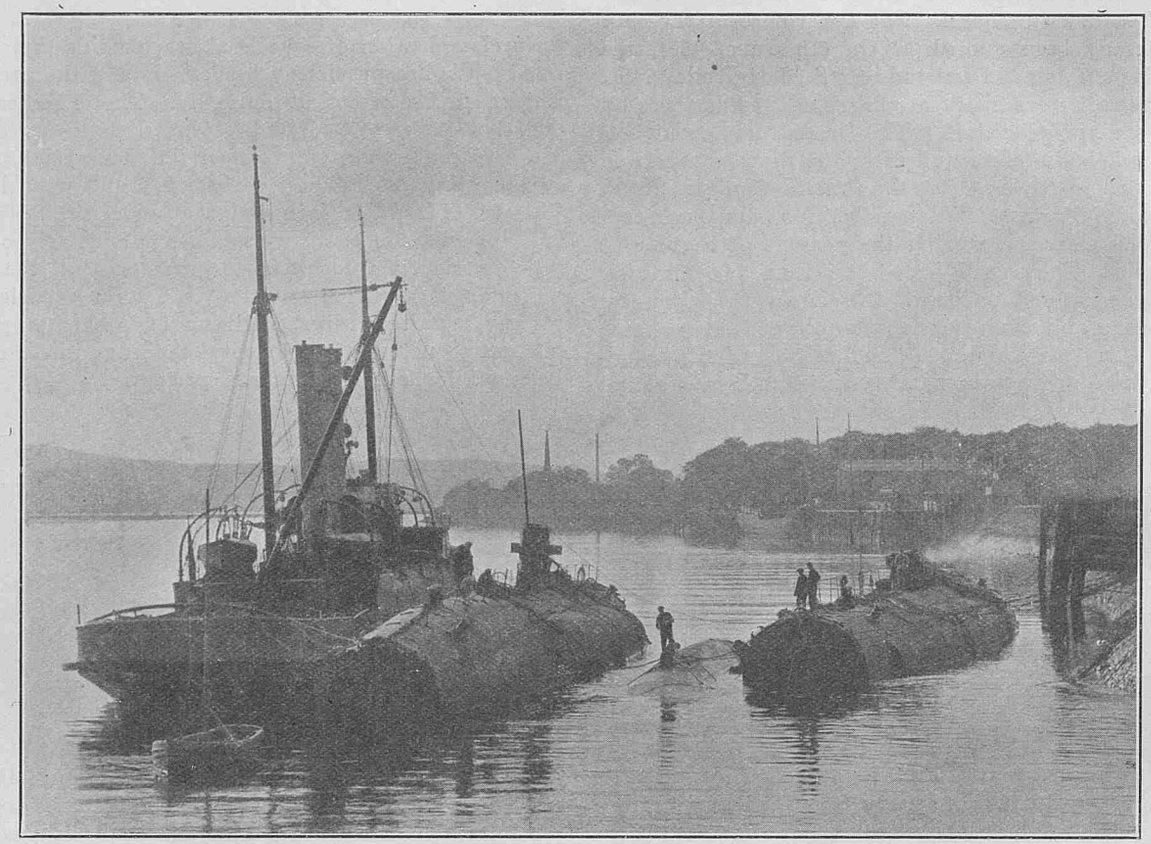
No classification of squalls at sea, outside the several varieties of line-squall, has previously been made and the present article represents a first attempt at doing so. The classification adopted can doubtless be improved and extended with further knowledge. It has been made with the help of the observations of squalls sent in by the Corps of Voluntary Observers and published in the Marine Observer's Log. It is hoped that observers will continue to send descriptions of noteworthy squalls, particularly of those of unusual type or showing unexpected characteristics, even if they are not violent squalls as regards the wind force experienced. In the case of any squall showing a linear or arched appearance it is important to note by instrumental readings whether any or all of the line-squall characteristics are present.

A FEW REMARKS ON SHIP SALVAGE.

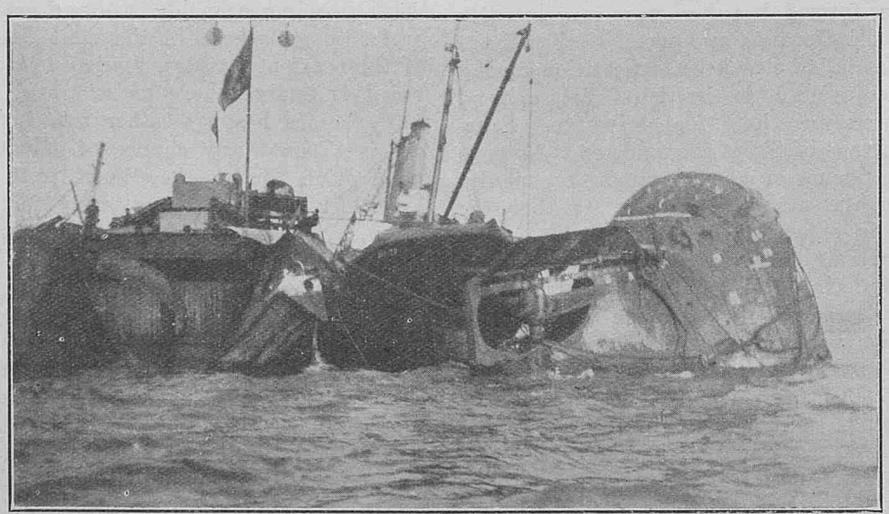
By CAPTAIN C. G. BONNER, V.C., D.S.C.

To most people the Salvage of Ships is a matter of peculiar interest and the sight of a stranded vessel will always bring a crowd of spectators, usually among them many with very pronounced views as to how the vessel got there, and the most expeditious method of getting her off again. The popular idea of the romantic nature of the work remains, I feel sure, with the spectators, as a few years of practical Salvage work will convince anyone; and I have yet to meet a diver, or salvage worker, with any romantic tendencies. There is of course a considerable difference between the recovery of sunken treasure off a coral island as described by the best writers of fiction, and the more commonplace work of everyday salvage, which entails a 100 per cent. mixture of hard work and discomfort with perhaps some luck, not always good. At the conclusion of the Great War a large number of new Salvage Companies, many of them with huge capitals, were formed, but these were very speedily disillusioned of any expected El Dorado, and most of them have gone the way of all flesh. There is however keen competition among the various Salvage Companies around the British Coast, and no stranded or disabled vessel need wait long for assistance. Practically all Contracts for the Salvage of Ships are made on "No cure no pay" terms, either for agreed sums of money, or more commonly, an Award by Arbitration in the event of success, so that the Salvors stand to lose all their expenses if they find themselves unable to carry out their contract, and it is not unknown for Salvors, after successfully completing their contract, to find themselves heavily out of pocket on account of the salved value of the wreck being so small, as to make the Salvors share of it, as awarded by the Arbiter, considerably less than their outlay. Marine Underwriters are represented by various Associations, the largest being the Salvage Association of London, and it is with these bodies that the Salvage Companies have to do most of their business. Some of these Associations of Underwriters maintain salvage vessels, and plant of their own to deal with shipping casualties. The Liverpool and Glasgow Salvage Association in particular maintains craft and plant for this purpose. The Salvage Association of London and most others however usually prefer to employ the best Salvage Companies available, as casualties in which they are interested come to hand. A Salvage Company, to have any hopes of success, must have in addition to first class salvage vessels, well equipped with modern plant and appliances ready to proceed anywhere at any time, a useful gang of trained men who are not afraid to work 24 hours a day, often under very difficult and sometimes dangerous conditions, at any sort of work from cleaning bilges, or shovelling coal, to rigging and running pumps and carrying out all classes of repairs, in fact, general jacks of all trades. One finds the words of the Scottish Bard, "The best laid schemes of mice and men gang aft agley" often come painfully true at this work, and to see the result of several weeks of hard work and much expense, destroyed in a few hours by bad weather is enough to try the patience of Job himself. Whilst some vessels are considerate enough to strand themselves in reasonably safe and get-at-able positions, the majority prefer to go ashore in the most dangerous and inaccessible parts of the coast and it can easily be understood that in cases where a vessel is badly ashore on a very exposed point she must be got away before heavy weather sets in from a seaward direction, if she is to have any chance of salvation. On jobs of this latter description the weather is of course the most vital factor, and here luck enters very strongly for or against the Salvors, who often, after managing to get the necessary pumps and other plant aboard the wreck with great difficulty, and getting well forward with the preparations for refloating, are forced to leave hurriedly for their own safety, whilst a strong wind and heavy sea come in and destroy the stranded vessel, together with their salvage pumps and plant. The premium for insuring salvage plant at work is practically prohibitive and the Salvors therefore suffer their plant losses unaided. One of the most difficult parts of salvage work is to decide when it is safe to remain on board a wreck lying in a dangerous and exposed position with a lot of men aboard during unsettled weather; to be ultra cautious means loss of time and possibly through that the ultimate loss of the vessel, on the other hand to remain too long with bad weather approaching from seaward may mean serious loss of life. It is in these cases particularly

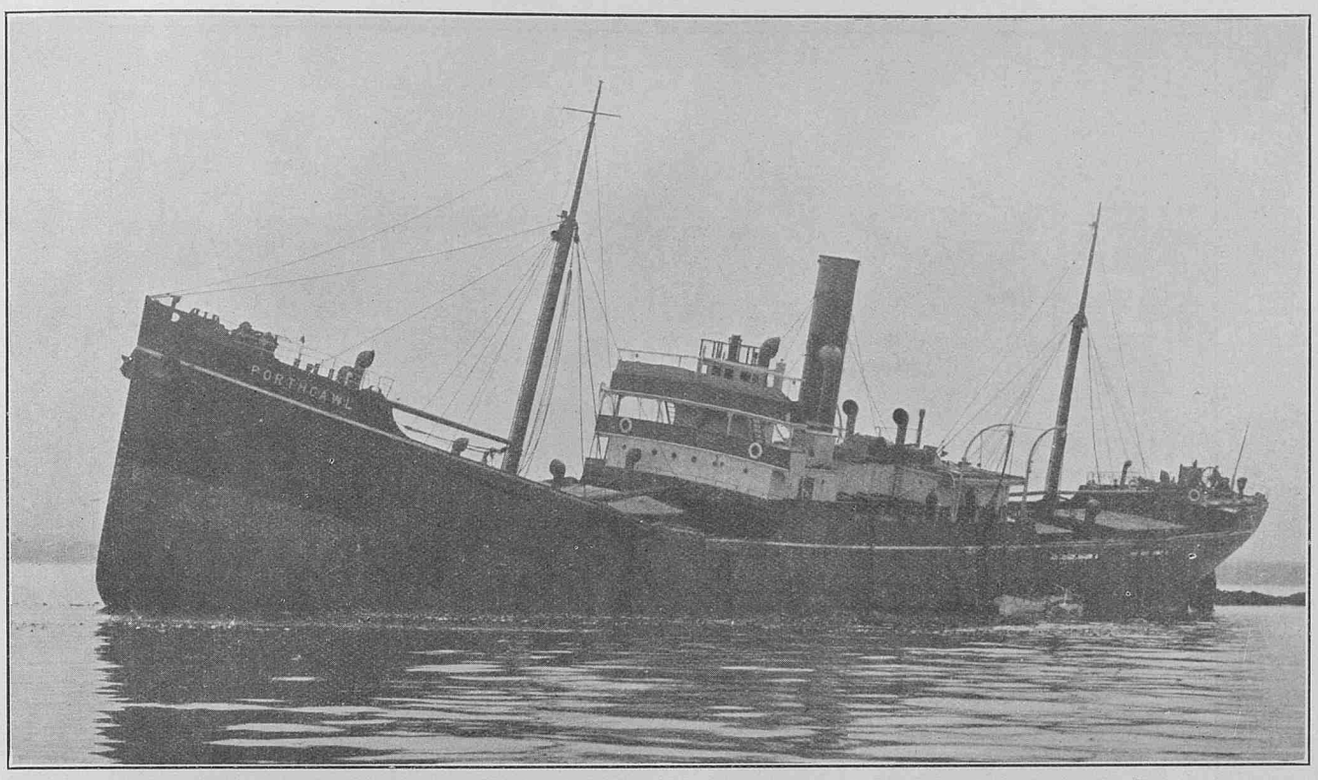
that the help of the weather forecasts is invaluable to Ship Salvors and if no other W/T. is available a small receiving set rigged up on the wreck is worth its weight in gold. Unfortunately, for a variety of reasons, good photographs are seldom got of the most spectacular features of salvage cases, principally because the Salvage people are too busy getting on with the job at the critical moments to spare time for the camera. The photographs here reproduced are a few typical salvage cases successfully undertaken by THE LEITH SALVAGE & TOWAGE COMPANY, LTD., which may be of interest to some of your readers.



The Salvage S.T. *Bullger* with Salvage Camels "L.S. 2" and "L.S. 3" raising a steam hopper barge capsized and sunk in the Clyde by collision.



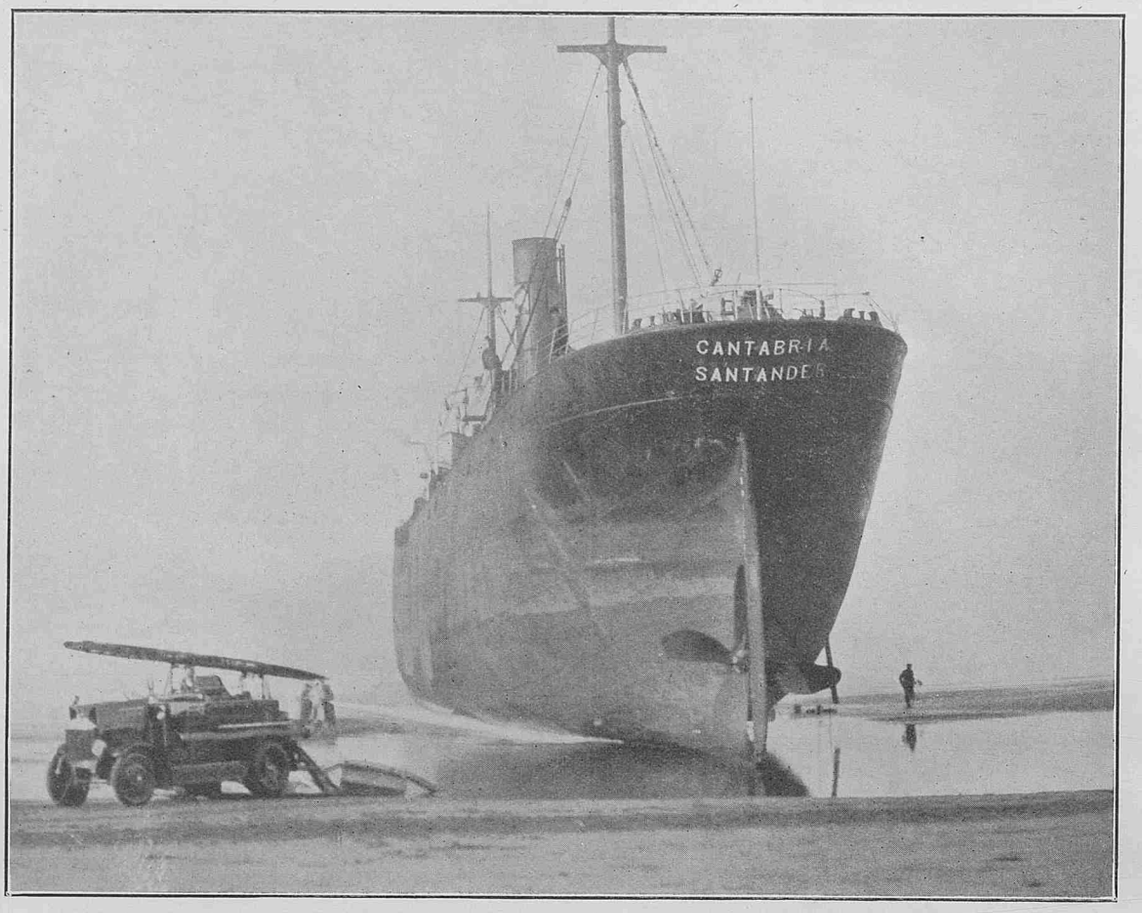
The S.S. *Islington* lying off Gray's in the Thames after being cut in two by collision. The severed stern portion was carefully cut up, and placed on board for re-use, a water-tight wooden bulkhead built across the remaining after end, the vessel refloated, and towed to the Firth of Forth where she was repaired by the GRANGEMOUTH DOCKYARD Co., Ltd.



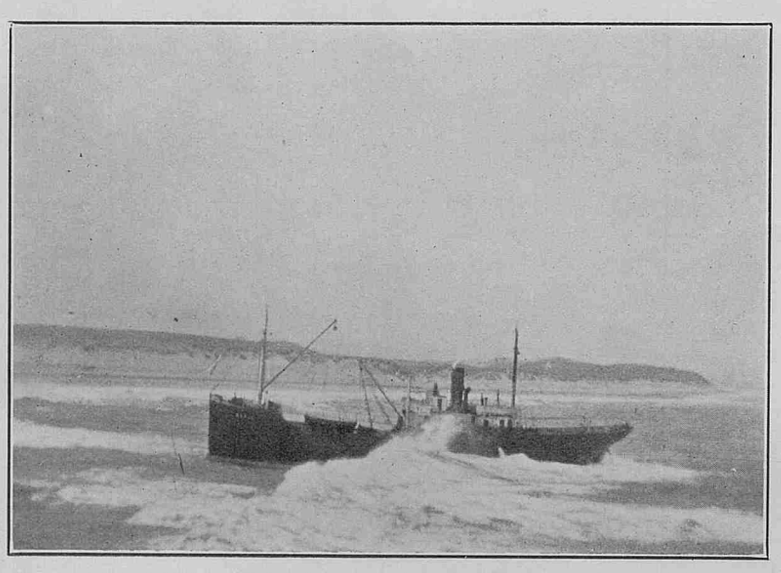
The S.S. *Porthcawl* badly ashore on rocks off Inchcolm Island with her back broken, the fore body being pushed upwards 12 feet out of line. In this case most of the vessel's coal cargo had to be jettisoned, the vessel tied together with logs, patched up, pumped out, and refloated, and then beached on a selected patch of soft mud where she straightened out to nearly normal when she was again tied together, and drydocked at Leith, and after temporary repairs, was finally repaired by the GRANGEMOUTH DOCKYARD CO.

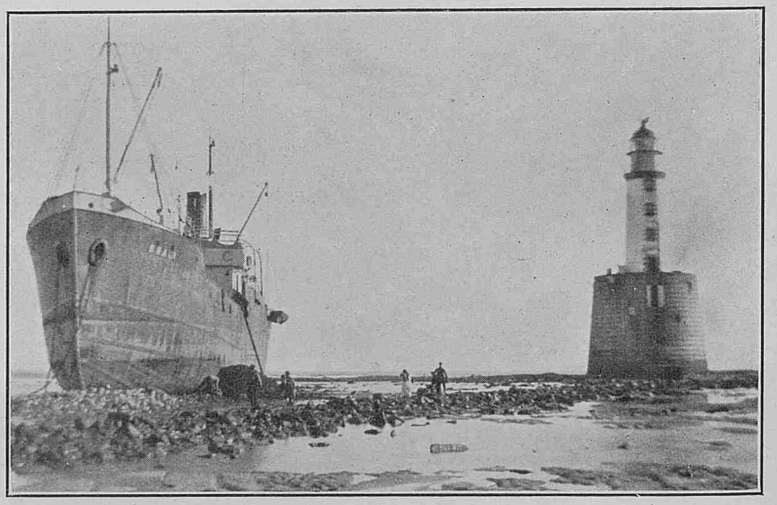
The buckled fore deck, hatch coamings and bulwarks of the *Porthcawl*.

Salving pig iron from a wreck with an electric magnet.

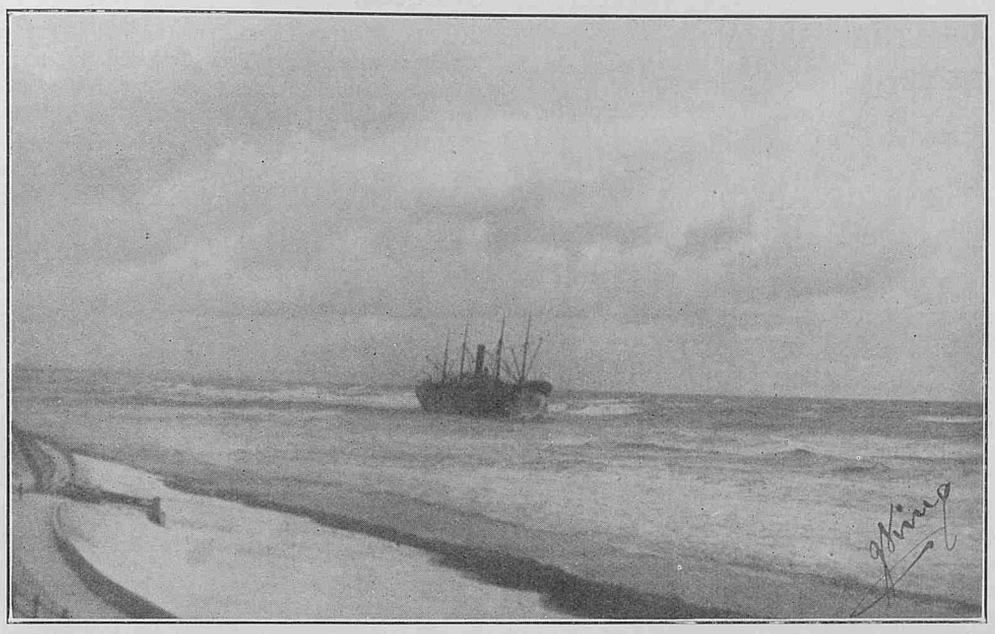


The Spanish S.S. *Cantabria* driven ashore in a heavy gale being lowered into the sand at Ayr, in order to get sufficient water to refloat. The services of the Ayr Fire Brigade were requisitioned for this purpose, and the vessel was lowered several inches by their fire hoses, and enough to refloat on the spring tides.

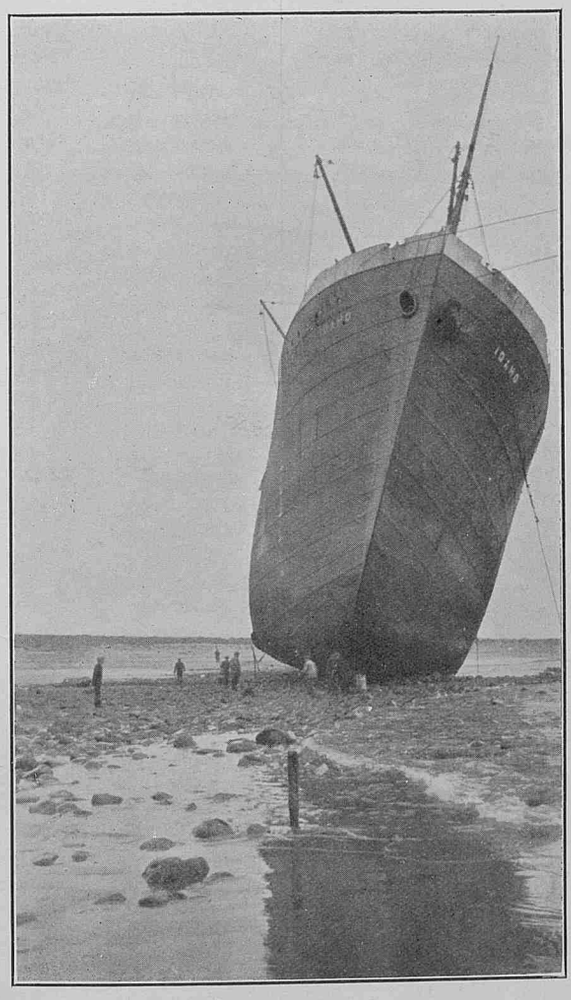




The German S.S. *Bragi* ashore close to Rattray Light House on a dangerous beach from which few vessels are recovered.



The S.S. *Idaho* ashore, and being driven higher up the beach by Easterly weather some half mile North of Aberdeen Harbour.



The S.S. *Idaho* high and dry. Owing to shortage of water and the vessel's lack of stability when empty she proved a difficult case for refloating, very heavy ground tackle had to be laid out, and heavy purchases worked from either side of the vessel to keep her upright until she was drawn into sufficiently deep water to permit of water ballast being used.

The Aberdeen Breakwater in Easterly weather.

WEATHER SIGNALS.

I.—SHIPS' WEATHER SIGNALS.

With reference to the Voluntary Scheme of communication for British "Selected Ships" Routine Wireless Weather Telegraphy, Trial to commence 1st May, 1930, given on pages 22-24, Volume VII, No. 73, MARINE OBSERVER, the list below gives information of those stations which have been detailed, up to the time of going to press, to receive on C.W., reports from **A Selected Ships,** and Chart III herewith illustrates this, also spark stations which may intercept reports from **B Selected Ships,** addressed to **CQ.**

WIRELESS STATIONS DETAILED TO RECEIVE ROUTINE CODED WEATHER REPORTS FROM "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).	Eastern North Atlantic and North Sea to about 1,500 miles from Station, but not within 300 miles of station (see Chart III).	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 0430 and 1030 G.M.T. Roll call thus—Weather begins—Call signs of chosen "Selected Ships"—Weather ends.
Mediterranean and Red Sea.									
South Atlantic.									
Indian Ocean.									
North Pacific.									
South Pacific.									

II. WIRELESS WEATHER SIGNALS.

Bulletins.

It is necessary to make careful distinction between weather reports and weather forecasts.

A *weather report* is a statement, in plain language or code, of the observed conditions prevailing at a place at a given time.

A *weather forecast* is a statement, usually in plain language, of weather which may be expected at a place or over an area in the near future.

For forecasts issued to shipping by wireless it is usual to publish full descriptions giving abbreviated names of areas with prescribed limits and the length of period; if such published description is not given, the place or area and the period to which the forecasts apply are included in the message.

WIRELESS WEATHER BULLETINS, GREAT BRITAIN AND IRELAND.

C.W. ISSUES "WEATHER SHIPPING" BULLETIN.

W/T Station, **Air Ministry.** Latitude 51° 27′ 50″ N.
Longitude 0° 01′ 35″ E.
Call sign **G.F.A.**

Wave length 4,098 metres, C.W.
Times of transmission 0900 G.M.T.* and 2000 G.M.T.

The message issued at 0900 G.M.T. is based upon 0700 G.M.T. observations. The message issued at 2000 G.M.T. is based upon 1800 G.M.T. observations.

During the time of S.O.S. lookout, from 0915 to 0918, and 2015 to 2018, there will be a pause in the transmission of these weather signals.

These messages are preceded by the words "Weather shipping" and consist of six parts. Part II. is in code, the remaining parts in plain language.

Part I. is a general inference of weather conditions over the British Isles, which usually includes information of the pressure system, with whereabouts, which influences the weather.

†**Part II.** is a report in code giving actual observations, with station number, of barometric tendency, weather, visibility, barometric pressure, direction and force of wind, at the ten British stations shown upon the accompanying Chartlet numbered from 1 to 10 (the initial 1 being omitted in the case of Station 10).

Two stations not shown on the Chartlet also follow in this part. They are No. 1, Reykjavik, Latitude 64° 09′ N., Longitude 21° 55′ W. (approx.) and No. 2, Thorshavn, Latitude 62° 03′ N., Longitude 6° 45′ W. (approx.) preceded by the word "Foreign."

Parts III., IV. and V. are forecasts of wind and visibility for the 12 hours following the time of observations for the areas shown upon the Chartlet.

Part VI. commencing "*outlook*" is a general statement as to expectation of weather after the period of the forecasts, when it can be made.

Note.—In order to avoid ambiguity between the words Ireland and Iceland, the latter word is always repeated whenever it occurs in Part I.

Explanation of Chartlet.

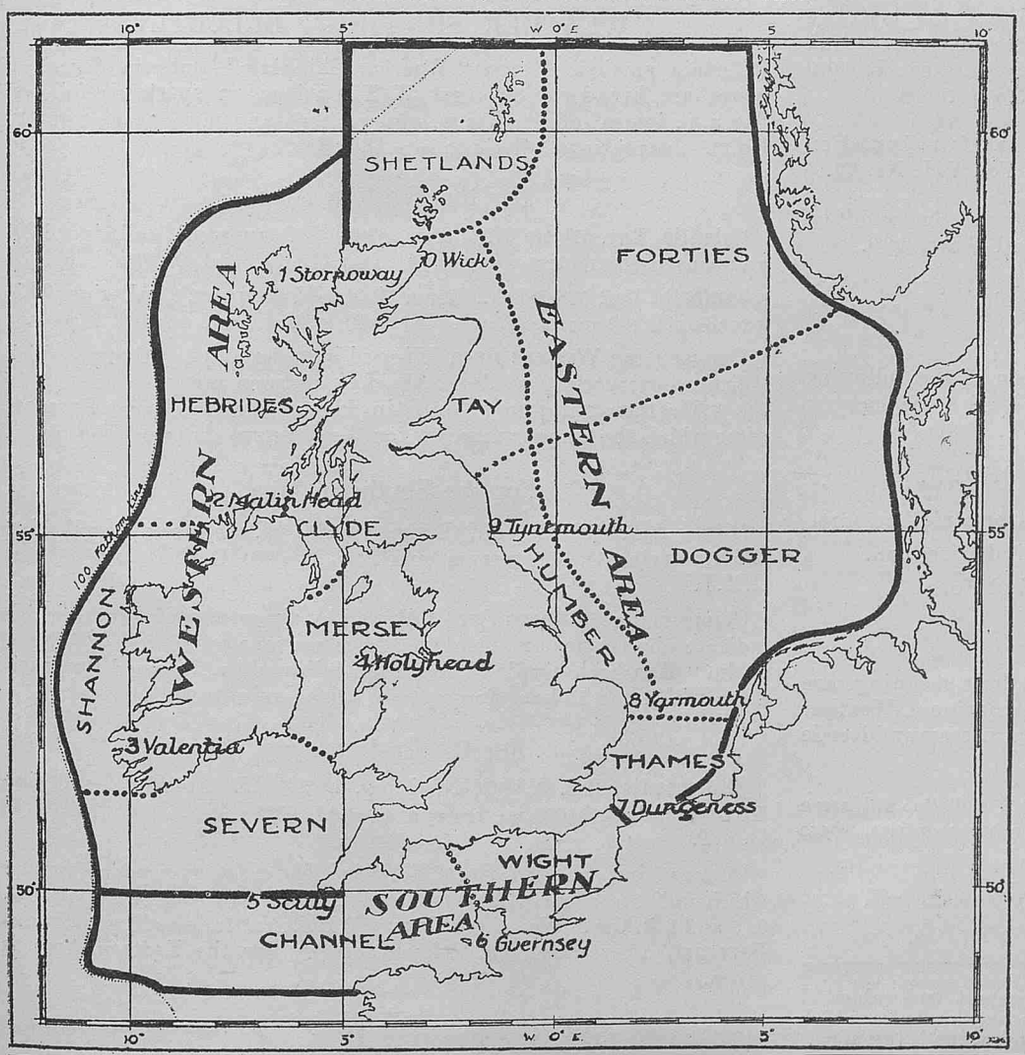
The numbers before the names of the stations indicate their code number (in the event of any station being substituted, the name of the substitute will be given in the message in place of this figure until such time as correction has been adequately made in Notices to Mariners and in The Marine Observer).

The boundaries of the areas are defined by the plain black lines and the coast line.

These areas are sub-divided into districts, named after islands, rivers or banks within them, so that they may be readily memorised. The boundaries of these districts should only be taken as an approximate indication of their extent.

These districts are for the purpose of giving information of different weather within an area, without unduly lengthening the wording of a message.

Chartlet showing Stations, Forecast Areas and Districts.



WESTERN AREA.

The sea and coasts eastward of the hundred fathom line from Cape Wrath to Scilly.

DISTRICTS.

HEBRIDES.—That part of Western which lies N. and W. of Bloody Foreland, Rathlin I. and Islay.

SHANNON.—West coast of Ireland from Bloody Foreland to the Fastnet.

SEVERN.—South Coast of Ireland, Bristol Channel, and approaches.

MERSEY.—The Irish Sea and approaches.

CLYDE.—The North Channel and approaches to Clyde.

SOUTHERN AREA.

The English Channel from Dover to the 100 fathom line.

DISTRICTS.

CHANNEL.—West of Portland.

WIGHT.—East of Portland.

EASTERN AREA.

The North Sea south of Lat. 61° N., and east of Long. 5° W. to the north and to the Straits of Dover in the south.

DISTRICTS.

THAMES.—Thames Estuary and its approaches.

HUMBER.—East coasts from Yarmouth to Tweed.

TAY.—East coast of Scotland, including Moray Firth.

SHETLANDS.—Orkneys and Shetlands.

FORTIES.—Eastward to Norway and N. of line Tweed to Naze.

DOGGER.—Eastward to coast of Denmark and S. of line Tweed to Naze.

* All times are G.M.T., the day commencing at Midnight, and the hours reckoned from 00 to 23.

† Code now in use to remain in force until April 30th, 1930; for changes to be made on May 1st, 1930, see page 53 of this number.

TO REMAIN IN FORCE UNTIL APRIL 30TH, 1930; FOR INSTRUCTIONS FOR DECODING ON AND AFTER MAY 1ST, 1930, SEE PAGE 53 OF THIS NUMBER.

DESCRIPTION OF CODE

AND

INSTRUCTIONS FOR DECODING PART II.

The code is arranged in five-figure groups, which are paired. Each pair of groups refers to one station, and contains an odd and an even group.

Odd Groups.

The 1st Figure indicates the station to which the pair of groups refers. From 1 to 9 and 0 for British stations. The Foreign groups being numbered 1 and 2 as above and indicated by the word "Foreign."

The 2nd Figure gives the Barometric tendency, **Table XII.**, p. 20, Vol. VII, No. 73.

The 3rd and 4th Figures give the weather, **Table V.**, p. 19, Vol. VII, No. 73.

The 5th Figure gives the visibility, **Table VI.**, p. 20, Vol. VII, No. 73. Caution is necessary in the use of these visibility reports owing to the conditions of view to seaward at some stations. The two foreign stations' visibility reports are landward.

Even Groups.

The 1st and 2nd Figures indicate the last two whole figures of the corrected barometer reading in millibars.* To convert to inches, see **Special Table XXIII**, p. 21, Vol. VII, No. 73.

The 3rd and 4th Figures give the True Direction of the Wind, **Table III.**, p. 19, Vol. VII, No. 73.

The 5th Figure gives the force of the wind by Beaufort scale. All forces 9 and above, as 9.

In all cases when a figure cannot be given, a hyphen (– - - - –) is given to preserve the order.

It will be of assistance in memorising the code if the following initial letters of the various elements are committed to memory.

	$I_nK'wwV_s$	BBDDF.
Thus	I_n = Station.	BB = Barometric Pressure.
	K′ = Barometric tendency.	DD = Wind Direction.
	ww = Weather.	F = Wind Force.
	V_s = Visibility.	

It will be noticed that the above symbols and their meanings are taken from the Abridged Key to the Old International Weather Code which was published together with the necessary decode tables in Vol. VII, No. 73, pp. 18 to 21.

This description of the British "Weather Shipping" Bulletin will serve as an example of the method of decoding Bulletins for other countries, where the International Code is in use, given in future numbers.

Though at first decoding may be tedious a little practice will show that this can be done with ease and rapidity.

* It will be seen that the coded figures may represent two values of barometric pressure, but this only takes place with a very low or very high barometer, so that Mariners will be able to decide which value is intended.

A Sample Message.

Call Sign:—CQ CQ CQ V GFA GFA GFA (repeated twice).
Weather Shipping.

Inference.—A deep depression over the North Channel which is moving East North East will cause strong winds or gales in all districts with much rain at first. Improving weather will spread across the country in its rear.

Station	*17535*	*99041*	*2155–*	*93283*	*34117*	*12265*
Reports.	*46356*	*97208*	*55167*	*13267*	*65417*	*19186*
	77124	*15206*	*87526*	*14186*	*97275*	*99206*
	0856–	*00146*	*Foreign*	*1112–*	*96162*	*2012–* *05000*

Forecasts.—Western Area Districts Mersey Severn Shannon westerly gale veering and moderating visibility becoming good Districts Clyde Hebrides strong northerly winds moderating visibility moderate full stop Southern area strong westerly to north westerly winds District Wight visibility poor District Channel visibility becoming good full stop Eastern Area Districts Dogger Humber Thames southwesterly gales visibility poor Districts Tay Forties southerly winds strong to gale backing visibility poor District Shetlands fresh easterly winds visibility moderate full stop Outlook Eastern Area northerly gales Western Area temporary improvement.

Though these reports are intended for the use of ships at sea, they will be found useful to shipping and seamen at the ports, if intercepted by local wireless receiving stations and passed to Mercantile Marine Offices and Harbour Masters.

SPARK ISSUES.

"WEATHER SHIPPING" BULLETIN.

Certain portions of the "Weather Shipping" Bulletin described above are broadcast by coast W/T stations **on spark** as follows. The a.m. issues refer to 7 a.m. observations and p.m. issues refer to 6 p.m. observations, all times are G.M.T

For the Western Area.

Valentia, Lat. 51° 56′ N., Long. 10° 21′ W. (approx.), call sign **GCK** wavelength 600 metres spark. At 0948 G.M.T. and at 2048 G.M.T.

Seaforth, Lat. 53° 28′ N., Long. 3° 01′ W. (approx.), call sign **GLV** wavelength 600 metres spark. At 0930 G.M.T. and at 2030 G.M.T.

Commencing **Western Area** followed by ten groups of figures which indicate observations made at the five stations numbered 1 to 5 in the "Weather Shipping" Bulletin followed by the word **Forecast** after which the 12-hour forecast for the Western Area will be given.

For the Southern Area.

Niton, Lat. 50° 35′ N., Long. 1° 17′ W. (approx.), call sign **GNI,** wavelength 600 metres spark. At 0930 G.M.T. and at 2030 G.M.T.

Commencing **Southern Area** followed by six groups of figures which indicate observations made at the three stations numbered 5, 6 and 7 in the "Weather Shipping" Bulletin, followed by the word **Forecast,** after which the 12-hour forecast for the Southern Area is given.

For the Eastern Area.

Cullercoats, Lat. 55° 02′ N., Long. 1° 26′ W. (approx.), call sign **GCC,** wavelength 600 metres spark. At 0948 G.M.T. and at 2048 G.M.T.

Commencing **Eastern Area,** followed by eight groups of figures which indicate observations made at the four stations numbered 7, 8, 9 and 0 in the "Weather Shipping" Bulletin, followed by the word **Forecast,** after which the 12-hour forecast for the Eastern Area is given.

TO COME INTO FORCE ON MAY 1ST, 1930. BRITISH "WEATHER SHIPPING" BULLETIN.

On and after May 1st, 1930, Part II of this bulletin will be made by using the tables of the Universal International Ships' Wireless Weather Telegraphy Code, the decode tables for which are given in Volume VII, No. 73, page 32 and the key will be arranged as follows to follow International agreement. The second group being the same as the fourth group for "Selected Ships" reports, i.e. :—

D D F w w

and the first group will contain the remainder of the elements which have been given in Part II of this Bulletin since it was established on January 1st, 1924.

The decode tables remain the same as before, with the exception of that for Present Weather, which will be made by the abridged Present Weather Table No. VI for British "Selected Ships" given in Vol. VII, No. 73, page 28, the figures 18 and 19 not being used; so that present weather may be decoded by Decode Table VI, Vol. VII No. 73, page 32.

From May 1st, 1930, the key will be

I_n A B B V D D F w w.

I_n = Station.
A = Barometric tendency.
BB = Barometric pressure.
V = Visibility.
DD = Wind direction.
F = Wind force.
ww = Weather.

All other parts of this Bulletin will remain unchanged and the descriptions of Part I, III, IV, V and VI given on page 51 of this number will hold good.

WIRELESS TELEPHONY (R/T) ISSUES. "WEATHER SHIPPING" BULLETIN.

Certain portions of the "Weather Shipping" Bulletin are broadcast from the BRITISH BROADCASTING CORPORATION'S station at **Daventry** by Wireless Telephony as follows:—

Daventry. Latitude 52° 15′ N., Longitude 1° 08′ W. (approx.), call sign **5XX,** wavelength 1554.4 metres (R/T). At 1030 and about 2115 G.M.T on weekdays and 1030 and about 2100 G.M.T. on Sundays

This station broadcasts Parts I, III, IV and V of the "Weather Shipping" Bulletin, *i.e.*, a general inference, followed by 12-hour forecasts for the Western, Southern and Eastern Areas, based on observations at 0700 G.M.T. for the a.m. issue and on observations at 1800 G.M.T. for the p.m. issue.

When British Summer time is in operation these issues are made one hour earlier by G.M.T. so that the hours and minutes given by B.S.T. remain the same as in winter when G.M.T. is used.

As changes in the Time of issue of Parts I, III, IV and V through the BRITISH BROADCASTING CORPORATION'S station at **Daventry** are occasionally necessary at short notice, mariners are referred to the "Radio Times," the official organ of the BRITISH BROADCASTING CORPORATION, which is published weekly for notice of the exact times of issue of this message; these are also given in the daily press.

It should be noted that the times given in the "Radio Times" are G.M.T. only when summer time is not in operation, while all times for Wireless Weather Telegraphy in THE MARINE OBSERVER are G.M.T.

It should also be noted that forecasts for the General Public and Farmers are broadcast by Daventry, and as these are for land areas it is necessary to distinguish them from the parts of the "Weather Shipping" Bulletin which give information to Mariners.

WIRELESS GALE WARNINGS.

Spark issues.

These warnings are broadcast in plain language and refer to the area which lies within about 150 miles of the station broadcasting the warning.

The warnings are broadcast on a wavelength of 600 metres (spark) preceded by the **International Safety Signal TTT** (– – –) repeated at short intervals 10 times on full power; the warning being broadcast **one minute later, once only.**

Stations broadcasting these warnings.

Station.	Call Sign.	Latitude. (approx.)	Longitude. (approx.)
Niton (Isle of Wight) ...	**GNI**	50° 35′ N.	1° 17′ W.
Land's End	**GLD**	50° 07′ N.	5° 40′ W.
Fishguard	**GRL**	52° 01′ N.	4° 59′ W.
Seaforth (Liverpool) ...	**GLV**	53° 28′ N.	3° 01′ W.
Wick	**GKR**	58° 26′ N.	3° 06′ W.
Cullercoats	**GCC**	55° 02′ N.	1° 26′ W.
Valentia (Ireland) ...	**GCK**	51° 56′ N.	10° 21′ W.
Malin Head (Ireland) ...	**GMH**	55° 22′ N.	7° 20′ W.

Example.—"*Gale Warning.—Deep depression off N.W. Ireland moving East. Gales from S.E., backing North, probable North of Lat.* 54°. *Southerly gales veering N.W. other coasts.*"

Should the warning be broadcast during the period when one-operator ships do not keep watch it will be repeated in the next watch-keeping period for one-operator ships at either of the following times:—

Wick ... }
Land's End }
Seaforth ... } 0800, 1200, 1600 or 2000 G.M.T.
Malin Head }

Cullercoats ... }
Niton ... ... }
Fishguard... ... } 0818, 1218, 1618 or 2018 G.M.T.
Valentia (Ireland) }

Gale warnings broadcast at 0800, 0818, 2000 or 2018 G.M.T. will follow the navigational warning, if one is broadcast.

NOTE.—For locating depressions the use of the words Ireland or Iceland is frequent and in order that they shall not be confused when Iceland is appropriate it will be repeated thus—Iceland Iceland.

Wireless Telephony (R/T) Issues.

Gale warnings will be broadcast as necessary by Radio Telephony, by the BRITISH BROADCASTING CORPORATION'S station at **Daventry,** call sign **5XX,** on the wavelength of 1554.4 metres as follows:—

Weekdays.

Immediately after the time signals at 1300, 1645 and 1830 G.M.T. Gale warnings issued at 1300 G.M.T. will be repeated both at 1645 and 1830 G.M.T. and a warning issued at 1645 G.M.T. will be repeated at 1830 G.M.T.

Sundays.

Immediately after the time signal at 1500 G.M.T. only.

When British Summer Time is in operation these issues are made one hour earlier by G.M.T. so that the hours and minutes given by B.S.T. remain the same as in winter when G.M.T. is used.

The warnings will be made in the following manner by word of mouth:—

"*The Meteorological Office issued the following gale warning to shipping at* 1430 *G.M.T. to-day:—'Secondary depression off S.W. Ireland moving North-eastward, Southerly gales expected South of line from Exmouth to Spurn Head.'*"

These R/T gale warnings are simply a repetition of the W/T gale warnings at fixed times convenient to the B.B.C.

Changes in the times of issue by R/T of these gale warnings for shipping are necessary at shorter notice than can be given by THE MARINE OBSERVER. Mariners are, therefore, referred to "The Radio Times," the official organ of the BRITISH BROADCASTING CORPORATION, published weekly, for the exact times of issue. The times given in "The Radio Times" are only G.M.T. when summer time is not in operation.

III. WIRELESS TIME SIGNALS.

C.W. Issues.

Rugby W/T Station, Lat. 52° 21′ 59″ N., Long. 1° 11′ 12″ W., call sign **GBR**, broadcasts Time Signals on a wavelength of 18,740 metres (C.W.) at 1000 and 1800 G.M.T.:—

System Used.—Modified rhythmic type as recommended by the International Time Commission of 1925, consisting of a series of 306 signals emitted in 300 seconds of Mean Time, the concluding signal being the exact hour.

In each series, Signals Nos. 1, 62, 123, 184, 245 and 306 are single dashes (−) of 0·4 sec. duration and commence at the exact minute. Each dash is followed by 60 dots (·) of 0·1 sec. duration.

The commencement of successive signals, whether dot or dash, are equally spaced at intervals of 60/61 parts of one second of Mean Time, i.e.:—

G.M.T. h.	m.	s.	Signal.
9 or 17	55	00	1st signal a dash (−) followed by 60 dots (· · · · etc.).
,,	56	00	62nd do. do. do.
,,	57	00	123rd do. do. do.
,,	58	00	184th do. do. do.
,,	59	00	245th do. do. do.
10 or 18	00	00	306th signal, a dash (−).

This type of time signal will enable chronometer comparisons of extreme accuracy to be obtained, the method employed being to count the number of intervals from the first dash (−) until coincidence occurs between one of the rhythmic signals and the beat of the chronometer. It is not necessary actually to count the signals. Take the nearest second of each dash by the chronometer, and write down the chronometer time of coincidence. The difference gives the number of the rhythmic signal. For ordinary navigational purposes a comparison obtained by disregarding the dots and using the commencement of the dashes only (given at the exact minute) will be sufficiently accurate.

NOTE.—An article entitled "Greenwich Time" describing how these signals are made, of great interest to navigators, will be found on pp. 159-167, Vol. V, No. 56.

Wireless Telephony (R/T) Issues.

The Time Signals broadcast by the British Broadcasting Corporation through their Station at **Daventry**, latitude 52° 15′ N., longitude 1° 08′ W., call sign **5XX**, wavelength 1554·4 metres, may be of utility for rating chronometers at sea in ships which are fitted for R/T reception but have not Wireless Telegraphy on board.

These Time Signals are made at the following times:—

Weekdays.	Sundays.
1030 G.M.T.	1030 G.M.T.
1300 ,,	1500 ,,
1645 ,,	2100 ,,
1830 ,,	
2100 ,,	
2330 ,,	

When British Summer Time is in operation these issues are made one hour earlier by G.M.T., so that the hours and minutes given by B.S.T. remain the same as in Winter when G.M.T. is used.

The time Signals consist of the automatic transmission by the Standard Clock at Greenwich Observatory, of six dots, representing successive seconds. The final dot is the Time Signal. The amount of lag is less than 0.01 seconds.

The Time Signal will, when necessary, be superimposed on programmes, but the Signals will be loud enough to be easily discernible.

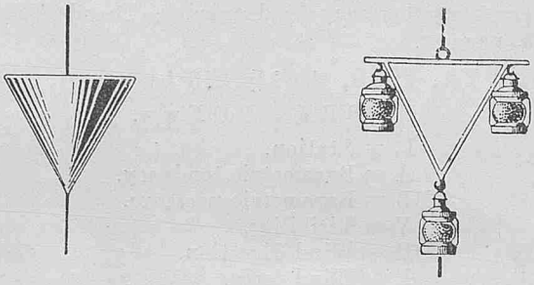
As changes in the times of the British Broadcasting Corporation issues may be made at shorter notice than can be given by THE MARINE OBSERVER, Mariners are therefore referred to "The Radio Times," the official organ of the British Broadcasting Corporation, published weekly, for exact times of issue.

IV. VISUAL GALE WARNINGS.

Great Britain and Ireland.

SOUTH CONE.

By Day. By Night.



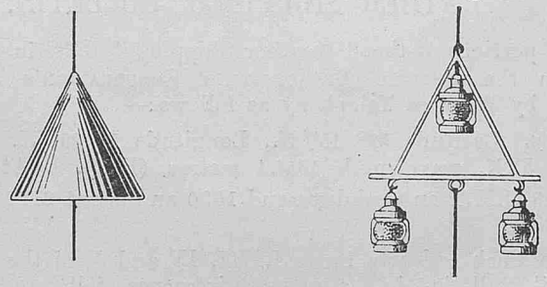
Hoisted for Gales.

Commencing from a southerly point, such gales often veer, sometimes as far as north-west.

For gales commencing from east or west the S cone will be hoisted if the gale is expected to change to a southerly direction.

NORTH CONE.

By Day. By Night.



Hoisted for Gales.

Commencing from a northerly point.

For gales commencing from east or west the N cone will be hoisted if the gale is expected to change to a northerly direction.

When one of these signals is hoisted it indicates that a telegram has been received from the Meteorological Office by the station exhibiting the signal, that a gale is expected in the vicinity of the station.

The signal will be lowered when the gale has passed and it is anticipated that there will be a period of not less than 12 hours with winds of less than gale force. The cone is kept flying during a lull of the wind if a renewal of the gale is expected.

At present only those stations marked † in the list show the night signal.

The stations are as follows:—

England, East Coast.

Berwick-upon-Tweed	Blyth
Holy island	Tynemouth
Amble	North Shields

ENGLAND, EAST COAST—*continued.*

Souter point
Sunderland
Seaham
Hartlepool
Middlesbrough
Redcar
Whitby
Filey
Scarborough
Flamborough head
Bridlington
Aldborough
Spurn head
Hull
Goole
Grimsby
Mablethorpe
Boston
King's Lynn
Weybourne
Cromer
Yarmouth
Gorleston
Lowestoft
Southwold
Orfordness
Ipswich
Landguard
Gunfleet
Burnham
Kentish Knock light-vessel.
Greenhithe (H.M.S. *Worcester*)
Chatham
Sheerness
†Southend
Tilbury
Rotherhithe
Reculvers
Herne Bay
Margate

England, South Coast.

Ramsgate
North Goodwin light-vessel.
Deal
Dover
Sandgate
Dungeness
Rye
Fairlight
Eastbourne
Beachy head
†Newhaven
Brighton
Littlehampton
Hayling island
Portsmouth
Southampton
Calshot
Cowes
Ryde
St. Catherine point
Needles (Freshwater)
Poole
Swanage
St. Alban's head
Weymouth
Portland
Jersey (Channel Is.)
Exmouth
Torquay
Dartmouth
Berry head
Prawle point
Salcombe
Plymouth
Devonport
Rame head
Portwrinkle
Looe
Fowey
Gorran haven
Mevagissey
Coverack
St. Anthony point (Falmouth)
Lizard
Mullion
Porthleven
Mousehole
Tol Peden Penwith
Scilly (St. Mary's)

England, West Coast, and Wales.

Sennen
Godrevy
St. Ives
Newquay
Trevose head
Padstow
Port Isaac
Lynmouth—Foreland
Bude
Hartland Point
Bull point
Ilfracombe
Weston-super-Mare
Avonmouth
Newport (Mon.)
Cardiff
Penarth
Nells point
Barry dock
Nash
Briton ferry
Mumbles
Rhos-sili
Burry port
Tenby
Caldy island
St. Ann's head
Fishguard
Newquay (Cardigan)
Aberystwith
Carnarvon
South Stack
Holyhead
Point Lynus
Penmon
Hilbre island
Hoylake
New Brighton
Formby light-vessel
Crosby light-vessel
Runcorn
Liverpool
Preston
Blackpool

ENGLAND, WEST COAST, AND WALES.—*Continued.*

Fleetwood
Heysham
Morecambe
Barrow
Walney island
Whitehaven
Workington
Maryport
Douglas (Isle of Man)
Ayre point (Isle of Man)
Ramsey (Isle of Man)

Scotland, West Coast.

Little Ross lighthouse
Stranraer
Mull of Galloway
Port Patrick
Corsewall point
Ballantrae
Ardrossan
Greenock
Kildonan
Campbeltown
Mull of Cantyre
Rinns of Islay
Rudha Mhail
Glas island
Rudh' Re' lighthouse
Stornoway
Ru Stoer

Scotland, North and East Coasts, with Orkneys and Shetlands.

Cape Wrath
Lerwick
Balta sound
Whalsey
Sumburgh head
Fair isle
Noup head
Kirkwall
Stronsay (April to Sept.)
Stromness (Orkney isles)
Cantick head
Broughness
Dunnet head
Wick
Helmsdale
Tarbetness
Cromarty
Nairn
Burghead
Lossiemouth
Buckie
Port Knockie
Portsoy
Banff
Fraserburgh
Peterhead
Collieston
Aberdeen
Law point
Girdleness
Stonehaven
Gourdon
Johnshaven
Montrose
Scurdyness
Arbroath
Fifeness
Anstruther
Methil
Grangemouth
North Berwick
Dunbar
Cockburnspath
St. Abbs head
Eyemouth
Burnmouth
Isle of May

Ireland, North and East Coasts.

Malin head
Portrush
Ballycastle (Torr Head)
Blackhead lighthouse
Belfast
Bangor
Ballywalter
Killough
Kilkeel
Kingstown

Ireland, South Coast.

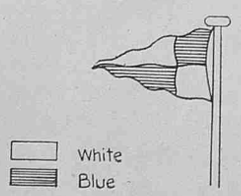
Queenstown
Cork
Galley head

Ireland, West Coast.

Killybegs (St. John's point)
Galway
Loop head

By arrangement with the Admiralty, these signals are hoisted in H.M. Fishery Protection Vessels at sea for the area in which they are stationed, inferior to the

Fishery Flag.



Special Notices Regarding Personnel.

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

Captain V. W. Hickson.

Captain V. W. HICKSON, Master of the R.M.S. *Adriatic*, has recently retired after forty-five years continuous service afloat.

Captain HICKSON commenced his sea career in 1886 when he signed indentures with Messrs. J. NEWTON & Co., of Liverpool, and served for nine years as apprentice, 2nd and 1st mate of their square rigged ships *Eskdale*, *Langdale* and *Wasdale*. On obtaining his masters certificate he transferred to steam, joining the HARRISON Line.

In 1898 he joined the WHITE STAR Line as a junior officer and rising through the successive grades obtained command of the *Cymric* in 1913. Since then he has commanded many of the mail steamers of the WHITE STAR Fleet, including the *Ionic*, *Zealandic*, *Cedric* and *Adriatic*. Captain HICKSON has been a member of the Corps of Voluntary Marine Observers since 1920 and his name has appeared in the list of Excellent Awards on four occasions.

Captain S. H. Owen.

Captain STANLEY H. OWEN, Master of the R.M.S. *Arundel Castle*, has retired after nearly 40 years' service with the CASTLE and UNION CASTLE Steamship Company.

Captain OWEN joined the CASTLE Line in 1890 and, rising through the successive grades, was appointed to his first command in 1907. During the 22 years that he has held command, he has had charge of no fewer than 21 of the company's vessels, including the mail steamers *Kenilworth Castle*, *Saxon*, *Armadale Castle*, *Walmer Castle*, *Edinburgh Castle*, *Balmoral Castle* and *Arundel Castle*.

He has been a regular member of the Corps of Voluntary Marine Observers since 1924.

Captain J. Curle.

Captain J. CURLE, Master of the ELLERMAN WILSON s.s. *Marengo*, has retired after 35 years' service with that Company.

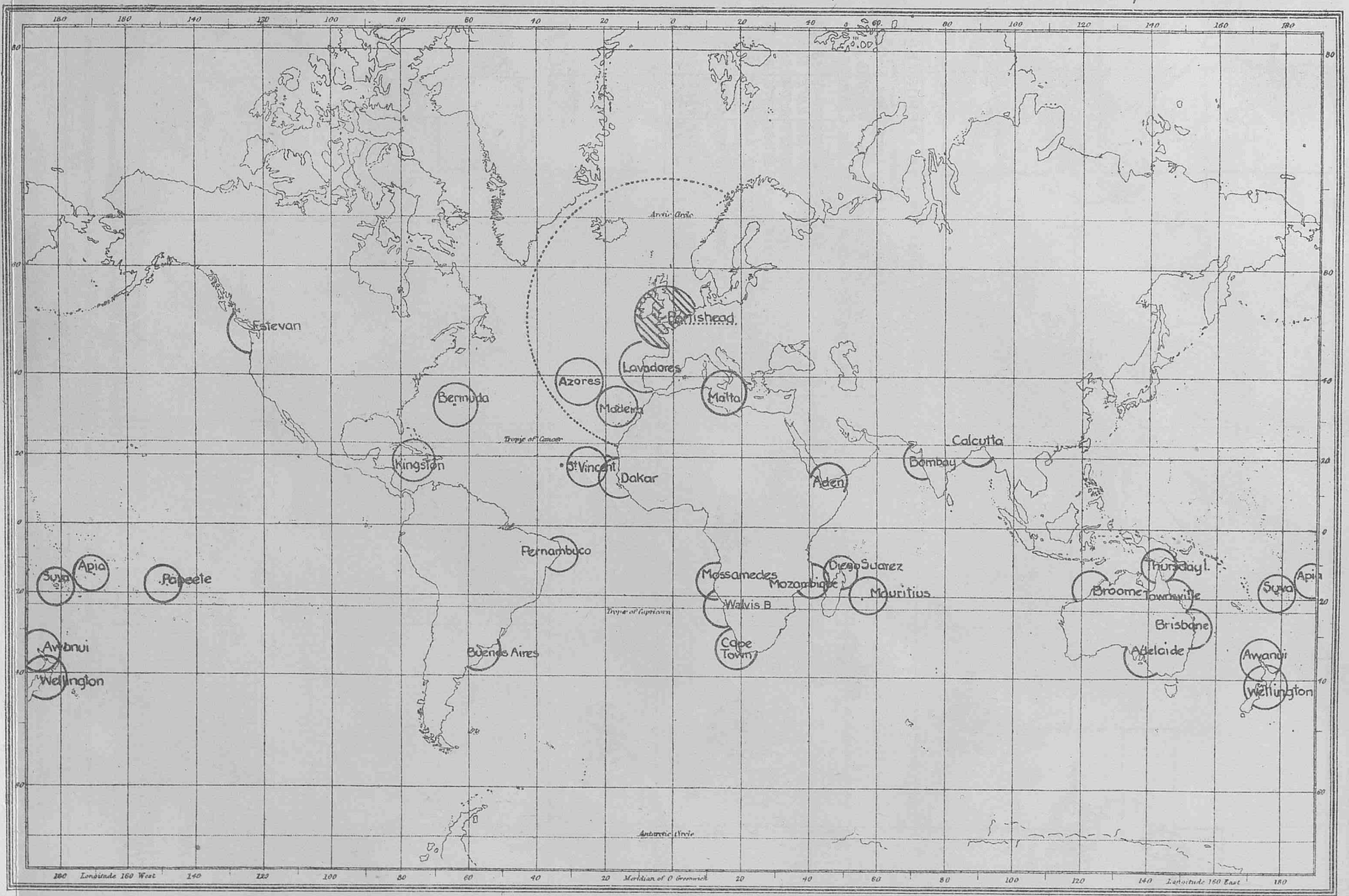
Captain CURLE joined the WILSON Line as a 3rd Officer in 1894, and obtained his first command in 1913. Since then he has commanded several of the Company's vessels employed in their American, Mediterranean and Baltic Trades.

He was a member of the Voluntary Corps of Marine Observers.

The Corps of Voluntary Marine Observers join with the Marine Division in wishing these officers long life and happiness in their retirement.

Chart III.— SHIPS' WIRELESS WEATHER REPORTS.

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



The dotted circle indicates the area in which British ships would report to Portishead. The small shaded circle indicates the area from which reports are prohibited to Portishead.

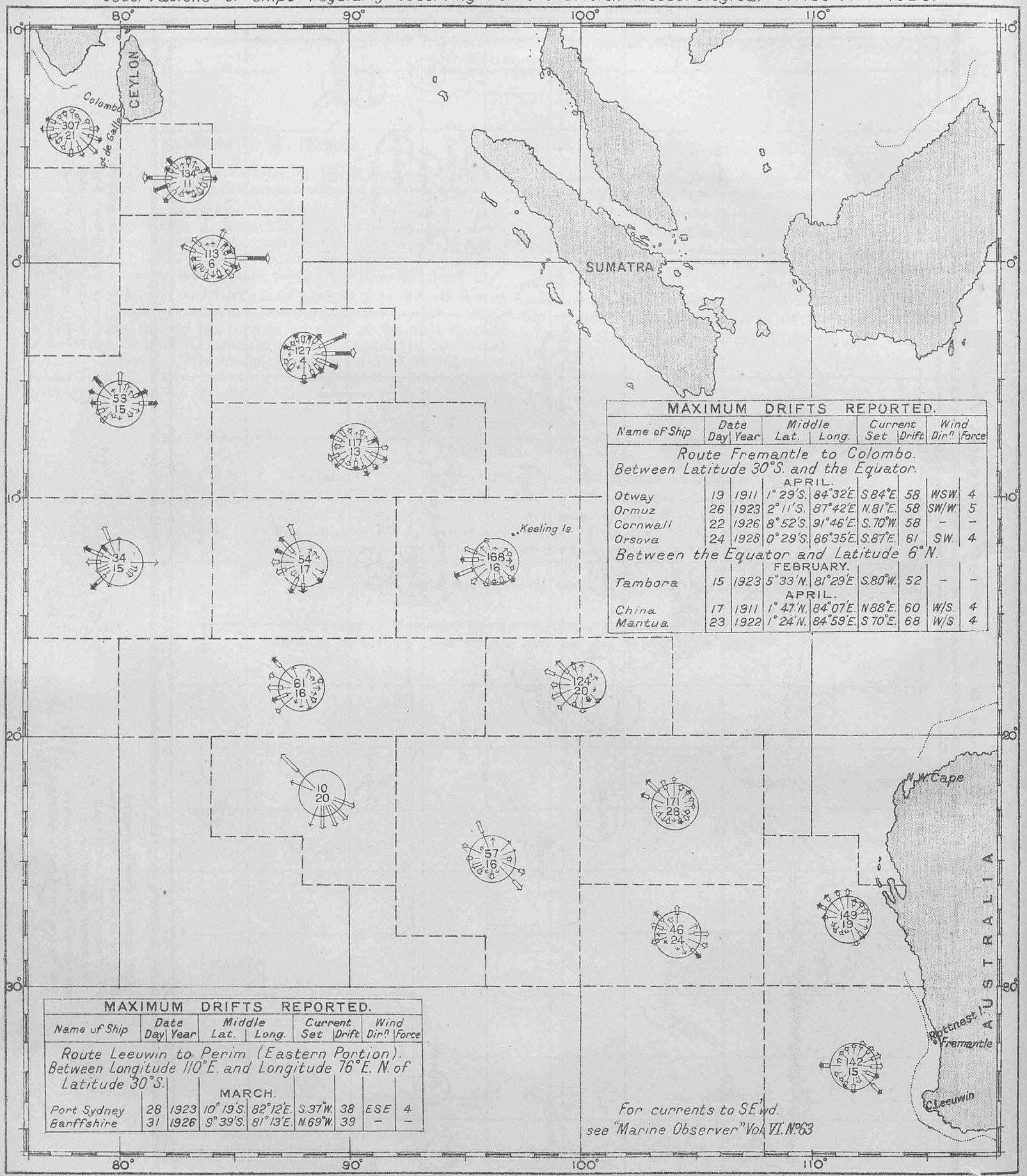
The full-line circles indicate the areas round islands and coast stations which could receive spark "Selected Ships" reports to C.Q.

Vol. VII. No 74.

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

FEBRUARY, MARCH AND APRIL.

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



MAXIMUM DRIFTS REPORTED.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dir^{n}	Wind Force
Route Fremantle to Colombo. Between Latitude 30°S. and the Equator.								
			APRIL.					
Otway	19	1911	1° 29'S.	84° 32'E.	S. 84°E.	58	WSW.	4
Ormuz	26	1923	2° 11'S.	87° 42'E.	N. 81°E.	58	SW/W.	5
Cornwall	22	1926	8° 52'S.	91° 46'E.	S. 70°W.	58	–	–
Orsova	24	1928	0° 29'S.	86° 35'E.	S. 87°E.	61	SW.	4
Between the Equator and Latitude 6°N.								
			FEBRUARY.					
Tambora	15	1923	5° 33'N.	81° 29'E.	S. 80°W.	52	–	–
			APRIL.					
China	17	1911	1° 47'N.	84° 07'E.	N 88°E.	60	W/S.	4
Mantua	23	1922	1° 24'N.	84° 59'E.	S 70°E.	68	W/S	4

MAXIMUM DRIFTS REPORTED.

Name of Ship	Date Day	Date Year	Middle Lat.	Middle Long.	Current Set	Current Drift	Wind Dir^{n}	Wind Force
Route Leeuwin to Perim (Eastern Portion). Between Longitude 110°E. and Longitude 76°E. N. of Latitude 30°S.								
			MARCH.					
Port Sydney	28	1923	10° 19'S.	82° 12'E.	S. 37°W.	38	ESE	4
Banffshire	31	1926	9° 39'S.	81° 13'E.	N. 69°W.	39	–	–

For currents to S.E'wd. see "Marine Observer" Vol. VI. No 63

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 ...

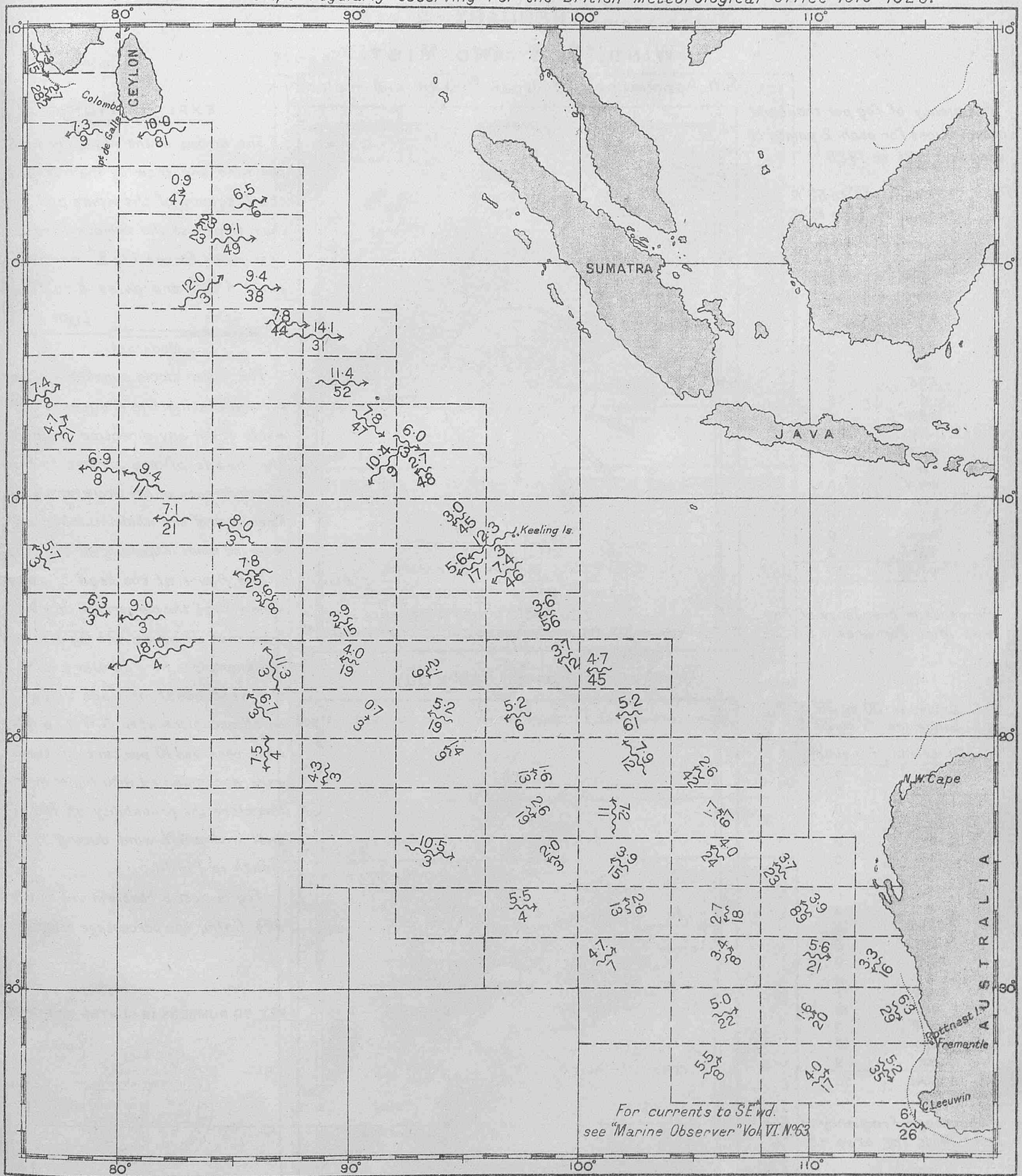
Distance from tail of arrow to circle represents 5%. Scale 0 10 20 30 40 50%

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

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

FEBRUARY, MARCH AND APRIL.

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.

FEBRUARY,

WIND, FOG AND MIST.

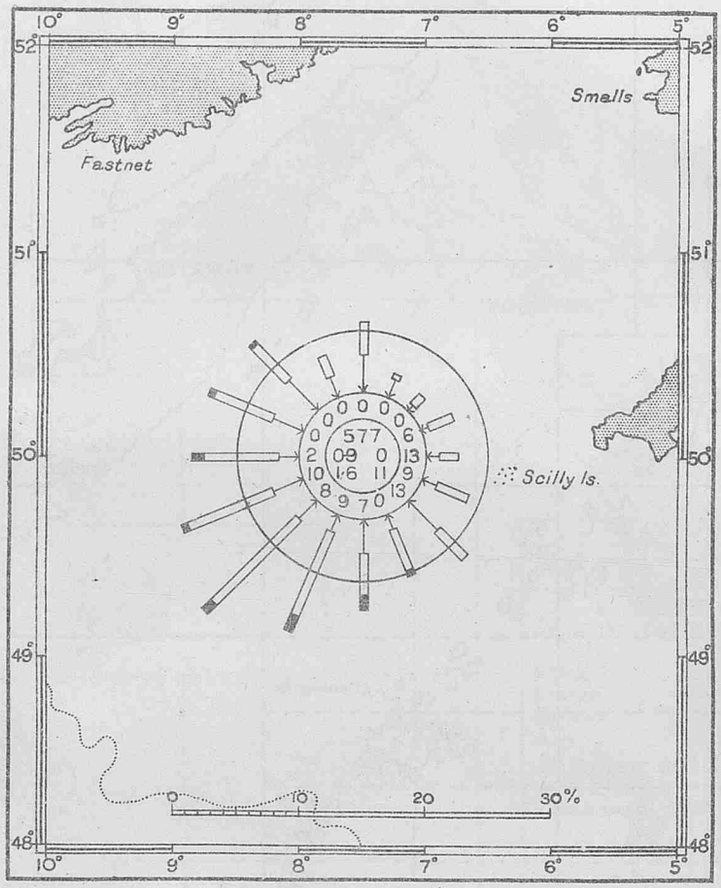
S.W. Approaches to Great Britain and Ireland

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	0
NNE	0
NE	0
ENE	2
E	3
ESE	3
SE	9
SSE	0
S	5
SSW	9
SW	11
WSW	11
W	2
WNW	0
NW	0
NNW	0
Calm	0
Var.	2
TOTAL	57

Percentage Frequency of Fog and Mist for area = 5·7 %.

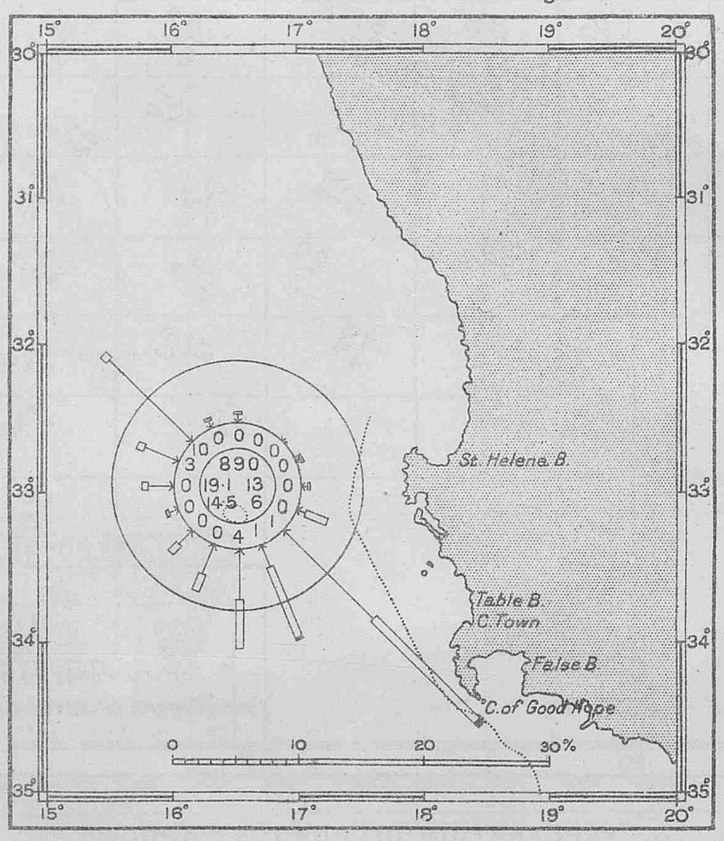


Approaches to Table Bay.

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

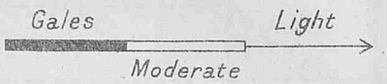
Direction.	Frequency.
N	0
NNE	0
NE	0
ENE	0
E	0
ESE	0
SE	1
SSE	1
S	3
SSW	0
SW	0
WSW	0
W	0
WNW	1
NW	10
NNW	0
Calm	25
Var.	9
TOTAL	50

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 freqency 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.

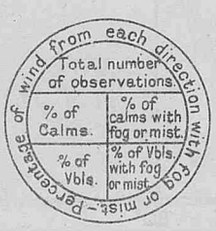


The outer circle supplies a scale for estimating the frequency of winds from any direction. From the heads of the arrows to the circumference of the circle represents 5 per cent of the whole number of observed winds. (100 per cent = 10° longitude).

The figure at the head of the arrow gives the percentage of wind from that direction with fog or mist, for example:- In February off the west coast of Cape Colony, on all occasions when N.W'ly winds were observed 10 per cent of them were accompanied with fog or mist, therefore the probability of fog or mist with a N.W. wind during this month is 1 in 10.

Fog is most probable in this month with Calm, the percentage being 2·5.

KEY TO NUMBERS IN CENTRE OF ROSES.



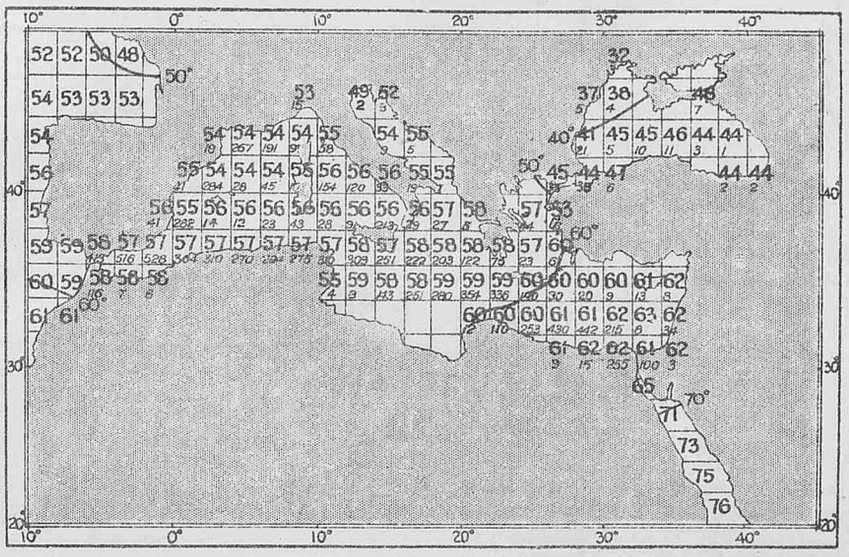
Compiled from observations of British Ships received since the adoption of the Hollerith system of extraction covering the years 1921 to 1928.

MEDITERRANEAN SEA

SEA SURFACE TEMPERATURES

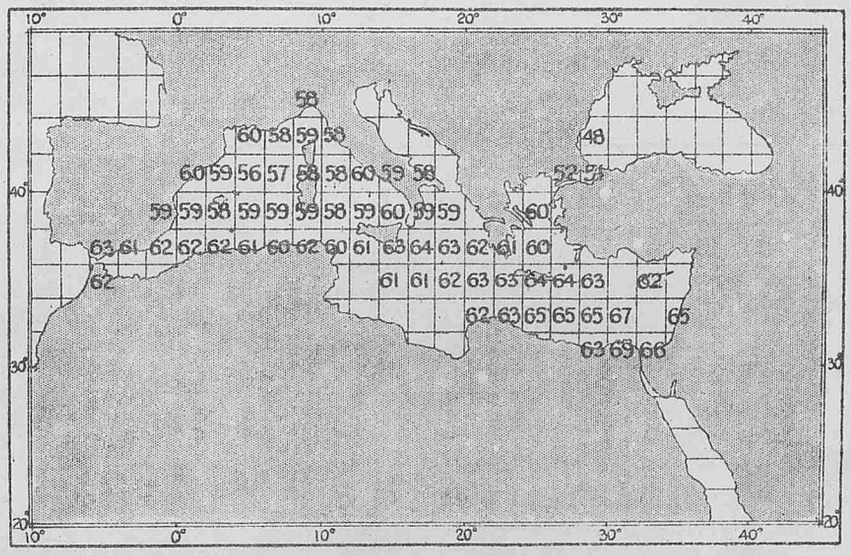
FEBRUARY,

MEAN.

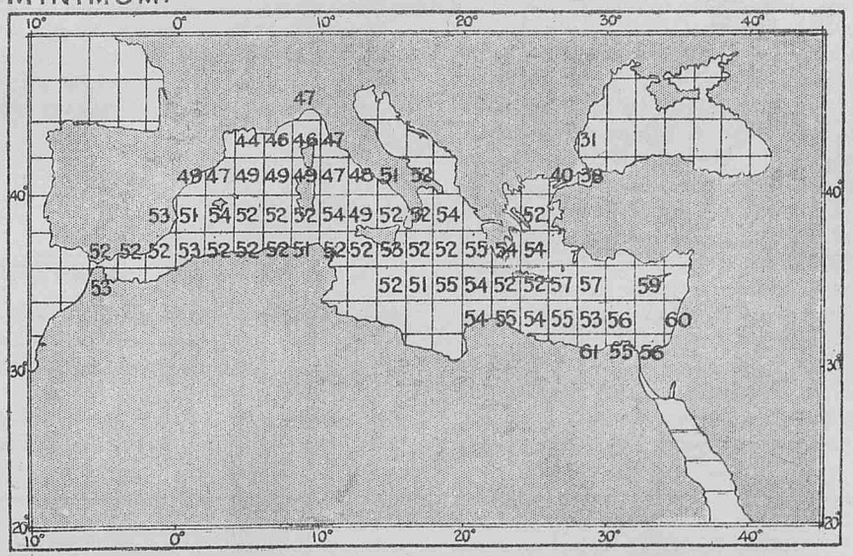


Small figure gives number of observations.

MAXIMUM.



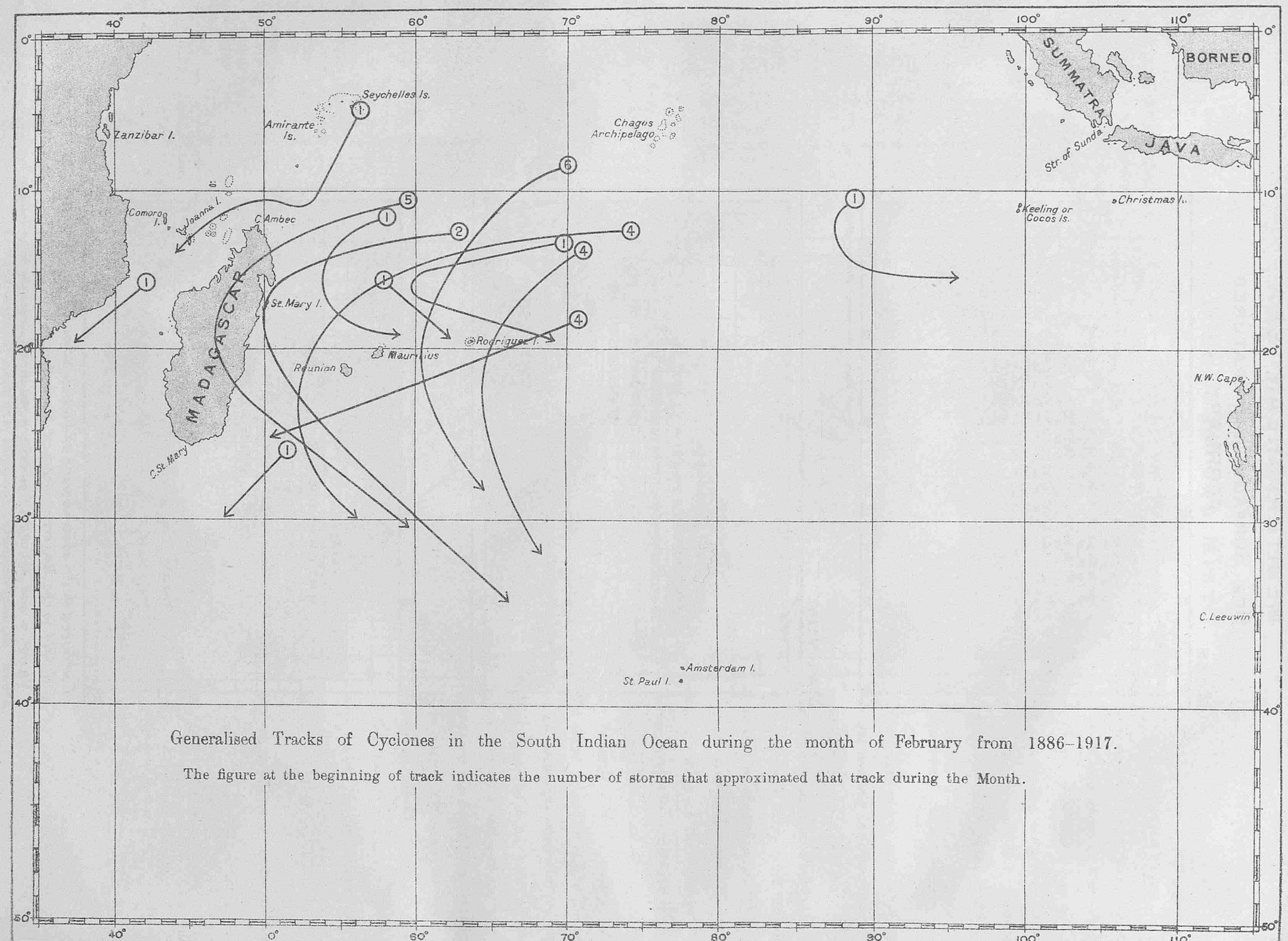
MINIMUM.



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.

CYCLONE TRACKS OF THE SOUTH INDIAN OCEAN.



Generalised Tracks of Cyclones in the South Indian Ocean during the month of February from 1886–1917.

The figure at the beginning of track indicates the number of storms that approximated that track during the Month.

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

1569/2013. We.88A. D.13. 1050. 12/29.

NOTICES.

DESPATCH OF INFORMATION REQUIRED IMMEDIATELY FOR THE CONDUCT OF THE WORK AT SEA.

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

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

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

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 REPORTS.

Commanders of ships in the Trans-North Atlantic and Southern Ocean Trades are earnestly requested to have the Ice Report Form 912 completed and returned at the end of each passage A nil return is desired if no ice is seen.

These forms are supplied with THE MARINE OBSERVER each month to regular observing ships in these Trades.

CARE OF OFFICIAL LITERATURE.

THE MARINE OBSERVER and such ocean meteorological charts as can be supplied which are sent to Regular Observing Ships, are placed on board as equipment for doing Routine Voluntary Meteorological Work, and as some return to the Captains and Officers who do this work and the shipowners who encourage it in the ships whose names appear in the Fleet List in THE MARINE OBSERVER. This literature is official equipment and all concerned are asked to take great care of it.

The books sent annually, as Excellent Awards, to a certain number of Commanders and Officers who have done the best work, are presentations and are, of course, the personal property of the recipients.

In view of the fact that the Meteorological Office equipment in Voluntary Observing Ships is provided at the cost of Public Funds, it is essential that it should be treated with great care.

Appointment of Port Meteorological Officer, London.

Applications are invited from members of the Corps of Voluntary Marine Observers to the Meteorological Office for the post of Port Meteorological Officer in the Port of London. Candidates must possess a Board of Trade Certificate of Competency as Master for a foreign-going ship, or its equivalent.

The selected officer will be graded as a senior Professional Assistant on the Departmental scale of the Meteorological Office. The basic salary of that grade is £250 per annum, rising by annual increments of £15 to £350 per annum, to which is added Civil Service Cost of Living Bonus. At the present rate of bonus, the commencing salary is £361 per annum. The appointment will be pensionable under the Federated Universities Superannuation Scheme. Application should be by letter addressed to the Secretary (S.I.), Air Ministry, Adastral House, London, W.C. 2, and should state age, number and grade of Board of Trade certificate, rank in R.N.R., if any, and should give particulars of sea service and of experience in meteorological observation. The names of two references to whom application may be made should be given, and copies of not more than two testimonials may be enclosed. Applicants should also state the earliest date on which they would be able to commence duty, if appointed, or alternatively the amount of notice required to obtain release from present engagements. Applications should reach the Air Ministry not later than March 1st, 1930.

ICE CHART.

WESTERN NORTH ATLANTIC.

LETTERS OF TRANSATLANTIC TRACKS INDICATE.

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

(D) From 15th February to 10th April, inclusive.

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

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.
VCN
St. Paul
Grosse I.
Quebec
Prince Edward Is.
VCO
Sydney
VAG
St. Pierre
HYS
Montreal
St. John's
VAR
NOVA SCOTIA
Fairlight Lt. V.
VAV
VCT
Sable Is.
VAU
Lurcher Lt. V.
VDR
C. Sable
Boston
New York
Nantucket Lt. V.
VCL
Belle Isle
C. Norman
St. Anthony
C. Race
St. John's
VCE
Virgin Rocks

Limit of Ice reported to Meteorological Office FEBRUARY 1901-1929.

PHENOMENAL POSITION OF ICE.

Date.	Ship or Source of Report.	Position. Lat.	Position. Long.	Remarks.
Feb. 3, 1922	S.S. Weehawken ...	41°42′N.	58°59′W.	Ice (sustained bow damage).

Reports of Ice sighted between December 1st and December 31st, 1929, 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.

LATEST ICE REPORT FROM CANADA.

The following cablegram, dated 13th December, 1929, was received from the Canadian Signal Service, Quebec :—

"Montreal to Sorel Island, river solid. Three Rivers to about Saguenay River, considerable ice. Eastward to about Fame Point, open ice inshore. Point Amour and Belle Isle heavy slob ice with occasional berg off Belle Isle. Elsewhere no ice."

1569/2013. Wt. 38 A. D.13. 1050. 12/29.

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

NOTICES.

MARINE METEOROLOGY.

Co-operation of Shipowners, Masters and Mates.

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

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

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

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

Vessels observing regularly for the Meteorological Office to which office instruments are not lent, keep Form 911, Ship's Meteorological Report, using the ship's instruments, the barometer being compared with Standards. The number of ships regularly contributing approved forms of all descriptions to the Marine Division is limited to 500.

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

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

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

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

Vessels making voyages of less than two months' duration are requested to retain their logs until nearly filled up, but the log should be returned in all cases at least twice yearly.

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

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

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

The instrumental equipment on board each regular observing ship is indicated in the "Fleet List" in THE MARINE OBSERVER.

"Selected Ships," i.e., those ships which are detailed for Voluntary Routine Wireless Weather Telegraphy, are indicated by a number and symbols in the "Fleet List" in THE MARINE OBSERVER.

THE MARINE OBSERVER is sent monthly to all ships regularly contributing Logs, Forms and W/T Registers to the Meteorological Office. It is hoped that each ship will preserve *all* her copies. Personal copies of Numbers are sent to those whose special contributions are published in them. A suitable cover may be obtained from H.M. Stationery Office, price 2*s*.

LATE PRESS.

DERELICTS AND FLOATING WRECKAGE.

Date.	Position. Latitude.	Position. Longitude.	Description.
	NORTH SEA.		
6.12.29	60 m. E.N.E. of Flamboro' Head.		Derelict Drifter *Atmosphere*..
7.12.29	53°06′N.	4°18′E.	Drifting lighter.
	IRISH SEA.		
4.12.29	S. Stack Lt. H., bearing S.E., distance about 4 mls.		Heavy floating spar.
14.12.29	4 m. N.W. of Mull of Galloway.		Ship's lifeboat painted white and waterlogged.
	ENGLISH CHANNEL.		
6.12.29	48°40′N.	4°56′W.	Red conical buoy adrift.
7.12.29	8 m. N.W. of Vierge Island.		Red buoy conical top, cylindrical middle, marked *No. 1.*
9.12.29	48°34′N.	5°06′W.	Abandoned schooner *Berthe.*
10.12.29	49°07′N.	3°30′W.	Abandoned steamer *Casmona.*
13.12.29	50°25′N.	2°17′W.	Wreck, dangerous to navigation.
14.12.29	49°42′N.	2°57′W.	Brilliant red light buoy, perpendicular white lines, marked *Telegraph N.S.W.*
16.12.29	50°43′N.	1°20′E.	Spar floating end up, dangerous to navigation.
16.12.29	N.30°E., 10 m. from Ile. Vierge.		Wreck nearly submerged.
19.12.29	Ile de Bas bearing S. 20 miles off.		Passed conical buoy.
	NORTH ATLANTIC.		
1.12.29	47°55′N.	51°55′W	Schooner *George K* abandoned.
1.12.29	47°47′N.	51°22′W.	Schooner *Catherine B.* abandoned.
5.12.29	47°24′N.	49°25′W.	Abandoned schooner.
12.12.29	44°05′N.	9°39′W.	White lifeboat awash, keel up.
12.12.29	47°40′N.	50°08′W.	Abandoned schooner *Janie E. Blackwood.*
14.12.29	42°04′N.	10°05′W.	Iron boiler 8 metres long 2 metres broad, dangerous to navigation.
15.12.29	43° 23′N.	9°40′W.	Wreckage, mahogany bulkhead, etc,

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

LONDON ... ... Captain L. A. BROOKE SMITH, R.D., R.N.R., Marine Superintendent.
Commander J. Hennessy, R.D., R.N.R., Senior Nautical Assistant.
Room 319, Adastral House, Kingsway, W.C.2.
(*Telephone No.: Holborn 3434 Extension 421*).
Nearest station Temple, District Railway.

THAMES ... ...

MERSEY ... ... Lieut. Commander M. CRESSWELL, R.N.R., Port Meteorological Officer, Dock Office, Liverpool.
(*Telephone No.: Bank 8959*).

Agents.

BELFAST ... ... Captain J. MCINTYRE, Harbour Master, Harbour Office.
(*Telephone No.: Belfast 4090*).

CARDIFF ... ... Captain T. JOHNSTON, Technical College, Cathays Park.
(*Telephone No.: Cardiff 6813*).

CLYDE ... ... Captain W. E. SOMMERVILLE, Messrs. H. Hogarth & Son's Office, 120, St. Vincent Street, Glasgow
(*Telephone No.: 8707 Central*).

FREMANTLE, W. Australia. Captain J. J. AIREY, Deputy Director of Navigation, Customs House.
(*Telephone No.: B 1391*).

Agents (*contd.*).

HONG KONG, China. Lieut. Commander R. G. H. MILLIGAN, R.N., Superintendent, Admiralty Chart and Chronometer Depot, H.M. Dockyard.
(*Telephone No.: 108 Dockyard*).

HULL ... ... Captain A. M. BROWN, Ellerman Wilson Line. Office. (*Telephone No.: Central 2180*).

LEITH ... ... Captains G. BLACK and C. G. BONNER, V.C., D.S.C., Leith Salvage and Towage Co., Ltd., 2, Commercial Street.

SOUTHAMPTON Captain D. FORBES, Nautical Academy, 1, Albion Place.

SYDNEY, New South Wales. Captain C. LINDBERGH.
Commander C. D. MATHESON, R.D., R.N.R., Acting Deputy Director of Navigation.
Customs House.
(*Telephone No.: B 6421*).

TYNE ... ... Captain J. J. MCEWAN, Marine School, South Shields.

VANCOUVER, British Columbia. Mr. T. S. H. SHEARMAN, 61, Leigh Spencer Building, 553, Granville Street.
(*Telephone No.: Seymour 3309*).