FOURTH ANNUAL REPORT

OF THE

METEOROLOGICAL COMMITTEE

TO THE

LORDS COMMISSIONERS OF HIS MAJESTY'S TREASURY,

For the Year ended 31st March, 1909.

Presented to both Houses of Parliament by Command of His Majesty.

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1909.

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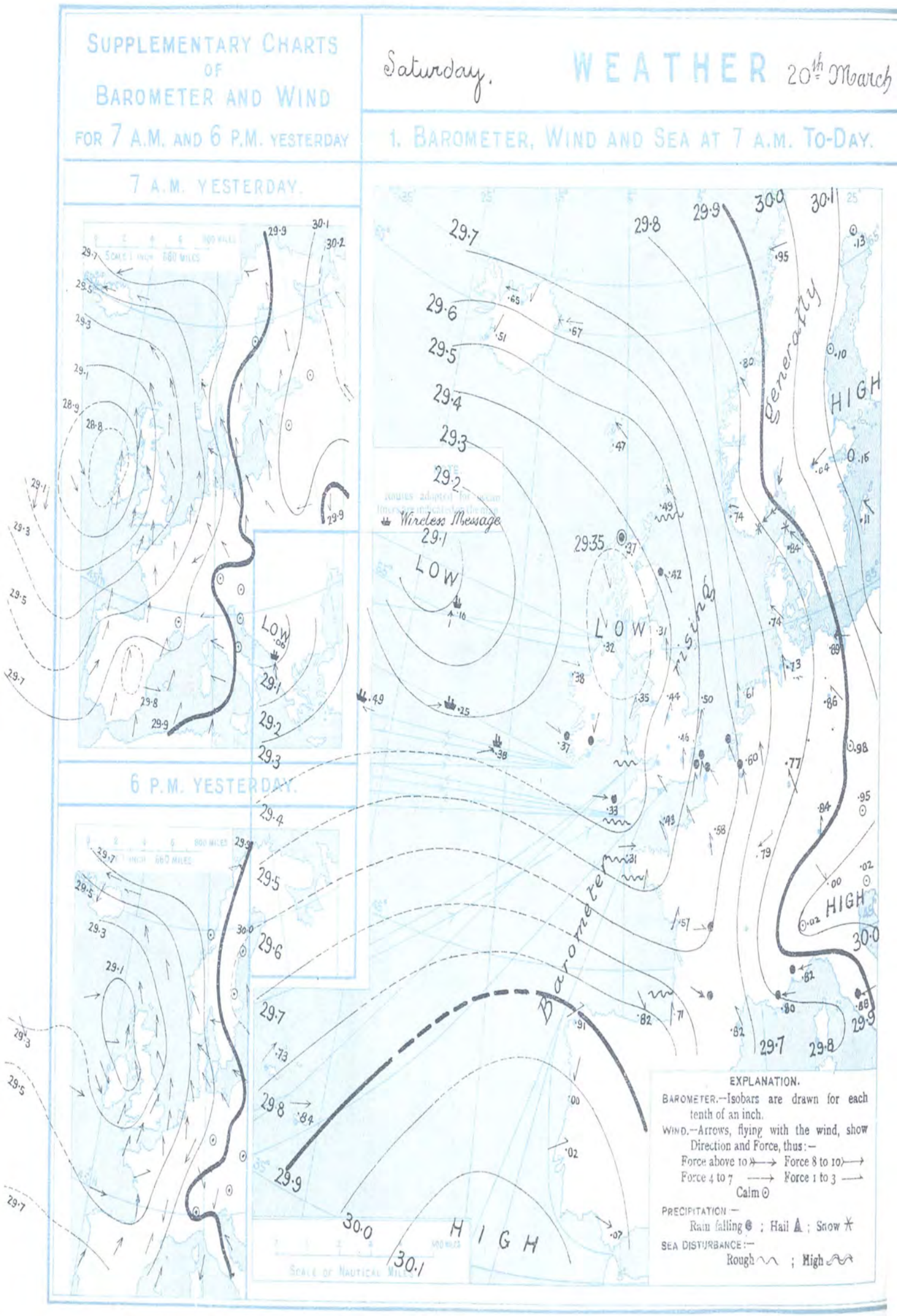
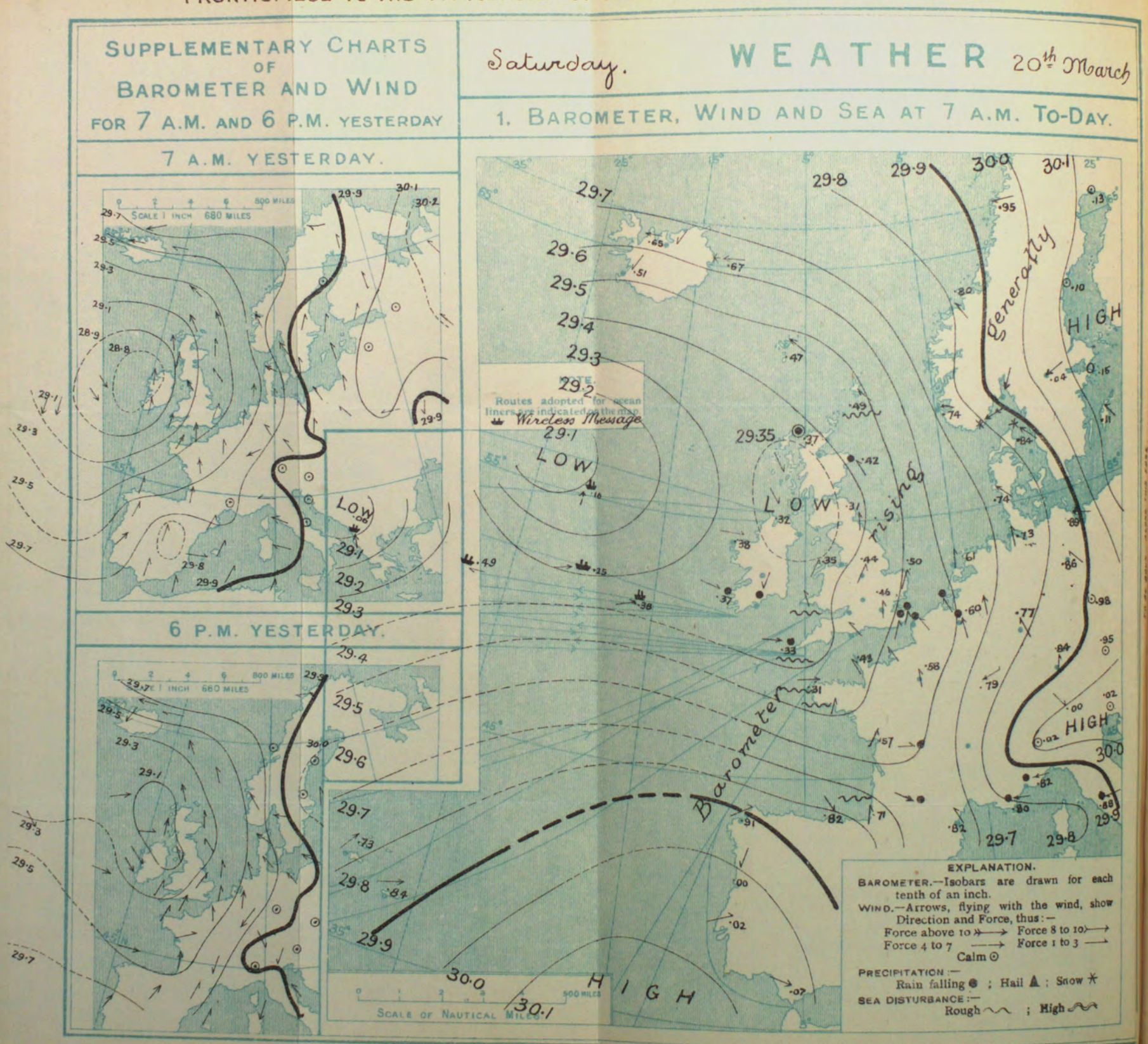
FRONTISPIECE TO THE 4TH REPORT OF THE METEOROLOGICAL COMMITTEE



CHARTS FROM THE DAILY WEATHER REPORT OF THE 20TH MARCH 1909. AMPLIFIED BY THE USE OF THE OBSERVATIONS

FRONTISPIECE TO THE 4TH REPORT OF THE METEOROLOGICAL COMMITTEE



CHARTS FROM THE DAILY WEATHER REPORT OF THE 20TH MARCH 1909 AMPLIFIED BY THE USE OF THE OBSERVATIONS

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THE METEOROLOGICAL COMMITTEE, 1908-9,

Constituted by Minute of the Lords Commissioners of H.M. Treasury, dated 20th May, 1905.

Date of Appointment.	
April 1, 1905 ...	Mr. W. N. SHAW, Sc.D., F.R.S., Director, *Chairman.*
" " ...	Rear-Admiral ARTHUR MOSTYN FIELD, R.N., F.R.S., Hydrographer to the Navy.
" " ...	Captain A. J. G. CHALMERS, Professional Member of the Marine Department, Board of Trade. Nominated by the Board of Trade.
" " ...	Sir GEORGE H. DARWIN, K.C.B., F.R.S., University of Cambridge. Nominated by the Royal Society.
" " ...	Professor ARTHUR SCHUSTER, F.R.S., University of Manchester. Nominated by the Royal Society.
" " ...	Mr. G. L. BARSTOW. Nominated by the Treasury.
Dec. 3, 1906 ...	Professor T. H. MIDDLETON, M.A., M.Sc., Assistant Secretary of the Board of Agriculture and Fisheries. Nominated by the Board of Agriculture.

Subject to the discretion of the authorities by which they were respectively nominated, the members of the Committee hold office for a period not exceeding five years, but are eligible for reappointment.

(13345—24.) Wt. 4435—7136. 1125. 8/09. D & S. G. 30. Sch. 8.

METEOROLOGICAL OFFICE STAFF
1908-9.

DIRECTOR.
William Napier Shaw, LL.D., Sc.D., F.R.S.

MARINE BRANCH.

Marine Superintendent ... M. W. Campbell Hepworth, C.B., Commander, R.N.R.
Principal Assistant ... C. Harding.
Nautical Assistant ... W. Allingham.

FORECAST BRANCH.

Principal Assistant ... F. J. Brodie.
Forecast Assistants ... H. Harries, R. Sargeant.

STATISTICS AND LIBRARY BRANCH.

Superintendent ... ... R. G. K. Lempfert, M.A.
Principal Assistant ... T. Duncan Bell.

INSTRUMENTS BRANCH.

Superintendent ... ... R. H. Curtis.
Assistants ... ... J. Sheerman, R. F. Wallace.

CORRESPONDENCE AND ACCOUNTS.

Chief Clerk and Cashier... John A. Curtis.

Clerks ... ... T. E. Allen, W. G. James, A. J. Rigby, and C. H. Thompson; A. H. Bell, C. A. Bracey, E. J. Hood, L. H. Powers, A. R. Simpkins, F. W. Snell, and J. T. Williams; E. L. Ardley A. T. Bench, W. Hayes, C. W. Heinemann, J. H. James, H. Keeton, and H. L. B. Tarrant.
Misses E. D. Anderson, D. Buckeridge, E. C. Humphreys, R. E. Smith, and A. Turney.

Office Keeper, 1 Unclassified Clerk, 7 Boy Clerks and Probationers, 3 Messengers, 2 Boy Messengers.

Special Assistant to the Director ... R. Corless, B.A.
Student Assistant ... ... J. S. Dines, B.A.
Director of Experiments in Connexion with the Investigation of the Upper Air ... ... W. H. Dines, B.A., F.R.S., Pyrton Hill, Oxon.
Valencia Observatory: Superintendent J. E. Cullum.
Assistant ... J. Sugrue
Additional Inspectors ... ... A. Watt, M.A., Secretary Scottish Meteorological Society; T. W. Baker, Kew Observatory; E. G. Constable, Kew Observatory.

FOURTH ANNUAL REPORT

OF THE

METEOROLOGICAL COMMITTEE

TO

THE LORDS COMMISSIONERS OF HIS MAJESTY'S TREASURY,

For the Year ended 31st of March, 1909.

MAY IT PLEASE YOUR LORDSHIPS,

Meetings.—During the past year meetings of the Committee have been held on 6th May, 1st July, 4th November, 2nd December, 3rd February, and 3rd March.

There has been no change in the membership of the Committee during the year. Dr. Schuster was absent in India during the greater part of the year.

Obituary.—The Committee record with regret the death of the Earl of Rosse, K.P., F.R.S., who had been associated with the work of the Office for many years, and was a member of the Meteorological Council from 1900 to 1905. It is noteworthy that when the Meteorological Committee of the Royal Society in compliance with the decision of the International Congress at Vienna in 1873 undertook to issue a volume of "Observations at Stations of the Second Order," the observations at Birr Castle were at first the only ones printed *in extenso*. A telegraphic reporting station was also maintained at Birr Castle. At the present time, our knowledge of current weather for Central Ireland is almost entirely dependent upon the observations from Birr.

Two days before the close of the year, the death of Captain Henry Toynbee, F.R.A.S., at the age of 89, was announced. Captain Toynbee, who went to sea in 1833 and became in succession commander of several well-known East-Indiamen, was the first Marine Superintendent of the Office, and held that appointment from January, 1867, until June, 1888. During his tenure the marine work of the Office was put upon an organised footing. Several important contributions were made to our knowledge of the meteorology of the ocean, chiefly in the form of substantial publications concerning the Atlantic Ocean. The most noteworthy are the charts of meteorological data for "Square 3," and for the nine 10-degree squares of the Atlantic between 20° N. and 10° S., and from 10° to 40° W., and the Meteorological Charts for the ocean district adjacent to the Cape of Good Hope. Mention should also be made of the discussions of the weather in the Atlantic, in

February, 1870, and August, 1873; of the Meteorology of Cape Horn and West Coast of South America, published in 1871; of the Meteorology of the Antarctic regions, 1873, and of the Report on Gales in the ocean district adjacent to the Cape of Good Hope, published in 1882.

Office Staff.—There have been few changes in the Office Staff during the year. One member of the clerical staff has been placed on pension, at the age of 57, on account of ill-health. The total number now on pension is six. An additional boy clerk assistant has been appointed in the Forecast Branch to complete the provision for rotation of early and late attendances in that Branch.

Mr. J. S. Dines, whose year of appointment as Student Assistant terminated on 30th September, continued to attend at the Office in order to finish work which he had in hand, until the end of October when he took up an appointment as Student Assistant at Kew Observatory under the National Physical Laboratory.

Publications.—The official publications issued or signed for press during the year by authority of the Committee, are as follows:—

PERIODICAL.—Daily Weather Report.

The British Meteorological Year Book for 1908 comprising:—

Part I.—The Weekly Weather Report with Quarterly and Annual Appendices and a Special Appendix giving the results of the investigation of the upper air in the British Isles during the International Week (27th July—1st August).

Part II.—The Monthly Weather Report with a a summary for the year.

Part III.—Daily Observations at Stations of the Second Order and at Anemograph Stations.

Part IV.—Hourly Readings of pressure, temperature, humidity, rainfall, and sunshine at four Observatories (Aberdeen, Falmouth, Kew, and Valencia) in connexion with the Meteorological Office.

Monthly Meteorological Charts of the North Atlantic Ocean and the Mediterranean.

Monthly Meteorological Charts of the Indian Ocean and the Red Sea.

Observations at Stations of the Second Order. Annual Volumes for 1904 and 1905.

Hourly Readings at four observatories in connexion with the Meteorological Office. Monthly instalments, supplements, and preface to complete the Annual Volume for 1907.

OCCASIONAL.—Report of the International Meteorological Conference at Innsbruck, September, 1905. English Edition.

Report of the Eighth Meeting of the International Meteorological Committee, Paris, 1907.

Other publications for which authority has been given are as follows:—

ANNUAL.—The Observer's Handbook, 1909 Edition (In the press.)

The Computer's Handbook. A compendium of methods of dealing with meteorological observations.

OCCASIONAL.—Codex of Resolutions of International Conferences, from 1872 to 1907. Compiled by H. Hildebrandsson, Upsala, and G. Hellmann, Berlin. English Edition. (In the press.)

Barometer Manual for the use of Seamen (6th Edition). (Ready.)

OCCASIONAL—*cont.*

Gales on the British Coasts. A revised edition of the Fishery Barometer Manual.

The Free Atmosphere in the region of the British Isles. (Ready.)

The Trade Winds of the Atlantic Ocean. (Ready.)

Seasons in the British Isles since 1878. Part I. (Nearly ready.)

Summary of Hourly Values (1879–1908) at the four Observatories in connexion with the Meteorological Office, and Tables for their application in Climatology.

Atlas of Tropical Hurricanes; a reprint, with additions, of the Cyclone Tracks of the Indian Ocean

Monthly Outline Sheets for charting tracks and noon values from Marine Meteorological Registers.

The Atlantic Anticyclone. Meteorological results from observations of the Army Medical Department at Bermuda, Barbados, St. Lucia, Up Park Camp and Newcastle, Jamaica, 1894–1900; prepared by Dr. R. H. Scott, F.R.S.

British Meteorological Year Book.—From the administrative point of view the year has been an unusually eventful one. Referring to the list of publications issued, it will be noticed that those containing statistical results for the British Isles for the year 1908 have been grouped together under the title "British Meteorological Year Book." This has followed as a natural consequence of the fact that all the various publications comprised within the Year Book, which used to be issued from the several branches of the office independently and of which some used to appear three or four years after date, are now all strictly up to date, so that before the close of the financial year an effective representation of the whole of the available information for the Kingdom for the past civil year can be put together in a single volume.

This change has been found to be of great advantage with regard to the supply of information to inquirers. If, in any case, further detail is required, reference can always be made to the original schedules from which the published summaries are compiled. Questions which previously could only be answered by detailing some part of the staff for the purpose of compiling the information, can now be dealt with by reference to the published reports.

Other Meteorological Data.—Besides the material which is printed *in extenso* or summarised in the British Meteorological Year Book, the office possesses very voluminous autographic records of wind at a considerable number of points on the British Coasts, manuscript records from a certain number of British possessions beyond the seas, and the large collection of marine observations contained in special meteorological logs kept in accordance with the system which has been in continuous operation for 55 years by officers of the ships of H.M. Navy or of the Mercantile Marine.

Anemograph Records.—The anemograph records are now regularly tabulated, and summaries are prepared for all the stations, shewing the number of hours during each month when the average wind velocity for the hour was within the limits assigned in accordance with the formula adopted by the office to represent the equivalents of the successive numbers of the Beaufort scale (see First Report, 1905-6, p. 16). These summaries are not published; a diagrammatic representation of the results for the whole year is given in Plate I.

Colonial Observations.—No provision has yet been made for dealing with the MS. returns from British Possessions in a systematic manner, but the occasion of a course of lectures by the Director upon the "Climates of the British Possessions," given at the London School of Economics in discharge of the duty of Reader in Meteorology in the University of London, has been utilised to group together in an easily accessible form the official publications containing the latest climatic reports from the various colonies and dependencies. In the autumn of 1908 Mr. H. A. Hunt, Commonwealth Meteorologist of Melbourne, and Mr. R. T. A. Innes, Meteorologist of the Transvaal Government, visited the office, and the opportunity was utilised to discuss the question of the regular publication in this country of a report giving a brief indication of the conditions of weather in the various parts of the Empire. The question is still under consideration.

Marine Observations.—The Committee recognise the desirability of making some modification in the practice of the office as regards the observations collected from the Ocean. Hitherto attention has been devoted almost exclusively to the compilation of the observations for a long series of years into data books from which trustworthy average results can be compiled for publication in the form of charts giving summaries of mean values. The next step in the organised study of the subject is to compare the current values with the mean values, and for this purpose it is necessary to have charts of the mean values in suitable form, upon which to plot the observations recorded on voyages within a particular period. The usual period for such investigations is the month. Since the commencement of the publication of the Monthly Charts of the North Atlantic and Mediterranean (1901) the temperatures within the area covered by the charts for which special forms of return are provided have been regularly plotted, and it is now proposed to make the practice general for all parts of the ocean with regard to the usual four hourly logs. The Committee have accordingly authorised the preparation of outline charts with mean values of the meteorological elements to serve as the ground work for plotting the observations.

The scale of one twenty millionth is found to give a chart of convenient size for the purpose, and as the primary application of the observations will be to trace the meteorological relationships of changes in different parts of the world, it is desirable to make up the complete chart of the globe in sections which are approximately of the same scale, and which can be put together to form a solid figure differing but little in shape from that of the actual globe.

An "octagonal globe" has therefore been devised divided into five portions: an equatorial belt between the tropics upon Mercator's projection, two conical portions on modified conical projection for the temperate zones between the tropics and the polar circles, and two circular polar caps. Four globes of this kind were used for exhibiting various meteorological results for the whole earth at the Franco-British Exhibition, and arrangement has now been made for a cardboard or metal base, in a more portable form than those used at the Exhibition, upon which the sectional charts can be mounted in position.

The Observer's Handbook.—The Committee have arranged with H.M. Stationery Office for the publication of an annual edition of this work in order that it may not fail to take account of any new conclusions with regard to the scheme of observations adopted by international agreement or otherwise. They are glad to be able to report that they have come to an agreement with the Royal Meteorological Society, the Scottish Meteorological Society, and the British Rainfall Organisation that the handbook shall be marked as being approved for the use of observers by those institutions as well as by the Office. They regard this agreement as an important step because, although it is acknowledged on all hands that meteorological observations are only used or useful in so far as they are comparable and compared with those made elsewhere and by other persons, it is natural that differences of practice should grow up in different associations of observers. But such differences are either inadmissible from the point of view of common action or they are unimportant, and it is a great advantage in drawing up a code of instructions to observers to settle beforehand in which category any particular practice should be placed. The fact that the Observer's Handbook has received the approval of the bodies mentioned may be taken as evidence that the scheme of observations adopted for observers all over the country is the same in all essential particulars. Opportunity has been taken in preparing the new edition to note any modifications of practice that are necessary for observers in the southern hemisphere.

The Free Atmosphere in the Region of the British Isles.—A report by Mr. Dines upon the apparatus and methods employed at Pyrton Hill for the investigation of the upper air, together with an historical introduction by the Director, is also to be printed as an official publication. A note has been added on local and temporary variations in the level of the lower boundary of the so-called isothermal layer and corresponding changes in the columnar temperature under the title of the "perturbations of the stratosphere."

In accordance with the regulations of the readership in dynamical meteorology established by Dr. Schuster, a paper, by Mr. E. Gold, on "The Isothermal layer of the Atmosphere and Atmospheric radiation" was submitted to the Royal Society for publication, and was published in the Proceedings of the Society, vol. 83, p. 43.

The Trade Winds of the Atlantic.—Some years ago a short paper was contributed to "Nature" pointing out an analogy between the seasonal variation of the trade wind at St. Helena and that of rainfall in the south of England. It was written in connexion with the discussion of the records of the anemograph erected near St. Matthew's Vicarage, St. Helena, in 1891. The discussion was commenced in the observatory branch under the superintendence of Mr. R. H. Curtis. A report has now been prepared by Mr. J. S. Dines. The investigation has given rise to an inquiry conducted by Captain Hepworth, into the relation between the strength of the trade winds in the North and South Atlantic as estimated by observation at sea in the respective localities, and the conditions of temperature over the North Atlantic as indicated in the observations plotted on the monthly charts of that ocean. The results of the inquiry were put together in a paper by Captain Hepworth, read before the British Association at Dublin.

These two contributions to our knowledge of the meteorology of the Atlantic are to be printed together under the title of "The Trade Winds of the Atlantic."

International Co-operation. — By direction of Lieut.-General Rykatcheff, Director of the Russian Meteorological Service, Mr. W. Dubinsky, Superintendent of Pawlowsk Observatory, brought to England, in October, standard magnetic instruments for comparison with those at Kew, and at the same time he brought also a pair of barometers in order to compare the standards in use for the meteorological stations in the two countries. The comparison was conducted at Kew in October last. Two portable standard barometers (Nos. A.M.D. 51 and M.O. 1139) and one Kew pattern barometer (No. M.O. 332) were sent from the Office to be included in the comparison with the Kew standard barometers. The provisional result of the comparison showed a satisfactory agreement between the standards of the two countries.

Arrangements are in progress for meetings in London of the International Commissions on Weather Telegraphy, and on Maritime Weather Signals, in June, 1909, and it is probable that meetings of the Solar Commission and of the commission to consider a network of stations for the globe will meet at the same time.

7 a.m. International Service of Reports.—With Your Lordships' assistance in arranging with the Postmaster-General for the opening of the Telegraph Offices, the scheme for altering the hour of the morning observation from 8 a.m. to 7 a.m. was brought into operation on the 1st July, 1908, and has been found to work satisfactorily. A section of the staff of the Forecast Branch attends daily at 7.15 a.m. to receive the telegraphic reports and prepare the maps and forecasts. It was found necessary to make separate provision for the observations in St. James's Park at 7 a.m. as there are no facilities for travelling in London at so early an hour on Sunday morning. The work of observing has accordingly been undertaken by Mr. F. Pearce, Hydrographer's Messenger.

The change to the earlier hour has been introduced at 27 out of the 29 reporting stations, including the municipal stations at Bath, Clacton, and Dover and the station of the Mersey Docks and Harbour Board at Bidston Observatory from which observations are sent gratuitously.

The two stations at which the observations at the earlier hour have not been found practicable are the Radcliffe Observatory at Oxford and Lord Rosse's Observatory at Birr Castle. One other difficulty remains outstanding, namely, the telegraphic service from Blacksod Point. The Committee find that telegraphic facilities can only be obtained at a charge which they regard as prohibitive.

Apart from the advantages of synchronous observations on both sides of the Channel the effect of the change has been most apparent in the earlier hour at which it has been possible to complete the work upon the Daily Weather Report. Telegrams from the continent are still subject to a considerable amount of delay which is engaging the attention of the Committee. Still further acceleration is probably possible, but present circumstances are sufficiently favourable to

enable the staff to produce the transfer copy of the Daily Weather Report an hour earlier than heretofore except on days of exceptional telegraphic delay. No formal action was taken with regard to this until the end of January when the Postmaster-General asked for the posting of the Weather Reports to be accelerated in order to secure delivery the same evening in the South of England, which could not be reached by the 2.30 post. The arrangement with H.M. Stationery Office for the delivery of the Report to the Lithographer was revised, and the official hour of posting at the General Post Office and Mount Pleasant changed from 2.30 to 1.30. The earlier hour of posting brings the despatches to the following towns :—

Bolton	Liverpool	Ross-on-Wye
Buxton	Malton	Scarborough
Cheltenham	Manchester	Wigan
Downham	Oldham	Wisbech
Exeter	Plymouth	York

within reach of delivery of the Daily Weather Report on the day of issue.

The Committee desire to place on record an acknowledgment of their obligation to the Postmaster-General for assistance, in many ways, in carrying through the intricate arrangements which are involved in the special service of Telegraphic Weather Reports.

Reports by Radio-Telegraphy from H.M. Ships.—The arrangement for the transmission of reports from His Majesty's ships by radio-telegraphy, which was brought into operation through the courtesy of the Lords Commissioners of the Admiralty in 1907, has been continued throughout the year.

Atlantic Liners.—Since the commencement of the year 1909 these reports have been supplemented by wireless telegrams from Atlantic liners.

The question of initiating reports by radio-telegraphy has been under the consideration of the Committee since their first appointment, and in previous reports (First Report, 1906, p. 23; Second Report, 1907, p. 10; Third Report, 1908, p. 12) they have given their reasons for not at once availing themselves of the opportunity afforded by the establishment of wireless stations on the trans-Atlantic liners. It was arranged that the question should come before a meeting of a Commission appointed by the International Meteorological Committee for the study of this and kindred questions, to be held in June, 1909 (*see* p. 10).

Dr. P. Polis, Director of the Meteorological Observatory at Aachen, on his return from an official voyage to the United States, made experiments upon the collection of reports by wireless telegrams and the preparation of a provisional weather map on board ship. The matter was brought forward by him at a meeting of the German Meteorological Society at Hamburg at the end of September, and on the 12th October a letter was received from the Deutsche Seewarte asking for the co-operation of the Committee with the Administration of Public Weather Service in Germany, in an experiment with reports by radio-telegraphy to be undertaken jointly by the Seewarte and the Meteorological Office during the winter of 1908–9. It was decided to undertake the experiment, and to draw upon the Committee's balance for the

necessary funds. Negotiations were entered into with the Seewarte as to the details of the arrangement; the owners of British lines of trans-Atlantic shipping kindly promised the assistance of their officers, and the Marconi Company were approached with regard to the transmission of the messages. It was originally intended that the experiment should be commenced on January 1st, and towards the close of December provisional arrangements had been completed for the preparation of the messages and the transmission of the telegrams from British ships by the Marconi Company upon terms very favourable to the Meteorological Offices concerned. Upon inquiry, it transpired that the arrangements with the German Government could not be completed in time for a commencement of the joint experiment on the 1st January, and after consultation with the Marconi Company it was decided that during the month of January the arrangements should be carried out from British ships alone. Instructions were accordingly issued on December 31st. The first wireless report was received on January 10th from the Allan S.S. "Corsican," Lat. 51° N., Long. 15° W., and, by the end of January, 78 reports had arrived from 18 ships, belonging respectively to the Allan, American, Atlantic Transport, Canadian Pacific, Cunard, Dominion, Red Star, and White Star lines.

In consequence of the difficulties of conducting by correspondence negotiations which concerned so many independent authorities, Rear-Admiral Herz, Director of the Deutsche Seewarte, came to London. On January 12th a conference took place at the Office, and an arrangement was drawn up between the Deutsche Seewarte, the Meteorological Office, the Marconi Marine Communication Company, Limited, and the Compagnie de Télégraphie sans Fil (Société Anonyme) for an experimental service of meteorological messages from British and German ships during the months of February, March, and April, 1909. The experiment has been duly carried out, and telegrams have been received from the following ships:—

BRITISH SHIPS.

Allan Line.
- Corsican.
- Tunisian.
- Victorian.
- Virginian.

American.
- New York.
- Philadelphia.
- St. Louis.
- St. Paul.

Anchor.
- Furnessia.

Atlantic Transport.
- Minneapolis.
- Minnehaha.
- Minnetonka.

Canadian Pacific.
- Empress of Britain.
- Empress of Ireland.

Canadian Pacific—cont.
- Lake Champlain.
- Lake Erie.
- Lake Manitoba.
- Lake Michigan.
- Montreal.
- Montcalm.
- Monmouth.
- Mount Temple.
- Montezuma.
- Mount Royal.

Cunard.
- Campania.
- Lusitania.
- Lucania.
- Mauretania.
- Saxonia.

Dominion.
- Canada.
- Dominion.

BRITISH SHIPS—*continued.*

Red Star.
- Finland.
- Kroonland.
- Vaderland.
- Zeeland.

White Star.
- Adriatic.
- Arabic.

White Star—cont.
- Baltic.
- Celtic.
- Cymric.
- Majestic.
- Oceanic.
- Teutonic.

GERMAN SHIPS.

Hamburg Amerika Line.
- Amerika.
- Cleveland.
- Deutschland.
- Graf Waldersee.
- Kaiserin Augusta Victoria.
- Patricia.
- Pennsylvania.
- Pretoria.

Nord deutscher Lloyd Line.
- Kaiser Wilhelm der Grosze.
- Kaiser Wilhelm II.
- Kronprinzessin Cecilie.
- Main.
- Prinz Friedrich Wilhelm.

The observations have been published in the Daily Weather Report. Those received before 9.30 a.m. have appeared on the day on which they were received; those arriving after 9.30, and with a few exceptions when the number of messages received was too great to be dealt with, have been published on the following day. The sheets of original observations have been received and tables of additions and corrections to the published values have been issued. The readings have been plotted upon the working charts in the Office, and those that have arrived in time have been shown upon the charts of the Daily Weather Report. Many of the reports took several days to reach their destination, and in many cases observations for a whole week arrived together. In consequence, the charts as issued did not adequately represent the observations that had been taken with the object of their use in connexion with the forecast service. In order to show the extension of the area of the daily chart that would have been secured if the messages had arrived before the issue of the report a reprint of the charts on the second page of the Daily Weather Report for March, completed by the aid of the observations received by radio-telegraphy since the issue of the reports, has been prepared and a specimen is reproduced as a frontispiece to this Report.

The arrangements for transmission of messages by radio-telegraphy are not sufficiently developed for the messages to be transmitted directly from the ships to the shore stations from every part of the Atlantic. For the more western portions of the map we are dependent upon the transmission of messages from ship to ship and thence to shore. The ship carrying the message has frequently to wait some time before it comes within speaking distance of a shore station, and in consequence considerable delay occurs in transmission. The faster ships tend to become receiving vessels for the messages of all the ships which they have passed *en route*, with the result that the signal officer on board the ship and the staff at

the Office find themselves in possession of an overwhelming number of messages, some of which are already too old to be of immediate utility in forecasting.

The accuracy of transmission has been remarkable and the observations have been good, but many of the ships carry only aneroid barometers, and in some instances it has been difficult to bring the pressure observations into correspondence with those on neighbouring ships or shore stations. Much, therefore, remains to be done before the system of reports by radio-telegraphy from the Atlantic can be brought into a position to give a daily map of the ocean in extension of the region of our islands such as that indicated in the chart for 20th March, 1909; but the later stages of the experiment have shown that constant improvement is likely to take place, and the Committee have therefore been desirous of placing the arrangement for the transmission of reports from ships upon a more permanent footing at the conclusion of the experiment. In anticipation of this result the Committee thought it desirable to include a provision for the expenses of the service in the estimates submitted for 1909–10, and they beg leave to express their thanks to Your Lordships for including the sum asked for in the estimates for 1909–10. They also desire to express their thanks to the shipping companies owning the Atlantic liners, and to the officers of the ships, not only for their courteous assistance during the period of the experiment, but also for the promise of a renewal of that assistance in continuation of the service after the close of the experimental period.

To the Deutsche Seewarte their special thanks are also due for its cordial co-operation and for its initiative in taking up this important matter from the international standpoint.

Franco-British Exhibition.—The work of organising the Meteorological portion of the Science Section of the Franco-British Exhibition, at Shepherd's Bush, devolved mainly upon the Office, as the Director was Convener of the Committee appointed with reference to the Meteorological exhibit. Besides the supply of a number of instruments, charts, globes, diagrams, lantern slides, and other items for exhibition, the Office undertook the duty of attending to a number of self-recording instruments, and providing weather information, forecasts, &c., to be posted upon a screen at the entrance to the Science Court.

At the close of the Exhibition information was received that in two classes a "grand prix" had been awarded for the Office exhibit. When the time came for the collection to be removed, application was received from the Board of Education for the loan of a number of the items for exhibition at South Kensington. The following is a list of the articles which have been lent :—

Five barometers of historic interest.
Five hydrometers of historic interest.
Five spirit thermometers of historic interest.
Two deep sea thermometers of historic interest.
One sympiesometer.
One actinometer.
The first spherical lens of glass for a sunshine recorder.
Kite and meteorograph, designed and constructed by Mr. Dines.

Sounding balloon, with accessories, as used in the investigation of the upper air in this country.

Records on metal obtained from ascents of sounding balloons.

Model in plasticine of the region of the Winter Quarters of the National Antarctic S.S. "Discovery."

Agencies for the Supply of Instruments.—Arrangement has been made with the Board of Trade for the agencies for supplying instruments for keeping the four-hourly log, to ships of the Mercantile Marine at Hull and Liverpool, to be taken over by the Examiners of Masters and Mates. The Committee desire to acknowledge the services of Messrs. Castle & Co., of Hull, and Messrs. Dobbie, McInnes & Co., Ltd., of Liverpool, who have hitherto discharged those duties.

Anemometer Factors.—The comparison of the old and new forms of head for the Dines pressure tube anemometer is being continued at the Kew observatory in co-operation with the National Physical Laboratory.

Wind Direction Recorder.—An apparatus designed to record the direction of the wind, as a complement to the record of the pressure tube anemometer, has been erected for trial at Pyrton Hill.

Daylight Saving Bill.—At the request of the Chairman of the Select Committee of the House of Commons to consider the Daylight Saving Bill, the Director gave evidence, and pointed out various ways in which the times adopted for operations of the Office were controlled by considerations which would not be affected by an alteration of the clocks.

British Association.—The Director presided over Section A (Mathematics and Physics) of the Meeting of the British Association at Dublin in September, 1908. The contributions of the Office to the proceedings of the Section, in addition to the presidential address, included the papers on the Trade Winds, and on the results of the investigation of the upper air in July, 1908, which have been already mentioned (p. 9), a paper by Mr. Lempfert on a Zoetropic apparatus for illustrating the motion of air in travelling storms, previously exhibited at the June soirée of the Royal Society, a contribution to the discussion of "wave motion," illustrated by a number of autographic records, and papers on "the British Association Storm of 1908," and on the "Climatology of the Winter Quarters of the Discovery."

Educational.—The course of lectures by the Director on the "Climates of the British Possessions" has already been referred to (p. 8).

Meetings for the discussion of important contributions to meteorological literature, principally by Colonial or foreign meteorologists, were held at the Office on alternate Mondays, from October to March inclusive. Mr. H. A. Hunt, of Melbourne, and Mr. R. T. A. Innes, of Johannesburg, opened discussions on the Climatology of Australia and of South Africa, on October 19th and November 2nd respectively.

The educational use of the Daily Weather Report in schools has been the subject of various public addresses, and the number of copies of the report sent to schools has increased considerably.

The facilities afforded for printing off additional copies of the report upon demand for the supply of schools has been largely used.

The collection of lantern slides has been further enlarged.

Magnetic Observations at Valencia.—The magnetic observations at Valencia, in co-operation with the magnetic work of the National Physical Laboratory, under an arrangement with a committee of trustees, of which the late Earl of Rosse was the principal, have been continued.

Acknowledgments.—The Committee have again to acknowledge the courtesy of the Portuguese Government, Major Chaves, and the Commercial Cable Company, in connexion with the daily telegrams from the Azores; the Eastern Telegraph Company and the Great Northern Telegraph Company, in connexion with telegrams from the Azores, the Iberian Peninsula, and the Scandinavian kingdoms.

Acknowledgments are also due to many public departments, local authorities, and private observers in all parts of the kingdom.

The reports of the work of the several branches of the Office are as follows:—

I.—Marine Branch.

Collection of Information.—The arrangements for the systematic collection of data, for the purposes of marine meteorology, from officers of the Royal Navy and the Mercantile Marine, have been continued as in previous years. The number of vessels entered in the Office books as equipped with meteorological instruments lent by the Office, for the purpose of keeping a meteorological log, was 183 as compared with 206 last year. Meteorological four-hourly log books, registers, and other documents, to the number of 2,618 were received during the year. A list of these is given in Appendix IV. Of the meteorological log books which contain four-hourly observations, 171 have been classed as "excellent," or "very good," as compared with 127 for the year 1907–8.

Supplementary Information.—The arrangements for obtaining meteorological registers from the captains and officers of ocean-going ships who use their own instruments have been continued, and a large amount of information has thereby been collected, which is immediately utilised in the Monthly Meteorological Charts of the North Atlantic and Mediterranean, and of the Indian Ocean and Red Sea.

The following list shows the number of contributions relevant to the different lines of route:—

Four-hourly Logs.

North Atlantic	88	Eastern, viâ Suez Canal	55
Baltic	0	Far Eastern, viâ Cape of Good Hope	53
Mediterranean	14	Far Eastern, viâ Suez Canal	53
South America (East Coast)	21	Pacific	42
„ „ (West „)	4	North Polar	6
South Africa	21		
Eastern, viâ Cape of Good Hope	6		

"Short" Logs.

North Atlantic	1	South Africa	3
Mediterranean	2	Pacific	3

North Atlantic Registers (Form No. 121), and Indian Ocean Registers (Form No. 122).

North Atlantic	1,783	Eastern, viâ Suez Canal ...	221
Mediterranean	248	Far Eastern, viâ Cape of Good Hope	13
South America (East Coast)	13	Far Eastern, viâ Suez Canal	16
" " (West ")	0	Pacific	18
South Africa	17		
Eastern, viâ Cape of Good Hope	3		

Recognition of "excellent" observers.—Appendix III. (p. 92) contains a list of the captains who, during the past year, have contributed logs classed as "excellent." Several of these observers have co-operated with the Office for many years. The names which appear in the list for the first time are as follows :—

Captain's Name.	Steamship.
Barber, F. W.	Clan Macfadyen.
Barcham, S.	Britannia.
Barton, W. B.	Dunbarmoor.
Boby, H. J.	Trent.
Castle, E. W.	Miami.
Corbould, F. K.	Trent.
Darley, C. E.	Clan Buchanan.
Henning, G. C., Comm., R.N.R. ...	Mooltan.
Higgins, C. J.	Clan Macinnes.
Hollis, H.	Niwaru.
Langston, H. P.	Cheshire.
Lingham, W. G., F.R.A.S., F.R.Met. Soc.	Wilcannia.
Simmons, S. H.	Nicoya.
Young, G.	Clan Macfadyen.

As a mark of recognition of valuable co-operation, the Director has presented various publications of the Office to observers who have returned well-kept meteorological log books.

Obituary.—The Committee note with regret the deaths of twelve of their old observers. During 1908 :—Captain J. C. Williamson, Younger Brother Trinity House, S.S. *Lothian*, April ; Captain F. W. Maxwell, R.N., H.M. hired S. *Gulnare*, April ; Captain R. Duncan, S.S. *Garth Castle*, July ; Captain J. A. Elmslie, Lieut., R.N.R., Ship *Sobraon*, July ; Captain P. P. Dupen, S.S. *Cabenda*, September ; Captain W. H. Astley, S.S. *Napolitan Prince*, September ; Captain A. Mackenzie, Ship *Candahar*, October. During 1909 :—Captain T. Pickering, S.S. *Victorian*, January ; Captain J. Dunn, Ship *Lord Wolseley*, February ; Commander J. G. Cameron, R.N.R., Marine Superintendent, White Star Line,

F.R.G.S., F.R.Met.Soc., S.S. *Oceanic*, March; Captain H. Toynbee, F.R.A.S., F.R.G.S., F.R.Met.Soc., Ship *Hotspur*, March.

Use of Information received.—The information collected has been used in the preparation of the monthly meteorological charts of the North Atlantic and Mediterranean, and of the Indian Ocean and Red Sea, as in previous years. Information as to the frequency of fog and mist in different parts of the Atlantic has been prepared, and is now appearing in successive issues of the Atlantic charts.

The discussion of meteorological data for the Indian Ocean to 30° S. is proceeding.

Information supplied for the Admiralty.—Climatological tables have been compiled for various places on the shores of the Red Sea, Mediterranean, Pacific Islands (Western Group), New Zealand, West Indies, West Coast of France, Spain, and Portugal, at the request of the Admiralty.

Hydrographic notices have been extracted from the meteorological logs and forwarded to the Admiralty. Among those sent during the year were notes relating to the Solomon Islands, together with various plans, sketches, &c., received from Captain F. J. Bayldon, Lieut., R.N.R., S.S. *Moresby*.

II.—Forecast and Storm Warning Branch.

Daily Weather Reports.—The arrangements for the issue of the Daily Weather Report and Forecasts, and for the preparation of information for publication in the newspapers have remained generally the same as in previous years, but owing to the establishment in July last of a 7 a.m. service in the British Isles the preparation of the Report has been accelerated.

Telegraphic Reporting Stations.—The stations from which telegraphic reports are received are shown in the lists given on pp. 59 to 82 and on Map (Plate IV., p. 82).

The corps of observers at the telegraphic reporting stations has undergone little change. At the lighthouse station at St. Ann's Head (Pembroke), and at the coastguard stations at Malin Head, Blacksod Point, and Donaghadee the duties are in the charge of new officers.

Inspection of the Stations.—The stations indicated in the list in Appendix VI., p. 112, have been inspected during the year. The Reports of the inspectors show that efficiency has been maintained.

Iceland and Færöe Reports.—The reports from five stations in Iceland and one in the Færöe have been continued throughout the year. Notice has been received that from April 1st, 1909, reports from Isafjord, a station in the extreme north-west of the Island, will be substituted for those from Grimstadir, a high level station in the interior.

Wireless Telegrams.—During the year ended March 31st, 121 wireless telegrams were received from the ships of His Majesty's Navy.

Wireless reports from Atlantic liners, to which full reference is made on p. 11, commenced to arrive on January 10th. Seventy-eight messages were received in January, 469 in February, and 672 in March, making a total for the three months of 1,219 reports. Of these 67, or 5 per cent., arrived at the Meteorological Office within two hours of the time at which the observations were taken, or sufficiently early to be of service in connexion with the weather map in current use, and 223 messages, or 18 per cent., of the total number, arrived within 24 hours of the time of observation. Towards the close of the quarter there were, however, indications of a sensible reduction in the time occupied in the transmission of the messages.

Reports from Auxiliary Stations.—The information as to the weather in the British Islands has been supplemented by postal and telegraphic reports sent daily from stations belonging to various local authorities. The number of such stations is constantly increasing, and the details supplied form a useful addition to the official telegraphic reports.

Discussion of Information.—A detailed account of the manner in which the meteorological information received by telegraph is utilised for the preparation of the Daily Weather Report is given in Appendix II., p. 42.

Weather Forecasts.—The means adopted for the distribution of the forecasts drawn up in the Office have been continued during the past year. They are detailed in Appendix II., p. 44.

Copies of the 10 a.m. forecasts, based on the 7 a.m. observations, have been regularly called for by messengers from newspapers or news agencies, and printed or typed copies have been delivered, either by hand or through the post, to subscribers, and distributed for exhibition as follows: in the City, at the Mansion House, Lloyd's Rooms, Messrs. R. & J. Beck's, Cornhill, Messrs. Hawes, 79, Leadenhall Street, and Messrs. Watson, 313, High Holborn; in the West End, in the Libraries of the House of Lords and the House of Commons; at the Stores of the Army and Navy Co-operative Society (8 copies); at Messrs. Elliott, Leicester Square; Mr. Stanford, Long Acre; Messrs. Negretti & Zambra, Regent Street; Messrs. Hawes, 49, New Cavendish Street; Messrs. Webster Bros., 4, Porchester Road, W.; and at various Clubs.

Forecasts for H.M. Ships.—Forecasts have been supplied occasionally to His Majesty's Yacht as desired by the Commodore. Forecasts for the S.W. of England and the Bay of Biscay have been supplied regularly, as in previous years, to the Commander-in-Chief, Devonport, and, at the request of the Admiralty, similar information has been sent daily during the past year to the King's Harbour Master, Portland, and to the Commander-in-Chief at the Nore. Arrangement has also been made with the Admiralty for the supply of forecasts to a number of H.M. ships as occasion requires.

Harvest Forecasts.—During the summer months the special service of afternoon forecasts for the benefit of agriculturists and

others was arranged as in previous years, and special telegraphic reports of observations at 1 p.m. were obtained for this purpose. These forecasts are sent by telegraph at 2.30 p.m. to those who express a wish to receive them regularly, and who defray the cost of the telegrams.

During the four months, June to September, the forecasts were sent, for varying periods of time, to 84 persons residing in various parts of the United Kingdom. The number was 13 in excess of that in the previous year, and was the largest since the year 1900, when applications were received from as many as 129 persons.

Returns giving a daily record of the weather actually experienced during the period for which the forecasts were sent were received from 25 persons, the number being somewhat smaller than in the previous year.

The results of a comparison made in the Office between the forecasts and the subsequent weather, as entered in these returns show that for the country generally 63 per cent. of the forecasts were completely successful, and 33 per cent. partially so, giving a total of 96 per cent. of forecasts which may be regarded as sufficiently accurate to have been of practical value to the agriculturist. This is the highest percentage of success attained since the Harvest Forecasts commenced in 1879. In three cases in which the forecasts were sent for only one week the percentage of complete success was as high as 100. For districts, the highest proportion of complete success, 74 per cent., was attained in England S.W., the next highest, 71 per cent., being attained in England N.E. In England N.W., a district in which returns were received from one station only, the percentage of complete success was as low as 40, but the percentage of partial success amounted to 48.

Notifications of a Spell of Fine Weather.—The most important new feature in the year's service was the offer, on the part of the Office, to supply special information of the commencement of a probable spell of fine weather lasting for at least two or three days. A desire for such information was expressed in 1907, and responded to with success. The offer made last year was accepted by 22 persons.

In accordance with this arrangement notifications were issued to a number of subscribers in various English districts on June 23rd, to others on June 24th, and to others on June 25th or 26th. The reports for the stations from which returns are published in the Daily and Weekly Reports show that in some parts of England E. (a district to which the notification was sent on June 23rd) slight local showers were experienced on June 28th, but that in other localities no measureable quantity of rain was recorded until July 3rd. Another special notification was sent to a subscriber in South Wales on July 20th; slight local showers appear to have been experienced in the district on July 22nd, but no general fall of rain occurred until July 24th.

On July 28th notifications were sent to England N.E. and to Scotland W. As regards the former district, local thunder showers were experienced on July 30th, but no general fall of rain occurred until August 4th. In Scotland W. some rain fell on July 29th, the day after notification was sent. No weather return was supplied by the recipient of the notification, and it is not known whether that particular locality was affected. On August 7th a notification was sent to the Midlands Counties; no rain fell until August 10th. On August 15th notice was sent to another part of the same district, in which no rain fell until August 20th. A notification sent to a subscriber in Scotland E. on October 15th was not successful, the weather during the next two or three days being of a broken and showery character.

Expressions of opinion respecting the value of the forecast service have been received by some of the recipients. A subscriber in Sussex who contributed returns showing the weather subsequently experienced remarked: "The telegrams forecasting the weather daily have been quite correct." Another subscriber in Somerset remarked: "During the eight weeks that I have had the forecasts they have been very accurate." A Cornish firm to whom special notifications of a fine spell were sent on three occasions, and who also received notice of a temporary break in the weather, wrote that they had been the means of saving hundreds of pounds.

Colliery Warnings.—Notice of the approach of a deep depression which may be expected to cause an unusually rapid fall of the barometer has been sent, as occasion required, to the Manager of the "Colliery Guardian."

Other Forecasts.—The arrangements for forecasts for Sea districts and for exceptionally high tides referred to in last year's report have been continued.

Telegraphic Inquiries for Forecasts.—The number of inquiries for forecasts by telegraph was 235.

Results of Forecasts.—A comparison for the year of the Forecasts for the United Kingdom issued at 8.30 p.m., with the subsequent weather actually experienced, is given below. The complete success, partial success, partial failure, and complete failure of the forecast as regards both wind and weather, are estimated according to definite rules which are designed to eliminate bias as far as possible.

The term "partial success" is applied to cases in which more than half the details included in the forecast are justified by subsequent events. With regard to *wind* the details comprise direction and force, and anticipated changes in either particular. With regard to *weather* they comprise temperature, the state of the sky (clear, cloudy, or overcast), and the probability of rain, snow, fog, thunder, &c., with occasional indications as to the duration or intensity of any or all of the phenomena mentioned. The term "partial failure" is applied in a similar way to a forecast in which more than half the details given are incorrect.

The detailed comparison of the forecasts with actuality for the year 1908 has been summarised to give results, (1) for the various months, and for the United Kingdom as a whole, and (2) for the various districts, and for the year as a whole.

Summary of Results of 8.30 p.m. Forecasts in 1908.

(*a.*) *Results for the various Months.*

Months.	Percentages.												
	Complete Success.			Partial Success.			Partial Failure.			Complete Failure.			Sum of Successes, Complete and Partial
	Wind.	Weather.	Average.	Wind.	Weather.	Average.	Wind.	Weather.	Average.	Wind.	Weather.	Average.	
January	52	56	54	39	36	38	7	7	7	2	1	1	92
February	72	50	61	27	40	34	1	9	5	–	1	–	95
March	64	66	65	31	32	32	4	1	2	1	1	1	97
April	56	64	60	34	27	31	8	9	8	2	–	1	91
May	61	52	57	31	35	33	2	8	5	6	5	5	90
June	63	53	58	26	38	32	8	7	8	3	2	2	90
July	62	37	50	28	48	38	6	11	8	4	4	4	88
August	68	46	57	28	45	37	3	8	5	1	1	1	94
September ...	55	42	49	34	44	39	5	10	7	6	4	5	88
October ...	79	56	68	15	38	26	1	6	4	5	–	2	94
November ...	71	48	60	23	46	34	4	6	5	2	–	1	94
December ...	60	44	52	34	45	40	2	9	5	4	2	3	92
The entire Year	64	51	58	29	39	34	4	8	6	3	2	2	92

(*b.*) *Results for the various Districts.*

Districts.	Percentages.												
	Complete Success.			Partial Success.			Partial Failure.			Complete Failure.			Sum of Successes, Complete and Partial.
	Wind.	Weather.	Average.	Wind.	Weather.	Average.	Wind.	Weather.	Average.	Wind.	Weather.	Average.	
Scotland, N. ...	66	49	58	28	42	35	3	7	5	3	2	2	93
„ E. ...	62	48	55	31	39	35	4	10	7	3	3	3	90
England, N.E. ...	67	49	58	27	42	34	4	9	6	2	1	1	92
„ E. ...	62	48	55	31	43	37	4	7	6	3	2	2	92
Midland Counties.	69	51	60	26	40	33	3	8	6	2	1	1	93
England, S. ...	68	47	58	26	44	35	4	8	6	2	1	1	93
Scotland, W. ...	54	64	59	36	29	32	5	6	6	5	1	3	91
England, N.W. ...	66	47	57	28	42	35	4	8	6	2	3	2	92
„ S.W. ...	62	54	58	32	37	35	3	7	5	3	2	2	93
Ireland, N. ...	64	54	59	28	39	33	5	6	6	3	1	2	93
„ S. ...	59	51	55	30	41	35	7	7	7	4	1	3	90
Summary ...	64	51	58	29	40	34	4	8	6	3	1	2	92

The following table shows the success of the Forecasts of the year in comparison with those of previous years. It gives for each year of the decade 1898–1907 the percentages of complete and partial successes of the Forecasts issued at 8.30 p.m. Until the year 1905 the annual period included was that for the 12 months ending with March. The results for 1905 to 1908 given below are for the calendar year. The sum of successes (complete and partial) in 1908 was the highest on record, but the percentage of complete success was lower than in 1906 and was no higher than in 1901–02.

PERCENTAGES of SUCCESS in the FORECASTS for the whole of the BRITISH ISLES.

Year.	Complete Success.	Partial Success.	Sum of Successes, Complete and Partial.
1899–1900	55	27	82
1900–01 ...	57	27	84
1901–02 ...	58	26	84
1902–03 ...	53	35	88
1903–04 ...	56	30	86
1904–05 ...	57	31	88
1905	56	32	88
1906	61	30	91
1907	54	37	91
1908	58	34	92
Average ...	56·5	30·9	87·4

STORM WARNINGS FOR THE COAST OF THE UNITED KINGDOM.

Warnings of coming storms have been dispatched by telegraph to stations on the coast supplied with signals to be hoisted as warnings to mariners. The signals are defined in Circular 717 of the Board of Trade, issued in February, 1874.

A list of the stations at which the signals are exhibited is given in Appendix II., pp. 47, 48. At the end of March, 1908, there were 237, of which 127 were in England and Wales, 71 in Scotland, 34 in Ireland, 3 in the Isle of Man, and 2 in the Channel Islands.

A comparison between the warnings issued during the year and the subsequent weather, in accordance with the method indicated in the Report for 1888–9, p. 64, is given in the following table.

Appended to the table are notes respecting the gales for which no warnings were issued, with brief statments as to the circumstances in which they occurred.

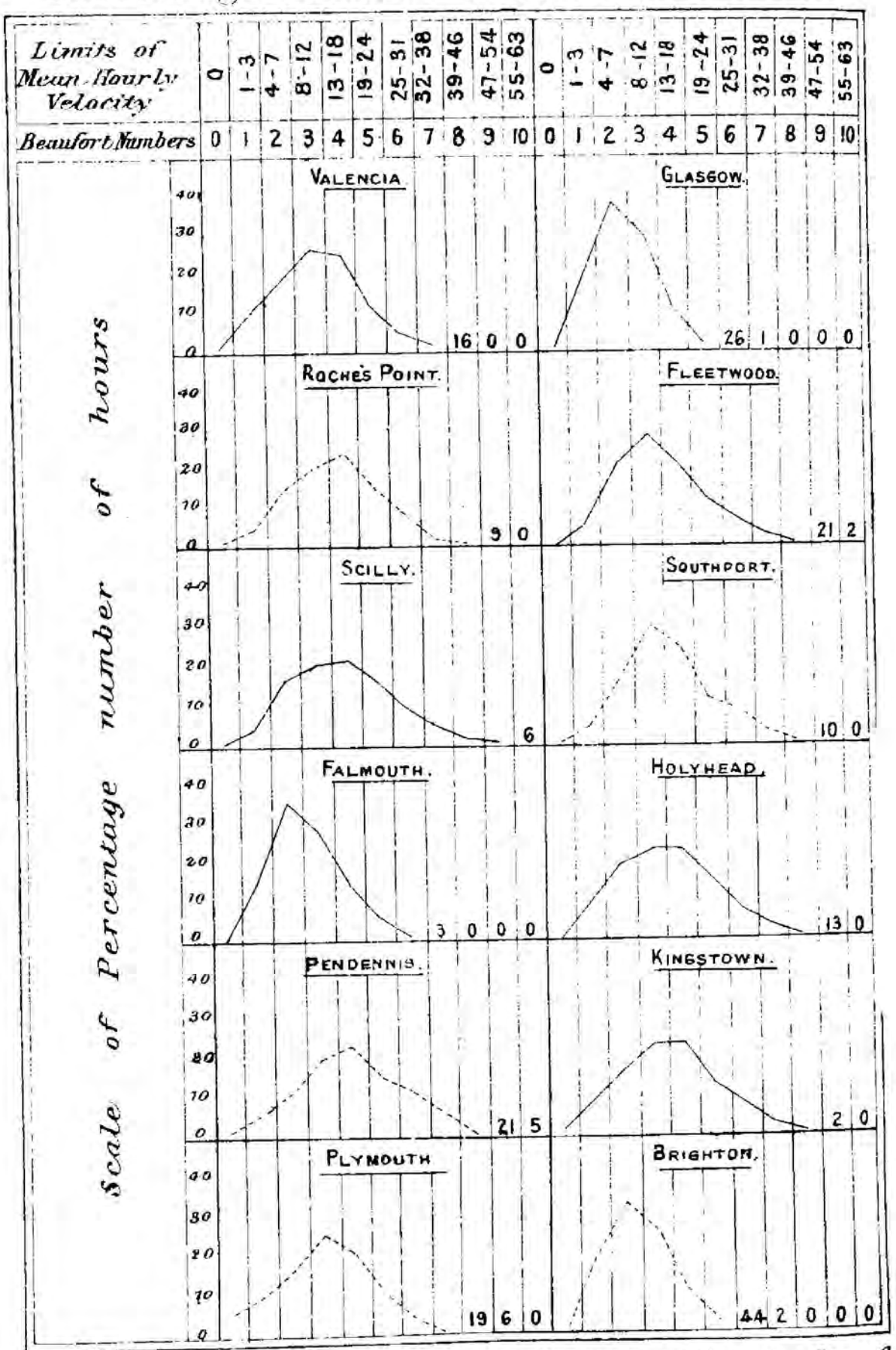
Storm Warning Checking.

Comparison between the Warnings and the subsequent Weather in 1908.

Coasts.	Total No. of Warnings.	Warnings justified by subsequent Gales. Force 8 and upwards.	Warnings justified by subsequent strong Winds. Forces 6 & 7.	Warnings not justified by subsequent Weather.	Warnings late. Force 9 reached at two Stations before issue.	Warnings partially late. Force 9 reached at one Station before issue.	Warnings issued in consequence of telegraphic errors.	Storms for which no Warning was issued.
Scotland, N.E. ...	28	16	6	5	1	—	—	Oct. 19–21.
	24	11	6	7	—	—	—	
" E. ...	13	4	6	2	—	1	—	Feb. 21; Dec. 7–8.
	9	4	3	1	—	1	—	
" N.W. ...	32	23	6	3	—	—	—	
	25	8	12	4	—	1	—	
" W. ...	26	15	8	2	—	1	—	Dec. 7–8.
	26	13	10	2	—	1	—	
Irish Sea	30	20	8	1	1	—	—	Apr. 3; Nov. 13–14;
	24	9	14	1	—	—	—	Nov. 19; Nov. 25.
Ireland, N.	36	25	7	3	—	1	—	Apr. 3.
	31	18	10	1	—	2	—	
" S.	31	19	7	4	—	1	—	July 10–11; Nov. 13–14;
	26	17	4	5	—	2	—	Dec. 7–8.
St. George's Channel	28	12	15	1	—	—	—	Nov. 13–14.
	25	11	10	3	—	1	—	
Bristol Channel ...	24	17	5	1	—	1	—	Feb. 25; July 10–11; Nov. 13–14;
	25	10	8	4	3	—	—	Nov. 19; Nov. 25; Dec. 7–8.
England, S.W. ...	20	14	4	1	1	—	—	Feb. 24;
	22	9	8	3	—	2	—	July 10–11.
" S. ...	21	15	5	1	—	—	—	Feb. 24;
	17	9	5	2	—	1	—	Aug. 23.
" S.E. ...	19	6	10	3	—	—	—	
	15	8	4	3	—	—	—	
" N.E. ...	17	7	8	2	—	—	—	
	7	6	1	—	—	—	—	
" E. ...	16	4	10	1	—	1	—	Aug. 27.
	11	5	3	3	—	—	—	
Totals ...	341	197	105	30	3	6	—	
	287	138	98	37	3	11	—	
Percentages ...	—	57·8	30·8	8·8	0·9	1·7	—	
	—	48·1	34·2	12·9	1·0	3·8	—	
For whole year: Totals ...	628	335	203	67	6	17	—	
For whole year: Percentages	—	53·4	32·3	10·7	1·0	2·6	—	

Note.—In order to facilitate comparison with the statistical tables of the Board of Trade which are made up for the year ending June 30, the figures for the two halves of the year 1908—January 1 to June 30, and July 1 to December 31—are given separately for each district. The upper line of figures in each case gives the particulars for the first half of the year.

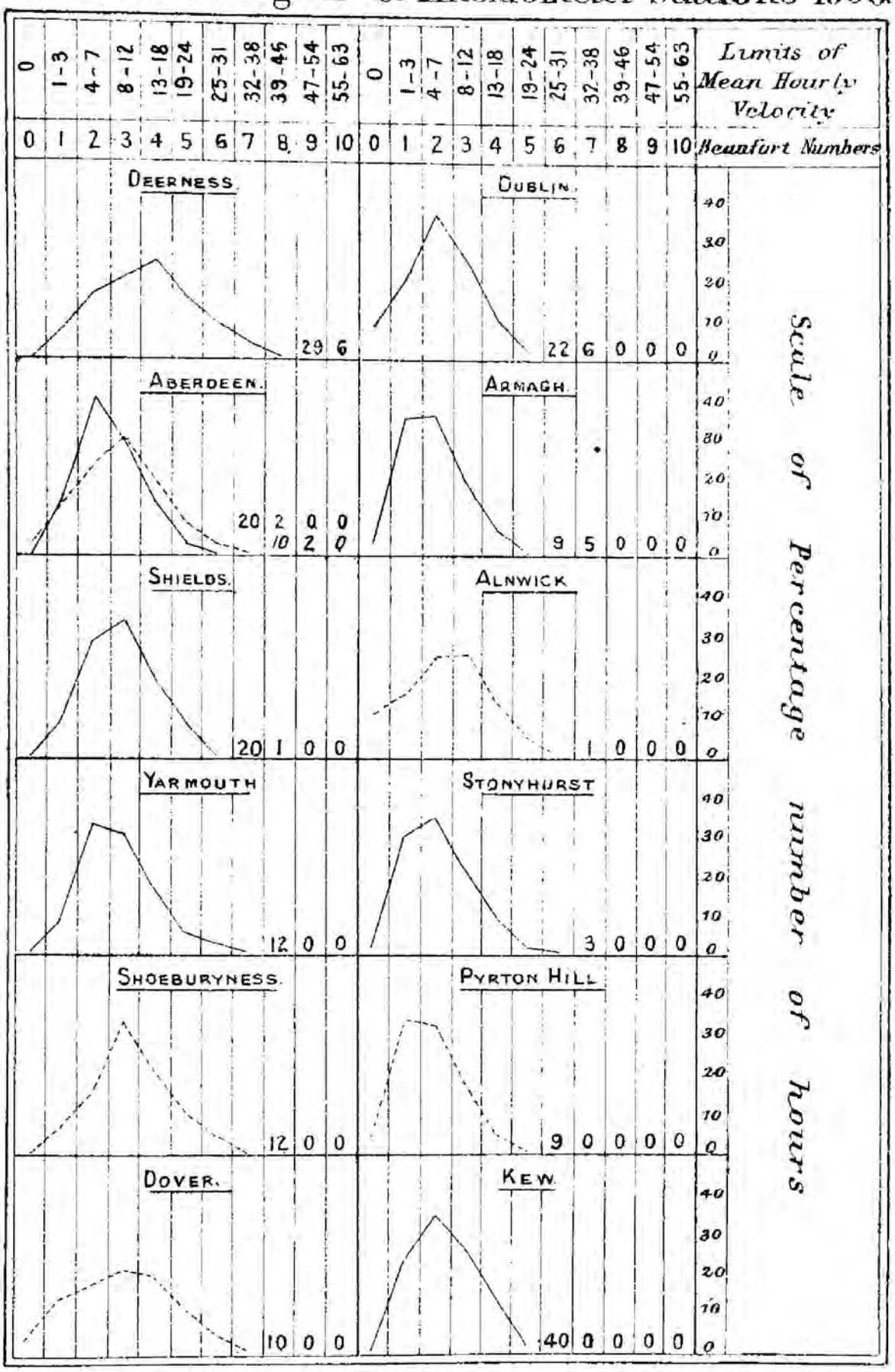
Percentage numbers of hours of Wind of



The curves drawn in continuous lines are the results of those drawn in dotted lines are the results of records The curves show the percentage number of hours for each number is less than one half, the actual number of hours

Plate I. Between pp and

different strengths at Anemometer Stations 1908.



records made by the Robinson or cup Anemometer; made by the Dines Pressure Tube Anemometer. Beaufort number. In those cases in which the percentage is given in figures to the right of the curves.

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GALES EXPERIENCED in 1908 for which no WARNINGS were issued.

February 21st. A strong gale from W. and N.W. in Scotland, E.—Caused by a large depression which spread southwards from Iceland. Our extreme north-west coasts were warned on the evening of the 21st; the gale extended further eastwards than was expected.

February 24th. A fresh to strong gale from N.W. in the Bristol Channel, and in England, S.W. and S.—Warnings were issued to most of our western coasts on the evening of February 23rd, owing to the appearance of a deep depression between the Færöe Islands and the Norwegian coasts. By next morning the gale had extended also to the English and Bristol Channels; it was then too late to warn.

April 3rd. The strong S.W. to N.W. winds which prevailed at this time on our W. and N. coasts reached the force of a gale in the north of Ireland and the Irish Sea. The gale was sporadic, and was scarcely felt at any land station.

August 23rd. A fresh S.W. to W. gale in the English Channel.—Due to a complex depression of no great intensity which appeared over the northern parts of the Kingdom. The conditions at 7 a.m. on the 23rd did not appear sufficiently threatening to justify the issue of warnings. The 23rd was a Sunday, and it was therefore impossible to take any subsequent action until the evening, when the gale was already blowing.

August 27th. A strong S.W. gale in the southern part of England, E.—All our western and southern coasts were warned on the afternoon or evening of the 26th. It was not anticipated that the gale would extend to any other part of our coasts.

October 19th–21st. A S. to S.E. gale in the north-east of Scotland.—A large anticyclone lay at this time over Northern Europe, and the gale was the effect of a steep gradient due to the proximity of the low pressure system off our western coasts. The exposed parts of the coast were alone affected.

November 13th–14th. A gale from various quarters on our western coasts.—Caused by a small depression which appeared off the south-west of Ireland on the evening of the 13th and afterwards travelled over the United Kingdom in an easterly and south-easterly direction. The gale was felt at less than half the stations in the various districts affected, but was locally rather severe.

November 19th. A fresh N.W. gale in the Bristol Channel and the Irish Sea.—At 6 p.m. on the 18th the appearance did not seem very threatening; by next morning the gale, which was of a sporadic nature, was already blowing.

December 7th–8th. A fresh S.W. gale on the more exposed parts of our western and northern coasts.—Caused by a large depression which extended southwards from Iceland. Strong winds

were anticipated, but in several localities represented by lighthouses and light vessels the wind is reported to have reached the force of a gale.

December 23rd–24th. A S.E. gale in the south of Ireland, caused by a small depression which skirted our extreme south-west coasts. The indications afforded by the observations at shore stations were not very threatening, and it was only on outlying parts of the coast that the gale was at all severe.

Comparison of results for 1908 with previous years.—The following table contains a statement of the amount of success of storm warnings in each year and the average for the decade 1899–1908 :—

Years.	Total No. of Warnings issued.	Warnings justified by subsequent Gales.	Warnings justified by subsequent strong Winds.	Warnings justified.	Warnings not followed by increase of Wind.
		p.c.	p.c.	p.c.	p.c.
1899	504	59·3	31·9	91·2	4·8
1900	512	66·2	25·8	92·0	6·3
1901	498	62·3	26·1	88·4	7·4
1902	535	55·5	32·0	87·5	9·0
1903	757	62·6	27·3	89·9	7·3
1904	539	59·4	30·4	89·8	6·7
1905	632	52·5	35·9	88·4	9·5
1906	739	54·7	33·3	88·0	8·5
1907	573	55·2	37·0	92·2	5·9
1908	628	53·4	32·3	85·7	10·7
1899–1908	592	58·1	31·2	89·3	7·6

Averages.—The corresponding figures giving the average results for the last eight years, and for the three preceding decades are as follows :—

Period.	Total No. of Warnings issued.	Warnings justified by subsequent Gales.	Warnings justified by subsequent strong Winds.	Total Warnings justified.	Warnings not followed by increase of Wind.
		p.c.	p.c.	p.c.	p.c.
1871–80 ...	362	51·9	25·7	77·6	16·8
1881–90 ...	507	57·3	25·1	82·4	15·5
1891–1900 ...	518	62·7	27·5	90·2	5·8
1901–08 ...	613	56·9	31·8	88·7	8·1

III.—Statistics and Library Branch.

Climatology of the British Isles.

Distribution of Stations.—A list of stations in connexion with the Office, in which particulars are given of the orders of the stations and of the official publications for which the returns have been prepared, will be found in Appendix II. on pp. 59 to 86.

Clarendon type has been used for the names of stations which have been added to the list in the course of the year.

The distribution of these stations in the various districts may be summarised as follows :—

—	Observatories.	Normal Climatological.	Auxiliary Climatological.	Telegraphic Reporting.	Sunshine (including Observatories).	Additional Rainfall.	Additional Anemograph.	Additional Barograph.
0. Scotland, N.	0	6	1	4	6	3	1	6
1. ,, E.	1	5	4	3	9	2	0	3
2. England, N.E.	0	11	7	2	12	10	2	3
3. ,, E.	0	8	6	2	12	5	2	3
4. ,, Midlands ...	0	10	22	2	19	16	1	3
5. ,, S.E.	0	6	21	2	25	15	2	4
London District ...	1	3	4	1	7	2	0	2
6. Scotland, W., and Isle Man.	1	7	4	0	5	1	0	2
7. England, N.W., and N. Wales.	1	10	13	2	20	6	3	3
8. England, S.W., and S. Wales.	1	4	14	3	18	25	1	1
9. Ireland, N.	0	3	1	3	2	4	1	5
10. ,, S.	1	6	10	3	7	12	3	3
11. Western Channel ...	0	1	1	2	4	0	1	1
Total	6	80	108	29*	146	101	17	39

* Of these, 13 observe at 7 a.m., 1 p.m., and 9 p.m., and thus come under the international definition of a station of the second order. These stations have not been included in the 82 normal climatological stations.

Records have also been received from 5 additional thermograph stations, 8 additional autographic raingauge stations, 1 hygrograph station, 61 sea temperature stations. Daily reports are received by telegraph from 44 foreign stations (*see* p. 81).

Observatories are also maintained at Greenwich (The Royal Observatory), Oxford (Radcliffe Observatory), Bidston (Mersey Docks and Harbour Board), Southport (the Corporation), and Berkhamsted (E. Mawley, Esq.), and from these, records for occasions of special interest have been courteously supplied when asked for.

Changes in Stations.—The normal climatological station at Lairg (Sutherland), which has contributed data through the Scottish Meteorological Society to the Weekly and Monthly Weather Reports for many years, has been discontinued in consequence of the removal of the observer, the Reverend J. K. Maclean. A number of new stations have been started or have come into connexion with the Office in the course of the year. Of these the following are maintained by local authorities or local associations :—Colwyn Bay, Hove, Lancaster, Oban, Sandown, Stonehaven. Private stations have been started at Bridlington Grammar School, Uppingham School, Ardnadam (Argyle), St. Asaph, Mayfield (Staffs), Mountmellick (Queens County).

The station maintained at Cronkbourne (Isle of Man) for many years by Mr. A. W. Moore, M.A., J.P., C.V.O., has been transferred by Mr. Moore to the control of the Corporation of Douglas, and the instruments have been moved to a new site. Satisfactory

arrangements have thus been made for continuing the observations, which have been printed regularly in the annual volumes of "Observations at Stations of the Second Order" since 1878.

Obituary.—The Committee record with regret the deaths of the following observers:—

Lady Chichester, of Arlington Court, Devon, who had supplied observations for use in the Weekly Weather Reports since 1879. The observations are being continued by Miss Chichester.

The Rev. W. Andson, of Dumfries.

Mr. A. Beattie, of Colmonell.

Arrangements have been made for continuing the observations in both these cases.

Inspections.—A list of stations inspected during the year by representatives of the Office is given in Appendix VI., p. 112.

Publications.—The statistical publications of the Office have been grouped together under the general title "The British Meteorological Year Book." All four parts of this publication for 1908 were issued before the end of the financial year.

Part I., the Weekly Weather Report for 1908, has been issued in the same form as in the previous year. From the commencement of 1909 absolute units of measurement have been used for stating the results of observations in the upper air.

The change made in the form of the annual portion of Appendix I. to the Weekly Report for 1907 was introduced in each of the quarterly issues for 1908. The appendix now gives for each quarter and for the whole year, values of rainfall, temperature, and sunshine for each year since 1878, for each of the 12 districts into which the British Islands are divided.

Appendix II. (summary of weekly values for districts) has been published as heretofore.

Appendix III. has been modified somewhat. It now consists of three tables giving for the Anemograph Stations in connexion with the Office—(1) the number of hours of "gale" or mean hourly velocity attaining or exceeding 39 miles in the hour, the equivalent of force 8 of the Beaufort scale, (2) particulars of the occasions of "strong gale" or mean hourly velocity attaining or exceeding 47 miles in the hour, the equivalent of force 9 of the Beaufort scale, (3) particulars of the occasions on which a velocity of 55 miles per hour was attained in a gust.

Part II., the Monthly Weather Report. The changes made in the issue for 1908 were described in last year's report. The full page map of the distribution of rainfall has been regularly supplied by the Director of the British Rainfall Organization, and forms an important feature of the Report. The changes incidental to the change in the hour of observing at Telegraphic Reporting Stations from 8 a.m. to 7 a.m. on July 1st, 1908, have been utilised to arrange for observation at a number of Telegraphic Stations at 7 a.m., 1 p.m., and 9 p.m. This combination of hours is among those recognised by the International Congress of Meteorologists, held in Vienna in 1873, as suitable for adoption at Stations of the Second Order. Arrangements have been made

to print summaries of observations taken three times a day in the Monthly Weather Report for 1909, and information thus arranged is given for most of the Telegraphic Reporting Stations, and also for the four observatories. Three normal Climatological Stations supply observations at 3 p.m. as well as at 9 a.m. and 9 p.m., and for those a complete summary is also printed. Such observations are essential for the representation of the changes in elements such as humidity which exhibit conspicuous diurnal variation.

Part III., "Meteorological Observations at Stations of the Second Order and at Anemograph Stations" has been issued regularly within six weeks of the close of each month. It contains daily observations at 20 Climatological Stations and an abstract of the tabulations from selected Anemograph Stations.

Part IV., "Hourly Readings at four Observatories in connexion with the Meteorological Office" (*see* p. 33).

Arrears.—Some progress has been made in overtaking the arrears of the Annual Volumes of "Observations at Stations of the Second Order." The Volumes for 1904 and 1905 have been issued, and that for 1906 is now in the press.

Returns for Registrar-General.—Weekly and quarterly summaries have been prepared regularly for the Registrar-General of Births, Deaths, and Marriages for England and Wales and for Ireland. No change has been made in the form of these reports except those incidental to the change in the hour of observing at Telegraphic Reporting Stations.

Seasons in the British Isles.—Some progress has been made with the preparation of the Report on the Seasons in the British Isles referred to on p. 35 of the report for last year, but it has been impossible to complete the work.

Climatology. Foreign and Colonial Stations.

A list of Foreign and Colonial Stations from which documents have been received in the course of the year is given in Appendix II., p. 83.

Among the additions to the list during the year under review may be mentioned :—

(1.) Returns from an auxiliary climatological station at Tulagi, British Solomon Islands, supplied by the Resident Commissioner.

(2.) Summaries of observations at Fanning Islands, supplied by the Pacific Cable Board, communicated by the Hydrographer.

(3.) Rainfall observations from Ringstead Reef (Southern Rhodesia), supplied by Mrs. C. E. Fripp.

Inquiries.

The inquiries dealt with in the Statistics and Library Branch during the year were 908, of which 301 were by letter and

the rest personal inquiries. The following table gives a classification of the inquiries with the corresponding figures for previous years :—

—	For Scientific or Commercial Purposes.	For Evidence in Legal Proceedings.	For Forecasts of Weather.	From Newspaper Correspondents for Special Information.	Miscellaneous.	Answered by Letter.	Answered Personally.
1903–4 ...	258	94	158	217	65	166	626
1904–5 ...	259	116	89	221	70	136	619
1905–6 ...	293	99	77	206	84	160	599
1906–7 ...	427	73	79	166	24	247	522
1907–8 ...	503	83	108	175	24	305	588
1908–9 ...	540	99	83	99	87	301	607

The inquiries included in the table under the heading "for forecasts of weather" are personal inquiries for information supplementary to that contained in the official forecasts and exhibited at the entrance to the Office and in St. James's Park.

Exchange of Publications.

Exchanges of publications have been arranged with the following :—

The Meteorological Observatory, Chemulpo.

Advantage has been taken of the presence in this country of Mr. H. A. Hunt, the Government Meteorologist of the Commonwealth of Australia, to revise the list in accordance with which publications are sent to institutions in the Commonwealth.

Library.

The subject card catalogue for the books added to the library since the last list of additions was printed *in extenso*, as an appendix to the Report of the Meteorological Council for the year 1904-5, has been brought up to date.

The classification adopted is that of the International Catalogue of Scientific Literature. The additions to the library received during the past year, which have numbered upwards of 600 books and pamphlets, have been catalogued on this system. The total number of books in the library is now 20,800.

In Appendix VII., p. 114, will be found (1) a list of persons and institutions from whom publications containing meteorological data have been received during the last five years with a brief indication of the nature of the information given ; (2) a list of periodicals containing memoirs on meteorological subjects, which are received by the Office.

Among the most important additions to the library during the past year may be mentioned :—

Annales de l'Observatoire Royal de Belgique ; National Antarctic Expedition, 1901–1904, Meteorology, Part I., Physical Observations, and Album of Photographs, etc. ; Oceanographische en meteorologische Waarnemingen in den Indischen Oceaan, 1856–1904 ; Recherches expérimentales

sur la résistance de l'air, exécutées à la Tour Eiffel ; Atlas météorologique pour l'année 1907, par G. Eiffel, with supplement ; Résultats du voyage du S.Y. "Belgica" en 1897–1899 ; Monatskarten für den Indischen Ozean ; Neolithic dew-ponds and cattle-ways, by A. J. and G. Hubbard ; Beiträge zur Theorie der Bewegung der Erdatmosphaere und der Wirbelstuerme, von Phil. Diro Kitao ; Wrinkles in practical navigation, by S. T. S. Lecky ; Catalogue of the library of the Royal Statistical Society ; Monthly mean values of barometric pressure for 73 selected stations over the earth's surface ; Report of the second Norwegian Arctic Expedition in the "Fram," 1898–1902, No. 4, Meteorology, by H. Mohn ; Atlas of Canada ; Canada's fertile Northland ; Documents scientifiques de la mission Saharienne, par F. Foureau ; Meteorological Atlas of the Indian Seas and the North Indian Ocean.

Among those acquired by purchase have been :—

Das Klima von Berlin, von Otto Behre ; Aspirations-psychrometer-tafeln, herausgegeben vom K. Preuss. Meteor. Institut ; The voyage of the "Scotia" ; Wissenschaftliche Ergebnisse der Expedition Filchner nach China und Tibet, 1903–1905, Band IX. ; Voyages de la Commission Scientifique du Nord, en Scandinavie, en Laponie, au Spitzberg et aux Feröe, 1838–1840, sur la corvette La Recherche ; Untersuchungen über die atmosphärischen radioaktiven Induktionen, von H. Gerdien ; Die meteorologischen Theorien des Griechischen Altertums, von O. Gilbert ; Leçons sur la propagation des ondes et les équations de l'hydrodynamique, par J. Hadamard ; Hann's Handbuch der Klimatologie, Bd. I. ; Die Ausgleichungsrechnung nach der Methode der kleinsten Quadrate, von F. R. Helmert ; The atmosphere, by E. J. Houston ; Memoir and Scientific correspondence of the late Sir G. G. Stokes, Bart. ; Climate, considered especially in relation to man, by R. de C. Ward ; Von Danckelmann's Mitteilungen von Forschungsreisenden und Gelehrten aus den Deutschen Schutzgebieten ; and a selection of the volumes of the International Catalogue of Scientific Literature.

The library is available for the use of students and others between the hours of 10 a.m. and 4 p.m. A number of persons have availed themselves of this accommodation.

IV.—Instruments Branch.

Supply of Instruments.

Supply to the Navy.—The number of instruments supplied to ships of the Royal Navy during the year was 716, as compared with 662 last year.

The Mercantile Marine.—To the Mercantile Marine 641 instruments were issued during the year, a decrease of 69 compared with the number supplied in the previous year. Six mercury barometers, 36 thermometers, 24 hydrometers, and 6 screens have been written off the books as broken, lost, or irrecoverable. A set of

instruments for a Land Station at Kerguelen Island has been lent to Captain Ring, of the Swedish Royal Naval Reserve, for two years' observations; also a supply of marine instruments for use on board the ship *Jeanne d'Arc* under his command on passages between that Island and Cape Town.

Colonial Governments.—The number of instruments, charts for recording instruments, registers, &c., supplied on repayment through the Crown Agents for the Colonies, or direct to Colonial Governments has shown a considerable increase. The total number of instruments of all kinds amounted to 2,772 as compared with 681 in the preceding year, whilst charts for recording instruments, registers, and other books amounted to 11,197 as compared with 10,062.

Requisitions from the following Colonies were met:—

The Commonwealth of Australia (2).	Malta (2).
New Zealand.	Somaliland.
Transvaal (5).	Hong Kong.
S. Nigeria (6).	Straits Settlements.
Uganda (5).	Pahang.
East Africa Protectorate (3).	Perak.
British Guiana (3).	Jamaica.
Gold Coast (4).	Nyasaland.
Bahamas (2).	Mauritius.
	Seychelles.
	St. Lucia.

Local Authorities and Institutions.—Among these were included:—

Trinity College, Dublin.	Lancaster Corpoation.
Manchester University.	Bexhill Town Council.
Armstrong College, Newcastle.	Stonehaven Town Council.
Uppingham School.	Colwyn Bay Town Council.
Oundle School.	Oban District Council.
The London Open Air Sanatorium, Wokingham.	Penzance Chamber of Commerce.
The Northern Lighthouse Board.	Barnet Water and Gas Company.
Cardiff Corporation.	Sena Sugar Factory, East Africa.

Private Observers.—Instruments have also been supplied on repayment for a number of private stations in connexion with the Office, including the Royal Gardens, Balmoral, the Duke of Richmond's station at Gordon Castle, Fochabers, and a station in Venezuela to be established by C. B. Storey, Esq.

Telegraphic Reporting Stations.—The instrumental equipment of the telegraphic reporting stations has been maintained. Open-scale barographs have been supplied to the following reporting stations for use in the daily weather service:—

Wick.	Blacksod.
Stornoway.	Donaghadee.
Leith.	Holyhead.
Shields.	Portland.
Spurn Head.	Dungeness.

Storm Cones.—Storm warning cones have been replaced at 14 stations.

Fishery Barometers.—Inspectors of the Fisheries Board for Scotland, the Department of Agriculture and Technical Instruction in Ireland, and of the Board of Agriculture and Fisheries in England and Wales have continued to examine and report upon the barometers supplied for the use of fishermen in their respective districts. The stations supplied with these barometers now number 226, of which 64 are in England, 6 in Wales, 61 in Ireland, 90 in Scotland, 4 in the Isle of Man, and 1 in Jersey. The fishery barometers at Cairn Ryan (Wigton) and Carloway (Hebrides) have been renewed. A new instrument has been sent to the fishing community at Barswick, South Ronaldshay, on the recommendation of the Fishery Board for Scotland.

Normal Meteorological Observatories, Anemograph and Sunshine Stations.

Observatories.—The work of the four observatories connected with the Office has been carried on as usual, the only point of special interest being the experimental investigations, referred to in the last Report, into the effect of certain alterations which had been made in the "Head" of the Dines Pressure Tube Anemometer, and for this enquiry a new pressure tube anemometer was supplied to the Kew Observatory, where the enquiry is being carried on.

The records obtained at the four first-class observatories of the Office, not only of wind, but of barometric pressure, temperature, and rainfall, are tabulated at the observatories, but are prepared for publication at the Office. The data for these four elements, together with those of humidity and sunshine, are published monthly under the title of "Hourly Readings obtained from the self-recording instruments at the four observatories in connexion with the Meteorological Office" (British Meteorological Year Book, Part IV.). The arrears of this publication have now been overtaken, the volumes for the years 1907 and 1908 having been issued during the year under review, and the data for each month are now sent to press within three weeks after the month has closed.

Anemograph Stations.—The number of anemograph stations which are maintained by the Office, or from which records are regularly received at the Office, is now 25. The autograph records are tabulated week by week, so that the information they contain may become available for public use without delay. Information from a selection of them is published monthly with the observations at stations of the second order (British Meteorological Year Book, Part III.), and an annual summary of gales is published as an appendix to the Monthly Report (Year Book, Part II.). A diagram of the results for 1908 is given in Plate I.

Records of Sunshine.—The number of stations from which returns of "bright" sunshine are received continues to increase, and at the close of the year amounted to 143. With three exceptions they are all situated in the British Isles, the exceptions being Georgetown, British Guiana; the Falkland Islands; and Chin-kiang, China. The original records from 120 stations are retained in the Office, whilst those from the remainder are sent to the Office monthly for examination and are then returned. In order to

secure uniformity of method on the part of the observers in measuring the traces a systematic comparison of the numerical results with the records is constantly carried on.

V.—Investigation of the Upper Air.

Co-operative Work in the British Isles.—The work at Pyrton Hill has been continued under the direction of Mr. W. H. Dines, F.R.S., in co-operation with the organisation for the investigation of the upper air attached to the Physical Laboratory of the University of Manchester and the station at the Howard Estate, Glossop Moor; with Mr. C. J. P. Cave of Ditcham Park; with Mr. S. H. R. Salmon of Brighton, who now has a regular installation for work with kites on the Sussex Downs through the courtesy of the Brighton Corporation, and with Captain C. H. Ley, R.E., acting for the Joint Committee of the British Association and the Royal Meteorological Society. The last-named officer undertook a special series of experiments with sounding balloons and pilot balloons at Bird Hill, near Limerick, during the international week at the end of July, 1908.

Publication of the Results.—The results have been published regularly in the Weekly Weather Report (Year Book, Part I.). A special supplement was issued giving, in collected form, the results for the international week. These results formed the subject of a paper read before the British Association by Mr. J. S. Dines.

Units of Measurement.—From the fact that it is customary for the results of ordinary meteorological work in this country to be expressed in British units (inches, feet, miles) and Fahrenheit degrees, whereas metric units (millimetres, metres, kilometres) and Centigrade degrees are used not only on the continent of Europe but in many laboratories and scientific institutions in this country for the expression of the same quantities, the publication in the Weekly Weather Report of the results of the international week of 1908 presented an undesirable confusion. Two points stand out clearly: first, the investigation of the upper air is mostly concerned with temperatures which are expressed by negative values on the Centigrade thermometer; in fact the temperatures which occur are, with rare exceptions, comprised between $-73°$ C. and $+27°$ C. or approximately between $-100°$ F. and $+80°$ F., *i.e.*, between 200° and 300° on the absolute scale; and secondly, for the discussion of the work on the upper layers we require to visualise the fraction of the whole atmosphere which remains above the point of observation rather than the actual pressure in millimetres or inches. For these reasons the temperature in Centigrade degrees on the absolute scale (from $-273°$ C.) and the pressure in C.G.S. units or megadynes per square centimetre, which gives a value very close to unity at the ground level of the stations, have been adopted as most suitable for the publication of values in the upper air. The change has been introduced from the commencement of the current year. At the same time the specification of wind direction has been put upon a more satisfactory basis.

These changes are set out in the Introduction to the Weekly Weather Report of 1909, with tables for conversion from the old units to those now in use.

International Publication.—The records of the observations have also been sent to Professor Hergesell of Strassburg for publication in international form. The Committee have continued their contribution of £50 a year towards the cost of this publication. The results for the international week of July, 1907, have recently appeared.

Cloud Observations.—In connexion with this international enterprise, special observations of clouds on the days of international ascents and the days preceding are contributed by the observatories of Greenwich, Kew, Aberdeen, and Valencia, and forwarded through the Office.

International Commission.—On the invitation of the Prince of Monaco, a meeting of the International Commission for Scientific Aeronautics has been summoned to take place at the Oceanographical Museum, Monaco, on April 1, 1909, and following days. The Director was prevented by ill-health from taking part in the proceedings. Mr. C. J. P. Cave was present and has presented a report of what took place.

A collective exhibit illustrating the investigation of the upper air in the British Isles was organised at the request of the Royal Society for the conversazione in May, 1908.

Report on Apparatus and Methods.—The work upon the upper air has now been conducted for the Office under Mr. Dines's direction for more than three years, and it has been thought desirable to review the progress that has been made and set out in detail the methods that have been used. Mr. Dines has accordingly been asked to present a report upon these subjects, which will be issued in due course as an official publication.

VI.—Correspondence and Accounts Branch.

Appendix I., p. 37, shows the receipts and payments during the year ended 31st March, 1909. The amount voted by Parliament was £15,500, and the miscellaneous receipts amounted to £4,028 17*s.* 9*d.*

The following abstract shows approximately the net payments of this and the preceding year, together with the increase or decrease in 1908–9, as compared with the previous year :—

Net Expenditure.	1907–8.	1908–9.	Increase.	Decrease.
General Administration :	£	£	£	£
Director	1,000	1,000	—	—
Office Salaries	6,884	6,802	—	82
Rent, Fuel, and Lighting...	724	719	—	5
Alterations to premises and contingencies	69	74	5	—
Postage	427	493	66	—
Telegrams, &c.	1,284	1,474	190	—
Travelling Expenses ...	361	315	—	46
Instruments	340	381	41	—
Allowances to Observatories, &c.	2,901	3,183	282	—
Superannuation Account	1,281	1,191	—	90
Total ... ... £	15,271	15,632	584	223

The following notes explain the chief causes of variation in the year 1908–9.

The excess of the total charge for the year over the grant is due mainly to the decision of the Committee to invest £118 of the surplus of 1907–8 so as to bring the sum set aside for superannuation for that year up to the usual figure. The other item charged upon the floating balance is £48 for wireless telegrams in January and February, 1909.

The increase under postage is attributed to ordinary expansion; the increase in telegrams includes charges incidental to the change of the morning hour of observation from 8 a.m. to 7 a.m., and £42 reduction of repayments in consequence of five quarters having been brought to account last year. The charge of £48 for wireless telegraphy is also classed under this head. The increased charge for instruments is due to the equipment of a number of telegraphic reporting stations with barographs.

In considering the increase under observatories account may be taken of the fact that two years' supply of sunshine cards and two years' payments to the Royal Meteorological Society are included. These amount to £70 and £95 respectively. The expenses in connexion with the erection of anemometers at Gibraltar, Yarmouth, and Gorleston, together with new or increased payments to custodians or telegraphic observers amount to £78.

The decrease of £90 in superannuation is mainly accounted for by the difference in the amounts invested in the two years.

W. N. SHAW.
Chairman.

July 14, 1909.

APPENDICES.

APPENDIX I.

ACCOUNT of RECEIPTS and PAYMENTS for the year ended 31st March, 1909 :—

RECEIPTS.	£ s. d.	£ s. d.
Balance from year 1907-1908	—	2,413 9 3
Parliamentary vote ..	—	15,500 0 0
DEPARTMENTAL EXPENSES REPAID:		
Forecasts, &c.	176 8 9	
Marine, Statistics, and Observatories	145 5 7	
Instruments	136 6 10	458 1 2
INCIDENTAL EXPENSES REPAID:		
Forecasts, &c.	330 16 7	
Other Branches	114 0 11	
Stationery Office Account	52 13 7	497 11 1
TELEGRAPH CHARGES REPAID:		
Home	135 18 5	
Telegrams sent abroad	484 15 10	620 14 3
INSTRUMENTS:		
Royal Navy	219 1 0	
Mercantile Marine, Stations, &c.	1,224 4 4	1,443 5 4
SUPERANNUATION ACCOUNT:		
Annuities	570 0 0	
Interest on Investment	41 3 5	611 3 5
LECTURES AND EXPERIMENTS	—	398 2 6
Amount refunded .	—	0 10 5
		£21,942 17 5

PAYMENTS.	£ s. d.	£ s. d.
Director	—	1,000 0 0
OFFICE SALARIES:		
Monthly	6,508 2 5	
Weekly	752 1 6	7,260 3 11
OFFICE EXPENSES:		
Rent, Fuel, &c.	718 13 11	
Furniture, Fittings, &c.	139 3 7	
Incidental expenses ..	317 18 11	1,175 16 5
POSTAGE AND TELEGRAMS:		
General Postage	227 7 4	
Postage of Daily Weather Reports ..	265 9 6	
Telegrams	2,094 5 0	2,587 1 10
TRAVELLING EXPENSES AND INSPECTIONS ..	—	315 7 2
SUPERANNUATION ..	—	1,802 2 4
COSTS OF INSTRUMENTS:		
Royal Navy	219 1 0	
Mercantile Marine, Stations, &c...	1,605 7 0	1,824 8 0
ALLOWANCES FOR OBSERVATORIES, OBSERVERS, &c.	—	3,297 2 9
LECTURES AND EXPERIMENTS	—	353 4 8
BALANCE:		
Cash at Bank	2,293 5 1	
„ at Office	34 5 3	2,327 10 4
		£21,942 17 5

Note.—On 31st March, 1909, the amount of 2½ per cent. Annuities held for the provision of Superannuation Annuities was £1,913 16*s.* 2*d.*

APPENDIX II.

Statement of Provisions for the Supply of Information to the Public, 1909–10.

The Meteorological Office.

Established in 1854 as a department of the Board of Trade. From 1866 to 1877, with a Parliamentary Grant in Aid, under the management of a Committee, and from 1877 to 1905 under a Council appointed by the Royal Society, and now under the control of a Director and Committee appointed by H.M. Treasury.

Director :
William Napier Shaw, LL.D., Sc.D., F.R.S.

Marine Superintendent :
Commander M. W. Campbell Hepworth, C.B., R.N.R.

Superintendent of Statistics :
R. G. K. Lempfert, M.A.

Superintendent of Instruments :
R. H. Curtis.

Chief Clerk and Cashier :
John A. Curtis.

Office Premises.
63, Victoria Street, S.W.
Telegraphic address—"Weather, London."

Office hours and general arrangements.—The Office is open for general inquiries between the hours of 10 a.m. and 4 p.m. on week days (Saturdays, 1 p.m.), and for inquiries for forecasts and for information concerning the present weather conditions (*see* Section B, Telegraphic Information) from 8.30 a.m. to 8 p.m. on week days, and from 6 p.m. to 8 p.m. on Sundays.

Supply of Information and Charges.—The books and documents in the Office library, and the manuscript returns in the possession of the Office, may be consulted or copied at the Office, free of charge, between 10 a.m. and 4 p.m., by any person, by permission of the Director. Extracts from them are supplied to any person making written application to the Director specifying precisely the details of the information required. For these extracts a charge is made to cover the cost of the time required for selecting and making

them. The usual minimum charge is 5*s*. There are certain special exceptions with a smaller charge; a schedule of these will be sent on application.

The extracts will, if required, be attested by a sworn declaration before a Commissioner for Oaths, at a fee of £1 1*s*. (in addition to the charge of 1*s*. 6*d*. made by the Commissioner for Oaths). A special fee of from £2 2*s*. for each day's attendance is charged if a representative is required to attend in court in London with reference to the statements contained in the extracts supplied.

The facilities for the supply of information have been classified under the following heads :—

A. Marine Information.
B. Telegraphic Information.
   Daily Weather Reports, Forecasts and Storm Warnings.
C. Statistical Information.
   The British Meteorological Year Book. Part I., Weekly Weather Report. Part II., Monthly Weather Report. Part III., Observations at Stations of the Second Order and at Anemograph Stations. Part IV., Hourly Readings from the Self-Recording Instruments at Four Observatories.
   Unpublished Observations.
D. Information from land stations outside the British Isles.
E. The Library.
F. Supply of Instruments and Forms to Observers.
   Fishery Barometers.
G. Publication of Observations contributed by Volunteer Observers or by the Representatives of Local Authorities.
H. Regulations for the Supply of Information from Instruments belonging to the Meteorological Office by the Custodians of the Instruments.
I. List of Stations in connexion with the Meteorological Office.
K. List of Publications.

A.—Marine Information.

Information received.—Observations in connexion with marine meteorology have been forwarded to the Office, in special log books and registers, since 1855, by officers of the Royal Navy and the Mercantile Marine, and this valuable co-operation continues. In addition a large number of logs and remark books kept on board H.M. ships have been lent to the Office by the Admiralty, and by the large shipping firms, from time to time, for the purpose of extracting meteorological data. The information thus received is dealt with in various ways, and the results, which are published for the benefit of seamen and others, are indicated on pp. 89 to 91.

Monthly Charts.—Meteorological Charts of the North Atlantic and Mediterranean have appeared regularly about the 15th of each month since 1901, and a similar monthly series for the Indian Ocean and Red Sea since May, 1906. On the face of these charts there are graphically represented, for the

respective ocean areas, the normal winds, currents, distribution of atmospheric pressure, and temperature of air and sea surface, the magnetic variation, and the best routes for sailing vessels and steamships, according to the season. On the North Atlantic charts, in addition, there are given the average limits of trade winds, gales, fog, and ice, mean paths of centres of cyclones, storm signals, and wireless telegraphy stations; time of high water at Dover; the mean temperature of the sea surface 10 weeks anterior to the date of going to press, together with recent reports of ice, including, in the months of April, May, June, November and December, the latest intelligence, by cablegram, from the Signal Service of Canada, in regard to the state of the ice in the Gulf of St. Lawrence and its approaches. Similarly, on the Indian Ocean charts there are given the limits of trade winds and monsoons, surface temperature and currents near Cape Guardafui; information relative to the meteorology of the Red Sea, and tracks of cyclones in the North Indian Ocean and the Arabian Sea. During the south-west monsoon season, important cable notices from the Director General of Indian Observatories, with respect to the state of the weather conditions in the Arabian Sea and Bay of Bengal are also given.

The special features on the backs of the Meteorological Charts of the North Atlantic and Mediterranean, during the financial year 1908–9, include Tidal Streams and Co-tidal Lines round the British Isles; Fog and Mist over the Gulf of St. Lawrence and Approaches; Fog and Mist over the North Atlantic, between the parallels of 50° N. and 60° N., based upon observations recorded throughout the fifteen years ended with 1905; Ice in the Arctic Regions during 1907 and during 1908; Sea Surface Temperature of the Mediterranean; latest information to hand with respect to Ice in the Southern Ocean, up to the date of going to press each month; Distribution of Sargasso, or Gulf Weed, the information being derived from entries in the meteorological log books contributed to the Office between 1901 and 1907; the Effect of the Outflow of the Mississippi on the Specific Gravity of the water of the Gulf of Mexico; the Effect of Lightning upon the indications afforded by Ships' Compasses; the South-East Trade Wind in May; a discussion of Transient and Apparently Anomalous Winds; the West India Hurricane of September and October, 1908; Phenomenal Drifts of Ice in the North-Eastern Atlantic; Methods of measurement, and formulae for use, with respect to Waves and Swells; and an explanation of the system adopted for the Transmission of Weather Reports by Wireless Telegraphy to the Meteorological Office. On the backs of the Meteorological Charts of the Indian Ocean and Red Sea information relating to various subjects which are of importance to navigators have been given, including a comprehensive account of Southern Ocean Ice, for each month of the year, supplemented by inset charts on which the ice-data have been plotted in geographical position by the aid of symbols for the period 1885 to 1908, and the northern monthly limits since the commencement of last century; Results of Meteorological Observations in the Persian Gulf and Gulf of Oman, in the Arabian Sea and West Coast of Hindustan, and at

Shore Stations of the Red Sea; Notes on Currents in the northern portion of the Red Sea, Currents and Sea Surface Temperature in the vicinity of Cape Guardafui, the Weather at Antipodes Island, March to May, 1908, Phosphorescent Sea, Cyclone Tracks of the South Indian Ocean, and Currents near the East Coast of Africa.

Copies of both series of charts may be obtained from the Superintendents of the Mercantile Marine Offices at the principal ports of the United Kingdom, by captains and officers of merchant ships, price *6d.* each. They may also be purchased from the Admiralty agents for the sale of charts, and from the agents for His Majesty's Stationery Office at Edinburgh, and at Dublin, at the rate of *5s.* for an annual series of 12 charts, or *6d.* for each chart, in addition to the cost of transmission. The Indian Ocean Charts are also obtainable on similar or equivalent terms from Messrs. James Murray and Company, at Calcutta, and at the shipping offices at Bombay and Madras.

The marine observations which are recorded in the special meteorological log books, registers and other documents, forwarded to the Office at frequent intervals, are all made by voluntary observers. Captains and officers who co-operate in this way with the Meteorological Office receive copies of the Monthly Meteorological Charts free, and, in addition, those contributing four-hourly observations from time to time are presented with copies of the other marine publications issued by the Office.

Information is given to seamen, upon application to the Meteorological Office, either in person or by letter, with respect to the meteorological conditions likely to prevail along a proposed route, either for sailing vessels or for steamships.

Instruments for Observers.—Subject to certain regulations the instruments necessary for the keeping of a Meteorological Log Book will be lent by the Office to the captains of British ships who undertake to make regular four-hourly records during their voyages to and from foreign ports, enter them in the specially arranged log book provided for the purpose, and return the latter, on completion, to the Marine Superintendent. A rough book for entering up the observations when taken, is also supplied, and this becomes the property of the captain for future reference. The set of instruments lent to captains by the Meteorological Office comprises one mercury barometer, six thermometers, with screen, for registering the shade temperature of the external air and the temperature of the sea surface, and four hydrometers. The expenses incurred by the co-operating captains with respect to postage of log books and the transit of instruments, are borne by the Meteorological Office.

The ships are supplied either directly from the Meteorological Office or through the following agents :—

Cardiff—Mr. T. L. Ainsley, Bute Dock.

Dundee—Mr. C. H. Brown, 33, Dock Street.

Glasgow—Messrs. D. McGregor & Co., Ltd., 57, Bothwell Street.

Greenock—Messrs. D. McGregor & Co., Ltd., 32, Brymner Street.

Hull—Lieut. Joseph King, R.N.R., Examiner of Masters and Mates, Mercantile Marine Office.

Liverpool—Commander F. M. Sergeant, R.N.R., Chief Examiner and Secretary, Local Marine Board, Canning Place (E.).

Southampton—Captain D. Forbes, 169, High Street.

Sunderland—Messrs. J. J. Wilson & Son, 18, Hudson Road.

Sets of instruments are kept in working order at the Office in London, and at each agency, for the purpose of instructing observers in the method of observation.

B.—Telegraphic Information.

Daily Weather Reports. Forecasts and Storm Warnings.

Between 7.15 a.m. and 9.30 a.m. telegraphic messages are received daily, reporting meteorological observations at 29 stations (marked T in list of stations, pp. 62 to 80) in the British Isles, chiefly on the coast, at 38 stations (p. 81) on the Continent of Europe and at the Azores, at five stations in Iceland and one in the Færöe Islands. The observations are now made at 7 a.m. at all stations, except Birr Castle, Oxford, Lisbon, and the Azores. A certain number of stations report evening observations (6 p.m.), also by telegram, and those that do not report in the evening include the evening observations with the following morning reports, so that a complete schedule of morning and evening observations is drawn up daily. The information refers to the readings of the barometer, dry and wet bulb thermometers, maximum and minimum thermometers, rainfall, and in some cases, sunshine, with estimates of the direction and force of the wind, and reports of the weather and state of the sea. The observations received from Iceland give only the readings of the barometer and the dry bulb thermometer, the direction and force of the wind, and the state of the weather.

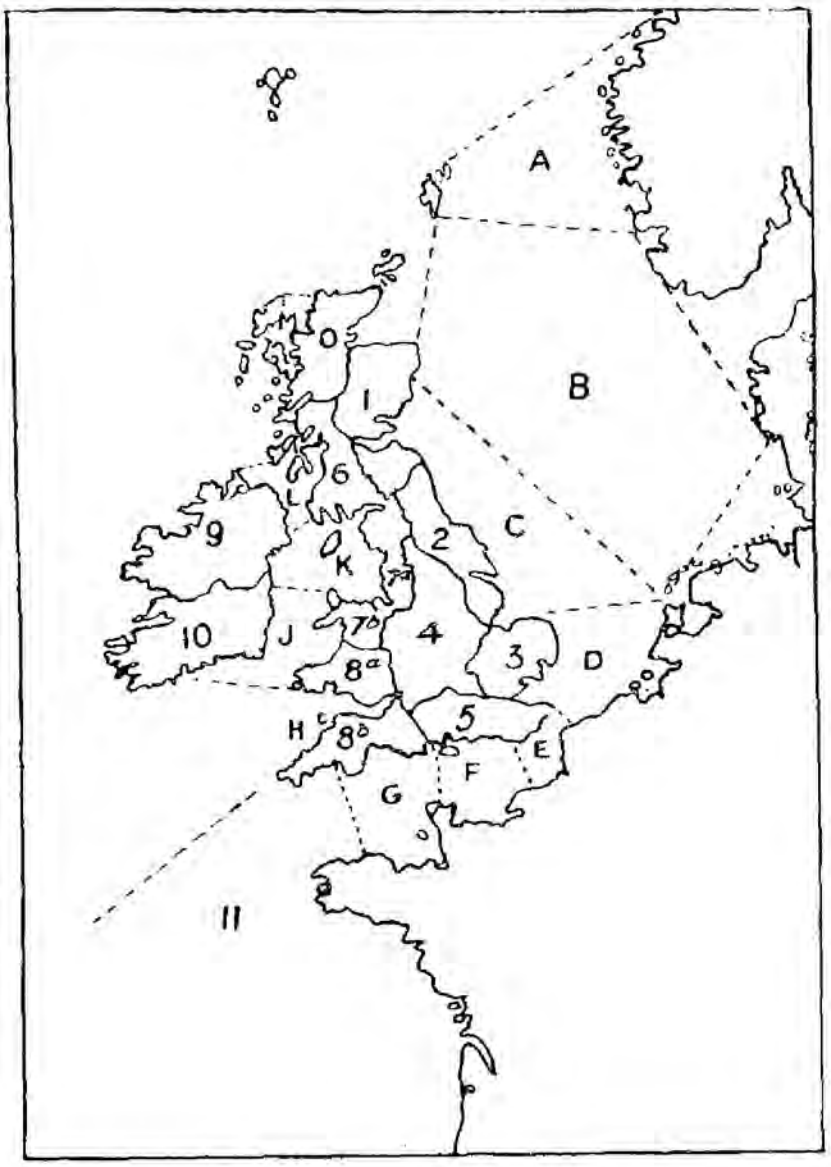
These reports are supplemented by a number of additional observations made at various stations in the United Kingdom, and sent either by telegram or by post, by private persons or local officials. Moreover, the "Bulletin International" published in Paris, reproducing meteorological telegrams from the whole of Europe, is received by post on the morning of the day after publication, and supplements the information previously received in the Office by telegram.

Through the courtesy of the Lords Commissioners of the Admiralty occasional reports of observations at sea off our southern and western coasts are transmitted by wireless telegraphy from the ships of H.M. Navy. Wireless reports are also received almost daily from ocean liners crossing the Atlantic.

The telegraphic information is tabulated and charted by about 9 a.m. for the morning observations, and 7 p.m. for the evening ones. A general report is then drawn up, and forecasts of the weather for the twenty-four hours following the next noon, or midnight, as the case may be, are formulated.

At a selection of stations additional observations are taken and telegraphed to the Office at 1 p.m., and occasionally modifications are made in the morning forecasts as a result of these observations. This information is usually available by 3 p.m.

Forecast Districts.—For the purposes of forecasts of weather the region of the British Isles is divided into land districts and sea districts, as indicated in the accompanying map.



FORECAST DISTRICTS.

LAND.*

0. SCOTLAND, NORTH. (a.) Islands. (b.) Mainland.
1. SCOTLAND, EAST.
2. ENGLAND, NORTH-EAST. (a.) North. (b.) South.
3. ENGLAND, EAST.
4. MIDLAND COUNTIES. (a.) East. (b.) West.
5. ENGLAND, SOUTH-EAST.
6. (a.) SCOTLAND, WEST. (b.) ISLE OF MAN.
7. (a.) ENGLAND, N.W. (b.) NORTH WALES.
8. (a.) SOUTH WALES. (b.) ENGLAND, S.W.
9. IRELAND, NORTH. (a.) West. (b.) East.
10. IRELAND, SOUTH. (a.) East. (b.) West.
11. MOUTH OF CHANNEL and Bay of Biscay.

SEA.

A. SHETLAND AND THE NAZE.
B. GREAT FISHERY AND DOGGER BANKS.
C. NORTH SEA, North of the Wash.
D. NORTH SEA, South of the Wash.
E. STRAITS OF DOVER.
F. ENGLISH CHANNEL, East of the Isle of Wight.
G. ENGLISH CHANNEL, West of the Isle of Wight.
H. BRISTOL CHANNEL.
J. ST. GEORGE'S CHANNEL.
K. IRISH SEA.
L. NORTH CHANNEL.
M. THE MINCH.

* For the grouping of the counties to represent approximately the forecast districts, *see* List of Stations, pp. 62 to 80.

The Distribution of Forecasts and Telegraphic Intelligence.

Daily Weather Report.—A Daily Weather Report, which includes a transcript of the observations for the day, with some of those for the previous day, illustrative charts, descriptive remarks on the state of the weather, and forecasts for the several districts of the British Isles and for the Bay of Biscay, is prepared for press and sent to the lithographers at 11 a.m. daily, except on Sundays and Bank Holidays. It is ready for issue by 1 p.m., and is then delivered by hand or posted by book post at 1.30 p.m. to those addresses which can be reached in the regular course of post on the same day. Copies for those who are outside this limit are posted by the evening mails.

Subscriptions.—The Daily Weather Report may be obtained on payment in advance at the Meteorological Office of the cost of transmission (postage and wrappers). The subscription for this service, if for not less than a quarter of a year ending at the official quarter days, *e.g.*, March 31, June 30, &c., is at the rate of £1 per annum for delivery by book post, £2 for delivery, where feasible, by hand. Copies for other periods than the official quarters of a year are charged at the rate of 2*s.* for a complete month and 1*d.* per copy for periods of less than a month. Single copies, price 1*d.* each, can be obtained after 2 p.m. on the day of issue at the Office, and at the railway bookstalls at the following terminus stations:—Victoria (L.B.S.C., and S.E. & C. Railways), Charing Cross, King's Cross, St. Pancras, Euston.

Reports for Educational Purposes.—By arrangement with H.M Stationery Office, upon giving the necessary notice, additional copies of the Daily Weather Report for one day, or a succession of days, will be printed off and supplied for class use at the rate of 7*d.* for 10 copies, exclusive of postage.

Surplus copies of charts prepared for exhibition, or of back numbers of the Daily Report, are available for educational purposes upon application to the Director. No charge is made for this service, but the cost of postage must be defrayed.

Reports for the Press.—Special advance copies of the descriptive remarks on the state of the weather and forecasts, based upon the morning or evening observations, are prepared at 10 a.m. and 8 p.m. respectively, and supplied gratis to the representative of any newspaper or press agency calling for them at the Office at the hours named.

As far as practicable the Director, upon application, will make arrangements for the transcription of the whole or a selection of the morning or evening telegraphic reports, to be sent by telegraph, in code form, to newspapers or public associations desiring to make use of this means of accelerating the distribution of the latest information about the weather. The special terms for this service can be obtained on application to the Office.

As far as practicable the Director will also make arrangements for daily or weekly reports of the state of the weather, in special form, upon terms which may be had upon application at the Office personally or by letter.

Public Exhibition.—The latest reports and forecasts for the land districts and for the Western Channel and Bay of Biscay, with a map, are exhibited as early as possible, for the information of the public, at the entrance to the Office, and, by the courtesy of His Majesty's Office of Works, in St. James's Park, opposite the Horse Guards. Abbreviated reports for a few coast stations are displayed in the street, on the balcony of the Office. Forecasts for the sea districts, with notes on the probable tides, are exhibited on a screen outside the Inquiry Branch of the Office.

Typewritten copies of the morning forecasts for all districts are ready at 10 a.m., and are distributed by hand to clubs and societies situated in or near Pall Mall at a charge of 10*s.* per annum. They are sent by post at a charge of 2*s.* 6*d.* per official quarter or any part thereof, in addition to the cost of transmission. Copies of the evening forecasts are sent by post for a similar charge.

Forecasts for a single district will be sent regularly by telegraph to public bodies for exhibition without any charge beyond the cost of the telegrams, and to private persons at an additional charge of 3*d.* per telegram for a forecast for a single district, and 6*d.* for two or more districts.

Written Special Forecasts.—A written copy of the latest forecast for a single district can be obtained at the Office between 9.30 a.m. and 8 p.m. upon payment of 6*d.* A written copy of the latest information in possession of the Office as to the state of the weather in any district of the British Isles, and for the neighbouring parts of the continent of Europe, can be obtained in like manner.

Inquiries by Telegraph.—By arrangement with H.M. Postmaster-General (*see* the Post Office Guide, "Meteorological Telegrams"), the latest information as to the state of the weather in various parts of the United Kingdom, or the Continent, and forecasts for one day in advance, can be obtained from the Meteorological Office, upon payment at any Postal Telegraph Office of a fee of 6*d.* in addition to the cost of a telegram of inquiry addressed "Weather, London," and of the reply. Ten words, in addition to the address, must be allowed for the reply.

Telegrams of inquiry should state the nature of the information required, and the name and address to which the information is to be sent, as in the following examples :—

To "Weather, London."

Latest Information from [*Straits of Dover*].

or,

Latest Forecast for [*Forfarshire*].

or,

Next forecast for [*Dublin*].

From (Name), (Address).

The latest information for any district, or the latest forecast, will be sent by telegraph to any address if a request be received by post stating when the information or forecast is to be sent, and enclosing 6*d.* *in addition to the cost of a telegram*, allowing ten words in addition to the address. It should be noted that forecasts are prepared for issue at 10 a.m. and 7.30 p.m. To avoid delay, letters

of request for telegraphic information or forecasts should be marked on the outside "Forecast Branch."

Inquiries by Telephone.—Forecasts will be sent in reply to inquiries by telephone if a sum has been previously deposited with the Office to cover the authorised charges for departmental expenses. Further information as to the service by telephone can be obtained on application at the Office.*

Harvest Forecasts.—Arrangements have been made for a special service of afternoon reports during the season of the Hay and Corn Harvests (June 1st to September 30th), with a view to a special series of forecasts daily (Sundays excepted) at 2.30 p.m. The forecasts for any district are supplied by telegraph to agriculturists and others upon prepayment of the cost of the telegrams (twelve words daily in addition to the address) for the period during which the forecasts are required. Forms of application for these forecasts can be obtained at the Office.

The Postmaster-General has sanctioned the exhibition of Forecasts at Local Post Offices, provided space is available, if the persons to whom they are addressed desire them to be so exhibited.

Notification of Spell of Settled Weather.—The Office is prepared to send notification by telegram when the conditions appear favourable for a spell of settled fine weather. The notification will take the form of a forecast covering a period of not less than two days following the date of issue. Those who wish this notification to be sent must deposit a fee of 2*s.* 6*d.*, which includes the cost of the telegram. The deposit must be repeated if a second notification is required.

Storm Warnings.

The Office issues notices of threatening atmospherical disturbances on or near the coasts of the British Islands (free of charge) to ports and fishing stations recommended by responsible local authorities.

Storm Signals.—The fact that one of these notices has been received at any station is made known by hoisting a black canvas cone, 3 feet high, and 3 feet wide at base, which has the appearance of a triangle when hoisted. The telegram directing the cone to be hoisted is exhibited near the signal staff.

At dusk, whenever a signal ought to be flying if it were daylight, a night signal, consisting of three lanterns hung on a triangular frame, should be hoisted in place of the cone.

The Meteorological Office supplies the canvas cone and a card providing space for the exhibition of the telegrams and giving

* *Note.*—A forecast is a statement of the weather to be expected during the period to which the forecast refers arranged generally speaking as follows:—Direction and force of the wind, state of the sky as regards cloud, prospect of rain, snow, or thunder, temperature, and, in the case of the sea districts, sea disturbance. For example, the forecast for a land district referring to the twenty-four hours from the following noon or midnight, according to the time of issue, may read: "Light south-easterly to easterly winds; fine at first, cloudy later, with local thunder showers. Becoming cooler." The forecast for a sea district may read: "Strong southerly and south-westerly winds, with squally, showery weather and a rough sea."

information as to the meaning of the warnings, but it does not supply the lanterns for night signals. In all cases the local authorities must undertake the charges incidental to the hoisting of the signal, such as flagstaff and gear, oil, &c., and also as to the keeping of the apparatus in repair.

The following is a LIST OF STATIONS to which STORM-WARNING telegrams are sent :—

NORTHERN.

Scotland, N.E.—Lerwick, Scalloway, *Dunrossness, Sumburgh Head L.H., Fair Isle L.H., Noup Head L.H., Stromness, Kirkwall, Cantick Head L.H., Thurso, Dunnet Head, Wick, Tarbet Ness L.H., Cromarty, Avoch, Inverness, Nairn, Burghead, Lossiemouth, Buckie, †Port Knockie, Cullen, Portsoy, Banff, Fraserburgh, Peterhead, †Aberdeen, Girdleness L.H.

Scotland, E.—Stonehaven, Montrose, Scurdy Ness L.H., Broughty Ferry, Dundee, St. Andrews, Anstruther, Pittenweem, Buckhaven, Methil, Wemyss West, Burntisland, *Grangemouth, Bo'ness, Granton, *Newhaven, †Leith, Fisherrow, *Dunbar, Cockburnspath, St. Abb's Head, Eyemouth.

Scotland, N.W.—Cape Wrath L.H., Stourhead L.H., Port of Ness, Stornoway, Island Glass L.H., Portnaguran.

Scotland, W.—*Glasgow, Greenock, Rothesay, Lamlash, Carradale, Campbeltown, Mull of Cantire L.H., Rhuvaal L.H., Rhinns of Islay L.H., Ardrossan, Girvan, Ballantrae, Cairn Ryan, Corsewall Point L.H., Mull of Galloway L.H.

WESTERN.

Ireland, S.—Tuskar L.H., New Ross, Dunmore East, Dungarvan, Helvick Head, Minehead L.H., Youghal, Queenstown, Cork, Passage, Kinsale, Kinsale (Old Head), Galley Head L.H., Castletownshend, Fastnet Rock L.H., Brow Head, Dingle, Tralee, †Limerick, Loophead L.H., Galway.

Ireland, N.—Killybegs L.H., Tory Island L.H., Lough Swilley L.H., Rathmullen, Malin Head, Portrush, Port Ballintrae, Ballycastle.

Irish Sea.—Belfast, Donaghadee, Howth, Kingstown, Point of Ayre, Ramsey, Douglas, Silloth, Maryport, Workington, Whitehaven, Barrow, Walney Island L.H., Morecambe, Fleetwood, Blackpool, Lytham, Preston, †Southport, Formby, Liverpool, Runcorn, New Brighton, Hoylake, New Ferry, Penmaenmawr, Port Penrhyn, Point Lynas L.H., Holyhead, South Stack L.H., Carnarvon, Port Dinorwic.

St. George's Channel.—Aberystwyth, Smalls L.H., *Milford.

Bristol Channel.—Caldy L.H., †Tenby, Pembrey, Llanelly, Swansea, Briton Ferry, Porthcawl, Nash L.H., Penarth, Cardiff

* Telegrams only exhibited.

† Arrangements made for showing signals or illuminating the cone at night.

(Bute Dock and Barry Dock), Newport, Weston-super-Mare, Burnham, *Bridgwater, Ilfracombe, Bull Point L.H., *Barnstaple, Appledore, Hartland Point L.H., Lundy Island, Port Isaac, Newquay, Godrevy L.H., Hayle, St. Ives, St. Sennen, Newlyn West, Penzance.

SOUTHERN.

England, S.W.—Scilly, the Lizard, Falmouth, Pendennis Castle, Mevagissey, Plymouth (*Millbay Docks), Devonport (Mount Wise and the †Dockyard), Prawle Point, Salcombe (2 stations), Teignmouth, Exmouth.

England, S.—Guernsey, Jersey (St. Helier's), Portland L.H., Weymouth, Anvil Point L.H., Poole, Hirst Castle L.H., Southampton, Yarmouth (I. of W.), Cowes, Ryde, St. Catherine's Point, Portsmouth (Dockyard and Noman's Fort), Littlehampton, Brighton, †Newhaven.

England, S.E.—Beachy Head, Eastbourne, †Hastings, Rye, Sandgate, Dover, Deal, Ramsgate, Margate, Faversham, Sheerness, Chatham, Greenhithe.

EASTERN.

England, N.E.—Berwick-on-Tweed, Tynemouth, South Shields, Souter Point L.H., Sunderland, Hartlepool, †Middlesbrough, Redcar, Whitby, Filey, Flamborough, Bridlington, Hull, *Goole, Grimsby, Boston.

England, E.—*Sutton Bridge, Lynn, Sheringham, Cromer, Great Yarmouth, Gorleston, Southwold, Orford Ness L.H., Ipswich, Harwich, Gunfleet L.H., West Mersea.

C.—STATISTICAL INFORMATION.

THE BRITISH METEOROLOGICAL YEAR BOOK.

Terms of Subscription.—The Statistical Publications of the Office have been grouped together under the general title "British Meteorological Year Book." For 1908 the Year Book consists of four parts, as follows :—

Part I.—The Weekly Weather Report. Issued on Thursday of each week. Price 6*d.* per number. Annual subscription (which includes the Monthly Weather Report, *see* below) 30*s.* postage paid. The appendices to the report can be obtained separately, price from 4*d.* each.

Part II.—The Monthly Weather Report with an annual summary. Issued on the 27th of each month as supplement to the Weekly Weather Report. Price 6*d.* each issue.

Part III.—Observations at Stations of the Second Order and at Anemograph Stations. Issued in monthly parts, within

* Telegrams only exhibited.
† Arrangements made for showing signals or illuminating the cone at night.

about six weeks of the close of each month. Price 2*s.** each issue. Annual Volume consisting of 12 monthly numbers with Introduction, Title Page and Map, 16*s.*

Part IV.—Hourly Readings at the four Observatories in Connexion with the Meteorological Office. Issued in monthly sections for each observatory within about six weeks of the close of each month. Price 6*d.* each section. Annual Volume with Title Page and Introduction, 25*s.*

Parts I. and II. of the Year Book can be purchased either directly or through any bookseller from the Agents to H.M. Stationery Office, Messrs. Wyman & Sons, Fetter Lane, E.C., Oliver and Boyd, Edinburgh and E. Ponsonby, 116, Grafton Street, Dublin. Parts III. and IV. are on sale at the Meteorological Office only. (For terms of subscription to the Daily Weather Report, *see* p. 44.)

Copies of the British Meteorological Year Book are sent to the following public libraries and private institutions in London, viz.:—

The British Museum; Guildhall Library; Imperial Institute; Royal Botanic Gardens†; Royal Society; Royal Astronomical Society; Royal Meteorological Society; The Society of Arts†; Lloyd's; Royal United Service Institution; London Institution; Solar Physics Observatory; Royal Institution; General Register Office†; Royal Observatory, Greenwich; Royal Naval College, Greenwich; Board of Education (Secondary Branch); Institution of Civil Engineers; Local Government Board†; Board of Trade†; Board of Agriculture and Fisheries‡; The Admiralty‡; British Balneological and Climatological Society†; The Metropolitan Water Board; British Rainfall Organization; The National Physical Laboratory (Kew Observatory).

Copies are also filed at the public libraries at Aberystwyth, Birmingham, Bradford, Brighton, Darwen, Dumfries, Guernsey (Guille-Alles Library), Huddersfield, Middlesbrough, Penzance, Preston, Rhyl, Stamford, Shrewsbury, Swansea, Southend, Great Yarmouth, as well as at the University Libraries of Edinburgh; Trinity College, Dublin; Queen's College, Belfast; Birmingham; Leeds; the Radcliffe Observatory, Oxford, and the Philosophical Library, Cambridge.

Part I.—Weekly Weather Report with Appendices.

Weekly Summaries.—The Weekly Weather Report gives a summary of the weather of the week ending with Saturday, intended principally for agricultural and sanitary purposes.

An advance copy of the MS. of the Weekly Report is prepared on Tuesday in each week, and is supplied free of charge to newspapers.

A division of the country into twelve districts, which are identical with the forecasts districts of the Daily Weather Report, is adopted.

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* Reduced to 1*s.* 6*d.* for the year 1909.

† Parts I. and II. only. ‡ Parts I., II., and III. only.

The districts are further grouped into extreme north, eastern and western districts, and extreme south (islands in the English Channel).

In its present form the Report contains :—

I.—General remarks on the meteorological conditions of the week, with a table describing in words the divergence of the warmth, rainfall, and sunshine experienced in each district from the average for the district for the time of the year.

II.—A table summarising in numerical form the conditions of temperature, rainfall, and sunshine for each district for the week, the current season, and the calendar year.

III.—A table containing the data from stations from which the values for districts are calculated.

IV.—A table containing information for selected stations concerning the minimum temperature on the grass and the temperature in the ground.

V.—A table giving information of the temperature of the sea-water at a selection of stations on the coasts of the British Isles.

VI.—A series of maps showing the distribution of pressure and wind over Europe and Iceland at 7 a.m. and 6 p.m. on each day, and the temperature, weather, and sea disturbances at 7 a.m. each day. The maps for each day are accompanied by a brief account of the distribution of weather for that day, and the changes which have taken place.

VII.—A table giving the results of observations of the upper air taken by means of kites and balloons. These results include particulars as to temperature, humidity, and wind (direction and force) at various levels.

The weekly statistical tables of values for districts have been prepared in their present form since the commencement of the year 1878.

For the maps and descriptive account, the daily telegraphic reports are used, and are supplemented by the information contained in the "Bulletin International" already referred to (p. 42), so that the area represented is much larger than that covered by the Daily Weather Report.

For the statistical summaries, the information from the telegraphic reporting stations in the British Isles is supplemented by returns of daily observations supplied by volunteer observers from over 100 other stations. Of these 27 supply only the daily amounts of bright sunshine.

Tables of Accumulated Temperature.—In the data for temperature are included not only statistics of mean and extreme temperatures for the week, but also weekly and progressive figures for *Accumulated Temperature*, of which the following brief explanation may be given.

The tables of Accumulated Temperature are designed to give persons engaged in agriculture better means for estimating the

manner in which vegetation is affected by temperature than that afforded by the more usual methods of treating the readings of the thermometer. They show for each week, and for the whole period from the beginning of the year, the weekly and progressive values respectively of the combined amount and duration of the excess or defect of the air temperature, above or below a suitably fixed standard, or *base temperature*. The base value adopted is 42° Fahr.

Accumulated Temperature is expressed in *Day-degrees*, a Day-degree signifying 1° F. of excess or defect of temperature above or below the base (42° F.) continued for 24 hours, or any other number of degrees for an inversely proportional number of hours.*

Appendices.—Subscribers for the Weekly Weather Report receive the following appendices :—

(*a.*) An *Appendix*, issued quarterly and annually, containing *quarterly and annual summaries of the rainfall, mean temperatures* and *bright sunshine* of each district for each year since 1878.

(*b.*) An *Appendix*, issued annually, giving *weekly and progressive totals* of rain-days, rainfall, accumulated temperature, and duration of sunshine with percentage of its possible amount, for the several districts.

(*c.*) An *Appendix*, issued annually, giving a summary of the gales experienced at anemograph stations in connexion with the Office.

(*d.*) An *Appendix* computed every fifth year, giving the *weekly and progressive values* of the different elements in the *five years*, and for the whole period, since 1881.

(*e.*) An *Appendix* appearing every fifth year, giving for each district a comparison of the mean of the *average temperature of successive weeks for the preceding five years* with the corresponding value for the whole period defined above.

(*f.*) An *Appendix*, which is also prepared every fifth year, giving the *monthly averages* of rainfall, rain-days, maximum temperature, minimum temperature, mean temperature, duration of bright sunshine and percentage of possible bright sunshine, for as many as possible of the stations included in the Weekly Weather Report.

Part II. Monthly Weather Report and Annual Summary.

Monthly and Annual Summaries.—The Monthly Weather Report is issued as a supplement to the Weekly Weather Report. Each number contains (1) a general account of the weather for the month ; (2) a complete summary of the observations at the Telegraphic Reporting Stations, and at Normal Climatological Stations : (3) a summary of maximum and minimum temperature, temperature in the ground and on the grass, rainfall, and sunshine at

* A full explanation of the principles on which the rules for computing accumulated temperature are based will be found in Appendix II. to the Quarterly Weather Report for 1878. *See also* Journal Royal Statistical Society, Vol. LXVIII., Part II.

auxiliary Climatological Stations; (4) the differences, where possible, from the average pressure, temperature, rainfall and sunshine; (5) four maps showing the monthly distribution of barometer and wind, the movements of barometric depressions, the distribution of mean temperature, and the distribution of bright sunshine; (6) a full-page map prepared by the Director of the British Rainfall Organization from data from nearly 1,000 stations showing the distribution of Precipitation.

The number for March, 1909, contains tables of results for 209 stations, namely:—23 telegraphic stations and 83 normal climatological stations, together with a summary of temperature, rainfall, and sunshine, or one or more of these elements, at 103 other stations. For 13 of the 23 telegraphic stations summaries are given for the hours 7 a.m., 1 p.m., 9 p.m., a combination which entitles the stations to rank as normal climatological stations.

An Annual Summary on similar lines has been added since the year 1904.

Part III. Meteorological Observations at Stations of the Second Order and at Anemograph Stations.

Daily Readings.—This publication contains daily values for 20 stations in the British Islands of observations made at stations of the second order at 9 a.m. and 9 p.m. Particulars of the headings under which observations are taken are given on p. 59. The publication also contains daily summaries of the records from 12 stations equipped with autographic anemometers.

A similar publication, but containing no data from anemograph stations, has been issued in annual volumes since 1876. These annual volumes contain, in addition, monthly and annual summaries for a large number of stations which are now included in the Monthly Weather Report. The volumes for the years 1906 and 1907 have not yet been published. The prices of the volumes vary from 20*s.* to 35*s.*

Part IV. Hourly Readings obtained from the Self-Recording Instruments at Four Observatories in connexion with the Meteorological Office.

This publication contains hourly values of pressure, dry bulb temperature, humidity, wind direction and velocity, rainfall and bright sunshine for each of the four observatories—Valencia, Aberdeen, Falmouth, Kew. Particulars of the corresponding publications for previous years are given on p. 88.

Unpublished Observations.

The Office also receives, in return for an annual grant, duplicates of the curves from the autographic instruments at Glasgow* and Stonyhurst* observatories, and the tabulations of these curves are available if required.

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* Results from anemographs at these stations are now published in "Observations at Stations of the Second Order and at Anemograph Stations."

Anemographic records are received from Alnwick Castle, Armagh, Brighton, Deerness,* Dover,* Dublin, Falmouth (Pendennis Castle), Fleetwood, Holyhead,* Kingstown,* North Shields,* Plymouth,* Pyrton Hill, Roche's Point,* Scilly,* Shoeburyness, Southport* and Yarmouth.*

The names of all stations in the British Isles from which information of any kind is received, and a statement of the order of the stations and of the publication for which the returns are prepared are given in the lists on pp. 62 to 80. All the records are available for the use of the public on the conditions set forth on pp. 38, 39.

D.—Information from Land Stations outside the British Isles.

Foreign and Colonial Stations.—Periodical returns are received from certain stations in different British Colonies and dependencies, or in foreign countries.

A list of the stations, stating the character of the observations taken, is given on pp. 83 to 86. It includes two anemometer stations, Gibraltar and St. Helena.

The information contained in these returns is available upon the same conditions as that contained in the returns of British Stations.

E.—The Library.

Library.—In return for copies of publications the Office receives the weather reports and other publications of the official meteorological organisations of the world, and of many private organisations. A list arranged geographically of the institutions sending periodical publications containing meteorological data is given in Appendix VII. to the Annual Report of the Meteorological Committee.

The library has also gradually acquired a large collection of pamphlets and books bearing upon meteorological subjects.

The terms on which books and documents in the library can be consulted are stated on pp. 38, 39.

F.—Supply of Instruments and Forms to Observers.

Loan of Instruments.—In accordance with the terms of the Parliamentary grant the Office does not lend instruments for the use of observers except in the following cases :—

(1.) To the Captains of vessels who undertake to keep a Meteorological log during their voyage and forward it to the Office. (*See* p. 41.)

(2.) To the Telegraphic Reporting Stations in the British Isles.

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(1.) To the Captains of vessels who undertake to keep a Meteorological log during their voyage and forward it to the Office. (*See* p. 41.)

(2.) To the Telegraphic Reporting Stations in the British Isles.

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* Results from anemographs at these stations are now published in "Observations at Stations of the Second Order and at Anemograph Stations."

(3.) To the First Order Stations in connexion with the Office.

(4.) To selected Stations in less frequented parts of the world where observations are deemed to be specially desirable.

(5.) To a limited number (230) of fishing communities. (*See* below, Fishery Barometers.)

Supply of instruments for observers at Land Stations.—The Director is authorised to supply, at a cost of 5 per cent. in addition to the contract prices and the cost of carriage, trustworthy instruments for standard meteorological observations to those who are willing to send copies of their observations to the Office. The risk of breakage in transit must be undertaken by the consignee. The Director will also, if desired, give advice about the site and exposure of the instruments.

Supply of forms.—Forms for recording the observations, and tables for reducing them, are supplied to observers for the Office free of charge. The postage of returns, addressed to the Director of the Meteorological Office, need not be prepaid.

Blank sunshine cards are supplied without charge to a number of stations, not exceeding 10 in each district (including official stations), on condition that the cards are returned to the Office for filing. In other cases, cards are supplied, at a special price, to observers contributing returns. Forms for other self-recording instruments are supplied to observers free of cost, provided that the records are deposited with the Office and that the forms required are of a type used at Official Stations.

For further information as to the supply of instruments, forms, &c., application should be made to the Office.

Fishery Barometers.

The Office possesses a number of Barometers which it lends for the use of fishing communities, where it is shown that the instrument will be of material service. As a condition of the loan the community is required to provide for the housing of the instrument and to keep and forward to the Office a record of daily readings. At a few of the stations the experiment has been made of lending a self-recording aneroidograph with an open scale instead of the ordinary mercurial barometer.

A copy of a manual specially compiled for the purpose accompanies the instrument, and is intended to point out in simple language the practical use of the Barometer, with a view to anticipating important changes in the weather in the neighbourhood of the fishing stations. The following is a list of stations that have been supplied with Fishery Barometers :—

List of Stations supplied with Fishery Barometers.

Shetland Isles.—*Uya Sound, Burravoe, *Nesting, Lerwick, *Sandwick, *Scalloway, Symbister, * Hamnavoe, *Walls.

Orkney Isles.—*Westray, Papa Westray, *Burray, *Kirkwall, Barswick.

* The Director has been in correspondence with the Fishery Boards concerning these stations.

Scotland, East coast.—*Duncansbay, *Freswick, *Auchengill, *Keiss, *Ackergill, *Staxigoe, *Wick, *Lybster, *Dunbeath, Hilton, *Inver, *Portmahomack, *Ballintore, *Cromarty, *Avoch, *Nairn, *Burghead, *Portessie, *Port Knockie, *Portsoy, *Whitehills, *Gardenstown, *Rosehearty, Pitullie, *Fraserburgh, *Inveralochy, Pointlaw, Portlethen, *Skateraw, *Stonehaven, *Arbroath, *Broughty Ferry, *St. Andrews, *Crail, *Cellardyke, *St. Monance, *Burntisland, *Newhaven.

England, East coast.—*Berwick, *North Shields, *South Shields, *Sunderland (Roker), *West Hartlepool, *Staithes, *Scarborough, *Filey, *Flamborough, *Bridlington Quay, *Withernsea, *Hull, *Lynn (2), *Wells, *Gorleston, *Lowestoft, *Walberswick, *Harwich, *Brightlingsea, *West Mersea, *Maldon, *Leigh, *Margate, *Deal, *Kingsdown, *Dover.

England, South coast.—*Bognor, *Ryde,* Bembridge, *Brixton, *Atherfield, *Ventnor, *Yarmouth, (Isle of Wight), Gorey (Jersey), *Poole, *Weymouth, *Portland.

England, South-West coast.—*Budleigh Salterton, *Exmouth, *Cawsand, *Mevagissey, *Gorranhaven, *Devoran, *Portscatho, *Penryn, *Durgan, *Porthallow, *Falmouth, *Coverack, *Newlyn (2), *Mousehole, *Penberth Cove, *Porth Guarra, *St. Ives, *Hayle, *Port Isaac, *Bideford, Burnham, Highbridge, Weston-super-Mare.

Wales.—*Briton Ferry, *Swansea, *Angle, *Milford, *Aberystwyth, *Carnarvon.

England, North-West coast. — *Fleetwood, *Morecambe, *Maryport.

Isle of Man.—Douglas, Port St. Mary, Peel (2).

Scotland, South-West coast.—*Port Patrick, *Cairn Ryan, *Port William.

Ireland, East coast.—Belfast, Bangor, Groomsport, Donaghadee, Ardglass, Carlingford, Glenarm, Greenore, Dundalk, Malahide, Howth, Kingstown (2), Bray, Wicklow.

Ireland, South coast.—Dunmore East, Dungarvan, Kinsale, Union Hall, Castletownshend, Baltimore, Schull (2), Crookhaven, Castletown (Berehaven), Lawrence Cove, Ballydonegan, Ballycrovane.

Ireland, West coast.—Valencia, Dingle, Tralee, Kilronan, Galway, Spiddal, Cleggan, Elly Bay, Ballyglass, Ballycastle (Co. Mayo), Mullaghmore, Donegal, Tribane, Killybegs, Teelin, Malinmore, Port Noo, Rosbeg, Burton Port, Kincashla, Bunbeg, Inniscoo Island.

Ireland, North coast. — Dunfanaghy, Rathmullen, Buncrana, Malin Head, Moville, Greencastle, *Port Stewart, *Portrush, *Port Ballintrae, Ballintoy, *Ballycastle (Co. Antrim).

Scotland, West coast.—*Lamlash, *Tarbert (Loch Fyne), *Loch Ranza. *Campbeltown, *Carradale; *Portnahaven, *Port Wemyss,

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* The Director has been in correspondence with the Fishery Boards concerning these stations.

Gruinard, and *Bowmore (Islay); *Mallaig; *Portree and *Armadale (Isle of Skye); *Isle of Soay, *Kyle of Lochalsh, *Plockton, *Ardneaskan, Shieldaig, Badachro, Ullapool, *East Mey, *Gills, *Stroma (2).

Hebrides.—*Ness, *Carloway, *Marvaig, *Crossbost, Stornoway, Portnaguran, Valtos, Obb, Bernera, *Boreray, *Lemreway, Loch Boisdale.

G.—Publication of Observations contributed by Volunteer Observers or by the Representatives of Local Authorities.

I. General Regulations.—(*a.*) The observations must in all cases be taken by a competent observer, from approved instruments, satisfactorily exposed. Approval of the instruments and exposure is subject to periodical inspection by the Office.

Regularity in taking the observations and dispatching the reports is essential.

(*b.*) The sunshine cards upon which returns have been based must be sent to the Meteorological Office for examination at the close of each month. Cards supplied to observers at the special price referred to on p. 54 will be returned after examination.

(*c.*) The Director reserves the right to discontinue at any time, temporarily or permanently, the incorporation of information received from any station in the Official reports.

(*d.*) Observers contributing returns to one of the publications of the Office receive an official copy of the publication. It is requested that these copies may be filed in a public library or similar institution, or be returned to the Office when the observer has no further personal use for them.

II. Publication in the Daily Weather Report.—For publication in the Daily Weather Report, the information must be in accordance with one of the forms here specified :—

(*a*) **Full Telegraphic Report at 7 a.m.**—A complete record of barometer, temperature, wind, &c., based upon observations made at 7 a.m., and at 6 p.m. of the previous day, and telegraphed each morning in time to reach the Office not later than 9 a.m. This information must be sent in code, a copy of which, with other necessary instructions, will be supplied by the Office. A manuscript copy of the observations on a form provided for the purpose must be sent at the end of each month.

(*b.*) **Short Telegraphic Report at 6 p.m.**—A report, telegraphed in the evening, and containing observations of the barometer, wind, temperature and weather at 6 p.m., the maximum temperature and the amount of bright sunshine for the day, and the minimum temperature and the amount of rainfall for the previous 24 hours. These observations must be sent in code form in time to reach the Office not later than 7 p.m., the statistical information being supplemented by brief notes respecting any exceptional phenomena which may have occurred, such as thunderstorms, unusually heavy rain, &c.

* The Director has been in correspondence with the Fishery Boards concerning these stations.

When the sun is above the horizon after 6 p.m., *i.e.*, from about March 20th to September 23rd, the amount of sunshine given must be that recorded up to *6 p.m. only*, but in such cases a post card must be dispatched to the Office later in the evening, giving the amount *for the whole day*.

In exceptional circumstances a telegraphic report of sunshine only may be accepted, provided that it is supplemented by information by post.

NOTE.—At auxiliary climatological stations, for which extremes of temperature and rainfall amounts for the 24 hours ending at 9 a.m. are required, as well as the data referred to in the messages dispatched at 6 p.m., separate minimum thermometers and raingauges should be provided for the two sets of observations. A single maximum thermometer will suffice, if the instrument be read, but not *set*, at 6 p.m. At normal climatological stations, when the extremes of temperature used for climatological purposes should be for the 24 hours ending 9 p.m., a double set of thermometers is not required if both thermometers are *set* only once a day, viz., at 9 p.m.

III. Publication in the Weekly Weather Report.—Observations are accepted from a limited number of stations for publication in the Weekly Weather Report. The information should consist of observations taken once daily of the maximum and minimum temperature and of the rainfall, together with the duration of bright sunshine, and brief notes on the weather of each day.

Observations of the minimum temperature on the grass, and of underground temperature at the depths of 1 foot and 4 feet are also desired. Each return should be posted as soon as possible after the Sunday morning reading, in order that it may reach London by Monday.

IV. Publication in the Monthly Weather Report, and in the Monthly Issue of Observations at Stations of the Second Order.—For this purpose a monthly return must be sent so as to reach the Office *not later than the 10th* of the following month. Three forms of return are at present in use. In Form 355 provision is made for the complete set of observations made at a normal Climatological Station at which observations are recorded three times a day. In Form 319, the headings of the columns are similar, but they are arranged in different order, and provision is made for the entry of only two observations each day. Form 312 is similar to Form 319, but less extended.

H.—Regulations for the Supply of Information from Instruments belonging to the Meteorological Office by the Custodians of the Instruments.

The custodians of instruments maintained by the Meteorological Office are not allowed to supply information derived from the instruments in their charge without previous permission obtained from the Director.

Permission is not given when the information required can be obtained directly from the Office in the course of post. Applicants for information should in that case be referred to the Office.

REPORT OF THE METEOROLOGICAL COMMITTEE 1908-1909.

Map showing Positions of Climatological Stations.

Scale 1:5,000,000.

Ordnance Survey Southampton 1909.

The heights of the stations above Mean Sea Level are inserted against the positions, and will serve to identify the names of the stations as given in the List of Stations on pp. 62 to 80.

REPORT OF THE METEOROLOGICAL COMMITTEE 1908-1909.

Map showing the Positions of the Stations having Self-Recording Instruments.

Scale 1:5,000,000.

Ordnance Survey Southampton. 1909.

The Stations in the London District are not all shown.

●. (Eye Observations.) Additional Rainfall Station.—Daily observations, generally at 9 a.m., of the amount of rainfall.

⚡. Additional Anemograph Station.—Continuous records of wind velocity (force) and, in most cases, also of wind direction.

B. Additional Barograph Station. — Continuous record of atmospheric pressure.

Θ. Additional Thermograph Station.—Continuous record of atmospheric temperature.

●. (Self-recording.) Additional Autographic Rain-gauge Station.—Continuous record of rainfall.

H. Hygrograph Station.—Continuous record of the relative humidity of the air.

☉. Sunshine Station.—Continuous record of bright sunshine taken with a Campbell-Stokes recorder.

K. Kite or Balloon Station.—Records of Temperature, Humidity and Wind in the upper air.

The publications for which the returns are prepared are indicated by the following letters :—

D. Published *in extenso* in the "Daily Weather Report."

d. Published in abridged form in the "Daily Weather Report."

W. Weekly summary of temperature and rainfall and, if available, of sunshine, published in the "Weekly Weather Report."

w. Weekly summary of bright sunshine only, or of grass minimum, or earth temperatures, or of observations in the upper air, published in the "Weekly Weather Report."

M. Full monthly summary in the international form published in the "Monthly Weather Report."

m. Abridged monthly summary published in the "Monthly Weather Report."

(m.) Monthly totals of bright sunshine only or of rainfall only, published in the "Monthly Weather Report."

S. Daily values published in "Observations at Stations of the Second Order" (1909).

R. Monthly summary published in the Reports of the Registrar General of Births, Deaths, and Marriages for England and Wales, or for Ireland.

r. Weekly summary published in the Reports of the Registrar General for England and Wales, or for Ireland.

⚡. Daily summary of anemometer results published in "Observations at Stations of the Second Order and at Anemograph Stations."

Height above Mean Sea Level.—The figures given in this column refer in general to the height of the ground on which the rain-gauge stands. At those stations which do not possess a rain-gauge, the figures refer to the height of the particular instrument in use.

The positions of the climatological and rainfall stations may be identified on the map, plate II., p. 59, from the figures which give their heights above Mean Sea Level, as shown in the following list.

*** From a number of stations in the British Isles printed summaries of observations are received. These have been included in the Geographical list of Institutions, &c., which issue publications (Appendix VII.).

The following make monthly returns in a form similar to that in which observations are received from the normal or auxiliary climatological stations :—

Bolton.—The Museums and Meteorological Observatory.
Croydon.—Natural History Society.
Northampton.—Natural History Society.
Southport.—Fernley Observatory.
Truro.—Cornwall County Council Sanitary Committee.

List of Stations arranged according to Districts and Counties.

The Counties are grouped in Districts which are numbered as follows :—

0. Scotland, N. { (*a*) Islands. (*b*) Mainland.
1. Scotland, E.
2. England, N.E. { (*a*) Northern Part. (*b*) Southern Part.
3. England, E. { (*a*) Northern Part. (*b*) Southern Part.
4. Midland Counties { (*a*) Eastern Part. (*b*) Western Part.
5. England, S.E. London County.
6. (*a*) Scotland, W., and (*b*) Isle of Man.
7. (*a*) England, N.W., and (*b*) North Wales.
8. (*a*) South Wales and (*b*) England, S.W.
9. Ireland, N. { (*a*) Western Part. (*b*) Eastern Part.
10. Ireland, S. { (*a*) Eastern Part. (*b*) Western Part.
11. English Channel (Western Section).

County and Station.		Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
0. SCOTLAND, NORTH.*									
(a.) *Islands.*									
Hebrides :—	Castlebay, Barra Isle ...	56° 57′	7° 29′ W.	38	T II_3	⊙ B	D.W.M.	08	J. Smith, for M.O.
	Stornoway	58 11	6 22 W.	51	T II_3	B ⊙	D.W.M.	08	W. Grant, for M.O.
Shetlands :—S.	Balta Sound	60 44	0 48 W.	31	III	⊙	W.m.	06	J. Edmonston Saxby, M.D.
	Lerwick	60 9	1 8 W.	—	—	B	—	—	G. Gray, Harbour Master.
	Sumburgh Head ...	59 51	1 17 W.	112	T II_3	B	D.W.M.	08	Rev. W. Brand, for M.O.
Orkney :—	Deerness	58 56	2 45 W.	160	II	⊙	w.M.S.	08	M. Spence.
(b.) *Mainland.*									
Caithness :—	Sandside, Reay ...	58 34	3 48 W.	55	●	—	—	—	D. Macaulay.
	Wick	58 27	3 6 W.	80	T	B	D.W.M.	08	Miss Sinclair, for M.O.
Cromarty :—	Strathpeffer Spa ...	57 37	4 28 W.	253	II	⊙	W.M.d.	08	J. McLean, for H. W. Kaye, B.A., M.B.
Inverness :—	§Fort Augustus ...	57 8	4 40 W.	68	II	⊙	W.M.	07	Rev. C. von Dieckhoff, O S.B.
	§Fort William	56 49	5 7 W.	175	II	—	W.M.	07	W. T. Kilgour.
	Lochboisdale ...	57 10	7 20 W.	—	—	B	—	—	Arch. Maclennan.

Ross :—	Ardross Castle	57 45	4 21 W.	449	●	—	—	—	W. Minty.
	§Glencarron	57 30	5 14 W.	489	II	—	W.M.	07	D. D. Munro.
	Kinlochewe	57 36	5 24 W.	—	●	—	—	—	A. McLennan, for Hon. W. Peel, M.P.
Sutherland :—	§Dunrobin Castle ...	57 59	3 56 W.	12	II	—	M.S.	07	D. Melville, for the Duke of Sutherland, K.G.
1. SCOTLAND, EAST.									
Aberdeen :—	Aberdeen Observatory	57 10	2 6 W.	46	I, T	I, B	D.W.M.	08	Professor C. Niven, F.R.S., and G. A. Clarke, for M.O.
	§Balmoral	57 2	3 12 W.	920	III	—	W.M.	08	J. Michie, M.V.O., and John M. Troup.
	Dyce	57 13	2 10 W.	149	●	—	—	—	James E. Crombie, LL.D.
	§Tillypronie	57 10	2 56 W.	1,116	II	—	M.S.	—	Robert Littlejohn, for Sir John F. Clark, Bart.
Banff :—	§Gordon Castle	57 37	3 5 W.	101	II	⊙	W.M.	08	C. Webster, for the Duke of Richmond and Gordon, K.G.
Berwick :—	§Marchmont	55 44	2 25 W.	498	II	⊙	W.M.	07	J. A. Wood, for Sir H. P. Campbell, Bart.
Clackmannan :—	No station.								
Edinburgh :—	Edinburgh	55 57	3 12 W.	253	—	⊙	w.(m.)	—	The Regius Keeper, Royal Botanic Garden.
	Leith	55 58	3 10 W.	18	T	B	D.W.M.	08	D. Drummond, Post Office, for M.O.
Elgin :—	No station.								
Fife :—	No station.								
Forfar :—	§Dundee	56 28	2 56 W.	160	II	—	M.S.	05	J. Carnochan.
Haddington :—	No station.								
Kincardine :—	S. Crathes	57 3	2 25 W.	140	III	⊙ ⊖ B	w.m.	08	J. Smith.
	Stonehaven	56 58	2 13 W.	186	●	⊙	d.m.	08	J. Hart, for Town Clerk.
Kinross :—	No station.								
Linlithgow :—	No station.								

* *Note.*—The parts of this district forming section (*a*) Islands, include the Shetlands, the Orkneys, and the Hebrides. The latter form part of the counties Inverness and Ross.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, from the figures which give their heights above Mean Sea Level.

List of Stations arranged according to Districts and Counties—*continued.*

County and Station.		Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
1. SCOTLAND, EAST—*cont.*									
Nairn :—	Nairn	57° 36′	3° 52′ W.	82	T	⊙	D.W.M.	08	Miss Penny, for M.O. and Dr. Sclanders.
Peebles :—	S. West Linton	55 45	3 4 W.	800	III	⊙	W.m.	08	Rev. J. S. Begg.
Perth :—	*Crieff	56 22	3 50 W.	440	II	—	W.M.	07	George Reid, for Dr. Meikle.
	Forgandenny	56 21	3 29 W.	175	—	B ●	—	—	Miss M. Wood.
	S. Balruddery	56 29	3 8 W.	276	III	⊙	w. m.	07	G. Davie, for J. Martin White.
Roxburgh :—	No station.								
Selkirk :—	No station.								
Stirling :—	No station.								
2. ENGLAND, NORTH EAST.									
(a) *Northern Part.*									
Durham :—	Durham	54 46	1 35 W.	336	II	⊙	W.M.R.	06	Prof. R. A. Sampson, M.A., F.R.S.
	Seaham Harbour ...	54 50	1 19 W.	139	II	—	M.	07	G. H. Aird.
Northumberland :—	Alnwick Castle ...	55 25	1 43 W.	210	III	⌒	W.m.	08	Robert Kyle, for the Duke of Northumberland, K.G.
	Cockle Park, Morpeth	55 13	1 41 W.	324	II	⊙	w.M.S.R.	06	T. B. Hewetson and T. E. W. Dobson, for the Northumberland County Council.
	Fout Water shed—								
	Chertners	55 16	2 0 W.	1,000	●	—	—	—	H. G. Coventry, C.E., for the Corporation of Tynemouth.
	Dam Site	55 14	1 54 W.	620	●	—	—	—	
	Fallowlees	55 15	1 57 W.	850	●	—	—	—	
	Red Path	55 13	2 0 W.	850	●	—	—	—	
	Tod Crag	55 15	2 1 W.	1,000	●	—	—	—	
	Heddon-on-the-Wall ...	55 0	1 47 W.	400	●	—	—	—	Rev. W. G. Pringle.

	Newcastle-on-Tyne ...	54 59	1 36 W.	152	III	⊙	w.m.	07	N. H. Martin, F.R.S.E., F.C.S.
	North Shields ...	55 0	1 27 W.	96	T	B	D.W.M.R.r.	08	R. Moat, Post Office, for M.O.
	North Shields High Lighthouse.	55 0	1 27 W.	—	—	✓	✓	08	Capt. T. Robson, for M.O.
	Tynemouth	55 1	1 26 W.	90	III	—	—	—	J. Edward Burnett.
Yorkshire, N. Riding :—	Ampleforth	54 12	1 6 W.	349	II	—	m.	06	Rev. B. A. Barnett, O.S.B.
	Hovingham Hall ...	54 10	0 59 W.	120	●	—	—	—	Bingley Day, for Sir W. H. A. Worsley, Bart.
	M Rounton	54 24	1 18 W.	249	II	—	W.M.	08	J. Hanagan, for Sir Hugh Bell, Bart.
	M. Scarborough	54 18	0 24 W.	100	II	⊙	d.W.M.	08	W. W. Larkin, for the Corporation.
	Whitby	54 29	0 37 W.	88	II	⊙	M.	07	Thos. Newbitt, for the Literary and Philosophical Society.
	York. Deighton Grove	53 54	1 3 W.	38	●	—	—	05	Miss M. L. Whitehead.
	,, The Museum ...	53 57	1 5 W.	56	II	—	W.M.R.r.	07	Oxley Grabham, M.A., for the Yorkshire Philosophical Society.
	,, Bootham ...	53 57	1 5 W.	105	—	⊙		07	Hugh Richardson, M.A.
	,, The Mount ...	53 56	1 5 W.	—	—	⊙	—	—	R. Thompson.
Yorkshire, E. Riding :—	Bridlington (Grammar School).	54 5	0 13 W.	56	III	(B) ⊙	—	08	T. V. T. Baxter, M.A., B.Sc.
	Hull	53 45	0 16 W.	2	II	⊙	M.R.r.w.	08	H. B. Witty, for the Corporation.
	Spurn Head	53 34	0 7 E.	26	T	B	D.W.M.R.	08	J. E. Ayers, for M.O.
(b) *Southern Part.*									
Lincolnshire :—	Fulbeck	53 3	0 37 W.	180	III	B ⊙	W.m.	07	Rev. Vere F. Willson, M.A.
	Lincoln...	53 14	0 33 W.	58	II	—	W.M.R.	07	S. R. Moss and W. Barr, for the Corporation.
	Mareham-le-Fen ...	53 8	0 5 W.	10	●	—	—	01	Mrs. G. L. Kime.
	Rauceby Hall... ...	53 0	0 29 W.	124	III	⊙	w.m.	06	J. Hope, for General Sir M. Willson, K.C.B.
	Skegness	53 9	0 21 E.	12	III, (T.)	⊙	d.w.M.	08	S. Coetmore Jones, for the District Council.
	Tealby	53 24	0 16 W.	251	II	—	m.	06	Rev. S. Lewin, B.A.
	Temple Bruer... ...	53 4	0 30 W.	—	●	—	—	03	Miss Alice S. Morley.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, from the figures which give their heights above Mean Sea Level.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.		Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
3. ENGLAND, EAST.									
(a) *Northern Part.*									
Norfolk :—	Cromer	52° 56′	1° 17′ E.	196	II	⊙	W.M.R.	06	W. H. Archer, for Urban District Council.
	Geldeston	52 28	1 31 E.	37	II	⊙ (B θ)	W.M.	04	E. T. Dowson.
	ℳHillington	52 48	0 33 E.	88	II	⊙	W.M.S.R.	08	Rev. H. E. B. Ffolkes, M.A.
	M. Norwich	52 37	1 17 E.	93	III	—	W.R.r.m.	08	A. W. Preston.
	Thetford	52 25	0 45 E.	169	●	—	—	—	E. S. Greenwood, for Town Council.
	Yarmouth	52 37	1 43 E.	17	T, II_3	B ⊙	D.W.M.	08	Coastguard, for M.O. and for Corporation.
	,, Gorleston ...	52 35	1 43 E.	†10	—		—	08	
(b) *Southern Part.*									
Bedford :—	Aspley Guise	52 1	0 38 W.	410	—	⊙	m.	—	Mrs. Dymond.
	Woburn, Ridgmont ...	52 1	0 36 W.	291	II	—	M.	08	H. M. Freear, F.C.S., for the Royal Agricultural Society.
Cambridge :—	Cambridge Bot. Garden	52 12	0 8 E.	41	II	⊙	W.M.S.R.	07	R. Irwin Lynch, M.A.
	,, The Observatory.	52 13	0 6 E.	83	—	B	—	05	A. R. Hinks, M.A., for Sir Robert Ball, F.R.S.
	,, Newnham Coll.	52 13	0 5 E.	—	III	H	—	05	Miss Stephen.
Essex :—	Clacton-on-Sea	51 47	1 9 E.	54	T, II_3	⊙ B	D.W.M.R.	08	A. W. Shadick, for Urban District Council.
	Shoeburyness	51 32	0 47 E.	13*	III		W.m.	07	The Superintendent of Experiments.
	Southend-on-Sea ...	51 32	0 43 E.	100	III	⊙	w.m.	06	E. J. Elford, for the Corporation.
	,, Waterworks	51 32	0 43 E.	110	●	—	—	06	C. S. Bilham.
Hertford :—	ℳBennington	51 54	0 5 W.	406	II	—	M.R.	06	Rev. J. Dunne Parker, LL.D.
	ℳBerkhamsted	51 46	0 34 W.	400	II	⊙ (I)	M.R.	06	E. Mawley.
	Offley Vicarage ...	51 56	0 21 W.	523	●	—	—	—	Rev. E. P. Gatty.

	Rothamsted	51 48	0 22 W.	424	III	⊙	W.m.	02	A. D. Hall, M.A., for the Lawes Agricultural Trust.
Huntingdon :—	No station.								
Middlesex :—	Harefield	51 36	0 29 W.	337	●	—	—	—	G. Eland.
Suffolk :—	Brandon	52 27	0 37 E.	48?	●	—	—	—	Lt.-Col. B. Spragge, D.S.O.
	Felixstowe	51 58	1 22 E.	10	III	⊙	d.W.m.	07	Coastguard, for the District Council.
	ℳLowestoft	52 29	1 45 E.	83	II	⊙	w.d.M.	08	C. W. Edwards, for the Corporation.
4. MIDLAND COUNTIES.									
(a) *Eastern Part.*									
Buckingham :—	Beaconsfield	51 36	0 38 W.	360	●	—	—	—	C. T. Marcon, M.A.
	Winslow	51 57	0 53 W.	379	III	—	m.	06	R. A. Easton.
Derby :—	M. Buxton	53 14	1 54 W.	987	II_3	⊙	d.W.M.R.	08	W. Pilkington, M.D., and F. T. Kieldsen.
	Chatsworth	53 14	1 37 W.	—	III	B θ	—	02	The Duke of Devonshire, K.G.
	Howard Estate, Glossop	53 27	1 57 W.	1,100	K	—	w.	—	Prof. J. E. Petavel, F.R.S., for the University of Manchester.
Leicester :—	Belvoir Castle	52 54	0 47 W.	259	II	⊙	R.M.	06	W. H. Divers, for the Duke of Rutland, K.G.
	Syston	52 43	1 5 W.	178	●	—	—	96	S. K. Daniels.
Northampton :—	Chipping Warden ...	52 9	1 16 W.	—	●	—	—	—	Rev. S. F. Cartwright.
	Great Billing	52 16	0 50 W.	273	●	—	—	—	Rev. G. H. Mullins, M.A.
	Oundle (The School)...	52 29	0 28 W.	144	III	⊙	—	04	G. L. V. Baker, for F. W. Sanderson, M.A., Headmaster.
	"	52 29	0 28 W.	146	●	—	—	04	N. E. Dixon, C.E.
	ℳRaunds	52 22	0 33 W.	205	III	—	W.m.	08	Leon G. H. Lee.
Nottingham :—	Bawtry, Hesley Hall ...	53 27	1 4 W.	65	III	—	W.m.	06	B. I. Whitaker, J.P.
	Kingston-on-Soar ...	52 51	1 14 W.	125	III	—	m.	08	Fred Wakerly.
	Nottingham	52 56	1 9 W.	82	T, II_3	⊙ (B ●)	D.W.M.R.r.	08	Arthur Brown, M.Inst.C.E., and Philip Boobbyer, M.D., for the Corporation.
	ℳWorksop (Hodsock) ...	53 22	1 5 W.	56	III	⊙ (B ●)	w.m.	08	Col. H. Mellish, J.P.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, from the figures which give their heights above Mean Sea Level.

* Head of Anemometer 103 ft. above M.S.L. † Head of Anemometer 52 ft. above M.S.L.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.		Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
4. MIDLAND COUNTIES—*cont.*									
(a) *Eastern Part*—cont.									
Oxford :—	Oxford	51° 46′	1° 16′ W.	208	[I] T	⊙ [I]	D.W.M.R.	08	Dr. A. A. Rambaut, M.A., F.R.S.; W. Wickham, for M.O.
	Pyrton Hill	51 38	1 1 W.	500	—	K ⟋ B	w.	—	W. H. Dines, F.R.S., for M.O.
	Watlington Park ...	51 38	1 1 W.	749	●	—	—	—	G. H. Bonner.
Rutland :—	Ridlington	52 37	0 45 W.	522	●	—	—	—	N. W. Wortley.
	Uppingham	52 38	0 43 W.	469	III	—	—	—	Rev. E. Brown and H. G. Busk.
Warwick :—	Coventry	52 25	1 30 W.	270	III	⊙	R.m.	07	E. Hugh Snell, M.D., for the Corporation.
	Rugby School	52 22	1 15 W.	379	III	(B)	m.	08	Rev. D. E. Shorto, M.A.
	Birmingham, Edgbaston	52 28	1 56 W.	535	II	⊙	d.W.M.R.r.	07	Alfred Cresswell, for the Midland Institute.
Yorkshire, W. Riding :—	Ackworth	53 39	1 20 W.	131	III	—	—	06	W. H. Waite.
	Bradford	53 49	1 46 W.	439	III	⊙	m.r.	07	H. Lander for the Corporation.
	Garforth	53 48	1 22 W.	195	II	⊙	M.	06	Prof. Seton, B.Sc., for the University of Leeds.
	Giggleswick	54 4	2 17 W.	500?	III	(B) ⊙	—	05	C. F. Mott, M.A.
	M. Harrogate	54 0	1 33 W.	476	III	⊙	d.W.m.	08	Fred Dixon, A.M. Inst. C.E., and C. E. Rivers, for the Corporation.
	Huddersfield	53 39	1 47 W.	409	II	⊙ (●)	M.R.r.	07	J. Firth, Registrar, for the Corporation.
	Leeds	53 48	1 33 W.	132	III	(B)	—	08	H. Crowther, for the Leeds Philosophical Society.
	Sheffield	53 23	1 29 W.	429	II	⊙	w.M.R.	08	E. Howarth, F.R.A.S.
	,, Attercliffe ...	53 24	1 25 W.	—	—	⊙	—	06	Medical Officer of Health.
	M Wakefield	53 41	1 30 W.	96	II	—	M.R.	08	Alex. French, M.R.C.S., L.R.C.P.

	(b) *Western Part.*								
Gloucester :—	Bristol, Over Court Park	51 32	2 35 W.	147	III	—	r.	07	R. C. Cann Lippincott.
	Clifton, Bristol ...	51 27	2 37 W.	229	III	⊙	W.R.m.	05	D. Rintoul, M.A.
	ℳCheltenham	51 54	2 3 W.	214	II	⊙	S.M.R.	07	A. C. Saxby, for the Corporation.
	Cirencester	51 43	1 57 W.	446	III	⊙	W.m.	08	Prof. M. Kershaw, B.A., for the Royal Agricultural College.
	Dursley	51 41	2 21 W.	256	●	—	—	96	J. Richards.
	Forest of Dean :—								
	Blakeney Hill	51 46	2 30 W.	500?	●	—	—	—	J. Tyler } for V. F. Leese.
	Braceland	51 49	2 38 W.	500	●	—	—	—	E. A. Popert } for V. F. Leese.
	Edgehills Lodge ..	51 51	2 29 W.	700	●	—	—	—	Campbell Anderson } for V. F. Leese.
	Ruardean Hill	51 50	2 32 W.	900	●	—	m.	05	John Morris } for V. F. Leese.
	Whitemead Park ...	51 46	2 34 W.	200	●	—	m.	05	William Morris } for V. F. Leese.
	Worcester Lodge ...	51 48	2 35 W.	550	●	—	—	—	William Morris } for V. F. Leese.
	Hidcote	52 5	1 46 W.	524	●	—	—	97	Major W. Wright, R.A.
Hereford :—	ℳHereford (Belmont) ...	52 5	2 45 W.	291	III	—	W.m.	07	Canon T. B. Harrington, O.S.B.
Shropshire :—	Shrewsbury	52 43	2 45 W.	191	II	—	W.M.R.S.	07	Capt. W. E. Manser, R.E.
	Stokesay	52 26	2 52 W.	370	II	—	M.R.	06	Rev. W. M. D. La Touche, B.A.
Stafford :—	ℳCheadle (Tean) ...	52 58	1 57 W.	646	III	—	W.m.	08	Col. B. H. Philips.
	Mayfield	53 0	1 46 W.	374	III	(B ⚒) ⊙	m.	—	G. C. Lawson.
Worcester :—	Birmingham, Sparkhill	52 27	1 52 W.	429	III	—	—	—	D. H. Owen.
	Rochford	52 18	2 36 W.	315	●	B	—	01	Rev. John Tomson.
5. ENGLAND, SOUTH-EAST.									
Berkshire :—	Bucklebury Place ..	51 26	1 24 W.	409	III	—	m.	08	J. W. Harris, for A. W. Sutton.
	Maidenhead	51 30	0 43 W.	99	III	—	m.	06	G. H. Palmer.
	Reading (Leighton Park School).	51 26	0 57 W.	264	II	B ⊙	M.	07	J. Ridges, M.A., Headmaster.
	Wokingham	51 23	0 48 W.	216	III	B	m.	06	Medical Superintendent of Sanatorium.
Hampshire :—	Bournemouth	50 43	1 53 W.	145	III	⊙	d.w.m.	08	C. Dales, for Town Council.
	Petersfield (Ditcham Park.)	51 0	0 57 W.	550	—	K	w.	—	C. J. P. Cave, M.A.
	M. Portsmouth	50 48	1 6 W.	11	III	—	R.r.w.m.	07	A. Mearns Fraser, M.D., for the Corporation.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, from the figures which give their heights above Mean Sea Level.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.	Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection	Observer.
5. ENGLAND, SOUTH-EAST—*cont.*								
Hampshire—*cont.* M. Sandown ...	50° 48′	1° 8′ W.	20	III	⊙ (B)	m.	—	G. E. Gilchrist, for the Sandown Advancement Board.
Southampton ...	50 55	1 24 W.	65	II	⊙	W.M.S.R.	07	A. Vaughan, for Director-General of Ordnance Survey.
Southsea	50 47	1 6 W.	—	—	⊙	d.	—	A. Mearns Fraser, M.D., for the Corporation of Portsmouth.
Stockbridge (Ashley).	51 5	1 27 W.	235	●	B	—	—	Legh S. Powell.
ℳSwarraton ...	51 8	1 11 W.	310	III	—	W.m.	06	Rev. W. L. W. Eyre, M.A.
Totland Bay ...	50 41	1 33 W.	140	III	⊙	m.	04	J. Dover, M.A.
M. Ventnor	50 36	1 13 W.	80	III	⊙	W.m.R.	06	Miss M. Gibson, for Royal National Hospital for Consumption.
Kent :— Broadstairs ...	51 21	1 26 E.	140	●	⊙	(m.)	—	Howard Hurd, C.E., and Rev. H. C. V. Snowden, for District Council.
Canterbury ...	51 17	1 5 E.	39	III	⊙	w.	05	A. Lander.
Dover	51 7	1 18 E.	198	●	—	—	96	W. C. Hawke, C.E., for the Corporation.
Dover	51 7	1 19 E.	231	T	⊙ ⋯	D.M. ⋯	08	W. C. Hawke, C.E., for the Corporation.
Kearsney, Chilton Farm.	51 8	1 17 E.	125	●	—	—	—	W. C. Hawke, C.E., for Dover Corporation.
Dungeness ...	50 55	0 58 E.	21	T	B	D.W.M.	08	W. C. Lewis, Lightkeeper, for M.O.
Folkestone ...	51 5	1 11 E.	121	III	⊙ (●)	d.m.	08	A. E. Nichols, M.Inst.C.E., for the Corporation.
Hildenborough ...	51 13	0 15 E.	160	●	—	—	—	Charles H. Scott.
Littlestone-on-Sea	50 59	0 59 E.	—	—	⊙	d.w.(m.)	05	H. T. Tubbs.
M. Margate	51 24	1 24 E.	35	III	⊙	d.W.m.	08	J. Stokes, J.P., for the Corporation.
Ramsgate	51 20	1 25 E.	—	—	⊙	w.(m.)	08	T. G. Taylor, C.E., for the Corporation.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.	Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection	Observer.
5. ENGLAND, SOUTH-EAST—*cont.*								
Hampshire—*cont.* M. Sandown ...	50° 48′	1° 8′ W.	20	III	⊙ (B)	m.	—	G. E. Gilchrist, for the Sandown Advancement Board.
Southampton ...	50 55	1 24 W.	65	II	⊙	W.M.S.R.	07	A. Vaughan, for Director-General of Ordnance Survey.
Southsea	50 47	1 6 W.	—	—	⊙	d.	—	A. Mearns Fraser. M.D., for the Corporation of Portsmouth.
Stockbridge (Ashley).	51 5	1 27 W.	235	●	B	—	—	Legh S. Powell.
M. Swarraton ...	51 8	1 11 W.	310	III	—	W.m.	06	Rev. W. L. W. Eyre, M.A.
Totland Bay ...	50 41	1 33 W.	140	III	⊙	m.	04	J. Dover, M.A.
M. Ventnor	50 36	1 13 W.	80	III	⊙	W.m.R.	06	Miss M. Gibson, for Royal National Hospital for Consumption.
Kent:— Broadstairs ...	51 21	1 26 E.	140	●	⊙	(m.)	—	Howard Hurd, C.E., and Rev. H. C. V. Snowden, for District Council.
Canterbury ...	51 17	1 5 E.	39	III	⊙	w.	05	A. Lander.
Dover	51 7	1 18 E.	198	●	—	—	96	W. C. Hawke, C.E., for the Corporation.
Dover	51 7	1 19 E.	231	T	⊙ ✓	D.M. ✓	08	W. C. Hawke, C.E., for the Corporation.
Kearsney, Chilton Farm.	51 8	1 17 E.	125	●	—	—	—	W. C. Hawke, C.E., for Dover Corporation.
Dungeness ...	50 55	0 58 E.	21	T	B	D.W.M.	08	W. C. Lewis, Lightkeeper, for M.O.
Folkestone ...	51 5	1 11 E.	121	III	⊙ (●)	d.m.	08	A. E. Nichols, M.Inst.C.E., for the Corporation.
Hildenborough ...	51 13	0 15 E.	160	●	—	—	—	Charles H. Scott.
Littlestone-on-Sea	50 59	0 59 E.	—	—	⊙	d.w.(m.)	05	H. T. Tubbs.
M. Margate	51 24	1 24 E.	35	III	⊙	d.W.m.	08	J. Stokes, J.P., for the Corporation.
Ramsgate... ...	51 20	1 25 E.	—	—	⊙	w.(m.)	08	T. G. Taylor, C.E., for the Corporation.

	Sandgate	51 4	1 9 E.	50	●	—	—	99	R. A. Skelton.
	Sandwich ...	51 17	1 20 E.	6	●	—	—	03	Royal St. George's Golf Club.
	Tankerton ...	51 22	1 2 E.	72	●	—	—	—	F. Gaster.
	Tonbridge ...	51 12	0 17 E.	319	●	—	—	—	J. Waley Cohen.
	ℳTunbridge Wells...	51 8	0 16 E.	421	III	⊙	W.m.	06	F. G. Smart, M.B.
Surrey :—	Byfleet	51 20	0 29 W.	65	●	—	—	—	R. W. Pretor-Pinney.
	Epsom	51 20	0 17 W.	160	III	—	m.	—	S. C. Russell.
	Warlingham ...	51 18	0 3 W.	609	●	θ	—	—	R. H. Curtis.
	Wisley	51 17	0 26 W.	150	III	⊙	W.m.	07	The Superintendent, for the Royal Horticultural Society.
Sussex :—	Bexhill-on-Sea ...	50 50	0 33 E.	27	II	⊙	d.m.	08	G. Brisley, M.P.S., for Rural District Council.
	M. Bognor	50 47	0 40 W.	20	III	⊙	w.m.	06	H. C. L. Morris, M.D., and H. Gardner.
	M. Brighton	50 49	0 8 W.	31	III	⊙	d.w.m.R.r.	08	H. Heaseman, for the Medical Officer of Health.
	Brighton	50 49	0 8 W.	380	—	K	w.	—	S. H. R. Salmon.
	Cuckfield	51 1	0 9 W.	389	●	—	—	97	E. Gosden.
	Eastbourne ...	50 46	0 17 E.	39	II	⊙	d.w.M.R.	08	S. R. Henderson, for the Medical Officer of Health.
	Hastings Cemetery	50 52	0 34 E.	499	●	—	—	—	Walter Field.
	„ Waterworks	50 51	0 34 E.	270	—	⊙	d.w.(m.)	06	J. Farnham, for the Corporation.
	Heathfield ...	50 58	0 16 E.	499	●	—	—	—	J. F. Leigh Clare.
	Hove	50 47	0 10 W.	—	—	⊙	m.	—	A. Griffith, M.O.H., for the Corporation.
	Lewes	50 52	0 1 E.	57	III	—	m.	08	Hon. C. Brand.
	St. Leonards ...	50 51	0 33 E.	178	II	—	W.M.	08	H. Colborne, M.R.C.S., for the Corporation.
	„ West Marina	50 51	0 32 E.	20?	III	—	—	06	T. Eldridge, for the Corporation.
	Watergate Park ...	50 56	0 55 W.	239	●	—	—	99	W. M. Christy.
	Westbourne ...	50 52	0 55 W.	30	—	⊙	(m.)	07	Rev. L. B. Birkett.
	M. Worthing ...	50 49	0 22 W.	36	III	⊙	d.w.m.	08	A. G. R. Cameron, M.D., for the Corporation.
Wilts :—	M. Marlborough ...	51 25	1 44 W.	424	III	⊙	W.m.	08	C. F. C. Padel, M.A.
	Salisbury ...	51 4	1 51 W.	180	II	—	M. R.	07	Thos. Challis, for the Earl of Pembroke, G.C.V.O.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, from the figures which give their heights above Mean Sea Level.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.	Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
LONDON DISTRICT.								
Barnet	51° 39′	0° 10′ W.	211	III	—	—	06	T. H. Martin, A.M.I.C.E., and F. J. Bancroft, B.Sc., M.I.A.C.E., M.I.M.E.
Camberwell—								
The Green	51 28	0 5 W.	17	—	●	—	03	W. Oxtoby, M.I.C.E., for the Camberwell Borough Council.
Forest Hill	51 26	0 4 W.	160	—	●	—	03	
Leyton Square ...	51 29	0 4 W.	14	—	●	—	03	
Peckham Rd. ...	51 28	0 5 W.	21	—	●	—	03	
Camden Square ...	51 33	0 8 W.	110	II	⊙ (B ●)	M.R.	—	H. Robert Mill, D.Sc., LL.D.
Chelsea...	51 29	0 10 W.	24	●	—	—	—	T. W. E. Higgens, C.E., for the Chelsea Borough Council.
City (Bunhill Row) ...	51 31	0 5 W.	80	—	⊙	w.(m.)	—	Messrs. De la Rue.
East Ham	51 32	0 3 E.	12	III	—	—	—	J. Banks, for the Corporation.
Greenwich	51 28	0 0	155	I	(I)	W.M.R.r.	—	The Astronomer Royal.
Hampstead	51 33	0 11 W.	—	III	—	—	08	University College School.
Isleworth	51 29	0 20 W.	24	III	—	—	—	A. Worsley.
Kensal Green	51 32	0 13 W.	100	●	—	—	—	C. W. Heinemann.
Kew	51 28	0 19 W.	18	I	I	W.M.R.	08	C. Chree, Sc.D., F.R.S., Superintendent of the Observatory Department, National Physical Laboratory, for the Meteorological Office.
Pall Mall	51 30	0 7 W.	—	—	B	—	—	Athenaeum Club.
Norwood	51 26	0 6 W.	220	II	—	M.R.	06	W. Marriott.
Plumstead	51 29	0 6 E.	300	—	⊙	m.	01	J. G. Waller.
Tottenham	51 36	0 5 W.	51	II	⊙	W.M.R.	06	J. F. Butler-Hogan, M.D., LL.D., for Urban District Council.
Westminster	51 30	0 8 W.	27	T	● B θ	D.W.M.R.	—	The Staff of the Meteorological Office.
„ Training Coll.	51 30	0 8 W.	107	—	⊙			J. H. Cowham.

6. (*a*) SCOTLAND, WEST.									
Argyleshire :—	Ardnadam ...	55 59	4 56 W.	64	III	(B)	—	—	Rev. J. Cairns Mitchell, B.D.
	Gruline, Isle of Mull.	56 30	6 0 W.	100	●	—	—	—	J. W. Melles.
	Laudale	56 41	5 41 W.	14	II	—	W.M.S.	07	J. A. Fletcher.
	Oban	56 25	5 30 W.	20	II	⊙	d.m.	08	Edwin Baily, M.D., for District Council.
	§Poltalloch	56 8	5 30 W.	132	II	—	W.M.	07	D. S. Melville, for Lord Malcolm.
Ayr:—	§Colmonell	55 8	4 53 W.	150	III	(B)	W.	07	A. Ogg, for J. W. McConnel.
	Kilmarnock ...	55 37	4 36 W.	90	III	⊙	W.m.	08	D. K. Robb, for the West of Scotland Agric. Coll.
Bute :—	§Rothesay	55 50	5 4 W.	115	II	—	W.M.	07	Robert Henderson.
Dumbarton :—	No station.								
Dumfries :—	§Dumfries	55 4	3 36 W.	70	II	—	W.M.	07	The late Rev. W. Andson.
Kirkcudbright :—	§Cally (Gatehouse)	54 52	4 12 W.	120	II	—	W.M.	07	W. Thomson, for H. G. Murray Stewart.
Lanark :—	Glasgow	55 53	4 18 W.	180	I	I	W.M.S.	08	Prof. L. Becker, Ph.D., for M.O.
	Thorntonhall ...	55 46	4 15 W.	440	III	⊙ B	m.	08	John Wilson, for A. Henderson Bishop.
Renfrew :—	No station.								
Stirling :—	No station.								
Wigton :—	No station.								
6. (*b*) ISLE OF MAN.									
	Douglas	54 10	4 28 W.	277	II	⊙	W.M.S.	08	Frank Cottle, for the Corporation.
	"	54 10	4 29 W.	137	—	B	—	—	A. W. Moore, J.P., C.V.O.
7. (*a*) ENGLAND, NORTH WEST.									
Cheshire :—	Bidston	53 24	3 4 W.	188	(I) T	(I) ⊙	D.W.M.R.r.	04	W. E. Plummer, M.A., F.R.A.S., for the Mersey Docks and Harbour Board.
	Hawarden Bridge...	53 12	3 1 W.	22	III	—	W.m.	08	F. B. Summers.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, from the figures which give their heights above Mean Sea Level.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.	Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
7. (*a*) ENGLAND, NORTH WEST —*cont.*								
Cheshire—*cont.* M. Hoylake	53° 23′	3° 12′ W.	30?	III	⊙	w.m.	02	Tom Robinson, for Urban District Council.
Liscard	53 25	3 5 W.	84	●	—	—	—	H. Norman Edge.
Cumberland:— Aspatria	54 46	3 21 W.	250	II	⊙ (⟋)	W.M.R.	07	J. Smith Hill, B.A., B.Sc., Agricultural College.
Carlisle	54 53	2 57 W.	111	II	—	—	04	H. S. Cartmell, for the Corporation.
Newton Rigg... ...	54 40	2 49 W.	559	II	⊙	W.M.	08	W. T. Lawrence, for the Cumberland County Council.
Uldale (Chapel House Reservoir).	54 43	3 9 W.	599	●	—	—	—	T. Strong, for Aspatria and Silloth Water Board.
Lancashire:— M. Blackpool	53 49	3 3 W.	66	II	⊙ (B ⟋ ●)	d.W.M.	08	E. W. Rees Jones, M.D., D.P.H., for the Corporation.
Burnley	53 48	2 15 W.	459	III	⊙	m.r.	08	Thos. Holt, M.D., for the Corporation.
Carnforth (Over Kellet).	54 8	2 44 W.	174	III	⊙	m.	08	W. Farrer.
Darwen	53 41	2 28 W.	722	III	⊙	d.M.	08	F. G. Haworth, M.B., for the Corporation.
Fleetwood	53 56	3 1 W.	—	—	⟋	—	08	The Urban District Council, for the Meteorological Office.
Graythwaite	54 19	3 0 W.	180	●	—	—	—	H. I. Grosspelius.
Lancaster	54 3	2 47 W.	311	III	⊙ (⟋) ●	m.	—	Neville Holden, F.R.A.S., for the Storey Institute.
Rossall Beach ...	53 55	3 2 W.	0	III	B	d.	—	T. G. Benn.
Manchester (Oldham Road).	53 29	2 13 W.	190	II	⊙	M.R.w.	08	J. Niven, M.A., M.B., for the Corporation.
,, (Whitworth Park).	53 28	2 14 W.	125	II	⊙ (B ⟋)	d.M.	08	The University of Manchester.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.	Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
7. (*a*) ENGLAND, NORTH WEST —*cont.*								
Cheshire—*cont.* M. Hoylake	53° 23′	3° 12′ W.	30?	III	⊙	w.m.	02	Tom Robinson, for Urban District Council.
Liscard	53 25	3 5 W.	84	●	—	—	—	H. Norman Edge.
Cumberland:— Aspatria	54 46	3 21 W.	250	II	⊙ (⸗)	W.M.R.	07	J. Smith Hill, B.A., B.Sc., Agricultural College.
Carlisle	54 53	2 57 W.	111	II	—	—	04	H. S. Cartmell, for the Corporation.
Newton Rigg... ...	54 40	2 49 W.	559	II	⊙	W.M.	08	W. T. Lawrence, for the Cumberland County Council.
Uldale (Chapel House Reservoir).	54 43	3 9 W.	599	●	—	—	—	T. Strong, for Aspatria and Silloth Water Board.
Lancashire:— M. Blackpool	53 49	3 3 W.	66	II	⊙ (B ⸗ ●)	d.W.M.	08	E. W. Rees Jones, M.D., D.P.H., for the Corporation.
Burnley	53 48	2 15 W.	459	III	⊙	m.r.	08	Thos. Holt, M.D., for the Corporation.
Carnforth (Over Kellet).	54 8	2 44 W.	174	III	⊙	m.	08	W. Farrer.
Darwen	53 41	2 28 W.	722	III	⊙	d.M.	08	F. G. Haworth, M.B., for the Corporation.
Fleetwood	53 56	3 1 W.	—	—	⸗	—	08	The Urban District Council, for the Meteorological Office.
Graythwaite	54 19	3 0 W.	180	●	—	—	—	H. I. Grosspelius.
Lancaster	54 3	2 47 W.	311	III	⊙ (⸗) ●	m.	—	Neville Holden, F.R.A.S., for the Storey Institute.
Rossall Beach ...	53 55	3 2 W.	0	III	B	d.	—	T. G. Benn.
Manchester (Oldham Road).	53 29	2 13 W.	190	II	⊙	M.R.w.	08	J. Niven, M.A., M.B., for the Corporation.
„ (Whitworth Park).	53 28	2 14 W.	125	II	⊙ (B ⸗)	d.M.	08	The University of Manchester.

	,, (Prestwich)	53 32	2 17 W.	320	II	⊙	W.M.r.	08	F. Gore, for Medical Superintendent of the Asylum.
	Preston	53 46	2 42 W.	148	III	—	—	08	H. O. Pilkington, M.R.C.S., for the Corporation.
	M. Southport	53 39	2 59 W.	37	II	(I) ⊙	d.w.M.R.	07	J. Baxendell, for the Corporation.
	Stonyhurst	53 51	2 28 W.	375	I	I	W.M.S.R.	08	Rev. W. Sidgreaves, S.J., for M.O.
Westmorland :—	Kirkby Lonsdale ...	54 12	2 36 W.	304	●	—	—	—	R. A. Clarke.
7. (*b*) NORTH WALES.									
Anglesey :—	Holyhead (Salt Island)	53 18	4 39 W.	57	—			08	F. M. Cotton, C.E., for M.O.
	,, (town) ...	53 18	4 39 W.	48	T, II_3	B	D.W.M.	08	T. Chope, for M.O.
Carnarvon :—	Colwyn Bay ...	53 16	3 44 W.	82	III	⊙	d.m.	08	Wm. Jones, A.M.I.C.E., for Urban District Council.
	M. Llandudno	53 20	3 50 W.	71	II	⊙	d.W.M.R.	07	William Little, for the Town Council.
	Penrhyn Quarry ...	53 10	4 6 W.	527	●	—	—	01	W. G. Griffith, for E. A. Young.
Denbigh :—	Bettws-y-Coed ...	53 7	3 53 W.	101	II	⊙	d.W.M.R.	08	Dr. H. W. Fox, for District Council.
	Llanbedr Hall (Ruthin)	53 8	3 17 W.	450	●	—	—	—	George A. Crace-Calvert, M.B.
Flint:—	Penbedw	53 12	3 11 W.	650	—	B	—	—	H. W. Buddicom.
	Rhyl	53 19	3 29 W.	30	III	⊙	d.w.m.	08	A. A. Goodall, for District Council.
	St. Asaph (St. Bueno's College).	53 15	3 23 W.	479	III	(B)	m.	—	Rev. J. Rowland, S.J.
Merioneth :—	Aberdovey	52 33	4 4 W.	22	III	⊙	w.m.	07	W. J. Eves.
	M. Towyn	52 35	4 5 W.	10	III	⊙	d.m.	07	E. Lewys Lloyd, M.D., for Urban District Council.
Montgomery:—	No station.								
8. (*a*) SOUTH WALES.									
Brecknock :—	Llangammarch Wells	52 7	3 32 W.	550	III	⊙	W.m.R.	06	W. Black Jones, M.D., B.S., D.P.H
Cardigan :—	M. Aberystwyth... ...	52 25	4 4 W.	59	III	⊙	d.w.m.	07	A. Thomas, M.D., for the Urban Council.
	Lampeter	52 7	4 5 W.	498	●	—	—	—	John C. Harford.
Carmarthen :—	Llandovery	51 59	3 48 W.	248	●	—	—	—	Douglas T. M. Jones.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, from the figures which give their heights above Mean Sea Level.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.		Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
8. (*a*) SOUTH WALES—*cont.*									
Glamorgan :—	Cardiff	51° 28′	3° 10′ W.	50	III	⊙	W.m.r.	07	E. Walford, M.D., for the Corporation.
	Port Talbot	51 34	3 45 W.	179	●	⊙	(m.)	03	Miss Talbot: G. Lipscomb.
	Swansea	51 37	3 55 W.	24	III	—	m.	07	D. Bliss, for the Corporation.
Pembroke :—	Haverfordwest ...	51 48	4 58 W.	93	(II)	⊙ (B)	(m.)	01	J. W. Phillips.
	Pembroke (St. Ann's Head).	51 41	5 11 W.	149	T, II_3	⊙	D.W.M.R.	08	G. H. Dunsford, and A. S. Jackson, Lightkeepers, for M.O.
	Tenby	51 41	4 42 W.	79	—	⊙	w.(m.)	03	H. L. Truscott, for the Corporation.
Radnor :—	Llandrindod Wells ...	52 14	3 23 W.	699	●	—	—	—	W. B. de Winton.
	Rhayader Watershed	52 18	3 29 W.	*	(14) ●	—	—	—	Corporation of Birmingham, Water Department.
8. (*b*) ENGLAND, SOUTH WEST.									
Cornwall :—	Falmouth	50 9	5 4 W.	167	I	I	W.M.R.	08	Royal Cornwall Polytechnic Society, for M.O.
	„ Pendennis Castle.	50 8	5 3 W.	—	—	⚡	—	08	Coastguard, for M.O.
	M. Newquay	50 25	5 4 W.	100	III	⊙	w.(m.)	04	C. C. Vigurs, B.A., M.D., for Urban District Council.
	M. Penzance	50 7	5 32 W.	54	III	⊙	m.	08	Chas. H. Benn, for District Council.
Devonshire:—	Arlington Court ...	51 8	3 58 W.	613	III	—	W.m.	06	The late Lady Chichester and Miss Chichester.
	Barnstaple	51 5	4 3 W.	24	III	—	—	06	Thos. Wainwright, for the North Devon Athenæum.
	₥Cullompton	50 51	3 23 W.	202	III	⊙	W.m.	07	M. T. Foster.
	Plymouth	50 22	4 8 W.	116	II_3	⊙ ⚡ (B)	d.W.M.S.R.r. ⚡	08	H. Victor Prigg, A.M.I.C.E., for the Corporation.

	ℳRousdon	50 43	3 0 W.	515	II	⊙ (⛴ B)	M.	07	C. Grover, for The Hon. Lady Peek.
	M. Salcombe	50 14	3 46 W.	300	—	⊙	(m.)	04	V. W. Twining, M.D.
	Sheepstor	50 29	4 1 W.	749	●	—	—	—	Rev. H. H. Breton, M.A.
	M. Torquay	50 28	3 31 W.	12	III	⊙	d.w.(m.)	00	F. March, for the Corporation.
	ℳWhitchurch	50 32	4 6 W.	593	II	—	M.	07	E. E. Glyde.
	ℳWoolacombe	51 10	4 12 W.	59	II	⊙	S.M.R.	07	R. N. Kivell, for Miss Chichester.
Dorset :—	Parkstone	50 43	1 56 W.	197	●	—	—	00	C. Mabey.
	Portland Bill... ...	50 32	2 27 W.	19	T, II_3	B	D.W.M.R.	08	G. Carpenter, Lightkeeper, for M.O.
	ℳShaftesbury	51 1	2 12 W.	722	III	—	W.m.	06	Rev. F. Ehlvers.
	M. Weymouth	50 36	2 27 W.	21	III	⊙	d.m.	08	J. J. Brown.
Monmouth :—	Abergavenny ...	51 49	3 2 W.	178	●	—	—	—	A. V. Whitehead.
	Abersychan	51 44	3 5 W.	698	●	—	—	—	W. P. James.
	Newchurch	51 41	2 48 W.	525	●	—	—	—	J. Cullum, for the Corporation of Newport.
	Newport	51 35	3 0 W.	32	III	—	—	04	
	Pant-yr-eos	51 38	3 4 W.	449	●	—	—	00	
	Ynys-y-fro	51 38	3 3 W.	151	●	—	—	00	
Somerset :—	M. Bath	51 23	2 21 W.	66	T, III	(B ⛴) ⊙	D.W.M.R.	08	W. H. Symons, M.D., for the Corporation.
9. IRELAND, NORTH.									
(a) *Western Part.*									
Galway :—	Ardfry	53 19	9 0 W.	—	—	B	—	—	W. M. Tattersall, for the Department of Agriculture for Ireland.
Leitrim :—	Carrigallen	53 58	7 38 W.	350?	●	—	—	—	Miss Morrow.
Mayo :—	Blacksod Point ...	54 6	10 4 W.	37	T, II_3	B	D.W.M.R.r.	07	V. R. Fromm, Coastguard, for M.O.
	Mallaranny	53 55	9 40 W.	119	●	—	—	08	The Manageress of the Hotel for the M. G.W. Railway.
Roscommon :—	No station.								
Sligo :—	Markree Castle ...	54 11	8 27 W.	122	II	⊙	W.M.S.R.	06	J. R. Armstrong, for Captain Bryan Cooper.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, from the figures which give their heights above Mean Sea Level.

* 14 Rainfall Stations.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.		Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
9. IRELAND, NORTH—*cont.*									
(b) *Eastern Part.*									
Antrim :—	Belfast	54° 35′	5° 56′ W.	61	II	—	M.R.	06	John Wylie, B.A., and G. Robinson, for Prof. Morton.
	Glenarm	54 58	5 56 W.	41	●	—	—	—	The Earl of Antrim.
Armagh :—	Armagh	54 21	6 39 W.	196	II	⊙ ●	W.M.S.R.	08	J. L. E. Dreyer, Ph D., for M.O.
Cavan :—	No station.								
Donegal :—	Dunfanaghy	55 11	7 58 W.	54	III	—	—	—	J. J. MacGrath, L.R.C.P.
	Killybegs	54 40	8 27 W.	221	●	—	—	—	John C. Ward.
	Malin Head	55 23	7 24 W.	230	T	B	D.W.M.R.r.	08	Chief Officer, Coastguard, for M.O.
	Rosbeg (Narin) ...	54 50	8 30 W.	—	—	B	—	05	J. McLoone, Postmaster.
Down :—	Donaghadee	54 38	5 32 W.	40	T, II_3	B	D.W.M.R.r.	08	T. Arnell, Coastguard, for M.O.
Fermanagh :—	No station.								
Londonderry :—	No station.								
Longford :—	No station.								
Louth :—	No station.								
Meath :—	No station.								
Monaghan :—	No station.								
Tyrone :—	No station.								
Westmeath :—	No station.								
10. IRELAND, SOUTH.									
(a) *Eastern Part.*									
Carlow :—	No station.								
Dublin :—	M. Dublin City	53 20	6 15 W.	47	II	B	d.W.M.R.	07	Sir John W. Moore, M.D., D.Sc.
	,, Phœnix Park	53 22	6 21 W.	155	II	⊙	w.M.S.	08	Lt.-Col. R. W. H. Buckland, R.E., and Lt.-Col. C. C. J. Pery, R.E., Ordnance Survey Office.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.		Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
9. IRELAND, NORTH—*cont.*									
(b) *Eastern Part.*									
Antrim :—	Belfast	54° 35′	5° 56′ W.	61	II	—	M.R.	06	John Wylie, B.A., and G. Robinson, for Prof. Morton.
	Glenarm	54 58	5 56 W.	41	●	—	—	—	The Earl of Antrim.
Armagh :—	Armagh	54 21	6 39 W.	196	II	⊙ ●	W.M.S.R.	08	J. L. E. Dreyer, Ph.D., for M.O.
Cavan :—	No station.								
Donegal :—	Dunfanaghy	55 11	7 58 W.	54	III	—	—	—	J. J. MacGrath, L.R.C.P.
	Killybegs	54 40	8 27 W.	221	●	—	—	—	John C. Ward.
	Malin Head	55 23	7 24 W.	230	T	B	D.W.M.R.r.	08	Chief Officer, Coastguard, for M.O.
	Rosbeg (Narin) ...	54 50	8 30 W.	—	—	B	—	05	J. McLoone, Postmaster.
Down :—	Donaghadee	54 38	5 32 W.	40	T, II_2	B	D.W.M.R.r.	08	T. Arnell, Coastguard, for M.O.
Fermanagh :—	No station.								
Londonderry :—	No station.								
Longford :—	No station.								
Louth :—	No station.								
Meath :—	No station.								
Monaghan :—	No station.								
Tyrone :—	No station.								
Westmeath :—	No station.								
10. IRELAND, SOUTH.									
(a) *Eastern Part.*									
Carlow :—	No station.								
Dublin :—	M. Dublin City	53 20	6 15 W.	47	II	B	d.W.M.R.	07	Sir John W. Moore, M.D., D.Sc.
	„ Phœnix Park	53 22	6 21 W.	155	II	⊙	w.M.S.	08	Lt.-Col. R. W. H. Buckland, R.E., and Lt.-Col. C. C. J. Pery, R.E., Ordnance Survey Office.

	,, Botanic Gardens.	53 23	6 16 W.	67	II	—	m.	07	F. W. Moore, M.R.I.A.
	,, Trinity College	53 21	6 16 W.	12	II	⊙	M.(R.)w.	07	J. E. W. Flood and W. J. Good, for Prof. Thrift.
	Dundrum	53 16	6 14 W.	200	III	—	—	—	Dr. Arthur S. Goff.
	Killiney	53 16	6 7 W.	249	●	—	—	—	R. O'Brien Furlong, C.B.
	M. Kingstown	53 17	6 8 W.	42	III	⊙	m.	07	R. A. O'Donovan, M.D., for the Corporation.
	,, Harbour ...	53 17	6 8 W.	—	—	⚓	⚓	08	Robert Gray, C.E., and Captain A. F. Holmes, R.N., for H.M. Office of Works.
Kildare :—	Clongowes Wood College.	53 19	6 41 W.	245	III	(B θ) ⊙	m.	06	Rev. W. P. Hackett, S.J.
Kilkenny :—	Kilkenny	52 39	7 14 W.	212	III	B	W.m.	06	E. Sutton, for the Marquis of Ormonde, K.P.
King's Co. :—	Birr Castle	53 6	7 55 W.	175	II, T	⊙	D.W.M.S.R.r.	06	Dr. Boeddicker, for the Earl of Rosse, K.P.
Queen's Co. :—	Mountmellick ...	53 7	7 20 W	253	III	—	m.	—	W. A. Robinson.
Waterford :—	Waterford	52 16	7 7 W.	—	—	B	—	02	Harbour Authorities.
	,, ...	52 16	7 7 W.	20 ?	III	—	W.m.R.	07	J. N. White.
Wexford :—	Foulkmills ...	52 18	6 46 W.	—	●	—	—	—	W. J. Deane.
Wicklow :—	Bray	53 12	6 6 W.	153	●	—	—	—	Miss A. L. Scott.
	Newcastle	53 5	6 6 W.	256	II	—	—	02	L. T. Burra, M.D
(b) *Western Part.*									
Clare: —	Ennistymon	52 57	9 17 W.	130	●	—	—	—	Rev. C. W. McDowell, M.A
	Hurdlestown ...	52 48	8 38 W.	157	●	—	—	—	Lt.-Col. W. O. Bentley, R.A.
	Mount Callan ...	52 53	9 16 W.	479	●	—	—	98	Lt.-Col. Tottenham.
	Newmarket-on-Fergus.	52 46	8 53 W.	85	●	—	—	98	Alfred Barker, for W. W. A. Fitzgerald.
Cork :—	Ballinacurra	51 52	8 10 W.	24	III	⊙	w.m.	07	John H. Bennett.
	Doneraile	52 13	8 34 W.	266	●	—	—	—	Capt. J. W. Evans, J.P.
	Roche's Point ...	51 47	8 15 W.	32	T	—	D.W.M.R.r.	08	M. Fitz Mahony, Post Office, for M.O.
	,, ,, ...	51 47	8 15 W.	—	—	⚓	⚓	08	Captain G. Usborne, for Cork Harbour Commissioners.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, by the figures which give their heights above Mean Sea Level.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.		Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
10. IRELAND, SOUTH—*cont.*									
(b) *Western Part*—cont.									
Kerry :—	Caragh Lake	52° 3′	9° 53′ W.	—	●	—	—	—	Admiral E. F. Jeffreys, C.V.O.
	Killarney	52 4	9 30 W.	174	III	—	W.m.R.	06	E. W. Griffin, M.D.
	Valencia	51 56	10 15 W.	30	I, T	I, B	D.W.M.R.r.	08	J. E. Cullum, for M.O.
	,, Glanleam ...	51 56	10 20 W.	—	●	—	—	01	A. O'Donoghue.
Limerick :—	Foynes	52 37	9 7 W.	108	III	—	W.m.	06	J. J. Alcorn, for Lord Monteagle, K.P.
	Limerick (Derravoher)	52 38	8 40 W.	40	●	—	—	—	Sir A. W. Shaw.
	Roxborough	52 35	8 36 W.	107	●	—	—	02	Sir A. W. Shaw.
Tipperary :—	⚥Cahir (Bengurragh)	52 22	7 56 W.	199	III	—	W.m.	—	R. W. Smith, Jun.
11. ENGLISH CHANNEL (WESTERN SECTION).									
Guernsey :—	M. St. Peter Port, Villa Carey.	49 27	2 32 W.	180	III	⊙	W.m.	08	F. E. Carey, M.D.
	St. Peter Port, Brooklyn.	49 27	2 31 W.	297	II	⊙ (B θ)	w.M.R.	08	Adolphus Collenette.
Jersey :—	St. Aubin's	49 12	2 11 W.	25	T, II_2	—	D.W.M.R.	08	J. Fisher, for M.O.
	St. Helier's	49 11	2 6 W.	—	—	⊙	d.w.(m.)R.	06	Signal Officer, Fort Regent, for M.O.
Scilly :—	St. Mary's	49 56	6 18 W.	131	T, II_3	B ⊙	D.W.M.R.	08	A. Hicks, for M.O.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, by the figures which give their heights above Mean Sea Level.

LIST OF STATIONS ARRANGED ACCORDING TO DISTRICTS AND COUNTIES—*continued.*

County and Station.		Lat.	Long.	Height in feet above M.S.L.	Order of Station. Eye Obs.	Order of Station. Self-recording.	Publication.	Year of last Inspection.	Observer.
10. IRELAND, SOUTH—*cont.*									
(b) *Western Part*—cont.									
Kerry :—	Caragh Lake	52 3	9 53 W.	—	●	—	—	—	Admiral E. F. Jeffreys, C.V.O.
	Killarney	52 4	9 30 W.	174	III	—	W.m.R.	06	E. W. Griffin, M.D.
	Valencia	51 56	10 15 W.	30	I, T	I, B	D.W.M.R.r.	08	J. E. Cullum, for M.O.
	" Glanleam ...	51 56	10 20 W.	—	●	—	—	01	A. O'Donoghue.
Limerick :—	Foynes	52 37	9 7 W.	108	III	—	W.m.	06	J. J. Alcorn, for Lord Monteagle, K.P.
	Limerick (Derravoher)	52 38	8 40 W.	40	●	—	—	—	Sir A. W. Shaw.
	Roxborough	52 35	8 36 W.	107	●	—	—	02	Sir A. W. Shaw.
Tipperary :—	Cahir (Bengurragh)	52 22	7 56 W.	199	III	—	W.m.	—	R. W. Smith, Jun.
11. ENGLISH CHANNEL (WESTERN SECTION).									
Guernsey :—	M. St. Peter Port, Villa Carey.	49 27	2 32 W.	180	III	⊙	W.m.	08	F. E. Carey, M.D.
	St. Peter Port, Brooklyn.	49 27	2 31 W.	297	II	⊙ (B θ)	w.M.R.	08	Adolphus Collenette.
Jersey :—	St. Aubin's	49 12	2 11 W.	25	T, II_3	—	D.W.M.R.	08	J. Fisher, for M.O.
	St. Helier's	49 11	2 6 W.	—	—	⊙	d.w.(m.)R.	06	Signal Officer, Fort Regent, for M.O.
Scilly :—	St. Mary's	49 56	6 18 W.	131	T, II_3	B ⊙	D.W.M.R.	08	A. Hicks, for M.O.

The names of Stations added to the list since April, 1908, are printed in clarendon type. The positions of the Stations can be identified on the map, Plate II., p. 59, by the figures which give their heights above Mean Sea Level.

LIST OF FOREIGN STATIONS FROM WHICH REPORTS ARE RECEIVED DAILY BY TELEGRAPH. *See* PAGE 42.

Name of Station.	Authority.
[2]Reykjavik [2]Blonduös [2]Akureyri (Iceland) ... [2]Grimstadir [2]Seydisfjord [2]Thorshavn, Faeröe Islands ...	Meteorological Institute, Copenhagen. Captain Ryder, *director.*
Haparanda ... ... Hernösand ... ... [2]Stockholm ... ... Wisby ... ... Karlstad	Meteorological Office, Stockholm. Dr. Hamberg, *director.*
Bodö ... ... [2]Christiansund ... ... [1 2]Skudesnaes ... ... Færder	Meteorological Institute, Christiania. Professor Mohn, *director.*
[2]The Skaw ... ... Fanö	Meteorological Institute, Copenhagen. Captain Ryder, *director.*
Cuxhaven ... ... Berlin ... ... Frankfurt ... ... Munich	Deutsche Seewarte, Hamburg. Admiral Herz, *director.*
[2]The Helder	Meteorological Institute, Utrecht. Dr. van Everdingen, *director.*
Brussels	Meteorological Service, Brussels. M. J. Vincent, *director.*
Cape Gris Nez ... ... La Hève ... ... *Ushant ... ... [2]Brest (St. Mathieu) ... ... Lorient (Ile de Groix) ... *Er-Hastellic ... ... [1 2]Rochefort (Ile d'Aix) ... *Chassiron ... ... *La Coubre ... ... [2]Biarritz ... ... [2]Paris ... ... Belfort ... ... Lyons ... ... Nice ... ... Perpignan ... ... *Cape Béarn ... ... Sanguinaire (Corsica)... ...	Bureau Central Météorologique, Paris. M. Alfred Angot, *director.*
Corunna	Central Meteorological Institute, Madrid. M. A. Arcimis, *director.*
Lisbon	Observatory, Lisbon. M. Pina Vidal, *director.*
[2]Azores (Ponta Delgada) ... " (Horta)	Meteorological Service of the Azores. Major Chaves, *director.*

Note.—The stations marked ([1]) report also at 1h. p.m., and those marked ([2]) at 6h. p.m. Lisbon reports at 4h. p.m. instead of 6h. p.m., and Ponta Delgada at 3h. p.m.

* The reports from these stations are not published in the Daily Weather Report.

List of additional Stations from which Reports are received for the Daily Weather Report. (*See* p. 42.)

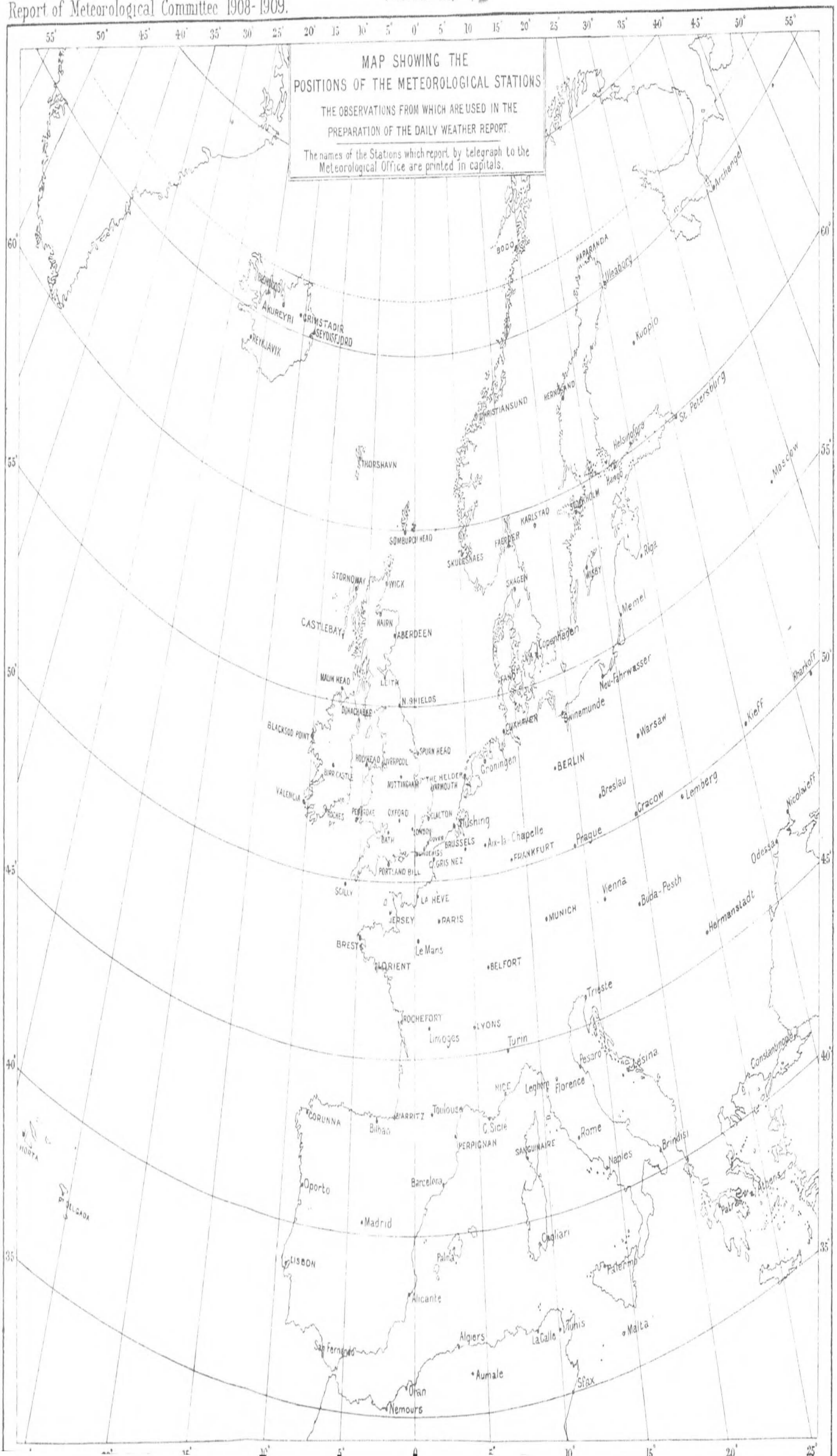
Station.	Hour of Observation.		Station.	Hour of Observation.	
Strathpeffer ..	6 p.m.	By wire.	Southsea ..	6 p.m.	By wire.
Oban	6 p.m.	By wire	Worthing ..	6 p.m.	By wire and post.
Dublin ..	4 p.m.	By post.	Brighton ..	6 p.m.	By wire and post,
Rossall Beach	6 p.m.	By post.	Eastbourne ..	6 p.m.	By wire and post
Blackpool ..	6 p.m.	By wire; and 9 p.m. by post.	Bexhill-on-Sea	9 p.m.	By post.
Southport ..	6 p.m.	By wire; and 9 p.m. by post	Hastings ..	6 p.m.	By wire and post.
Rhyl	8 a.m.	By wire; and 6 p.m. by wire and post.	Folkestone	6 p m.	By wire and post.
Colwyn Bay	6 p.m.	By wire and post.	Ramsgate ..	6 p.m.	By wire and post.
Llandudno ..	6 p.m	By wire; and 9 p.m. by post.	Margate ..	6 p.m.	By wire and post.
Bettws-y-Coed	6 p.m.	By wire.	Felixstowe ..	6 p.m.	By wire and post.
Towyn ..	6 p.m.	By wire and post.	Lowestoft ..	6 p.m.	By wire and post.
Aberystwyth	6 p.m.	By wire.	Skegness ..	6 p.m.	By wire and post.
Plymouth ..	9 p.m.	By post.	Scarborough ..	6 p.m.	By wire; and 9 p.m. by post.
Torquay ..	6 p.m.	By wire and post.	Harrogate ..	6 p.m.	By wire and post.
Weymouth ..	6 p.m.	By wire and post.	Buxton ..	6 p.m.	By wire and post.
Bournemouth	6 p.m.	By wire and post.	Darwen ..	9 p.m.	By post.
			Manchester ..	9 p.m.	By post.
			Birmingham ..	9 p.m.	By post.

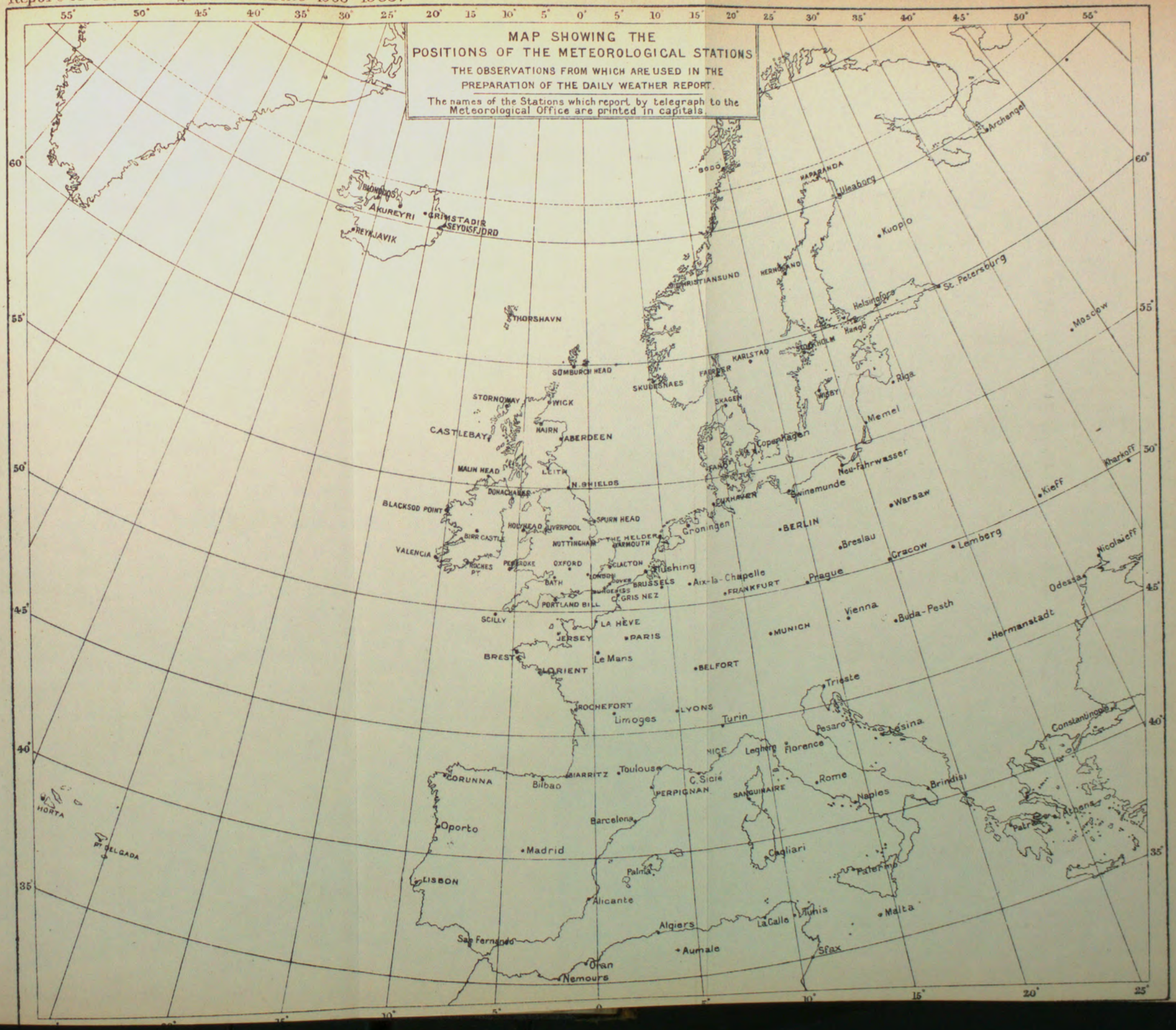
List of Sea Temperature Stations.

§*Aberdeen, Cove Bay.
*Arran, North, Galway.
†Bahama Bank Lightship.
§*Ballantrae, Ayrshire.
*Ballydonegan, Co. Cork.
†Barrels Rock Lightship.
*Blacksod Point, Co. Mayo.
†Blackwater Bank Lightship.
§*Burnmouth, Ayton, Berwick.
*Burntisland.
†Carnarvon Bay Lightship.
†Cardigan Bay Lightship.
§*Cleggan, Co. Galway.
†Coningbeg Lightship.
§*Cromarty.
†Daunts Rock Lightship.
§[1] Eastbourne.
†East Goodwin Lightship.
†English and Welsh Grounds Lightship.
†Fastnet Rock Lighthouse.
[2] Holyhead Harbour Office.
§*Kirkwall.
†Kish Bank Lightship.
§*Lamlash, Isle of Arran.
†Leman and Ower Lightship.
§*Lerwick.
*Liscannor, Co. Clare.
§[3] Margate.
†Morecambe Bay Lightship.
†Newarp Lightship.
§*Newquay, Cornwall.
†North Arklow Lightship.
North Arran (*see* Arran).
†North-West Lightship.
†Outer Dowsing Lightship.
†Owers Lightship.
§*Pennan Bay (Aberdour).
§[4] Plymouth.
§[5] Port Erin.
*Portrush.
†Royal Sovereign Lightship.
St. Ann's Head, Pembroke.
§*Salcombe, Devon.
§*Scarborough.
[6] Scilly Islands (St. Mary's).
§*Seafield, Co. Clare.
†Seven Stones Lightship.
†Shambles Lightship.
§ Sheephaven (Dunfanaghy).
§†Shipwash Lightship.
†Skulmartin Lightship.
†Solway Lightship.
†South Arklow Lightship.
†South Rock Lightship.
†Spurn Lightship.
*Stornoway.
*Sunderland.
§*Teelin, Co. Donegal.
*Usan (Montrose).
§*Wick.

The observers are indicated thus:—* Coastguard, † Lightkeepers, [1] S. R. Henderson, [2] F. M. Cotton, C.E., [3] W. J. Woodruff, [4] H. Victor Prigg, [5] Marine Biological Station, [6] A. Hicks.

§ Stations marked thus send weekly returns for publication in the Weekly Weather Report.


MAP SHOWING THE
POSITIONS OF THE METEOROLOGICAL STATIONS
THE OBSERVATIONS FROM WHICH ARE USED IN THE
PREPARATION OF THE DAILY WEATHER REPORT.
The names of the Stations which report by telegraph to the Meteorological Office are printed in capitals.
BODO
HAPARANDA
Archangel
Ullesburg
Kuopio
AKUREYRI
GRIMSTADIR
SEYDISFJORD
REYKJAVIK
HERNOSAND
CHRISTIANSUND
St. Petersburg
Helsingfors
Hangö
THORSHAVN
Moscow
STOCKHOLM
KARLSTAD
SUMBURGH HEAD
FAERDER
SKUDESNAES
Riga
STORNOWAY
WICK
SKAGEN
WISBY
Memel
CASTLEBAY
NAIRN
ABERDEEN
Copenhagen
MULL HEAD
LEITH
FANO
Neu-Fahrwasser
N. SHIELDS
DUNACHARRE
Swinemunde
Kharkoff
BLACKSOD POINT
CUXHAVEN
Warsaw
Kieff
SPURN HEAD
HOLYHEAD
LIVERPOOL
Groningen
BERLIN
BIRR CASTLE
NOTTINGHAM
THE HELDER
YARMOUTH
VALENCIA
Breslau
Cracow
Lemberg
ROCHES DT.
PEMBROKE
OXFORD
CLACTON
Nicolaieff
Flushing
LONDON
BATH
DOVER
BRUSSELS
Aix-la-Chapelle
Prague
Odessa
FRANKFURT
GRIS NEZ
PORTLAND BILL
Vienna
SCILLY
LA HÈVE
Buda-Pesth
JERSEY
PARIS
MUNICH
Hermanstadt
BREST
Le Mans
FLORIENT
BELFORT
Trieste
ROCHEFORT
LYONS
Limoges
Turin
Pesaro
Jesina
Constantinople
NICE
Leghorn
Florence
CORUNNA
BIARRITZ
Toulouse
Bilbao
C. Sicié
Rome
PERPIGNAN
SANGUINAIRE
Brindisi
HORTA
Naples
Oporto
Barcelona
Athens
PELAGA
Patras
Madrid
Cagliari
LISBON
Palma
Palermo
Alicante
Tunis
Malta
Algiers
LaCalle
San Fernando
Aumale
Oran
Sfax
Nemours


MAP SHOWING THE
POSITIONS OF THE METEOROLOGICAL STATIONS
THE OBSERVATIONS FROM WHICH ARE USED IN THE
PREPARATION OF THE DAILY WEATHER REPORT.
The names of the Stations which report by telegraph to the Meteorological Office are printed in capitals.
BLÖNDUOS
AKUREYRI
GRIMSTADIR
SEYDISFJORD
REYKJAVIK
THORSHAVN
SUMBURGH HEAD
STORNOWAY
WICK
CASTLEBAY
NAIRN
ABERDEEN
MALIN HEAD
LEITH
N. SHIELDS
DONACHADEE
BLACKSOD POINT
SPURN HEAD
HOLYHEAD
LIVERPOOL
BIRR CASTLE
NOTTINGHAM
THE HELDER
YARMOUTH
VALENCIA
ROCHES PT
PEMBROKE
OXFORD
CLACTON
LONDON
DOVER
BATH
BRUSSELS
BURGESS
C. GRIS NEZ
PORTLAND BILL
SCILLY
LA HÈVE
JERSEY
PARIS
BREST
Le Mans
LORIENT
ROCHEFORT
Limoges
LYONS
CORUNNA
Bilbao
BIARRITZ
Toulouse
PERPIGNAN
HORTA
PT. DELGADA
Oporto
Barcelona
Madrid
LISBON
Palma
Alicante
San Fernando
Oran
Nemours
Algiers
Aumale
BODO
HAPARANDA
Uleaborg
Archangel
Kuopio
CHRISTIANSUND
HERNÖSAND
St. Petersburg
Helsingfors
Hangö
Moscow
STOCKHOLM
KARLSTAD
FARNER
SKUDESNAES
SKAGEN
MOSS
Riga
Memel
Copenhagen
Neu-Fahrwasser
Swinemunde
EMDEN
Groningen
BERLIN
Warsaw
Kieff
Kharkoff
Breslau
Cracow
Lemberg
Nicolaieff
Odessa
Prague
Aix-la-Chapelle
FRANKFURT
Vienna
Buda-Pesth
MUNICH
Hermanstadt
BELFORT
Trieste
Turin
Pesaro
Messina
Constantinople
NICE
Leghorn
Florence
C. Sicié
SARDINIAIRE
Rome
Naples
Brindisi
Athens
Patras
Cagliari
Palermo
Malta
La Calle
Tunis
Sfax

List of Stations in the Colonies and Dependencies and in Foreign Countries from which Returns are received in Manuscript.

Note.—Returns received in printed form are not included in this list.

Station	Latitude.	Longitude.	Height in Feet above M.S.L.	Order of Station.	Year of Commencement of Observations.	Observer.
Mediterranean.	° ′	° ′				
Cyprus,* ‡Famagusta	35 7 N.	33 57 E.	34	II	1881	The Chief Medical Officer.
" ‡Kyrenia	35 21 N.	33 19 E.	54	II	1881	
" ‡Larnaca	34 55 N.	33 37 E.	19	II	1881	
" ‡Limassol	34 40 N.	33 1 E.	26	II	1881	
" ‡Nicosia	35 11 N.	33 22 E.	493	II	1881	
" ‡Papho	34 46 N.	32 25 E.	202	II	1881	
Gibraltar	30 6 N.	5 21 W.	48	II	1883	Colonial Secretary's Department.
Morocco, ‡Cape Spartel	35 47 N.	5 55 W.	191	II	1893	Edwin C. Hathaway, for Lloyds.
" Mogador	31 30 N.	9 42 W.	19	●	1903	P. W. Wilkinson and H. B. Johnstone, H.B.M. Vice-Consul.
" Saffi	†32 17 N.	9 8 W.	40	●	1905	N. A. de Silva.
Syria, Beyrout	33 54 N.	35 28 E.	172	II	1883	A. S. Kheiri, B.A., for Alfred H. Joy, M.A., Director of the Syrian Protestant College.
Turkey, Smyrna	38 26 N.	17 9 E.	50	III	1908	H. Echiboukdjian for Rev. Alex. MacLachlan, President, International College.
Africa.						
Central :—						
Uganda, Budo	0 20 S.	31 40 E.	—	●	1908	W. T. Dawe, Director of the Scientific Department.
" Bukona (Iganga) ...	0 30 N.	33 37 E.	—	●	1908	
" Bululu	1 43 N.	33 12 E.	—	●	1908	

* By arrangement with the Colonial Office and the Survey Department of Egypt the returns for these stations are sent in the first instance to the Survey Department for use in connexion with its Monthly Weather Report. They are sent to the Office for ultimate filing.

† The positions and heights of the stations are those given by the observers, except in cases marked †, for which the information given has been obtained from other sources.

‡ The Meteorological instruments in use at this Station are lent by the Meteorological Committee.

LIST OF STATIONS in the COLONIES, &c., from which RETURNS are received in MANUSCRIPT—*continued.*

Station.	Latitude.	Longitude.	Height in Feet above M.S.L.	Order of Station.	Year of Commencement of Observations.	Observer.
AFRICA—*continued.*						
Central—*continued.*	° ′	° ′				
Uganda, Butiaba	1 49 N.	31 20 E.	—	●	1904	W. T. Dawe, Director of the Scientific Department.
,, Entebbe	0 4 N.	32 27 E.	3,906	III	1896	
,, Fort Portal	†0 40 N.	30 20 E.	5,299	III	1901	
,, Gondokoro	†4 54 N.	31 44 E.	1,500	III	1901	
,, Jinja	0 24 N.	33 13 E.	3,650	III	1901	
,, Kakumiro	—	—	—	●	1907	
,, Kampala	0 40 N.	32 39 E.	—	III	1907	
,, Koba	2 23 N.	31 30 E.	—	III	1907	
,, Masaka	†0 20 S.	31 50 E.	—	III	1902	
,, Masindi	1 40 N.	31 45 E.	—	III	1906	
,, Mbale	1 1 N.	34 11 E.	—	●	1907	
,, Mbarara	†0 39 S.	30 49 E.	4,500	III	1901	
,, Namenaga	—	—	—	●	1908	
,, Nimule	3 38 N.	32 11 E.	2,034	III	1903	
,, Sunga	—	—	—	●	1908	
West Central :—						
Upper Congo, Yakusu	0 34 N.	25 1 E.	—	III	1905	*The late* Rev. S. Osborne Kempton, Baptist Mission Station.
West :—						
Angola, Kibokolo	6 17 S.	15 17 E.	3,200	IIIθ	1902	Rev. Thomas Lewis, Baptist Mission Station.
Gold Coast, Aburi	—	—	—	III	1893	Medical Department. Accra.
,, Accra	†5 35 N.	0 6 W.	—	III	1893	
,, Axim	†4 50 N.	2 12 W.	—	III	1895	
,, ‡Cape Coast Castle ...	†5 15 N.	0 30 W.	—	III	1895	
,, Gambaga	†10 31 N.	0 26 W.	—	III	1899	
,, Kintampo	8 5 N.	1 30 W.	—	III	—	
,, Kumasi	†6 50 N.	2 16 W.	—	III	1899	
,, Kwitta (Keta)	†5 59 N.	0 59 E.	—	III	1895	
,, Lunyani	—	—	—	III	1908	
,, Sekondi	5 0 N.	1 40 W.	—	III	1904	

„ Tarkwa	5 11 N.	2 0 W.	—	III	1907	Medical Department, Accra.
„ Tamale	—	—	—	III	1908	
Northern Nigeria :—						
Bautchi	10 17 N.	9 42 E.	2,300	III	1907	The Secretariat, Zungeru.
(Geidam) Dumjeri	12 50 N.	11 50 E.	—	III	1907	
Ilorin	8 29 N.	4 32 E.	968	III	1907	
Kano	12 0 N.	8 32 E.	2,000	III	1907	
Katagum	—	—	—	III	1907	
Keffi	8 50 N.	7 48 E.	—	III	1907	
Kontagora	10 24 N.	5 24 E.	1,300	III	1907	
Lokoja	7 48 N.	6 43 E.	270	III	1907	
Maifani	11 50 N.	13 12 E.	1,200	III	1907	
Sokoto	13 2 N.	5 14 E.	1,160	III	1907	
Yola	9 15 N.	12 28 E.	850	III	1907	
Zaria	11 0 N.	7 30 E.	2,030	III	1907	
Zungeru	9 49 N.	6 10 E.	530	III	1907	
Sierra Leone	8 30 N.	13 9 W.	179	II	1895	The Principal Medical Officer.
Southern Rhodesia :—						
Ringstead Reef (Essexvale) ...	21 0 S.	29 0 E.	4,496	●	1908	Mrs. C. E. Fripp.
South America.						
British Guiana, Georgetown	6 49 N.	56 10 W.	0	⊙	1887	A. W. Bartlett, Government Botanist.
China.						
Chinkiang	32 10 N.	119 40 E.	36	II ⊙	1905	Capt. Lewis H. Tamplin, F.R.A.S.
North Atlantic Ocean.						
Bermuda Dockyard	32 19 N.	64 51 N.	—	—	1889	Lieut. C. E. Stainer, R.N.
Bahamas, Nassau	†25 2 N.	77 25 W.	—	III	1895	P. H. Burns, Supt. Bahamas Cable.
„ ‡*Abaco	25 52 N.	77 11 W.	70	II	1859	Lightkeepers, for Board of Trade.
„ ‡*Cay Lobos	22 33 N.	77 36 W.	15	II	1877	
„ ‡*Cay Sal	23 42 N.	80 25 W.	30	II	1859	
„ ‡*Inagua	21 21 N.	73 1 W.	21	II	1871	
„ ‡*Watling's Island	23 57 N.	74 28 W.	60	II	1889	

* Lighthouse; contributes register containing observations every 4 hours.

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LIST OF STATIONS in the COLONIES, &c., from which RETURNS are received in MANUSCRIPT—*continued.*

Station.	Latitude.	Longitude.	Height in Feet above M.S.L.	Order of Station.	Year of Commencement of Observations.	Observer.
NORTH ATLANTIC OCEAN—*continued.*						
Barbados	†13° 12′ N.	59° 35′ W.	181	II	1895	John R. Bovell, Superintendent Botanical Department.
‡*Sombrero	18 36 N.	63 28 W.	30	II	1867	Lightkeepers, for the Board of Trade.
SOUTH ATLANTIC OCEAN.						
Falkland Islands :—						
*Cape Pembroke	51 41 S.	57 42 W.	70	II	1859	J. Pearce, Lightkeeper, for the Board of Trade.
‡Stanley...	—	—	—	⊙ B	—	His Excellency the Governor.
‡St. Helena : St. Matthew's Vicarage ...	16 0 S.	5 40 W.	1,887	II	1885	A. L. C. Hands.
„ Central, Oak Bank ...	—	—	1,696	●	1902	J. Homagee.
„ St. Paul's Vicarage ...	—	—	1,694	●	1905	Alfred Porter.
South Georgia, Grytviken	54 14 S.	36 33 W.	10	II	1906	R. MacDougall, for the Argentine Fishery Company, transmitted by the Governor of the Falkland Islands through the Board of Trade.
PACIFIC OCEAN.						
British Solomon Islands :—						
Tulagi	9 5 S.	160 8 W.	163	III	1907	The Resident Commissioner.
Fiji :—						
Suva	18 8 S.	178 0 E.	44	II	1906	C. H. Knowles, Superintendent Department of Agriculture.
Fanning Island	3 54 S.	159 23 W.	—	III	1903	The Pacific Cable Board.
Malden Island	3 59 S.	155 0 W.	—	II	—	Geo. H. Crocker.
‡Ocean Island	0 52 S.	169 35 E.	100	II B.	1905	J. G. Talbot, for the Pacific Phosphate Company.
INDIAN OCEAN.						
Madagascar :—						
Antananarivo	18 55 S.	45 16 E.	—	●	1903	T. P. Porter, H.B.M. Consul.
Mauritius, Royal Alfred Observatory ...	20 6 S.	57 31 E.	181	(I)	1901	T. F. Claxton, Director.

* Lighthouse ; contributes register containing observations every 4 hours.

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LIST OF STATIONS in the COLONIES, &c., from which RETURNS are received in MANUSCRIPT—*continued.*

Station.	Latitude.	Longitude.	Height in Feet above M.S.L.	Order of Station.	Year of Commencement of Observations.	Observer.
NORTH ATLANTIC OCEAN—*continued.*						
Barbados	†13° 12′ N.	59° 35′ W.	181	II	1895	John R. Bovell, Superintendent Botanical Department.
‡*Sombrero	18 36 N.	63 28 W.	30	II	1867	Lightkeepers, for the Board of Trade.
SOUTH ATLANTIC OCEAN.						
Falkland Islands :—						
*Cape Pembroke	51 41 S.	57 42 W.	70	II	1859	J. Pearce, Lightkeeper, for the Board of Trade.
‡Stanley...	—	—	—	⊙ B	—	His Excellency the Governor.
‡St. Helena; St. Matthew's Vicarage ...	16 0 S.	5 40 W.	1,887	II	1885	A. L. C. Hands.
„ Central, Oak Bank ...	—	—	1,696	●	1902	J. Homagee.
„ St. Paul's Vicarage ...	—	—	1,694	●	1905	Alfred Porter.
South Georgia, Grytviken	54 14 S.	36 33 W.	10	II	1906	R. MacDougall, for the Argentine Fishery Company. transmitted by the Governor of the Falkland Islands through the Board of Trade.
PACIFIC OCEAN.						
British Solomon Islands :—						
Tulagi	9 5 S.	160 8 W.	163	III	1907	The Resident Commissioner.
Fiji :—						
Suva	18 8 S.	178 0 E.	44	II	1906	C. H. Knowles, Superintendent Department of Agriculture.
Fanning Island	3 54 S.	159 23 W.	—	III	1903	The Pacific Cable Board.
Malden Island	3 59 S.	155 0 W.	—	II	—	Geo. H. Crocker.
‡Ocean Island	0 52 S.	169 35 E.	100	II B.	1905	J. G. Talbot, for the Pacific Phosphate Company.
INDIAN OCEAN.						
Madagascar :—						
Antananarivo	18 55 S.	45 16 E.	—	●	1903	T. P. Porter, H.B.M. Consul.
Mauritius, Royal Alfred Observatory ...	20 6 S.	57 31 E.	181	(I)	1901	T. F. Claxton, Director.

* Lighthouse; contributes register containing observations every 4 hours.

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K.—List of Publications Issued under the Authority of the Meteorological Committee of the Royal Society (1867 to 1876), the Meteorological Council (1877 to 1905), or the Meteorological Committee appointed by Treasury Minute, May 20th, 1905.*

The list is arranged under the following headings :—

1. Periodical Publications †
2. Occasional Publications and Reports.
3. Instructions in the use of Instruments, &c.
4. Marine Meteorology.
5. Miscellaneous Publications.

1. Periodical Publications.

Daily Weather Report. Subscription 5*s.* per quarter.

Weekly Weather Report. With Appendices and Monthly Supplements priced separately :—

‡1888. Vol. V. (No. 85.) 4*d.* per week. Annual Volume, including Supplements and Appendices, 21*s.* 2*d.*

1889–1908. Vols. VI.–XXV. 6*d.* per week. Annual subscription, including Supplements and Appendices, 30*s.* (Parts I. and II. of the British Meteorological Year Book).

1909. In the Press.

Monthly Weather Report :—

§1884–1887. In Monthly Parts, 1*s.* 6*d.* to 2*s.* 6*d.* each, except May to December, 1887, which is in wrapper, price 12*s.*

Monthly and Annual Supplements to the Weekly Weather Report containing summaries of observations from about 200 stations in the British Isles 6*d.* each. The collected parts with title page from Part II. of the British Meteorological Year Book.

Monthly issue of daily observations at stations of the Second Order and Anemograph Stations, in parts January to December, 1908, at 2*s.* each. From January, 1909, at 1*s.* 6*d.* each. (Part III. of the British Meteorological Year Book).

Monthly issue of Hourly Readings at four observatories in connexion with the Meteorological Office. Part IV. of the British Meteorological Year Book. In separate parts for each observatory, 6*d.* each.

Quarterly Weather Report :—

1869–1880. At prices varying from 4*s.* to 10*s.* each Quarterly Part. 1877–1880 :—Appendices and Plates are published for these years at 27*s.* or 28*s.* per Yearly set.

Monthly Meteorological Charts of the North Atlantic and Mediterranean and of the Indian Ocean. *See* Marine Meteorology.

Annual Volumes :—

Reports of the *Meteorological Committee* of the Royal Society :—

1867–1877. At prices varying from 4*d.* to 1*s.* per Report, except 1876–1877, 3*s.* 5*d.*

Reports of the *Meteorological Council* :—

1878–1905. At prices varying from 5*d.* to 1*s.* 5*d.*, except 1884–5, 4*s.* 4*d.*

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* The publications are sold by Messrs. Wyman and Sons and other agents for the sale of the publications of H.M. Stationery Office; Annual Reports by Parliamentary Booksellers; Pilot Charts and Charts published by the Admiralty, by J. D. Potter.

† These have from time to time contained Tables of Mean Values and papers on various Meteorological Investigations. A list of the more important of these contributions to Meteorological knowledge will be found in Appendix XI. of the Report for 1903–04.

‡ The publication of the Weekly Weather Report began in February, 1878. Annual subscription, including Supplements and Appendices, post paid, 1878–1883, 12*s.* 6*d.*; 1884–1887, 21*s.* 2*d.*

§ The publication of the Monthly Weather Report was continued after 1887 as a Supplement to the Weekly Weather Report.

1. Periodical Publications—*continued.*

Annual Volumes—*continued.*

Reports of the *Meteorological Committee* :—

1905–06. Price 1*s.* 4*d.*
1906–07. „ 1*s.* 7*d.*
1907–08. „ 1*s.* 5*d.*

Observatories and Stations.

*Hourly Readings from the Self-Recording Instruments at the . . Observatories :—

1881–1886. In Parts, varying in price from 10*s.* to 30*s.* each.
1900–1908. 25*s.* each, or 6*d.* per month each station. 1909 *see* Monthly issues.

Hourly Means (*for Five-days and Calendar Months*) of the Readings obtained from the Self-Recording Instruments at the . . . Observatories under the Meteorological Council :—

1887–1899. In Annual Volumes, at prices varying from 15*s.* to 38*s.*

Meteorological Observations at Stations of the Second Order :—

†1876–1904. At prices varying from 20*s.* to 35*s.*
1905. In the Press. 1908, 16*s.*
1909. (See *Monthly issues*).

Averages :—

Quinquennial table of averages of Temperature, Rainfall, and Sunshine at Stations in the British Isles. Latest issue, for the period ended 1905 (about 150 Stations). 1*s.*

2. Occasional Publications and Reports.

ATLAS :—

Meteorological Atlas of the British Isles. (No. 53. 1883.) 5*s.* 6*d.*

CONGRESSES, CONFERENCES, &c. :—

International Codex of Resolutions adopted at Congresses, Conferences and at Meetings of the Permanent International Committee 1872–1907 (No. 200). 1*s.* 3*d.*

Reports of Preceedings :—

Leipzig. 1872. (Non-Official, No. 6.) 1*s.*
Vienna. 1873. (No. 21.) 1*s.*
Vienna and Utrecht. 1873 and 1874. (Non-Official, No. 9.) 1*s.* 6*d.*
London. 1874. Maritime Meteorology. (No. 23.) 2*s.*
London. 1876. With Supplement. (Non-Official, No. 11.) 2*s.*
Utrecht. 1878. (Non-Official, No. 13.) 6*d.*
Rome. 1879. (No. 36.) 1*s* 6*d.*
Berne. 1880. (Non-Official, No. 14.) 1*s.*
Copenhagen. 1882. (Non-Official, No. 15.) 2*s.* 6*d.*
Paris. 1885. (Non-Official No. 16.) 1*s.* 1896. (No. 127.) 1*s.* 1907. (No. 197.) 1*s.* 6*d.*
Zürich. 1888. (Non-Official, No. 17.) 4*d.*
Munich. 1891. (No. 102.) 1*s.* 6*d.*
Upsala. 1894. No. 115.) 1*s.*
St. Petersburg. 1899. (No. 148.) 2*s.*
Southport. 1903. (No. 164.) 2*s.*
Innsbruck. 1905. (No. 195.) 2*s.*

Report on Weather Telegraphy and Storm Warnings. 1873. (Non-Official, No. 8.) 6*d.*

Reports . . . on Atmospheric Electricity, Maritime Meteorology, and Weather Telegraphy. 1878. (Non-Official No. 12.) 2*s.*

FOG :—

London Fog Inquiry, 1901–03 :—

Report of the Council, with Report by R. G. K. Lempfert, M.A. (1904). (No. 160. 1904.) 2*s.* 6*d.*

Report by Captain Alfred Carpenter, R.N., D.S.O. (1903). 2*s.*

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* For the years 1874–1880 the Hourly Readings were issued in lithographed form. Price 20*s.* per annum. The Hourly Readings for Kew and Valencia are for the years 1895–1900.

† The Observations at Stations of the Second Order for 1873–75 will be found in the Quarterly Weather Report for the respective years.

2. Occasional Publications and Reports—*continued.*

FOREIGN AND COLONIAL STATIONS :—

Contribution to the Meteorology of Japan.—By Staff-Com. Thomas H. Tizard, H.M.S. "Challenger." (No. 28. 1876.) [Out of Print.]

Meteorological Observations at the Foreign and Colonial Stations of the Royal Engineers, and the Army Medical Department, 1852-1886. (No. 83. 1890.) 23*s.*

Meteorological Observations made at Sanchez, Samaná Bay, St. Domingo, 1886-1888.—By the late W. Reid, M.D. (No. 89. 1890.) 8*s.* 6*d.*

Report on the Meteorology of Kerguelen Island.—By Rev. S. J. Perry, S.J., F.R.S. (No. 37. 1879.) 3*s.*

Climatological Observations at Colonial and Foreign Stations :—

I. :—Tropical Africa, 1900-1902, with Summaries and Map.—By E. G. Ravenstein, F.R.G.S. (No. 165. 1904.) 6*s.*

RAINFALL :—

Diurnal Range of Rain at the Seven Observatories in connection with the Meteorological Office, 1871-1890. (No. 143. 1900.) 2*s.* 6*d.*

Rainfall Tables of the British Isles for 1866-80. Compiled by G. J. Symons, F.R.S. (No. 47. 1883.) 7*s.* 6*d.*

Rainfall Tables of the British Islands, 1866-90. (No. 114. 1897.) 6*s.*

SUNSHINE :—

Sunshine Records of the United Kingdom for 1881. (No. 56. 1883.) 4*s.*

Ten Years' Sunshine in the British Isles, 1881-90. (No. 98. 1891.) 2*s.*

TEMPERATURE :—

Temperature Tables for the British Islands. (No. 154. 1902.) 10*s.* 6*d.* Supplement :—Difference Tables for each Five Years for the Extrapolation of Mean Values. 3*s.*

WIND :—

The Beaufort Scale of Wind-force. Report of the Director of the Meteorological Office upon an Inquiry, with a Paper by G. C. Simpson, M.Sc., and Notes by Sir G. H. Darwin, K.C.B., F.R.S., W. H. Dines, F.R.S., and Commander Campbell Hepworth, C.B., R.N.R., Marine Superintendent. (No. 180. 1906.) 1*s.* 6*d.*

3. Instructions in the use of Instruments, &c.

Barometer Manual. (No. 8. 1871.) [Out of Print. New Edition in the press.]

Barometer Manual for the Use of Seamen. With an Appendix on the Thermometer, Hygrometer, and Hydrometer. Fifth Edition, extensively Revised. 1905. (No. 61.) 3*d.*

Fishery Barometer Manual. New Edition, 1887. (No. 3.) 6*d.*

Instructions for Meteorological Telegraphy. New Edition, 1906. (No. 2.) Prepared for the use of Observers exclusively.

The Observer's Handbook. A new Edition of Dr. Scott's Instructions in the use of Meteorological Instruments. (No. 191.) 3*s.*

Hints to Meteorological Observers in Tropical Africa, with Instructions for taking Observations, and Notes on Methods of recording Lake Levels. Second Edition, revised 1907. (No. 162.) 9*d.*

FORECASTING :—

Aids to the Study and Forecast of Weather.—By W. Clement Ley, M.A. (No. 40. 1880.) 1*s.*

Principles of Forecasting by means of Weather Charts.—By the Hon. Ralph Abercromby, F.R.Met.Soc. Second Edition, Revised, 1885. (No. 60.) [Out of Print.]

4. Marine Meteorology.

CHARTS :—

Arabian Sea :—

Daily Weather Charts for the period of six weeks ending June 25, 1885, to illustrate the tracks of two cyclones in the Arabian Sea. (No. 80. 1891.) 10*s.*

Atlantic :—

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

4. Marine Meteorology—*continued.*

CHARTS—*continued.*

Atlantic—continued.

Monthly Current Charts for the Atlantic Ocean. From information collated and prepared in the Meteorological Office. Published by the Admiralty. (No. 132. 1897.) 10*s.*

Atlantic, North :—

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

Charts illustrating the Weather of the North Atlantic Ocean in the Winter of 1898–99. (No. 142. 1901.) 6*s.* 6*d.* [Out of Print.]

Currents and Surface Temperature of the North Atlantic Ocean, from the Equator to Latitude 40° N., for each Month of the Year. With a General Current Chart. (No. 12. 1872.) 2*s.* 6*d.*

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

Meteorology of the North Atlantic during August, 1873, with 31 Synoptic Charts. (No. 32. 1878.) With book of Charts, 15*s.*

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

Atlantic, South :—

Charts showing the Surface Temperature of the South Atlantic Ocean in each month of the Year. (No. 4. 1869.) 2*s.* 6*d.*

Wind Charts for the Coastal Regions of South America, from information collated and prepared in the Meteorological Office. Published by the Admiralty. (No. 159. 1902.) 7*s.*

Monthly Wind Charts of the South Atlantic. Published by the Admiralty. (No. 168. 1903.) 6*d.* each.

The relation between Pressure, Temperature, and Air Circulation over the South Atlantic Ocean. (No. 177. 1905.) 9*d.*

Atlantic, Indian, and Pacific Oceans :—

Charts showing the Surface Temperature of the Atlantic, Indian, and Pacific Oceans. (No. 59. Second Edition, 1903.) 4*s.* 6*d.*

Charts showing the Mean Barometric Pressure over the Atlantic, Indian, and Pacific Oceans. (No. 76. 1887.) 10*s.* 6*d.* Supplementary Chart. 6*d.*

Atlantic (North) and Mediterranean :—

Monthly Meteorological Charts, commencing April, 1901. (No. 149.) 6*d.* each. Subscription for one year, 5*s.* (exclusive of postage.)

Indian Ocean :—

Monthly Current Charts for the Indian Ocean, from information collated and prepared in the Meteorological Office. Published by the Admiralty. (No. 124. 1896.) 7*s.*

Monthly Meteorological Charts of the Indian Ocean and Red Sea. Commencing May, 1906. (No. 181.) 6*d.* each. Subcription for one year, 5*s.* (exclusive of postage.)

Indian Ocean (North) :—

Meteorological Charts of the portion of the Indian Ocean adjacent to Cape Guardafui and Ras-Hafún. (No. 92. 1891.) 6*s.*

Indian Ocean (South) :—

Cyclone Tracks in the South Indian Ocean, from information compiled by Dr. Meldrum, C.M.G., F.R.S. (No. 90. 1891.) [Out of print.]*

Meteorological Charts for the Ocean District adjacent to the Cape of Good Hope, with accompanying Remarks. (No. 43. 1882.) Charts, 25*s.*; Remarks, 7*s.*

Pacific Ocean :—

Quarterly Current Charts for the Pacific Ocean, from information collated and prepared in the Meteorological Office. Published by the Admiralty. (No. 134. 1897.) 5*s.*

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* Reproduced upon the Meteorological Charts for the Indian Ocean, No. 181.

4. Marine Meteorology—*continued.*

CHARTS—*continued.*

Pacific Ocean—continued.

Wind Charts for the Coastal Regions of South America, from information collated and prepared in the Meteorological Office. Published by the Admiralty. (No. 159. 1902.) 7*s.*

Red Sea :—

Meteorological Charts of the Red Sea. (No. 106. 1895.) 21*s.*

Southern Ocean :—

Meteorological Charts of the Southern Ocean between the Cape of Good Hope and New Zealand. (No. 123. 1899.) [New Edition, 1907.] 6*s.*

OTHER PUBLICATIONS ON MARINE METEOROLOGY :—

Contributions to our Knowledge of the Meteorology of the Arctic Regions. (Official, No. 34. 1885.) Vol. 1 : Part I., 2*s.* ; II., 10*s.* ; III., 6*s.* ; IV., 5*s.* ; V., 6*s.*

Contributions to our Knowledge of the Meteorology of the Antarctic Regions. (No. 18. 1873.) 2*s.*

Contributions to our Knowledge of the Meteorology of Cape Horn and the West Coast of South America. (No. 11. 1871.) 2*s.* 6*d.*

Notes on the Form of Cyclones in the Southern Indian Ocean.—By C. Meldrum, M.A , F.R.S. (Non-Official, No. 7. 1873.) [Out of print.]

On the Physical Geography of the part of the Atlantic which lies between 20° N and 10° S. and extends from 10° to 40° W. A Paper read before the British Association at Bristol, in August, 1875.—By Capt. H. Toynbee, F.R.A.S. (Non-Official, No. 10. 1876.) [Out of print.]

On the Winds, &c., of the North Atlantic along the Tracks of Steamers from the Channel to New York. Translated from a Paper issued by the Deutsche Seewarte, Hamburg. (Non-Official, No. 5. 1872.) 6*d.*

Report to the Committee of the Meteorological Office on the Meteorology of the North Atlantic.—By Capt. H. Toynbee, F.R.A.S. (Non-Official, No. 2. 1869.) 1*s.*

Report on the Gales experienced in the Ocean District adjacent to the Cape of Good Hope between Lat. 30° and 50° S., and Long. 10° and 40° E.—By Capt. H. Toynbee, F.R.A.S. (No. 44. 1882.) 7*s.* 6*d.*

Routes for Steamers from Aden to the Straits of Sunda and back. Translated from a Paper issued by the R. Meteor. Inst. of the Netherlands. (Non-Official, No. 4. 1872.) [Out of print.]

5. Miscellaneous Publications.

Harmonic Analysis of Hourly Observations of Air Temperature and of Pressure at British Observatories. (No. 93. 1891.) 12*s.*

Report of an Inquiry into the Connexion between Strong Winds and Barometric Differences.—By Robert H. Scott. (Non-Official, No. 1. 1868.) 6*d.*

Barometric Gradient and Wind Force. Report to the Director of the Meteorological Office by E. Gold, M.A., Fellow of St. John's College, Cambridge, Superintendent of Instruments. (No. 190) Price 2*s.* 6*d.*

Report on the Storm of October 13–14, 1881.—By Robert H. Scott, F.R S. (No. 46. 1882.) 1*s.* 6*d.* [Out of print.]

Report to the Committee of the Meteorological Office on the use of Isobaric Curves.—By Capt. H. Toynbee, F.R.A.S. (Non-Official, No. 3. 1869.) [Out of print.]

Life History of Surface Air Currents. A Study of the Surface Trajectories of Moving Air.—By W. N. Shaw, Sc.D., F.R.S. (Director of the Meteorological Office) and R. G. K. Lempfert, M.A. (No. 174. 1906.) 7*s.* 6*d.*

APPENDIX III.

LIST of CAPTAINS who have sent in Logs classed as "Excellent" during the year ending March 31, 1908. Figures are attached to the name of each observer to show the number of "Excellent" logs which he has supplied during the whole time of his co-operation with the Office.

Name of Captain.	Number of "Excellent" Logs.	Ship.
Barber, F. W.	3	S.S. "Clan Macfadyen."
Barcham, S.	2	S.S. "Britannia."
Barton, W. B.	2	S.S. "Dunbarmoor."
Bayldon, F. J., Lieut. R.N.R. ...	7	S.S. "Moresby."
Bennett, C. D., Comm. R.N.R. ...	12	S.S. "Macedonia."
Boby, H. J.	1	S.S. "Trent."
Carnon, J. R., Lieut. R.N.R. ...	4	S.S. "Caledonia."
Castle, E. W.	1	S.S. "Miami."
Corbould, F. K.	1	S.S. "Trent."
Darley, C. E.	2	S.S. "Clan Buchanan."
Docherty, H.	11	Ship "Eva Montgomery."
Elliot, A. J.	1	S.S. "City of Corinth."
Harris, G. H., Lieut. R.N.R. ...	9	S.S. "Worcestershire."
Hemming, H. C.	3	S.S. "Den of Ogil."
Henning, G. C., Comm. R.N.R. ...	1	S.S. "Mooltan."
Heron, A.	5	S.S. "Amberton."
Higgins, C. J.	1	S.S. "Clan Macinnes."
Hollis, H.	1	S.S. "Niwaru."
Kempson, C. H., Lieut. R.N.R. ...	4	S.S. "Athenic."
Langston, H. P.	2	S.S. "Cheshire."
Lennox, W. J.	4	S.S. "Clan Macintosh."
Lingham, W. G., F.R.A.S., F.R. Met. Soc.	3	S.S. "Wilcannia."
Millican, J. W.	31	S.S. "Keyingham."
Montford, G. M., Comm. R.N.R.	6	S.S. "Sunda."
Mullan, F.C., F.R.G.S.	26	S.S. "Ramsay."
Pattman, R.	6	Barque "Loch Torridon."
Robertson, T., F.R.S.G.S. ...	2	S.S. "Scotia" (whaler).
Ruthven, J. F., A.I.N.A., F.R.G.S.	5	S.S. "Orontes."
Simmons, S. H.	1	S.S. "Nicoya."
Simpson, A.	49	S.S. "Pericles."
Young, G.	1	S.S. "Clan Macfadyen."

APPENDIX IV.

METEOROLOGICAL REGISTERS received during the Year 1908–09.

(1.)—*From the* ROYAL NAVY.—*Meteorological Logs* (9).

H.M. Ship.	Commanding Officer.	Officers Observing.	No. of Registers received.	Duration of Observations. Mths.	Days.	Voyage.
"Egeria"	J. F. Parry, Capt. R.N.	C. P. Chearnley, Lieut. R.N.	1	6	9	Surveying, Vancouver I.
"Implacable" ...	M. Kerr, M.V.O., Capt. R.N.	C. W. C. Strickland, Commr. R.N.	2	4	22	Mediterranean.
"Merlin"	F. H. Walter, Commr. R.N.	A. F. Powell, Lieut. R.N.; A. C. H. Duke, Lieut. R.N.	3	10	7	Surveying, China Sea.
"Mutine"	C. E. Monro, Capt. R.N.	C. I. Greer, Lieut. R.N.	1	3	24	West Coast of Africa.
"Waterwitch" ...	H. P. Douglas, Lieut. and Commr. R.N.	C. H. Knowles, Lieut. R.N.	2	8	3	Surveying, China Sea.

(2.)—SPECIAL SERVICE.—*Uncommissioned Ships* (3).

"Conway," H.M.S. ...	H. W. Broadbent, Lieut. R.N.R.	Cadets	1	2	6	River Mersey.
"Monarch," H.M.T.S.	J. Wrake	... ...	1	3	5	Cable work, United Kingdom Coasts.
"Worcester," H.M.S.	D. Wilson Barker, Commr. R.N.R., F.R.S.E., &c.	Cadets	1	4	4	Off Greenhithe.

METEOROLOGICAL REGISTERS received during the Year 1908–09—*continued.*

(3.)—*From the* MERCANTILE MARINE.—*Meteorological Logs* (282).

Ship.	Captain.	Officers Observing.	No. of Registers received.	Duration of Observations. Mths.	Days.	Voyage.
"Active," S.S. ...	A. Murray	W. Kinness	1	1	25	Hudson Strait, Whaling.
"African Prince," S.S.	C. B. Andersson ...	S. E. Purdy	1	4	0	New York, River Plate, Lorenzo Marques.
"Amazon," S.S. ...	H. E. Rudge	C. L. Willat, F. W. Kirby, H. C. Quelch, R. O. Lloyd, V. S. Cottrell, W. F. Bulleid.	1	3	0	Pernambuco.
"Amberton," S.S. ...	A. Heron	J. T. Colvin, J. Donnelly	1	5	24	East and West Coasts of North America.
"Aorangi," S.S. ...	J. D. S. Phillips ...	H. Jarvis, E. P. Cooper, C. S. Hudson ...	1	3	13	Trans-Pacific.
"Arctic Stream," Ship	C. C. Dixon	W. D. Comloquoy, J. Cowan, D. Allan ...	2	18	15	Vancouver, Australia, W.C.S.A., *viâ* Capes.
"Assyria," S.S.	J. Hamilton ... / R. J. Garrick ...	G. McNeil, F. Lake, S. Rowe, — Lewis — Haig.	3	7	8	Calcutta, Rangoon, *viâ* Suez.
"Asuncion de Larrinaga," S.S.	H. C. Kramer ... / J. V. de A. Echevarria	J. Duncan, R. A. Ferns, W. N. Cartwright, J. N. Jones, — Hughes, J. D. de Arana.	2	11	7	U.S.A., Monte Video, West Indies.
"Athenic," S.S. ...	C. H. Kempson, Lieut. R.N.R.	G. A. Alcock, Lieut. R.N.R., V. W. Hickson, Lieut. R.N.R., J. M. Burd, W. S. Thornton, E. K. Irving.	2	5	27	New Zealand, *viâ* Capes.
"Atrato," S.S. ...	F. M. Watson	A. E. Hernandez, F. W. Kirby, W. Shea, F. Richardson, H. M. S. Laidlaw.	2	6	29	West Indies, Colon, New York.
"Australia," Ship ...	L. J. J. Korff	W. Duke	3	11	17	Oregon, New York, China, *viâ* Capes.
"Avon," S.S.	L. R. Dickinson ...	R. Dadd, F. Cooke, A. Murphy, J. Jenkins	1	2	19	River Plate.
"Balaena," S.S. ...	J. W. Murray	... ...	1	3	7	Whaling, Arctic.
"Barranca," S.S ...	Wm. Long	G. H. Geb, F. H. Swain, H. Phillips, Lieut. R.N.R., G. E. Martin, O. Pitts, O. E. Johnson, W. F. Forrester.	2	6	13	Port Limon.
"Beeforth," S.S. ...	R. S. Osbon	W. F. Lewis, I. W. Taylor	1	2	16	Algiers, New York, Tampico.

"Beira," S.S. ...	F. O. Potts	D. Scott, S. C. Walton, L. W. T. Lewis, W. J. Earp.	2	9	12	Murmagao, Newport (Mon.), *viâ* Suez, Cape, Zanzibar, Australia, Cape, Monte Video, and Galveston.
"Bellagio," S.S. .	P. MacLachlan	G. Davidson, E. Tynan, J. McKay	1	2	19	W. C. S. A., *viâ* Magellan.
"Benlarig," S.S. ...	A. Wallace	D. T. Calley, H. G. B. Field, J. M. Hewison, J. Logan, H. Ross.	2	7	2	China, Japan, *viâ* Suez.
"Ben Nevis," S.S. ...	A. Longmuir	... ...	1	2	8	Buenos Aires, West Indies, U.S.A., St. Vincent.
"Benvenue," S.S. ...	R. Kroble	J. Scott	1	3	23	China, Japan, *viâ* Suez.
"Blackwell," S.S. ...	T. W. Scurr	W. H. Knox, W. Charlton, E. Bush ...	1	2	6	Calcutta, *viâ* Suez.
"Bohemia," S.S. ...	A. Hunt	G. Mackenzie, A. Fraser	1	2	17	Calcutta, *viâ* Suez.
"Braemar Castle," S.S.	S. Henderson, Lieut. R.N.R.	W. M. Bett, P. J. Pape, S. C. Colbourne, A. K. Lyons.	1	3	23	Cape, Mediterranean.
"Breconshire," S.S. ...	J. M. Tomlinson ...	W. Sandeman	1	4	14	China, Japan, India, *viâ* Suez.
"Britannia," S.S. ...	S. Barcham	W. R. Calder, Sub-Lieut. R.N.R., W. G. W. Cherry, H. de Denne, Sub-Lieut. R.N.R.	2	5	19	Australia, *viâ* Suez.
"Bucentaur," S.S. ...	H. C. Purkis	F. G. Gulston, W. A. Wooster, G. Petrie ...	1	4	14	Australia, *viâ* Cape of Good Hope.
"Buceros," S.S. ...	J. Hutcheon	A. C. Taylor	2	4	28	U.S.A., New Zealand, Australia, *viâ* Cape and Suez.
"Caledonian," S.S. ...	J. R. Carnon, Lieut. R.N.R.	A. N. Griffiths, R. D. Allinson	2	5	11	U.S.A.
"Carnarvon," S.S. ...	F. J. Lobb, Commr. R.N.	F. W. Holden	1	16	0	Lighthouse work, West Indies.
"Cevic," S.S. ...	W. H. Clarke ... C. E. Starck, Lieut. R.N.R.	D. Blair, Sub-Lieut. R.N.R., J. H. Wood, J. Evans, A. Tyrer.	2	7	27	New York, Australia, New Zealand, *viâ* Capes.
"Cheshire," S.S. ...	H. P. Langston... ...	T. Jones, C. E. Stone, H. R. Berven, W. Fynn, R. L. Tocque, F. T. White, F. W. L. Midgley, W. McGhie.	4	8	5	Rangoon, *viâ* Suez.
"China," S.S.... ...	E. Street	A. Martell, F. W. Hodges, Sub-Lieut. R.N.R., J. G. Gibson, E. F. Hannan, L. Hughes.	3	8	4	Australia, *viâ* Suez.
"Chirripo," S.S. ...	E. H. Jones	E. J. S. West, A. W. Hartly, G. B. Telfer, W. G. Preece, C. Hake, W. J. Geh, O. Pitts.	3	13	16	Port Limon, New Orleans.
"City of Corinth," S.S.	J. Hay ... ... A. J. Elliott ... J. R. Rae ...	J. McArthur	3	6	6	Calcutta, *viâ* Suez.

METEOROLOGICAL REGISTERS received during the Year 1908–09—*continued.*

(3.)—*From the* MERCANTILE MARINE.—*Meteorological Logs*—continued.

Ship.	Captain.	Officers Observing.	No. of Registers received.	Duration of Observations. Mths.	Days.	Voyage.
"Clan Buchanan," S.S.	C. E. Darley	F. R. Elwell, S. H. Felton, E. C. Joel ...	2	4	21	China, Java, *viâ* Cape, U.S.A., *viâ* Suez.
"Clan Cameron," S.S.	J. G. Cowie	C. C. Roberts, F. T. B. Jones, U. W. P. Evans	1	2	25	Cape, East Indies, *viâ* Suez.
"Clan Forbes," S.S. ...	R. G. Becket	W. I. Mason, Lieut. R.N.R., A. W. P. Gibb, W. Donaldson, H. B. Hodges.	2	6	9	East Indies, *viâ* Cape and Suez.
"Clan Lindsay," S.S.	C. MacMahon	C. Laird, W. Shearer, A. Jordan, M. Mc Gown, F. J. Hawley.	3	9	28	Australia, Mauritius, East Indies. *viâ* Cape and Suez.
"Clan Macfadyen," S.S.	F. W. Barber ... / G. Young ...	F. Last, J. Harley, G. Russell, A. Clark, S. B. Watson, A. H. Hutton.	3	8	29	Cape, Mauritius, East Indies, *viâ* Suez, Beira, U.S.A., *viâ* Cape.
"Clan Macinnes," S.S.	C. J. Higgins	C. T. C. Barker, E. S. Simpkin	1	5	20	Calcutta, *viâ* Suez, Cape, Buenos Aires.
"Clan Macintosh," S.S.	W. J. Lennox	R. Horn, J. Middleton, J. Goodacre, W. Wright, E. Briard, — Harvey, — Fells, — Teppar.	2	7	0	Bombay, New York, Australia, *viâ* Cape and Suez.
"Clan Macintyre," S.S.	A. R. Weir	H. M. Rodger, T. W. Hommander, H. M. Ryder, W. Crichton, G. P. Phillips.	3	6	20	Bombay, Calcutta, Madras, *viâ* Suez.
"Clan Macpherson," S.S.	S. Beer	R. Pill, J. G. McLean, D. D. Jones, J. Williams.	1	2	14	Calcutta, Rangoon, *viâ* Suez.
"Clan Ogilvy," S.S. ...	R. C. Jones	A. Watson	1	2	23	Cape, East Indies, *viâ* Suez.
"Clan Sutherland," S.S.	J. W. Taylor, Lieut. R.N.R.	T. Brocklebank, A. Mackinlay, T. Hatton ...	1	3	0	Cape, East Indies, *viâ* Suez.
"Clan Urquhart," S.S.	C. Sommerfelt ... / J. A. McPherson	T. W. Young, J. Robson, J. R. Letts, B. R. Sutherland, H. K. Guttridge, R. E. Tupper, F. Beard.	3	6	25	East Indies, *viâ* Cape and Suez.
"Clyde," S.S... ...	A. P. Dix, Lieut. R.N.R.	T. S. Blay, W. H. Macey, J. B. de la Bere ...	1	3	25	Monte Video.
"Corinthic," S.S. ...	H. F. David, Lieut. R.N.R.	A. C. Cann, E. Hall, A. Pawley	3	7	2	New Zealand, *viâ* Capes.
"Crossby," S.S. ...	P. B. Wamsley	J. Williamson, J. Bethke	1	2	4	Monte Video.

"Crown of Arragon," S.S.	G. Grindlay	... ...	1	1	28	West Indies, Demerara, Galveston.
"Danube," S.S. ...	W. J. Dagnall	Gff. H. Lloyd, Sub-Lieut. R.N.R., S. F. Drake, J. P. Morgan, G. A. Robinson.	2	4	11	Buenos Aires.
"Den of Ogil," S.S. ...	H. C. Hemming... ...	E. Twidle, A. McLean, J. Ritchie	1	9	8	W.C.S.A., New Zealand, Australia, Philippines, China, *viâ* Suez.
"Derbyshire," S.S. ...	E. Robin	W. Sturgess, H. W. Jones, F. Whorrall, N. Colbridge, G. Gulland.	4	8	5	Rangoon, *viâ* Suez.
"Dominic," S.S. ...	W. Smale	G. Parry	2	3	24	Para, New York, Galveston.
"Druidstone," S.S. ...	S. W. Decent	H. Haines, P. O. Hughes	2	6	14	Mediterranean, Black Sea.
"Dunbarmoor," S.S....	W. B. Barton	G. Knott, G. A. Whitfield, A. P. Hamon ...	2	3	5	River Plate, Odessa.
"Durham Castle," S.S.	F. J. Moseley, Commr. R.N.R.	F. Ferguson, E. Castles, P. Durkin, Lieut. R.N.R., B. Ray.	4	9	3	Cape Town.
"East Point," S.S. ...	L. R. W. Beavis ...	H. Young, — Sims	1	3	2	Philadelphia.
"Eclipse," S.S. ...	W. Milne	... ...	1	1	14	Whaling, Davis Strait.
"Egypt," S.S. ...	F. R. Summers	S. C. Patterson, H. S. Cameron, H. A. Monro	1	4	0	Bombay, *viâ* Suez.
"Empress of China," S.S.	R. Archibald, Lieut. R.N.R.	L. D. Douglas, Lieut. R.N.R.	1	3	23	Trans-Pacific.
"Empress of India," S.S.	E. Beetham, Lieut. R.N.R.	... ...	1	3	20	Trans-Pacific.
"Empress of Japan," S.S.	H. Pybus, Commr. R.N.R. S. Robinson, Lieut. R.N.R.	C. E. Daniel, Lieut. R.N.R., J. W. Harrison, A. Nicoll, Sub-Lieut. R.N.R.	1	3	28	Trans-Pacific.
"Erne," Ship ...	G. T. Dann	... ...	1	9	12	Calcutta, Saigon, *viâ* Cape.
"Eva Montgomery," Ship.	H. Docherty	J. T. Jinks	1	12	20	West Coast South America, Australia, *viâ* Capes.
"Fenay Lodge," S.S.	G. L. Burnley	N. J. English, J. H. Bruton, G. L. H. Dean	2	6	23	Bahia Blanca, Black Sea, Cape, China, Maulmein, *viâ* Suez.
"Gio Batta Beverino," Barque.	G. B. Serra	... ...	1	7	8	Australia, W.C.S.A., *viâ* Cape Horn.
"Glamorganshire," S.S.	H. C. Norris	T. A. Tyson, G. Houlgrave, Lieut. R.N.R., A. W. Day.	1	3	23	China, Japan, *viâ* Suez.
"Glendhu," S.S. ...	E. Taylor	A. H. Miller	1	2	26	Calcutta, Sabang, *viâ* Suez.
"Glenelg," S.S. ...	A. Hart	I. Miller, D. L. Muirhead, I. H. Short ...	1	3	21	East Indies, *viâ* Suez.

METEOROLOGICAL REGISTERS received during the Year 1908-09—*continued.*

(3.)—*From the* MERCANTILE MARINE.—*Meteorological Logs*—continued.

Ship.	Captain.	Officers Observing.	No. of Registers received.	Duration of Observations. Mths.	Days.	Voyage.
"India," S.S.	F. W. Vibert, Commr R.N.R.	A. V. Worthington, Sub-Lieut. R.N.R., H. P. Comyn, Sub-Lieut. R.N.R., W. G. Searle, C. W. Burleigh, Lieut. R.N.R., H. C. Davis, Sub-Lieut. R.N.R., G. Lake, Sub-Lieut. R.N.R., V. H. Fenny, E. D. Starling, A. M. Eastty, Mid. R.N.R.	3	8	10	Australia, *viâ* Suez.
"Ionic," S.S.	J. O. Carter, Commr. R.N.R.	W. Paul, R. O. Jones	2	5	23	New Zealand, *viâ* Capes.
"Japan," S.S. ...	C. T. Denny Lieut. R.N.R.	M. Dunstan, R. W. C. Nicholl, E. Bent, J. K. Chaplin, Mid. R.N.R., J. S. Hervey, Mid. R.N.R.	1	5	8	East Indies, Japan, *viâ* Suez.
"Jason," S.S.... ..	T. G. Steeves	H. Shackleton, J. R. Scott	2	5	19	China, Japan, *viâ* Suez.
"Julia Park," S.S. ...	M. Mackenzie	H. A. Lockyer	2	5	13	River Plate.
"Kaikoura," S.S. ...	A. W. McKellar, Lieut. R.N.R.	E. C. Kettle, R. P. Bassett, R. J. Gibb ..	1	3	3	New Zealand, *viâ* Capes.
"Kaipara," S.S. ...	N. R. de la Cour Cornwall, Lieut. R.N.R.	P. Boucicault, — Worthington, — Woods...	2	6	9	New Zealand, *viâ* Capes.
"Keyingham," S.S. ...	J. W. Millican	J. Tweedie, A. Thompson	1	3	27	River Plate, Mediterranean, Santos.
"Kilbride," S.S. ...	A. J. Gibson	B. McCallum	1	5	8	Australia, Fiji, New Zealand, China, Akyab, *viâ* Cape and Suez.
"Kildonan Castle," S.S.	J. Tyson...	N. Aplin, D. E. Easton, — Hodson, W. Black, C. Sweeting, R. M. Holker.	2	6	23	Cape Town.
"Kilkerran," S.S. ...	T. Smith	... ...	1	6	27	New York, Australia, China, East Indies, *viâ* Cape and Suez.
"Kincraig, S.S. ...	W. F. Cownie	J. S. Soden, A. G. Reid, F. Barnett	1	2	21	St. Paul de Loanda, and South America.

"Kumara," S.S. ...	A. Morton	G. B. Davidson, A. C. Hyde, F. Sales, H. Adkins, C. E. Lee, G. Brien.	2	6	13	New Zealand, *viâ* Capes.
"Lake Michigan," S.S.	H. Parry...	H. C. Bannerman, J. T. McCrombie ...	1	3	18	Quebec.
"Leander," S.S. ...	T. A. Tait	J. H. Williams, P. Marlow	1	5	28	U.S.A., River Plate, Finland.
"Loch Katrine," Barque.	W. Anderson	R. L. F. Hubbard, Mid. R.N.R.	1	7	7	Australia, *viâ* Capes.
"Loch Ryan," Barque	W. Nicholson	J. S. Wishart	1	6	3	Adelaide, Durban.
"Loch Torridon," Barque.	R. Pattman	C. S. Howlett	1	6	0	Australia, *viâ* Capes.
"Lusitania," S.S. ...	J. B. Watt	B. H. Venner, Sub-Lieut. R.N.R., H. C. Mayo, Lieut. R.N.R., W. C. Battle, Sub-Lieut. R.N.R., E. P. J. Tinne, Sub-Lieut. R.N.R., W. Wingate, Sub-Lieut. R.N.R.	1	3	10	New York.
"Macduff," S.S. ...	C. H. Burch	— Clark, — Gay, — Kidby	1	3	15	China, Japan, Batavia, *viâ* Suez.
"Macedonia," S.S. ...	C. D. Bennett, Commr. R.N.R.	B. J. Ohlson, Sub-Lieut. R.N.R., A. H. Ayres, Sub-Lieut. R.N.R., H. A. Monro, F. E. French, Sub-Lieut. R.N.R.	3	5	14	Bombay, Australia, *viâ* Suez.
"Magdalena," S.S.	C. E. Down ... W. H. B. Trigge, Lieut. R.N.R.	A. M. Thomson, L. Drake, T. W. Hosegood, S. L. Smith, C. G. Canning.	2	5	5	West Indies. New York.
"Manchester Corporation," S.S.	P. J. Heath	A. Laing, E. Lazenby, R. Smith, F. Clough, J. Robertson, E. Philipson, H. Wilkinson.	3	10	13	Philadelphia.
"Manchester Exchange," S.S.	G. F. Fisher .. T. A. Adamson ...	T. A. Adamson, T. A. Brooks, A. W. Brundrit, G. M. Mitchell, C. Whorrall.	1	3	20	East Coast North America.
"Manchester Shipper," S.S.	A. T. Haworth	... .	1	3	15	Canada.
"Manistee," S.S.	D. Reside ... J. H. H. Scudamore, Lieut. R.N.R. W. J. Forrester...	M. J. Swords, H. Deane, G. Ernst, F. J. Downes, J. M. Isaacson, M. Lawrence, V. F. Syer.	3	10	6	Port Limon.
"Maori," S.S. ...	G. Nicole	H. Roberts, C. M. Andrews, C. R. Rowlinson, P. McDonald.	2	6	27	New Zealand, *viâ* Capes.
"Marere," S.S. ...	J. Firth	F. E. Mills, F. S. Adey, C. Turner, M. H. Lawrence.	1	3	1	Australia, New Zealand, *viâ* Cape and Suez.

METEOROLOGICAL REGISTERS received during the Year 1908-09—*continued.*

(3.)—*From the* MERCANTILE MARINE.—*Meteorological Logs*—continued.

Ship	Captain.	Officers Observing.	No. of Registers received.	Duration of Observations. Mths.	Days.	Voyage.
"Matina," S.S. ...	B. G. Drake, Lieut. R.N.R.	W. J. Geh, A. Morison, F. E. Hamilton ...	1	3	13	Port Limon.
"Meinwen," Barque ...	R. H. Potter, F.R. Met. Soc.	J. Hennesey, J. Rowland, S. Canham ...	1	7	0	Australia, *viâ* Capes.
"Miami," S.S.	E. W. Castle ... S. H. Simmons ...	A. D. R. Riseley, L. H. Sinclair, L. Lawlor, G. E. Ryan, R. A. Thorburn, D. R. Cooke.	3	10	4	Port Limon.
"Minia," S.S.	W. G. Squares de Carteret	J. Adams, S. H. Drew, P. D. Bates, J. N. Tinniswoode.	2	12	25	Cable work, N.A.
"Monmouthshire," S.S.	G. E. Warner, Lieut. R.N.R.	E. J. Luce, J. E. Peache, R. B. Hill ...	2	7	24	China, Japan, *viâ* Suez.
"Mooltan," S.S. ...	G. C. Henning, Commr. R.N.R.	L. D. B. Clayton, S. C. Patterson, Lieut. R.N.R., J. M. Tickell, E. J. Thornton, Sub-Lieut. R.N.R., R. G. Oxford.	3	8	0	Australia, *viâ* Suez.
"Morning," S.S. ...	Wm. Adams	N. S. Sandholm	1	6	5	Whaling, Davis Strait.
"Napolitan Prince," S.S.	A. B. W. Sheppard, Lieut. R.N.R.	W. Simmonds, E. Harvey	1	3	17	U.S.A., Mediterranean.
"Narrung," S.S. ...	G. A. Millington ...	W. F. Boaden, T. C. Bayard	1	3	13	Australia, *viâ* Cape.
"Ness," S.S.	T. McWilliams	A. Montague, W. E. Gibbs, A. C. Hyde ...	1	1	27	Para, Galveston.
"Nicoya," S.S.	S. H. Simmons ... E. W. Castle ..	F. H. Swain, H. A. Deane, W. G. Preece, J. D. McInnes, W. G. Brimecombe.	3	11	4	Port Limon, West Indies.
"Niwaru," S.S. ...	H. Hollis	J. E. L. Compton, B. Sherrington, C. A. Robinson, D. J. Colishaw.	2	6	1	Australia, New Zealand, *viâ* Capes.
"Nonsuch," S.S. ...	A. G. Alston, Lieut. R.N.	J. Goulding, R. McLean, T. F. Gibson ...	1	3	15	Coasting, India.
"Nubia," S.S.	F. J. Fox	R. Johnes-Smith	2	6	28	China, Japan, *viâ* Suez.
"Oceana," S.S. ...	J. Gray	J. Worthington, A. Muir	1	3	27	U.S.A., China, Burmah, *viâ* Cape and Suez.

"Omrah," S.S. ...	F. S. Symons	P. N. Layton, Lieut. R.N.R., H. S. Seale, A. Fielding, Lieut. R.N.R., H. V. Hart, Lieut. R.N.R., A. L. Owens, Sub-Lieut. R.N.R., F. R. O'Sullivan, H. B. Groom.	3	8 6	Australia, *viâ* Suez.
"Ophir," S.S. ...	A. J. Coad, Lieut. R.N.R. J. F. H. Healey, Lieut. R.N.R.	H. G. Staunton, Lieut. R.N.R., D. Dowdy, Lieut. R.N.R., R. W. I. Marshall, Sub-Lieut. R.N.R., G. L. Simner, Sub-Lieut. R.N.R.	2	5 1	Australia, *viâ* Suez.
"Orari," S.S.	J. P. Forsdick	C. W. Clement, F. Bevis, J. S. Cairns, W. L. Point, P. G. Ryde, A. Willis, F. Pattinson.	2	6 13	New Zealand, *viâ* Capes.
"Orient," S.S....	H. G. Staunton, Lieut. R.N.R. J. F. H. Healey, Lieut. R.N.R.	A. H. Fraser, Lieut. R.N.R., H. G. Adams, W. Rhodes, V. Seymour, Sub-Lieut. R.N.R., — Jones.	3	7 13	Australia, *viâ* Suez.
"Orinoco," S.S. ...	C. P. Langmaid ...	F. Bateman, J. S. Lovell, W. F. Bulleid, A. S. Mackay.	2	9 5	West Indies, Colon, New York.
"Ormuz," S.S.	W. S. Shelford, Lieut. R.N.R. P. N. Layton, Lieut. R.N.R.	W. de M. Baynham, Lieut. R.N.R., J. Avern, Sub-Lieut. R.N.R., G. R. Renshaw, Sub-Lieut. R.N.R., F. R. O'Sullivan, — James, G. J. Matheson, Lieut. R.N.R., A. L. Owens, Sub-Lieut. R.N.R.	3	7 17	Australia, *viâ* Suez.
"Orontes," S.S. ...	J. F. Ruthven	J. F. H. Healey, Lieut. R.N.R., A. H. Bird, Lieut. R.N.R., H. C. Brewster, Lieut. R.N.R., W. T. Cox, Lieut. R.N.R., L. A. Brooke-Smith, Lieut. R.N.R., C. Matheson, W. Matthews, H. G. Adams.	3	7 15	Australia, *viâ* Suez.
"Pacuare," S.S. ...	J. Clarke	R. B. Drake, H. Ashley, G. W. Thompson, C. Fenton.	2	7 18	Port Limon, Jamaica.
"Palma," S.S. ...	G. W. Cockman, Commr. R.N.R.	P. L. Sandberg, C. Birnie, E. MacLeod, A. P. Gunston, Mid. R.N.R., H. J. Sedgwick, A. O. Trefusis, Mid. R.N.R., C. Gordon, E. Blomfield.	2	7 9	Japan, Australia, *viâ* Suez.
"Peerless," S.S. ...	H. Cook	C. Vickers	3	7 1	Buenos Aires, Pensacola.
"Pericles," S.S. ...	A. Simpson, F.R.Met. Soc.	C. D. Matheson, E. Legge, O. File, — Lund	2	5 15	Australia. *viâ* C.G.H.
"Persia," S.S.... ...	G. Mitchell	— Caldwell, — Cowling	2	7 29	Calcutta, *viâ* Suez.

METEOROLOGICAL REGISTERS received during the Year 1908–09—*continued.*

(3.)—*From the* MERCANTILE MARINE.—*Meteorological Logs*—continued.

Ship.	Captain.	Officers Observing.	No. of Registers received.	Duration of Observations.		Voyage.
				Mths.	Days.	
"Port Antonio," S.S.	A. C. Selfe, Lieut. R.N.R.	G. A. Griffin, G. L. Craven-Stavies, A. W. Creese, H. Owen, K. R. S. Davies, J. W. Beckh.	2	6	5	Jamaica.
"Port Henderson," S.S.	W. R. Rowe, F.R.A.S., F.R.Met.Soc.	J. B. Fleet, Mid. R.N.R.	2	7	12	Jamaica.
"Port Royal," S.S. ..	A. C. Selfe, Lieut. R.N.R.	G. A. Griffin, A. W. Creese, K. R. S. Davies, E. G. Terry, Sub-Lieut. R.N.R.	1	3	17	Jamaica.
"Potosi," S.S. ...	A. T. D. Pearson ...	— Hetherington, — Metcalfe, — Withers, — Jones, — Gordon.	2	11	26	W.C.S.A., *viâ* Magellan.
"Pretorian," S.S.	W. S. Main ... / A. Malleby ..	Thos. Dimmock, A. Duncan	2	5	18	North America, East Coast.
"Ramsay," S.S. ...	F. C. Mulian, F.R.G.S., F.R.A.S.	R. Bailey, A. Edwards, W. R. Braine, J. Williams, G. L. Dean, F. S. Hamilton.	3	5	7	Black Sea, Bahia Blanca.
"Ranza," S.S. ...	G. H. Arnot, Lieut. R.N.R., F.R.G.S.	S. H. Bland, C. P. Lenton, R. K. Harrison	1	2	26	New York, India, Rangoon, *viâ* Suez.
"Rewa," S.S.	A. W. Mann	F. G. Bright, L. Proctor, B. Williams ...	1	4	2	Karachi, *viâ* Suez.
"Rimutaka," S.S. ...	H. E. Greenstreet ...	S. J. Plummer, J. M. Scott, C. K. Paris, Sub-Lieut. R.N.R., W. T. Point, P. B. Backhouse.	3	8	26	New Zealand, *viâ* Capes.
"Ryde," S.S.	W. G. Diver	J. C. Turner	1	3	29	Bahia Blanca.
"Saxon Prince," S.S....	R. Kirkwood	T. Jennings, R. Milliken, J. Smith ...	1	1	28	Monte Video, U.S.A.
"Scotia," S.S.... ...	Thos. Robertson, F.R.S.G.S.	... ...	1	4	24	Greenland, Whaling.
"Segura," Ship ...	J. Davies	... ...	1	5	8	W.C.S.A. and N.A.
"Severn," S.S. ...	R. Hayes	S. N. Braithwaite, J. A. Hodges, E. W. Humphreys, H. Womersley.	3	7	18	Havana, Vera Cruz.
"Shadwell," S.S. ...	J. T. Douglas	J. W. Bolam, J. McGreivy, R. Mallett ...	2	4	23	Calcutta, *viâ* Suez.

"Shira," S.S.	J. Cann	F. Carter	2	5	26	Batavia, *viâ* Cape, U.S.A., *viâ* Suez, Galveston.
"Singapore," S.S. ...	L. F. Taylor	— Maryon, — Petherbridge	1	4	3	East Indies, Australia, *viâ* Suez, Durban, *viâ* Cape.
"Solglimt," S.S. ...	A. H. Ree	G. B. Bull	1	3	0	Cape, Crozets.
"South America," S.S.	J. Watson	J. Willicin, — Floyd, A. R. Merfacott, — Wilson.	1	7	28	W.C.S.A., Australia, *viâ* Magellan.
"Strathlyon," S.S. ...	C. H. Burch	— Melville, — Johnston, — Stirling ...	1	0	21	U.S.A.
"Sunda," S.S. ...	G. M. Montford, Commr. R.N.R.	A. Parnis, F. W. Bowhill, Sub-Lieut. R.N.R., E. F. McLeod, — Kelly, G. E. Butler, P. Headlam, G. Biggs, H. E. Bickley, Sub-Lieut. R.N.R.	3	7	24	Calcutta, China, Japan, *viâ* Suez.
"Tagus," S.S.	W. G. Mason	H. W. Turner, R. H. Kitson, A. W. Taylor, H. G. Greenop, W. Weller, J. Atkins, J. Hunter, J. Gedge.	3	10	17	West Indies, Colon, New York.
"Tintagel Castle," S.S.	G. K. Gandy, Lieut. R.N.R. W. W. Verrall, Lieut. R.N.R.	G. R. Parker, Sub-Lieut. R.N.R., E. Vincent, W. M. Lunt, Sub-Lieut. R.N.R., C. F. Brown, Sub-Lieut. R.N.R.	3	8	19	Cape Ports, Mauritius.
"Tongariro," S.S. ...	I. A. Sutcliffe	J. L. Cairns, R. Rivers, H. L. Penny, H. Dynyard.	2	6	0	New Zealand, *viâ* Capes.
"Trent," S.S.	H. J. Boby ... F. K. Corbould ...	C. J. Goble, Sub-Lieut. R.N.R., J. B. Ledger, Mid. R.N.R., C. Whitehouse.	2	6	29	West Indies, Colon, New York.
"Valentia," S.S. ...	O. Richards	C. Watson, C. E. Trueman	1	2	23	Punta Arenas.
"Vectis," S.S. ...	A. Thompson	S. C. Warner, W. P. Townshend, Lieut. R.N.R., F. T. Groome, Sub-Lieut. R.N.R., H. S. Tanner, C. G. Gordon, L. R. Gardiner, Sub-Lieut. R.N.R., C. B. Roche.	3	8	29	Madeira, Mediterranean, Norway, Greenland.
"Waimate," S.S. ...	J. J. Cameron, Lieut. R.N.R.	S. F. Martin, W. Field-Hook, E. W. J. Nursey.	2	7	4	Australia, New Zealand, *viâ* Capes.
"Wakanui," S.S. ...	V. C. White-Parsons ...	— Crawford, — Goddard, — Wilde ...	1	3	10	New Zealand, *viâ* Capes.
"Waverley," S.S. ...	H. R. Wheatley ...	R. Robertson, J. F. Cook, L. Sutherland, T. Frazer.	2	6	15	Mediterranean, U.S.A.
"Weardale," S.S. ...	T. MacDonald, Lieut. R.N.R.	R. J. Jauget	1	3	2	U.S.A., Mediterranean.
"Whakatane," S.S. ...	L. G. Silba	A. L. Rose	1	3	10	New Zealand, *viâ* Capes.

METEOROLOGICAL REGISTERS received during the Year 1908–09—*continued.*

(3.)—*From the* MERCANTILE MARINE.—*Meteorological Logs*—continued.

Ship.	Captain.	Officers Observing.	No. of Registers received.	Duration of Observations.	Voyage.
				Mths. Days	
"Wilcannia," S.S. ...	W. G. Lingham, F.R.A.S., F.R.Met.Soc.	F. W. Hanson, A. Grove, R. M. Wood, G. D. Turner, E. H. Landons, A. E. Denn, A. F. Hotchkin, A. Baddams.	3	11 17	Australia, *viâ* Cape.
"Worcestershire," S.S.	G. H. Harris, Lieut. R.N.R.	W. Stanley, H. Bryce, G. English, J. Young, H. Petersen, — Whyte, C. Bromley.	4	8 14	Rangoon, *viâ* Suez.
"Zent," S.S. ...	J. Clarke ... J. G. Parsons ... D. Reside ... J. H. H. Scudamore, Lieut. R.N.R.	W. J. Geh, G. Petheram, H. Barnett, L. Simms, V. T. Pizer, R. H. Smith, A. E. Harvey, P. H. Day.	3	8 28	Port Limon.

(4.)—ABBREVIATED METEOROLOGICAL REGISTERS.

(a.) *From the Royal Navy* (—).

(b.) *From the Mercantile Marine* (8).

Ship.	Captain.	Officers Observing.	No. of Registers received.	Duration of Observations.	Voyage.
				Mths. Days.	
"Arana," S.S.	R. Walton	G. A. Simpson, W. Ashton	2	2 2	Mediterranean.
"Corfe Castle," S.S. ...	D. H. Hoskins	V. C. Large	1	2 2	New York and Cape.
"Makambo," S.S. ...	S. Mortimer, Lieut. R.N.R.	A. I. Lewis, C. P. Beck	1	2 2	Australia, Solomon Islands, New Guinea.
"Moresby," S.S. ...	F. J. Bayldon, Lieut. R.N.R.	... ...	2	1 25	Brisbane. Solomon Islands.
"Sabine," S.S. ...	S. H. Owen	V. C. Large	2	4 3	S. E. Coast Africa and Mauritius.

METEOROLOGICAL REGISTERS received during the year 1908–09 —*continued.*

(5.)—NORTH ATLANTIC REGISTERS—FORM NO. 121 (2,043).

INDIAN OCEAN REGISTERS—FORM NO. 122 (273).

Line.	Ship.	Captain and No. of Registers.
Allan	Buenos Ayrean ...	J. Hall, 3.
	Carthaginian	B. T. Eastaway, 8.
	Corinthian	W. Dunlop, 11.
	Corsican	T. Pickering, J. T. Gambell } 24.
	Grampian ...	E. Outram, J. T. Gambell } 15.
	Hesperian ...	J. A. Fairfull, W. S. Main } 16.
	Hibernian ...	H. Imrie, G. Hamilton } 7.
	Hungarian	W. Wallace, 4.
	Ionian	J. M. Johnston, 12.
	Laurentian	H. Imrie, 21.
	Mongolian ...	J. T. Gambell, J. Williams } 6.
	Numidian	T. Moar, 20.
	Ontarian	A. J. Peters, 5.
	Pomeranian ...	A. J. Rennie, J. Henderson } 13.
	Pretorian	A. Mellebye, 15.
	Sardinian	B. Henry, 12.
	Siberian	B. T. Eastaway, J. Hall } 8.
	Sicilian	W. Wallace, 14.
	Tunisian... ...	A. H. Vipond, J. A. Fairfull } 15.
	Victorian	T. Pickering, 20.
	Virginian	A. H. Vipond, 18.
American	Friesland	C. J. Rogers, 8.
	Haverford	E. Maddox, 21.
	Merion	J. B. Hill, 6.
	New York	W. J. Roberts, 10.
	Noordland	T. Deans, 2.
	Philadelphia	A. R. Mills, 13.
	St. Louis	J. C. Jamison, 11.
	St. Paul	F. M. Passow, 9.
	Westernland	W. W. D. Turner, 2.
Anchor	Arabia	W. Mitchell, 3.
	Circassia ...	A. Haig, C. F. Osborne } 8.
	Dalmatia	J. Black, 7.
	Elysia	A. Haig, 3.
	Furnessia	J. Lumsdane, 16.
	Scindia	W. Kelso, 6.
"Arana" S.S. Co. ...	Arana	R. Walton, 4.
Atlantic Transport ...	Mackinaw	O. P. Clarke, 12.
	Manhattan	W. Johnston, 4.
	Manitou	W. F. Pollock, 4.
	Maryland	J. McMath, 6.
	Massachusetts	J. B. Findlay, 2.
	Memphis	G. Goudie, 1.
	Mesaba	A. E. Tribe, Lieut. R.N.R., F. H. Claret, Sub-Lieut. R.N.R. } 22.
	Minneapolis	T. F. Gates, 19.
	Minnehaha	S. Layland, 21.
	Minnesota	P. Laverock, 14.
	Minnetonka	E. G. Cannons, 24.

METEOROLOGICAL REGISTERS received during the year 1908–09 —*continued.*

Line.	Ship.	Captain and No. of Registers.
Atlantic Transport—*cont.*	Mobile	J. T. J. Wylie, 12.
	Montana	P. Behm, 9.
Bibby	Worcestershire	G. H. Harris, 19.
Booth	Boniface... ...	W. C. Westray, R. Williams } 8.
Bowring, C. T. & Co.	Brika	E. E. Cooper, 1.
Bristol "City" ...	Chicago City	W. M. Hunter, 5.
	Llandaff City	W. M. Hunter, 1.
British and Burmese	Martaban	W. Duguid, 6.
British India ...	Canara	T. Kerr, Lieut. R.N.R., 2.
	Colaba	J. Robertson, Lieut. R.N.R., 6.
	Culna	S. Maclachlan, 7.
	Dunera	D. L. Neilson, Lieut. R.N.R, 4.
Brocklebank	Matheran	N. Bannatyne, 5.
Bucknall	Amatonga ...	E. R. Surge, S. K. Clear } 3.
	Buceros	J. Hutcheon, 2.
	Kalomo	R. Linklater, 2.
	Katuna	A. Lee, 8.
	Koranna	J. H. Beare, 8.
Burmah	Pegu	W. Morris, 6.
Canadian-Pacific Railway Co.	Empress of Britain ...	J. A. Murray, 25.
	Empress of Ireland ...	J. V. Forster, Lieut. R.N.R., 26.
	Lake Champlain ...	G. S. Webster, Lieut. R.N.R., 10.
	Lake Erie	F. Carey, 2.
	Lake Manitoba... ...	G. C. Evans, 15.
	Lake Michigan	H. Parry, 11.
	Milwaukee	E. Griffiths, Lieut. R.N.R., 4.
	Monmouth ...	E. Griffiths, Lieut. R.N.R., H. G. Kendall, Lieut. R.N.R. } 19.
	Montcalm	C. W. Hodder, 16.
	Montezuma	H. G. Potter, 4.
	Montfort	A. E. Evans, 10.
	Montreal	R. H. McNeill, 14.
	Mount Royal ...	C. Troop, A. Parcells } 8.
China Navigation Co.	Kashing	T. W. Pickard, 17.
Clan	Clan Macintosh ...	W. J. Lennox, 14.
Compagnie Générale Transatlantique.	La Provence	E. Poncelet, 5.
"Crown" S.S. Co. ...	Crown of Navarre ..	A. McKillop, 4.
Cunard	Aleppo	W. Crathorne, Lieut. R.N.R., 9.
	Brescia	A. H. Rostron, Lieut. R.N.R., 4.
	Campania ...	D. Dow, Commr. R.N.R., J. T. W. Charles, Commr. R.N.R. } 24.
	Carmania	J. C. Barr, 14.
	Caronia	D. Dow, Commr. R.N.R., 10.
	Carpathia	C. A. Smith, Lieut. R.N.R., 16.
	Cherbourg	C. Morison, 6.
	Cypria	H. N. Goulden, 6.
	Etruria	T. Potter, 10.
	Ivernia	H. M. Benison, Lieut. R.N.R., 24.
	Lucania	R. C. Warr, 16.
	Lusitania	J. B. Watt, 19.
	Mauretania	J. Pritchard, 22.
	Pannonia	W. R. D. Irvine, Lieut. R.N.R., 14.
	Pavia	G. F. Jeffries, 10.
	Saragossa	G. W. Melsom, 9.
	Saxonia	E. H. Pentecost, Lieut. R.N.R., 25.
	Slavonia	A. G. Dunning, Lieut. R.N.R., 14.
	Sylvania	W. B. Cresser, Lieut. R.N.R., 16.
	Tyria	A. H. Reade, Lieut. R.N.R., 12.
	Ultonia	C. A. Smith, Lieut. R.N.R., D. S. Miller, Lieut. R.N.R. } 9.

METEOROLOGICAL REGISTERS received during the year 1908–09 —*continued.*

Line.	Ship.	Captain and No. of Registers.
Cunard—*cont.* ...	Umbria	J. T. W. Charles, Commr. R.N.R. / W. T. Turner } 6.
	Veria	D. P. Thomson, Commr. R.N.R., 8.
"Devona" S.S. Co. ...	Devona	D. R. Murray, 18.
Dominion	Canada	R. O. Jones, 15.
	Cornishman	J. Evans, 12.
	Dominion	W. L. Mendus, 19.
	Englishman	? , 1.
	Kensington	W. Roberts, 12.
	Norseman	J. H. Kay, 6.
	Ottawa	J. Evans, 7.
	Ottoman	T. Deans, 2.
	Roman	G. Berry, 4.
	Southwark	J. O. Williams, 4.
	Welshman ...	J. H. A. Thornton / J. H. Kay } 14.
Egyptian Mail S.S. Co.	Cairo	G. Gregory, Lieut. R.N.R., 6.
	Heliopolis	G. Gregory, Lieut. R.N.R., 3.
Elder, Dempster ...	Memnon ...	W. P. Purser / W. Jones } 2.
	Port Antonio	W. R. Rowe, 2.
	Port Henderson ...	W. R. Rowe, 18.
	Port Kingston	O. Jones, 19.
	Port Royal	A. C. Selfe, Lieut. R.N.R., 6.
Elders & Fyffes ...	Barranca	W. Long, 12.
	Manistee ...	J. H. H. Scudamore, Lieut. R.N.R. / W. J. Forrester } 6.
	Matina	F. H. Swain, 1.
	Nicoya	E. W. Castle / S. H. Simmons } 14.
	Pacuare	J. Clarke, 12.
	Reventazon	J. Clarke, 1.
	Zent	J. Clarke / D. Reside / J. Parsons / J. H. H. Scudamore, Lieut. R.N.R. } 10.
Ellerman	City of Athens ...	J. Wilson / W. Knaut } 4.
	City of Benares ...	W. Greenhorn / D. Morrison } 6.
	City of Glasgow ...	W. Greenhorn, 6.
	City of Karachi ...	F. Snow / — Halley } 6.
	City of Khios	D. Cruickshank, 2.
	City of Manchester ...	H. Findlay, 10.
	Crosby Hall	T. Field, 7.
Elswick S.S. Co. ...	Elswick Grange ...	G. Wilson, 12.
English & American Shipping Co.	Inca	E. E. Cooper, 2.
	Pola	W. R. Bennett, 5.
European Petroleum Co.	Broadmayne	H. A. Hayns, 3.
(Danish)	Dania	P. Petersen, 11.
Gulf Transport ...	Ikbal	M. Robertson, 4.
	Imaum	G. Wigdahl, 4.
	Indore	E. S. Pearse, 9.
	Inkula	E. A. Alcide, 9.
	Irada	A. W. Roberts, Lieut. R.N.R., 5.
	Irak	A. Delargy, 7.
	Iran	T. B. Peabody, 3.
	Istrar	C. M. M. Jacob, 6.
H.M.S.	Sappho	Lieut. A. Boughey, R.N.
Harrison	Author	G. N. Kearne, 8.
	Centurion	W. W. Rushforth, 3.

METEOROLOGICAL REGISTERS received during the year 1908–09 —*continued.*

Line.	Ship.	Captain and No. of Registers.
Harrison—*cont.* ...	Civilian...	P. Lord, 8.
	Colonial	F. C. Raby, 5.
	Counsellor	D. G. Cownie, 6.
	Historian	H. Pyle, 16.
	Huntsman	C. S. Rhodes, 14.
	Musician	G. B. Woolfenden, 6.
	Navigator	F. Westhorpe, 4.
	Tactician	R. Owen, 13.
	Traveller	G. N. Kearne, 2.
Howard, C.	Beatrice	T. R. Randall, 1
"Hurona" S.S. Co. ...	Hurona	J. Dorward, W. Lindsay } 15.
Ilderton S.S. Co. ...	Tiverton	— Leish, 2.
Indian S.S. Co. ...	Orwell	D. C. Horne, 3.
"Industry" S.S. Co.	Industry	D. Milne, 2.
(Italian)	Silverstream	D. Garziono, 3.
Japan Mail	Sanuki Maru ...	S. J. G. Parsons, K. Homma } 3.
Johnston	Vedamore	W. Henry, 2.
Knott	Royal Sceptre	J. S. Taylor, 2.
Leyland, F.	Albanian	? , 1.
	Almerian	E. Cook, 7.
	Antillian	W. Japha, 7.
	Asian	W. E. Wood, 5.
	Atlantian	A. H. Highton, 9.
	Barbadian	G. H. Willis, 9.
	Bohemian	— McCullum, 7.
	Bostonian	J. Parry, 17.
	Belgian	G. Williams, 2.
	Californian	F. A. Parkin, 8.
	Cestrian	E. Thomas, 12.
	Colonian...	T. Chadwick, 9.
	Cuban	T. W. Lofthouse, 8.
	Devonian	A. W. V. Trant, 9.
	Iberian	T. B. Jago, 16.
	Indian	G. Bruce, 8.
	Irishman	W. L. Moorhouse, 1.
	Jamaican	J. Robb, 6.
	Mexican	C. H. Manning, 1.
	Michigan	S. W. Watkins, 4.
	Oxonian	W. Dickinson, 2.
	Philadelphian	J. Gardner, 7.
	Tampican ...	J. W. Westcott, A. Parker } 7.
	Texan	J. Baker, 3.
	Virginian	J. McDonald, 1.
	Winifredian	F. Shepherd, 11.
Leyland Shipping Co.	Planet Neptune ...	W. E. Price, 2.
Manchester Liners ...	Manchester Corporation	P. J. Heath, 14.
McGregor, A. G. ...	Glenearn	W. Haughton, 1.
Meek, H. D.	Keyingham	J. W. Millican, 2.
Mercantile S.S. Co. ...	Ness	? , 1.
Monarch	English Monarch ...	C. E. Froggatt, Lieut. R.N.R., 2.
Nederland	Kawi	W. Bagchus, 8.
	Koning Willem II. ...	J. Teensma, 13.
Norddeutscher Lloyd	Bremen	E. Von Borell, 1.
	Prinz Ludwig	F. von Binzer, 4.
	Seydlitz	A. A. Leborn, 4.
Norfolk and North American S.S. Co.	Crown Point	J. Wall, 12.
Peninsular and Oriental.	Candia	O. Jones, Commr. R.N.R., 2.
	Egypt	F. R. Summers, 18.
	Himalaya	W. L. Broun, Lieut. R.N.R., 4.
	Mongolia	C. F. Preston, Commr. R.N.R., 10.
	Nile	E. P. Martin, Lieut. R.N.R., 20.
	Nyanza	H. S. Bradshaw, 10.

METEOROLOGICAL REGISTERS received during the year 1908–09 —*continued.*

Line.	Ship.	Captain and No. of Registers
Peninsular and Oriental—*cont.*	Persia	W. H. Haughton, Commr. R.N.R., 11.
	Sumatra...	E. W. Bruce, 3.
	Sunda	G. M. Montford, Commr. R.N.R., 10.
	Syria	D. C. Gregor, Commr. R.N.R., 6.
Prince...	Black Prince	J. Thomas, 6.
	British Prince... ...	P. A. Johnston, 3.
	Moorish Prince... ...	H. R. Oliver, Lieut. R.N.R., 1.
	Norman Prince... ...	W. Barrett, 5.
	Ocean Prince	A. B. W. Sheppard, Lieut. R.N.R., 1.
	Saxon Prince	R. Kirkwood, 6.
	Sicilian Prince	W. J. Fielding, 2.
	Spartan Prince	H. G. V. Smith, 2.
Pyman S.S. Co. ..	Waverley	H. R. Wheatley, 9.
Raithwaite S.S. Co....	Northwaite	W. E. Staveley, 4.
Red Star	Vaderland	T. J. Barman, 11.
Rotterdam Lloyd ...	Besoeki	E. Havinga, 1.
	Goentoer	P. De Boer, 4.
	Sindoro	N. Guthrie, 8.
Royal Mail Steam Packet Co.	Orotava	W. J. Dagnall, 3.
Scrutton	Savan	W. E. Roberts, 2.
Shire	Denbighshire	H. Hoffner, 3.
Star	Star of Scotland ...	J. M. Hart, 1.
Thomson, W. ...	Benarty	— Sarchet, 4.
	Bendoran	C. K. McIntosh, 4.
	Benlarig	A. Wallace, 2.
	Benvenue	R. Kroble, 10.
Trechmann S.S. Co.	Wilster	T. Martin, 8.
Tyzack & Branfoot S.S. Co.	Camberwell	T. Henderson, 6.
Ulster S.S. Co. ...	Bengore Head	W. J. Finlay, 16.
Union-Castle ...	Dunottar Castle ...	G. K. Gandy, Lieut. R.N.R., 1.
	Galeka	T. H. Wilford / L. A. Millard } 8.
	Kildonan Castle ...	J. Tyson, 7.
White Star	Adriatic	E. J. Smith, Commr. R.N.R., 13.
	Afric	F. B. Howarth, Lieut. R.N.R., 5.
	Arabic	H. Smith, Lieut. R.N.R., 19.
	Armenian ...	C. E. Starck, Lieut. R.N.R. / F. Hart, Lieut. R.N.R. } 7.
	Baltic	J. B. Ranson, Lieut. R.N.R., 11.
	Bovic	J. J. Kearney, Lieut. R.N.R. / W. Morgan, Lieut. R.N.R. / R. Lobez, Lieut. R.N.R. } 12.
	Canopic	I. Sealby, Lieut. R.N.R., 5.
	Cedric	C. A. Bartlett, Lieut. R.N.R., 19.
	Celtic	A. E. S. Hambelton, Lieut. R.N.R., 27.
	Cevic	C. E. Starck, Lieut. R.N.R., 3.
	Cymric	W. Finch, Lieut. R.N.R., 19.
	Georgic	G. Metcalf, Lieut. R.N.R. / W. H. Clarke } 11.
	Majestic	J. Mathias, Lieut. R.N.R., / B. F. Hayes, Commr. R.N.R. } 20.
	Oceanic	H. J. Haddock, C.B., Commr. R.N.R., 12.
	Runic	S. A. Anning, Lieut. R.N.R., 8.
	Teutonic...	H. Smith, Lieut. R.N.R., 14.
	Victorian ...	F. Hart, Lieut. R.N.R. / J. J. Kearney, Lieut. R.N.R. } 5.
"Wilhelmina" S.S. Co.	Wilhelmina	T. N. Hugo, 1.
Wilsons & Furness-Leyland.	Georgian	W. F. Wood, 14.

APPENDIX V.

Instruments supplied, &c., to the Mercantile Marine.

Particulars.	Barometers.	Thermometers.	Hydrometers.	Screens
April 1st, 1908, afloat	182	1,182	676	206
Issued since	56	372	169	44
	238	1,554	845	250
Returned since	67	319	123	42
	171	1,235	722	208
Written off as lost, &c.	6	36	24	6
April 1st, 1909, afloat	165	1,199	698	202

Disposition of Mercantile Marine Instruments, April 1st, 1909.

Particulars.	Barometers.	Thermometers.	Hydometers.	Screens.
In merchant ships	165	1,199	698	202
„ store at M.O.	25	—	25	—
At Liverpool Agency	6	32	18	4
„ Glasgow „	4	18	16	1
„ Dundee „	4	25	13	3
„ Hull „	3	15	7	5
„ Cardiff „	2	18	12	1
„ Southampton „	4	25	2	16
„ Sunderland „	3	20	11	3
Total April 1st, 1909	216	1,347	802	235
Under repair, April 1st, 1909	4	25	—	8

Instruments at Stations, viz.: Telegraphic Reporting Stations, Observatories, Fishing Villages, &c.

(*a.*) Thermometers and Screens.

—	Thermometers.					Screens.
	Ordinary.	Maximum.	Minimum.	Solar.	Grass Minimum.	
April 1st, 1908, in use ...	362	72	68	10	11	119
Issued since	25	5	4	—	1	—
	387	77	72	10	12	119
Returned since	21	4	3	—	1	—
Written off	—	—	—	—	—	—
April 1st, 1909, in use ...	366	73	69	10	11	119

(*b.*) Other Instruments.

—	Barometers.	Aneroids and Barographs.	Sunshine Recorders.	Rain Gauges.	Anemometers.	Storm Signal Cones.
April 1st, 1908, in use ...	321	27	37	98	34	223
Issued since	2	11	—	—	1	7
	323	38	37	98	35	230
Returned since	3	1	—	—	1	—
Written off	—	—	—	—	—	7
April 1st, 1909, in use ...	*320	*37	37	98	34	223

* 224 barometers (mercurial) and 2 barographs are lent for the use of seafaring communities at fishing villages and ports.

Stock Account of Instruments received and issued on repayment to the Crown Agents for the Colonies, Colonial Governments, and other Observers, for the six months ended 31st March, 1909.

—	Thermometers.					Stevenson's Screens.	Tropical Screens.
	Ordinary.	Maximum.	Minimum.	Solar.	Grass Min.		
Stock in hand, Oct. 1st, 1908.	182	10	5	6	9	2	5
Received since	153	125	122	24	31	—	13
	335	135	127	30	40	2	18
Issued since ...	222	123	118	22	37	2	17
Stock available, April 1st, 1909.	113	12	9	8	3	—	1

—	Barometers.	Rain-gauges.	8 inch glasses.	5 inch glasses.	Sunshine Frames.	Sunshine Balls.	Cones.
Stock in hand, Oct. 1st.	5	9	1	1	4	4	—
Received since	6	44	1,273	183	3	1	25
	11	53	1,274	184	7	5	25
Issued since ...	5	45	1,270	174	2	2	13
Stock available, April 1st, 1909.	6	8	4	10	5	3	12

In addition, the following miscellaneous instruments were received and issued during the period :—

- 1 Anemometer.
- 3 Large Barographs.
- 1 Shaw-Dines Microbarograph.
- 2 Small Barographs.
- 1 Special Thermograph.
- 2 Helio-Chronometers.
- 1 Collie Barometer.
- 1 Adder Machine.
- 1 Mariotte Barometer.

APPENDIX VI.

Report on the Inspection of Stations in connexion with the Office in 1908.

The inspectors were as follows :—

Districts 0, 1 and 6	Mr. A. Watt, Mr. R. H. Curtis.
District 2	Mr. H. Harries, Mr. E. G. Constable.
„ 3	Mr. R. G. K. Lempfert, Mr. F. J. Brodie.
„ 4	Mr. R. G. K. Lempfert, Mr. H. Harries.
„ 5	Mr. F. J. Brodie, Mr. H. Harries.
„ 7	Mr. R. H. Curtis, Mr. R. G. K. Lempfert.
„ 8	Mr. H. Harries, Mr. E. G. Constable.
Districts 9 and 10	Mr. A. Watt, Mr. T. W. Baker.
Observatories and Anemograph Stations.	Mr. T. W. Baker and Mr. E. G. Constable, by arrangement with the Director of the National Physical Laboratory; Mr. R. H. Curtis.

By arrangement with the Scottish Meteorological Society, Mr. A. Watt was appointed as additional inspector for the year ending 31st March, 1909.

At the observatories and anemograph stations the instruments were dismounted and cleaned, and all necessary repairs were carried out. At those observatories which are also climatological or telegraphic reporting stations the arrangements for this work were examined.

The alteration of the hour of observing at telegraphic reporting stations from 8 a.m. to 7 a.m. on July 1st, 1908, brought with it some changes in the routine work at these stations, and special attention was in consequence devoted to their inspection.

The reports show that efficiency has been maintained on the whole; in a number of cases the inspectors were able to make suggestions for improving the observations by bringing them more into line with recognized conventions. Points requiring attention which could not be settled on the spot have been dealt with by correspondence.

The following is a list of the stations visited :—

Observatories.

Aberdeen.	Oxford.
Armagh.	Stonyhurst.
Falmouth.	Valencia.
Glasgow.	

Additional Anemograph Stations.

Alnwick Castle.	Fleetwood.
Deerness.	Holyhead.
Dublin (Phœnix Park).	Kingstown.

ADDITIONAL ANEMOGRAPH STATIONS—*continued.*

North Shields.
Pendennis Castle (Falmouth).
Plymouth.
Roche's Point.
Scilly.

NORMAL CLIMATOLOGICAL STATIONS.

Armagh.
Bettws-y-coed.
Douglas.
Darwen.
Deerness.
Dublin (Phœnix Park).
Eastbourne.
Gordon Castle.
Guernsey (Fort Road).
Hull.
Manchester (City).
" (Whitworth Park).
" (Prestwich).
Newton Rigg.
Plymouth.
St. Leonards.
Sheffield.
Strathpeffer.

AUXILIARY CLIMATOLOGICAL STATIONS.

Abergeldie.
Alnwick Castle.
Balmoral.
Bexhill-on-Sea.
Bridlington.
Brighton.
Bucklebury.
Burnley.
Carnforth.
Colwyn Bay.
Crathes.
Folkestone.
Guernsey (Villa Carey).
Hawarden Bridge.
Kilmarnock.
Kingston-on-Soar.
Leeds.
Lewes.
Mallaranny.
Margate.
Oban.
Penzance.
Preston.
Ramsgate.
Rhyl.
Rossall Beach.
Rugby.
Skegness.
Stonehaven.
Thorntonhall.
West Linton.
Weymouth.
Woburn.
Worthing.

TELEGRAPHIC REPORTING STATIONS.

Aberdeen.
Barra Island.
Bath.
Clacton-on-Sea.
Donaghadee.
Dover.
Dungeness.
Holyhead.
Jersey.
Leith.
Malin Head.
Nairn.
North Shields.
Nottingham.
Oxford.
Pembroke (St. Ann's Head).
Portland Bill.
Roche's Point.
Scilly.
Spurn Head.
Stornoway.
Sumburgh Head.
Valencia.
Wick.

Mr. W. Marriott visited the following stations which are in connexion with the Royal Meteorological Society as well as with the Office :—

Blackpool, Buxton, Cheadle, Harrogate, Hillington, Lowestoft, Norwich, Raunds, Rounton, Scarborough, Wakefield, Worksop.

APPENDIX VII.

Geographical List of Institutions and Persons from whom Publications containing Meteorological Data have been received during the last Six Years.

The list is arranged in accordance with the revised topographical classification adopted in the international Catalogue of Scientific Literature. *In each section the names of institutions which collect observations from a network of stations, or which publish observations on an extended scale, have been placed first.* In a number of instances, particularly in the case of tropical countries, observations are published by authorities not domiciled in the country. In these instances the names of the places of observation have been given as far as space permits, and the names of the institutions issuing the publications have been printed in *italic* type. If no names of places are quoted, it may be assumed that returns from a number of stations are given.

The character of the information available has been indicated by quoting the numbers in the International Catalogue under which the publications have been classified.

The year quoted is the last complete year for which the information has been received.

The classification numbers employed are as follows :—

1710 and 1730. Climatology—Agricultural and Hygienic.
1180. Rainfall Tables.
1800. Meteorological Observations—General.
1810. Hourly Values.
1820. Daily Values.
1825. Monthly and Yearly Mean Values.
1830. Daily Weather Reports.
1840. Weather Reports—Weekly, Monthly, &c.

Geographical List of Institutions and Persons supplying published Meteorological Data.

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports 1840.
GENERAL.								
International Committee for Scientific Aeronautics, Strassburg.	—	—	1906	—	—	—	—	—
Board of Trade, London—Commercial, Labour, and Statistical Department.	—	—	—	—	—	1907	—	—
Symons's Meteorological Magazine ..	—	—	—	—	—	1908	—	—
***d.* EUROPE AND MEDITERRANEAN SEA AND ISLANDS.**								
Deutsche Seewarte, Hamburg	—	—	—	—	—	—	—	1908
***da.* Scandinavia: Sweden, Norway, Denmark, Iceland, Faeroes:—**								
Dansk Meteorologisk Institut (Copenhagen).	—	—	1905	—	1908	1905	1908	1908
Norsk Meteorologisk Institut (Christiania).	—	1907	1907	1907	1907	1907	—	—
Svensk Meteorologisk Institut (Stockholm).	—	—	—	—	—	—	—	1908
K. Svenska Vetenskaps-Akademie (Stockholm).	—	—	—	—	1907	1907	—	—
Stockholm (H. E. Hamberg) ..	—	—	—	—	—	*	—	—
Upsala, Observatoire Météorologique de l'Université.	—	—	1907	1907	1907	—	—	—
***db.* Russia in Europe:—**								
Observatoire Physique Central Nicolas (St. Petersburg).	—	—	1905	1905	1905	1905	1908	1907
Finland, Meteorologische Zentralanstalt (Helsingfors).	—	—	1901	1901	1901	1901	—	1907
Kaiserliche Livländische Gemeinnützige u. Ökonomische Sozietät. Dorpat (Jurjef).	—	1902	—	—	—	—	—	—
Dorpat, Meteorologisches Observatorium.	—	—	1905	1905	1905	—	—	—
Dorpat, Station Météorologique de l'École Reale.	—	—	—	—	1906	—	—	—
Kazan, Observatoire Météorologique.	—	—	—	—	1902	—	—	—
Kieff, Observatoire Météorologique.	—	—	—	1905	1905	—	—	—
Moscow (E. Leyst)	—	—	1906	—	—	—	—	—
Moscow, Meteorologisches Observatorium der K. Universität	—	—	—	1904	1904	—	—	—
Nijni-Oltchedaeff, Station Météorologique.	—	—	—	—	1907	1907	—	—
Odessa, Observatoire Météorologique et Magnétique de l'Université Impériale.	—	1905	1905	—	1906	1906	—	—
St. Petersburg, Observatoire Météorologique de l'Institut Forestier Impériale.	—	—	—	—	1906	—	—	—
Tiflis, Physical Observatory ..	—	—	—	—	—	—	—	1906
Warsaw, Station Centrale Météorologique du Musée de l'Industrie et de l'Agriculture.	—	—	1903	—	1903	1903	—	—

* Means of temperature in Stockholm for 1756 to 1905 and in Sweden for 1856 to 1907.

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
d. **EUROPE AND MEDITERRANEAN ISLANDS**—*cont.*								
dc. **German Empire:—**								
Deutsche Seewarte (Hamburg)	—	—	1907	1907	1907	1907	1908	1908
Prussia, K. Meteorologisches Institut (Berlin).	—	1906	1903	1903	1905	1903	—	1908
Alsace-Lorraine, Meteorologischer Landesdienst (Strassburg).	—	—	1903	1903	1903	1907	—	—
Baden, Central Bureau für Meteorologie und Hydrographie (Carlsruhe).	—	1908	1908	—	1907	1907	—	1908
Bavaria, K. Meteorologische Central Station (Munich).	—	—	1903	—	1903	1903	1908	—
Hessen, G. Hydrographisches Bureau (Darmstadt).	—	1908	1907	1907	1907	—	—	1908
Saxony, K. Sächs. Landes-Wetterwarte (Dresden).	—	—	1903	1903	1903	1903	1908	1907
Württemberg, K. Statistisches Landesamt und Meteorologische Central Station (Stuttgart).	—	—	1908	1900	1907	1907	—	1908
Aachen, Meteorologisches Observatorium.	—	—	1907	1907	1907	1907	1908	—
Berlin, Wetter Bureau	—	—	—	—	—	—	1908	—
Bremen, Meteorologische Station	—	—	1907	1907	1907	—	—	—
Eberswalde, Meteorologische Station.	—	—	—	—	—	—	—	1903
Emden, Naturforschende Gesellschaft.	—	—	—	—	—	1906	—	—
Frankfurt am Main, Physikalischer Verein.	—	—	—	—	1907	—	—	—
Potsdam, K. Preuss. Met. Institut	—	—	1906	1906	1906	—	—	—
de. **Holland; Belgium; Luxemburg:—**								
K. Nederlandsch Meteorologisch Institut (de Bilt).	—	1907	1907	1907	1907	1907	1908	1908
Observatoire Royal, Uccle, Brussels.	—	—	1903	1903	1903	1903	1908	—
Mons (A. Bracke)	—	—	—	—	1905	—	—	—
e. **British Islands:—**								
Meteorological Office (London)	—	—	—	1908	1908	1908	1908	1908
British Rainfall (H. R. Mill) ..	—	1907	—	—	—	—	—	—
R. Meteorological Society (London).	—	—	1907	—	1907	1907	—	—
Scottish Meteorological Society (Edinburgh).	—	1907	1907	—	—	1907	—	—
Board of Agriculture and Fisheries, London.	1906	—	—	—	—	—	—	—
General Register Office, Dublin	1908	—	—	—	1908	1908	—	1908
Royal Observatory, Greenwich	—	—	1906	1906	1903	—	—	—
General Register Office, London	1908	—	—	—	1908	1908	—	1908
Registrar General's Office, Edinburgh.	1908	—	—	—	—	1908	—	1908
Royal Society of Edinburgh [Fort William and Ben Nevis].	—	—	—	1897	—	—	—	—
Bath, Medical Officer of Health	1906	—	—	—	—	—	—	—
Blackpool, Public Health Office	—	—	—	—	—	1907	—	—
Bognor, Medical Officer of Health	1908	—	—	—	—	1908	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
d. **EUROPE AND MEDITERRANEAN ISLANDS**—*cont.*								
de. **British Islands**—*cont.*								
Bolton, The Museums and Meteorological Observatory.	—	—	—	—	—	1907	—	1908
Borden Wood, Sussex (E. Lamb)	—	—	—	—	—	1908	—	—
Brighton, Medical Officer of Health.	1902	—	—	—	—	—	—	—
Burnley, Medical Officer of Health.	1907	—	—	—	—	—	—	—
Canterbury (A. Lander)	—	—	1904	—	—	—	—	—
Cardiff, Naturalists' Society ..	—	1907	—	—	—	1907	—	—
Cardiff, Waterworks Engineer's Office.	—	1905	—	—	—	—	—	—
Chester (J. C. Mitchell)	—	—	—	—	—	1905	—	—
Clongowes Wood College ..	—	—	—	—	—	1908	—	—
Cockle Park, Morpeth	—	—	—	—	—	1904	—	—
Coventry, Medical Officer of Health.	1907	—	—	—	—	1907	—	—
Croydon, Natural History and Scientific Society.	—	1906	—	—	1906	—	—	—
Devon, North (T. Wainwright)..	—	—	—	—	—	1906	—	—
Dorset (*late* H. S. Eaton)	—	1903	—	—	—	—	—	—
Eastbourne, Borough Meteorologist.	—	—	—	—	—	1905	—	—
East Ham, Public Health Department.	1907	—	—	—	—	1907	—	—
Falmouth, R. Cornwall Polytechnic Society.	—	—	—	—	—	1908	—	—
Great Central Railway	—	1908	—	—	—	—	—	—
Harrogate, Harlow Moor Observatory.	—	—	—	—	—	1907	—	—
Hastings, Borough Meteorologist.	—	—	—	—	—	1907	—	—
Hertfordshire (J. Hopkinson) ..	—	1906	—	—	—	1906	—	—
Hoylake and West Kirby, Urban District Council.	—	—	—	—	—	1908	—	—
Isle of Man (A. W. Moore) ..	—	—	—	—	—	1904	—	—
Kew National Physical Laboratory.	—	—	—	—	—	1907	—	—
Liverpool Observatory, Bidston.	—	—	—	—	1907	—	—	—
London, Royal Botanic Society	—	—	—	—	1906	—	—	—
Lowestoft, Medical Officer of Health.	1907	—	—	—	—	1907	—	—
Manchester, Godlee Observatory.	—	—	—	—	1907	—	—	—
Manchester, Public Health Office	1904	—	—	—	1904	—	—	—
Margate, Borough Meteorologist	—	—	—	—	—	1907	—	—
[Netley.] *Army Medical Department, London.*	—	—	—	—	—	1906	—	—
Northampton, Natural History Society.	—	1908	—	—	—	—	—	1908
Norwich (A. W. Preston) ..	—	—	—	—	—	1907	—	—
Nottingham (A. Brown and P. Boobbyer).	—	1908	1908	—	—	—	—	—
Nottingham, Rural District Council of Basford.	1903	—	—	—	—	1903	—	—
Paisley, Coats Observatory ..	—	—	—	—	—	1905	—	—
Portsmouth, Medical Officer of Health.	1907	—	1907	—	—	—	—	—
Rousdon Observatory	—	—	—	—	—	1903	—	—
Rugby School Natural History Society.	—	—	—	—	—	1906	—	—
Scarborough, Borough Meteorologist.	—	—	—	—	—	1906	—	—
Seaham Harbour, Medical Officer of Health.	1907	—	—	—	—	1907	—	—
Sevenoaks (W. W. Wagstaffe) ..	—	—	—	—	—	1905	—	—
Shropshire (W. M. De La Touche)	—	1907	—	—	—	—	—	—
Southampton, Medical Officer of Health	1906	—	—	—	—	1906	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
d. **EUROPE AND MEDITERRANEAN ISLANDS**—*cont.*								
de. **British Islands**—*cont.*								
Southport, Fernley Observatory	—	—	1907	1907	1908	1907	—	—
Stonyhurst College Observatory	—	—	—	—	—	1907	—	—
Throcking (C. W. Harvey) ..	—	—	—	—	—	1904	—	—
Totland Bay, Isle of Wight (J Dover).	—	—	—	—	—	1908	—	—
Truro, Cornwall County Council, Sanitary Committee.	1908	—	—	—	—	1907	—	1908
Truro (G. Penrose)	—	—	—	—	—	1900	—	—
Waterford (C. E. Perceval Bolton).	—	—	—	—	—	—	—	1906
Whitchurch (E. E. Glyde) ..	—	—	1908	—	—	—	—	—
Worksop (H. Mellish)	—	—	—	—	—	1908	—	—
York, Yorkshire Philosophical Society.	—	—	—	—	—	1907	—	—
df. **France and Corsica:—**								
Bureau Central Météorologique de France (Paris).	—	1905	1905	1905	1905	1905	1908	1908
Avignon, Commission Météorologique du Département de Vaucluse.	—	—	1903	—	—	1903	—	—
Beaulieu, Sèvres et Vacquey (G. Eiffel).	—	—	1903	—	1905	—	—	—
Bordeaux, Commission Météorologique de la Gironde.	—	1907	—	—	1907	—	—	—
Chevreuse, Observatoire	—	—	—	—	1907	—	—	—
Lyons, Commission Départementale de Météorologie du Rhône.	1906	1906	—	—	—	—	—	—
Marseilles, Commission de Météorologie du Département des Bouches-du-Rhone.	—	—	1907	—	1907	—	—	—
Paris, Observatoire Municipal (Observatoire de Montsouris).	—	—	—	—	1905	—	—	—
Paris, Service Hydrométrique du Bassin de la Seine.	—	1906	—	—	—	—	—	—
Perpignan, Commission Météorologique.	—	—	1906	—	1906	1906	—	—
Puy-de-Dôme, Observatoire ..	—	—	—	—	1905	—	—	—
dg. **Iberian Peninsula (including Pyrenees): Spain (with Balearic Islands); Portugal:—**								
Instituto Central Meteorológico (Madrid).	—	—	—	—	—	1907	1908	—
Observatorio Do Infante D. Luiz (Lisbon).	—	—	—	—	1905	1905	1908	—
Observatorio, Madrid	—	—	—	—	1907	1900	—	—
Coimbra, Observatorio Meteorologico e Magnetico da Universidade.	—	—	1905	1905	1905	—	—	—
Gibraltar. *Army Medical Dep., London.*	—	—	—	—	—	1906	—	—
Llinas, Observatorio Belloch ..	—	—	1904	—	—	—	—	—
Madrid, Chamartin de la Rosa, Observatorio Meteorológico.	—	—	—	—	1906	—	—	—
Mahon (Minorca). *Bureau Central Met., Paris.*	—	—	—	—	—	1905	—	—
Oña, Observatorio	—	—	—	—	1908	—	—	—
Oporto, Observatorio Meteorologico da Princeza D. Amelia.	—	—	—	—	—	1908	—	—
San Fernando, Instituto y Observatorio de Marina.	—	—	1907	1907	1907	—	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
d.* EUROPE AND MEDITERRANEAN ISLANDS—*cont.								
***dh.* Italy: Sicily and Sardinia:—**								
Ufficio Centrale Meteorologico e Geodinamico Italiano (Rome).	1908	—	1896	—	—	1896	1908	—
Bologna, Osservatorio della R. Università.	—	—	—	—	1907	—	—	—
Catania (A. Riccò e L. Mendola)	—	—	1905	—	—	—	—	—
Florence, R. Museo di Fisica e Storia Naturale.	—	—	—	—	1908	—	—	—
Messina, Osservatorio	—	—	—	—	1907	—	—	—
Milan, R. Osservatorio Astronomico di Brera.	—	—	—	—	1907	—	—	—
Moncalieri, Osservatorio del Real Collegio Carlo Alberto.	—	—	—	—	1907	—	—	—
Naples, R. Osservatorio di Capodimonte.	—	—	—	—	1906	1906	—	—
Riposto, Osservatorio Meteorologico del R. Instituto Nautico.	—	—	—	—	1908	—	—	—
Rome, Specola Vaticana	—	—	—	—	1905	—	—	—
Turin, Osservatorio della R. Università.	—	—	—	—	1907	—	—	—
Venice, Osservatorio Meteorologico del Seminario Patriarcale.	—	—	—	—	1906	—	—	
***di.* Switzerland:—**								
Schweizerische Meteorologische Central Anstalt (Zürich).	—	1907	1907	1907	1907	1907	1908	—
Berne, Eidgenössisches Oberbauinspectorat, Hydrometrische Abteilung.	—	1907	1907	1904	1907	—	—	—
Davos Traffic Association ..	—	—	—	—	1908	—	—	1908
Genève et le Grand St. Bernard (R. Gautier).	—	—	—	—	1907	—	—	—
Lausanne, Institut Agricole ..	—	—	—	—	1907	—	—	—
St. Moritz (R. Gautier et H. Duaime).	—	—	—	—	1907	—	—	—
***dk.* Austria-Hungary, with Bosnia and Herzegovina:—**								
K. K. Central Anstalt für Meteorologie und Erdmagnetismus (Vienna).	—	—	1906	1906	1908	1906	1908	—
K. K. Hydrographischer Dienst in Osterreich (Vienna).	—	1905	—	—	1905	—	—	1908
Hydrographisches Amt der K. K. Kriegs-Marine (Pola).	—	—	1907	1907	1907	1906	—	—
K. Ung. Reichs-Anstalt für Meteor. und Erdmagn. (Budapest).	—	1904	1904	1904	1904	1904	—	—
Bosnisch-Hercegovinische Landesregierung (Sarajevo).	—	—	1907	1907	1907	1907	—	—
Agram, Meteorologisches Observatorium.	—	1906	1906	1906	1906	—	—	—
Budapest, Magyar Kir. Országos Meteor. Intézet.	—	—	—	—	1908	—	1908	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
d. **EUROPE AND MEDITERRANEAN ISLANDS**—*cont.*								
dk. **Austria-Hungary, with Bosnia and Herzegovina**—*cont.*								
Cracow, C. K. Akademii Umiejetnosci u. Krakowie.	—	—	—	—	1902	—	—	—
Cracow, K. K. Sternwarte ..	—	—	—	—	1908	—	—	—
Cracow, Obserwatoryum ..	—	—	—	—	—	1907	—	—
Fiume, K. K. Marine-Akademie	—	—	—	—	1906	—	—	—
Innsbruck, Meteorologisches Observatorium.	—	—	1905	1905	1905	—	—	—
Klagenfurt (F. Jäger)	—	—	—	—	1907	1907	—	—
Kremsmünster, Sternwarte ..	—	—	1906	1906	—	—	—	—
Prague, K. K. Sternwarte ..	—	—	—	—	1906	—	—	—
Trieste, [I.R.] Osservatorio Astronomico-Meteorologico.	—	—	1904	1904	1904	1904	—	—
Vienna, K. K. Sternwarte ..	—	—	—	—	1903	—	—	—
dl. **Balkan Peninsula:—**								
Observatorul astronomic si Meteorologic (Bucharest).	1908	1908	1902	1902	1902	1902	1908	1908
Observatoire National (Athens)	—	—	—	—	—	1903	—	—
Belgrade, Observatoire Central	—	—	—	1903	—	—	—	1903
Monastir and Cavalla. *Bureau Central Mét., Paris.*	—	1905	—	—	—	1905	—	—
Roumania (S.C. Hepites)	—	1903	—	—	—	—	—	—
Salonika, Gymnase Bulgare ..	—	—	—	—	—	1907	—	—
Salonika and Scutari. *K. K. Central-Anstalt für Meteorologie, Vienna.*	—	—	—	—	—	1906	—	—
Salonika. *Observatoire Physique Central Nicolas, St. Petersburg.*	—	—	—	—	—	1905	—	—
Sofia, Institut Météorologique Central.	—	—	1907	1907	1907	1907	—	—
Sofia, Station Centrale Météorologique de Bulgarie.	—	1908	—	—	—	—	—	1908
dm. **Mediterranean and Islands:—**								
Cyprus Public Works Department (Nicosia).	—	1908	—	—	—	1905	—	—
Malta and Cyprus. *Army Medical Dep., London.*	—	—	—	—	—	1906	—	—
Malta. *Bureau Central Mét., Paris*	—	—	—	—	—	1902	—	—
dq. **English Channel, including Channel Islands:—**								
Guernsey (A. Collonette)	—	1907	—	—	—	1907	—	—
Jersey, Observatoire St. Louis ..	—	—	1908	1908	1908	—	—	—
e. **ASIA AND MALAY ARCHIPELAGO.**								
ea. **Asiatic Russia:—**								
Observatoire Physique Central Nicolas (St. Petersburg).	—	—	1905	1905	1905	1905	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
e. **ASIA AND MALAY ARCHIPELAGO**—*cont.*								
eaa. **West Siberia :—**								
Tobolsk, Tomsk. *Observatoire Physique Central Nicolas, St. Petersburg.*	—	—	—	—	1905	1905	—	—
eab. **East Siberia :—**								
Irkutsk, Observatoire Magnétique et Météorologique.	—	—	1904	1904	1904	1904	—	—
Observatoire Physique Central Nicolas, St. Petersburg.	—	—	—	—	1905	1905	—	—
eac. **Central Asiatic Russia :—**								
Observatoire Physique Central Nicolas, St. Petersburg.	—	—	—	—	1905	1905	—	—
eb. **China and Dependencies: Tibet, Corea :—**								
Hong-Kong, Observatory ..	—	—	1907	1907	1908	—	—	—
Chimulpo, Meteorological Observatory.	—	—	1907	—	1907	—	—	—
Chimulpo, Peking, Urgar. *Observatoire Physique Central Nicolas, St. Petersburg.*	—	—	—	—	—	1905	—	—
Deutsche Seewarte, Hamburg ..	—	—	—	1906	1901	1906	—	—
Hong-Kong and Wei-hai-wei. *Army Medical Dep., London.*	—	—	—	—	—	1906	—	—
Kashgar. *Meteorological Office, India (Simla).*	—	—	—	—	—	1907	—	—
Ou-tschang. *K. K. Central-Anstalt für Meteorologie, Vienna.*	—	—	—	—	—	1906	—	—
Peking, Inspectorate General of Customs.	1904	—	—	—	—	—	—	—
Tokio, Central Meteorological Observatory.	—	—	—	—	1905	—	—	—
Tchang-Sin-Tien, Tien-Tsin, Yunnan-Sen. *Bureau Central Mét., Paris.*	—	—	—	—	—	1905	—	—
Weihawei, Medical Officer ..	—	—	—	—	—	1906	—	—
Zikawei, Observatoire Magnétique et Météorologique.	—	—	1905	1905	1905	1905	1908	—
ec. **Japanese Islands, Formosa :—**								
Central Meteorological Observatory (Tokio).	—	—	1906	1906	1906	1905	1908	—
Mizusawa, International Latitude Observatory.	—	—	1907	—	1907	1907	—	—
Tsukubasan, Observatorium ..	—	—	1903	1903	1903	—	—	—
ed. **French Indo-China : Tonquin, Annam, &c. :—**								
Bureau Central Mét., Paris ..	—	1905	1905	—	1905	1905	—	—
ee. **Siam:—**								
Battambang, Pnom-Penh and Vien-Tiane (Laos). *Bureau Central Mét., Paris.*	—	—	—	—	—	1905	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports 1840.
c. **ASIA AND MALAY ARCHIPELAGO**—*cont.*								
cf. **British India: Himalaya, Burmah, Ceylon:—**								
Meteorological Office, India, (Simla).	—	1906	1907	—	1908	1908	1908	1907
Agricultural Department, Calcutta.	—	1908	—	—	—	—	—	—
Meteorological Office, Bengal, Calcutta.	—	1907	1907	—	—	1907	1908	1907
Observatory, Colombo	—	—	1907	—	—	1908	—	—
Allahabad, Meteorological Office	—	1907	—	—	—	1907	—	—
Bangalore, Mysore Government Meteorological Department.	—	1907	1907	—	1907	1907	—	—
Bombay, Government Observatory.	—	—	1905	—	1905	—	—	—
Ceylon, Royal Botanic Gardens	—	1903	—	—	—	—	—	—
Kodaikánal, Observatory ..	—	—	—	—	—	1908	—	—
Meteorological Reporter to Government, Punjab.	—	—	—	—	—	1908	—	1908
Karikal, Pondichery, Yanaon (Madras Pres.). *Bureau Central Met., Paris.*	—	—	—	—	—	1905	—	—
cg. **Malay Peninsula and Archipelago, Philippines, &c.:—**								
Royal Magnetical and Meteorological Observatory (Batavia).	—	1907	1906	1906	—	1906	—	—
Philippine Weather Bureau, Manila Central Observatory.	—	—	1906	1906	1907	—	—	1907
Principal Civil Medical Officer, Straits Settlements (Singapore).	—	1904	1906	—	1906	1906	—	—
British North Borneo (British N. Borneo Herald).	—	—	—	—	1907	—	—	—
Buitenzorg, Institut Botanique de l'Etat.	—	—	—	—	1907	—	—	—
Penang, Singapore. *Meteorological Office, India (Simla).*	—	—	—	—	—	1907	—	—
Singapore. *Army Medical Dep., London.*	—	—	—	—	—	1906	—	—
Taiping, State Surgeon's Office..	—	—	—	—	—	1908	—	—
ch. **Persia, Afghanistan, Baluchistan, Pamirs:—**								
Bushire, Ispahan, Jask, Kabul, Quetta. *Meteorological Office, India (Simla).*	—	—	—	—	—	1907	—	—
Bushire. *Bureau Central Met., Paris.*	—	—	—	—	—	1905	—	—
Enzeli, Khousseinaband (Seistan). *Observatoire Physique Central Nicolas, St. Petersburg.*	—	—	—	—	—	1905	—	—
ci. **Asiatic Turkey, Arabia, Syria:—**								
Aden, Baghdad, Bahrein, Busrah, Muscat. *Meteorological Office, India (Simla).*	—	—	—	—	—	1907	—	—
Beyrout, Jerusalem, Gaza, Haifa, Smyrna, &c. *K. K Central-Anstalt für Meteorologie, Vienna.*	—	—	1906	—	1906	1906	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840
e. ASIA AND MALAY ARCHIPELAGO—*cont.*								
ei Asiatic Turkey, Arabia, Syria—*cont.*								
Hebron. *Scottish Met. Soc., Edinburgh.*	—	—	—	—	—	1907	—	—
Le Krey (Syria), Smyrna, and other stations. *Bureau Central Mét., Paris.*	—	1905	—	—	1905	1905	—	—
Scutari. *Army Medical Dep., London.*	—	—	—	—	—	1906	—	—
Sinope, Bouiouk-Dere. *Observatoire Physique Central Nicolas, St. Petersburg.*	—	—	—	—	—	1905	—	—
f. AFRICA AND MADAGASCAR.								
fa. Mediterranean States: Morocco, Algiers, Tunis, Tripoli:—								
Service Météorologique du Gouvernement Général de l'Algérie.	—	—	—	—	—	—	1908	—
Algeria and Tunis, Benghazi (Tripoli), Tangier, Mogador. *Bureau Central Mét., Paris.*	—	—	1905	—	1905	1905	—	—
Casablanca, Mogador, Safi. *Deutsche Seewarte, Hamburg*	—	—	—	—	—	1906	—	—
b. North-east Africa: Egypt, Nile Valley to 5° N., Abyssinia:—								
Survey Department, Cairo ..	—	1905	1906	1906	1906	1906	1908	1907
Department of Public Health, Cairo.	1908	—	—	—	1908	—	—	—
Egyptian Sudan. *Meteorological Office, London.*	—	—	—	—	—	1902	—	—
Adis-Abéba (Abyssinia). *Observatoire Physique Central Nicolas, St. Petersburg.*	—	—	—	—	—	1905	—	—
Khartoum. *Army Medical Dep., London.*	—	—	—	—	—	1904	—	—
Ismailia, Port Said, Suez, Harar (Abyssinia). *Bureau Central Mét., Paris.*	—	—	—	—	1905	1905	—	—
c. Sahara and the Central Sudan:—								
Fort Lamy (Tchad), &c. *Bureau Central Mét., Paris.*	—	—	—	—	—	1905	—	—
d. West Africa, including French Sudan, from Morocco to the Congo:—								
Gambia, Medical Officer	—	—	—	—	1908	—	—	—
Lagos, Survey Department ..	1908	—	—	—	—	1908	—	—
Zungeru (Northern Nigeria), Principal Medical Officer.	1907	—	—	—	—	1907	—	—
Sierra Leone Observatory ..	—	1903	—	—	—	—	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840
f.* AFRICA AND MADAGASCAR—*cont.								
fd.* West Africa, including French Sudan, from Morocco to the Congo—*cont.								
Sierra Leone, Accra, Cape Coast, Kumasi. *Army Medical Dep., London.*	—	—	—	—	—	1906	—	—
Dahomey, French Guinea, French Sudan, Ivory Coast, Senegal, *Bureau Central Met., Paris.*	—	—	—	—	1905	1905	—	—
Mamfe, Tintu (Cameroon). *Deutsche Seewarte, Hamburg.*	—	—	—	—	—	1906	—	—
***fe.* Congo State and Angola:—**								
Akka (*Meteorological Office, London*).	—	—	—	—	—	1902	—	—
Lambarené, Libreville and other stations. *Bureau Central Met., Paris.*	—	—	—	—	1905	1905	—	—
***ff.* East Africa; British (with Uganda); German; Portuguese (north of the Zambesi); British Central Africa; Lake Region.**								
British East Africa .. } *Meteorological Office, London.*	—	—	—	—	—	1902	—	—
British Central Africa }	—	—	—	—	—	1902	—	—
Rhodesia .. .. }	—	—	—	—	—	1902	—	—
Uganda .. .. .. }	—	—	—	—	—	1902	—	—
German East Africa. *Deutsche Seewarte, Hamburg.*	—	—	—	1906	1906	1906	—	—
Mombasa. *Army Medical Dep., London.*	—	—	—	—	—	1903	—	—
British East Africa Agricultural Department (Nairobi).	—	—	—	—	—	1905	—	1905
Rhodesia. *Government Statist* ..	—	—	—	—	—	1906	—	—
Uganda Protectorate, Scientific and Forestry Department (Entebbe).	—	—	—	—	1905	1905	—	—
Zanzibar. *Meteorological Office, India (Simla).*	—	—	—	—	—	1907	—	—
Zomba, Forestry and Botanical Department.	—	1903	—	—	1908	—	—	—
***fg.* South Africa—South of Angola and the Zambesi:—**								
Meteorological Commission (Cape Town).	—	1907	1907	1902	—	1907	—	—
Transvaal Meteorological Department (Johannesburg).	—	1908	1907	1907	1907	—	1908	1908
Beira, Observatorio Meteorologico.	—	—	—	—	1908	—	—	—
Bulawayo (E. Goetz)	—	—	—	—	—	1904	—	—
Durban, Natal Observatory ..	—	1902	1907	—	1907	1907	—	—
Southern Rhodesia, &c. *Meteorological Office, London.*	—	—	—	—	·	1902	—	—
Fort Napier (Natal), Pretoria. *Army Medical Dep., London.*	—	—	—	—	—	1906	—	—
German S.W. Africa (E. Ottweiler).	—	1905	—	—	—	—	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts 1830.	Weekly or Monthly Weather Reports. 1840.
f.* AFRICA AND MADAGASCAR —*cont.								
***fh.* Madagascar and Comoro Group:—**								
Bureau Central Mét., Paris ..	—	1905	—	—	1905	1905	—	—
***fi.* Red Sea and Islands:—**								
K. Akademie der Wissenschaften, Vienna.	—	—	—	[1903]	[1903]	—	—	—
Perim. *Meteorological Office, India (Simla).*	—	—	—	—	—	1907	—	—
***g.* NORTH AMERICA.**								
***gb.* Canada as a whole:—**								
Meteorological Service, Dominion of Canada (Toronto).	—	—	—	—	—	1906	1908	1908
Department of Marine and Fisheries (Ottawa).	—	—	1905	1905	—	1906	—	—
U.S. Weather Bureau, Washington	—	—	—	—	—	1907	—	—
***gc.* Canadian Dominion West.**								
Alberta, Official Handbook ..	—	—	—	—	—	1906	—	—
Edmonton, Department of Agriculture,	—	—	—	—	—	1906	—	—
Regina, Department of Agriculture.	—	—	—	—	—	1905	—	—
***gd.* Canadian Dominion East: Newfoundland, Labrador:—**								
Toronto, Bureau of Industries ..	—	—	1904	—	—	—	—	—
Hebron, Nain, *Deutsche Seewarte, Hamburg.*	—	—	—	—	—	1906	—	—
St. Pierre and Miquelon, *Bureau Central Mét., Paris.*	—	1905	—	—	—	1902	—	—
***gf.* United States as a whole:—**								
U.S. Weather Bureau, Department of Agriculture, Washington.	—	—	1907	1906	1907	1907	1908	1907
***gg.* North-Eastern United States, East of Mississippi:—**								
Cambridge (Mass.), Astronomical Observatory of Harvard College.	—	—	—	—	1904	—	—	—
New York, Meteorological Observatory.	—	—	—	1908	—	—	—	—
Washington, United States Naval Observatory.	—	—	—	—	1902	—	—	—
***gl.* Western United States, West of Mississippi:—**								
Colorado Springs, Colorado College Observatory.	—	—	—	—	1907	1907	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
g. **NORTH AMERICA**—*cont.*								
gl. **Mexico:—**								
Dirección General de Telégrafos Federales (Mexico).	—	—	—	—	—	—	1903	—
Observatorio Meteorológico Central (Mexico).	—	—	1903	1903	1903	—	—	1903
Guadalajara, Observatorio del Seminario Conciliar.	—	—	—	—	1906	—	—	—
Leon, Observatorio Meteorológico.	—	—	—	—	1908	—	—	1908
Oaxaca (A. M. Dominguez) ..	—	1903	—	—	—	—	—	—
Oaxaca, Observatorio Meteorológico.	—	—	—	—	1907	—	—	1907
Puebla, Boletin de Estadistica..	1904	—	—	—	1904	—	—	—
Saltillo, Observatorio Meteorológico del Colegio de San Juan Nepomucino.	—	—	—	—	1905	—	—	—
Tacubaya, Observatorio Astrónomico Nacional.	—	—	—	—	1896	—	—	—
U.S. Weather Bureau, Washington.	—	—	—	—	—	1907	—	—
Zacatecas, Observatorio	—	—	1908	—	1908	1908	—	—
i. **CENTRAL AND SOUTH AMERICA AND WEST INDIES.**								
ib. **Central America, &c.:—**								
Belize, Public Hospital	—	—	—	—	1905	—	—	—
Costa Rica, *U.S. Weather Bureau, Washington.*	—	—	—	1907	—	—	—	—
San Salvador, Observatorio Meteorologico y Astronomico.	—	—	—	—	—	1902	—	—
Tegucigalpa, Estación Meteorológica.	—	—	—	—	1905	—	—	—
West Indian Islands, Caribbean Sea, Gulf of Mexico:—								
Antigua, Government Laboratory.	—	—	—	—	1907	—	—	—
Bahamas (Colonial Reports) ..	—	—	—	—	1902	1905	—	—
Barbados, St. Lucia, Jamaica, Bermuda. *Army Medical Dep., London.*	—	—	—	—	—	1906	—	—
Dominica, Botanic Station ..	—	1907	—	—	—	—	—	—
Grenada, Carriacou Observatory	—	—	—	—	1907	—	—	—
Grenada, Richmond Hill Observatory.	—	1907	—	—	1907	—	—	—
Guadeloupe, Haiti, Martinique. *Bureau Central Mét., Paris.*	—	—	—	—	1905	1905	—	—
Havana, Estación Central Meteorológica, Climatológica y de Cosechas.	—	—	—	—	—	—	—	1906
Havana, Observatorio del Colegio de Belen.	—	—	—	—	1907	—	—	—
Havana, Secretaria de Agricultura, &c.	1908	—	1908	—	1908	1908	—	—
Kingston, Government Laboratory.	—	1908	1908	—	—	1908	—	1908
Port-au-Prince, Haiti. *K. K. Central-Anstalt für Meteorologie, Vienna.*	—	—	—	—	1906	1906	—	—
St. Lucia, Agricultural Superintendent.	—	1908	—	—	—	—	—	—
St. Lucia Botanic Gardens ..	—	1908	—	—	—	1908	—	—
St. Lucia, Harbour Master ..	—	—	—	—	1908	—	—	—
St. Vincent, Botanic Gardens ..	—	1907	1903	—	—	—	—	—
U.S. Weather Bureau, Washington.	—	—	—	—	—	1907	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1340.
h.* CENTRAL AND SOUTH AMERICA AND WEST INDIES—*cont.								
***hd.* Guiana—British, Dutch, and French; Venezuela; Trinidad:—**								
Cayenne, Paramaribo, &c. *Bureau Central Mét., Paris.*	—	—	—	—	1905	1905	—	—
Georgetown, Demerara, Botanic Gardens.	—	—	—	—	1908	1908	—	—
Paramaribo. *K. Nederlandsch Meteorologisch Instituut, de Bilt.*	—	—	—	—	1904	—	—	—
Trinidad, Royal Botanic Gardens	—	1908	1907	—	—	1908	—	—
***hf.* Peru:—**								
Astronomical Observatory of Harvard College, Cambridge (Mass.).	—	—	—	1895	1895	—	—	—
Piura. *Deutsche Seewarte. Hamburg.*	—	—	—	—	—	1906	—	—
***hg.* Bolivia:—**								
Madidi. *Bureau Central Mét., Paris.*	—	—	—	—	—	1903	—	—
***hh.* Brazil:—**								
Ministerio de Marinha, Directoria de Meteorologia, Rio Janeiro.	—	—	1904	1904	1906	—	—	—
Cuyabá, Observatorio Meteorologico "D. Bosco."	—	—	—	—	1907	—	—	—
Cuyabá (Revista Matto Grosso)	—	—	—	—	1906	—	—	—
Para Prata. *K.K. Central-Anstalt für Meteorologie, Vienna.*	—	—	—	—	1906	—	—	—
Rio Janeiro, Observatorio ..	—	—	1906	—	1906	1908	—	—
São Paulo, Commissão Geographica e Geologica, Servico Meteorologico.	—	—	—	—	—	1902	—	—
Descalvados. *Deutsche Seewarte, Hamburg.*	—	—	—	1906	—	1906	—	—
***hi.* Argentina, Uruguay, and Paraguay:—**								
Oficina Meteorológica Argentina (Buenos Aires).	—	—	—	—	—	—	1908	—
Dirección General del Servicio Meteorológico Nacional, Monte Video.	—	1905	—	—	—	1905	—	—
Direccion General de Estadistica del Uruguay, Monte Video.	1906	—	—	—	—	1906	—	—
Fray Bentos. *Deutsche Seewarte, Hamburg.*	—	—	—	—	—	1893	—	—
Monte Video, Observatorio National Fisico-Climatologico.	—	—	—	1907	1907	—	—	1907
Villa Colón, Observatorio Meteorológico.	—	—	—	1902	1902	1905	—	1902

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
h. **CENTRAL AND SOUTH AMERICA AND WEST INDIES**- *cont.*								
hk. **Chili** —								
Servicio Meteorológico de la Direccion del Territorio Maritimo (Valparaiso.)	—	—	—	—	1906	1906	—	—
Punta Arenas, Observatorio Meteorológico del Colegio Salesiano "S. José."	—	1902	—	1902	—	—	—	—
Santiago, Observatorio Astronómico.	—	—	1906	—	—	1906	—	—
i. **AUSTRALASIA.**								
Sydney Observatory	—	—	—	—	—	—	1908	—
ia. **New Guinea** :—								
Papua (Government Gazette) ..	—	—	—	—	—	1907	—	—
ib. **Bismarck Archipelago** :—								
Nauru. *Deutsche Seewarte, Hamburg.*	—	—	—	—	—	1906	—	—
ic. **Australia** :—								
Central Weather Bureau, Melbourne.	—	—	—	—	—	—	1908	—
id. **Queensland** :—								
Brisbane, Government Statistician's Office.	1905	—	—	—	—	1905	—	—
Brisbane, Weather Bureau ..	—	—	—	—	—	1907	—	—
ie. **New South Wales** :—								
Sydney, Department of Public Instruction.	—	1902	—	—	1902	1902	—	—
Windsor (John Tebbutt)	—	—	—	—	—	1903	—	—
ig. **South Australia** :—								
Adelaide Observatory	—	1905	1905	—	1905	1905	—	—
ih. **West Australia** :—								
Perth Observatory	—	1908	1906	—	1906	1906	—	1906
Perth Government Statistician's Office.	—	1906	1906	—	—	1906	—	—
ik. **New Zealand** :—								
Wellington, Meteorological Department.	—	1903	—	—	—	1903	1905	—
Wellington, Government Observatory.	—	—	—	—	1904	—	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
i.* AUSTRALASIA—*cont.								
***il.* New Caledonia, New Hebrides, and Loyalty Islands:—**								
Noumea, Paita (N. Cal.). *Bureau Central Mét., Paris.*	—	1905	—	—	—	1905	—	—
***k.* ARCTIC.**								
***ka.* Arctic Ocean:—**								
Ziegler Polar Expedition, 1903-5	—	—	—	—	1905	—	—	—
***kb.* Greenland:—**								
Dansk Meteorologisk Institut (Copenhagen).	—	—	—	—	1904	1904	—	—
***kd.* Islands north of Europe and Asia:—**								
Norwegian North Polar Expedition [H. Mohn].	—	—	1896	1896	1896	—	—	—
Spitzbergen (J. Westman) ..	—	—	—	1900	—	—	—	—
***l.* ATLANTIC.**								
***lb.* Azores, Canaries, Madeira, Cape Verde:—**								
Service Météorologique des Açores, Ponta Delgada.	—	—	1906	1906	—	1906	—	—
Las Palmas. *Instituto Central Meteorológico, Madrid.*	—	—	—	—	—	1907	—	—
Teneriffe, Las Palmas. *Observatorio Do Infante D. Luiz, Lisbon.*	—	—	—	—	—	1905	—	—
Teneriffe, Las Palmas. *Bureau Central Mét., Paris.*	—	—	—	—	—	1905	—	—
Teneriffe, La Paz Botanica. *Deutsche Seewarte, Hamburg.*	—	—	—	—	—	1906	—	—
***m.* INDIAN OCEAN.**								
***ma.* Ocean and Islands north of Equator:—**								
Amini Divi, Minicoy. *Meteorological Office, India (Simla).*	—	—	—	—	—	1907	—	—
***mb.* Ocean and Islands south of Equator:—**								
Christmas Island. *Scottish Met. Soc., Edinburgh.*	—	—	—	—	—	1907	—	—
Christmas Island. Straits Settlements Gazette.	—	—	—	—	1908	—	—	—
Mauritius, Royal Alfred Observatory.	—	—	1907	1905	1906	—	—	—
Mauritius. *Army Medical Dep., London.*	—	—	—	—	—	1903	—	—
Mauritius, Seychelles. *Meteorological Office, India (Simla).*	—	—	—	—	—	1907	—	—
Réunion. *Bureau Central Mét., Paris.*	—	1905	—	—	—	—	—	—
Tananarive, Observatoire ..	—	—	1907	1907	1907	1907	—	—

GEOGRAPHICAL LIST—*continued.*

NAME OF INSTITUTION, &c.	Climatology—Agricultural and Hygienic. 1710 & 1730.	Rainfall Tables. 1180.	Meteorological Observations—General. 1800.	Hourly Values. 1810.	Daily Values. 1820.	Monthly and Yearly Mean Values. 1825.	Daily Weather Reports and Charts. 1830.	Weekly or Monthly Weather Reports. 1840.
***n.* PACIFIC.**								
***nd, ne.* Pacific Islands North of Equator:—**								
Honolulu (R. C. Lydecker) ..	—	—	—	—	1903	—	—	—
Honolulu. *U.S. Weather Bureau, Washington.*	—	—	—	—	1907	—	—	—
Caroline, Gilbert and Marshall Islands. *Deutsche Seewarte, Hamburg.*	—	—	—	1906	1906	—	—	—
***nf, nh.* Pacific Islands South of Equator:—**								
Samoa and Cook Islands. *Deutsche Seewarte, Hamburg.*	—	—	—	—	1906	—	—	—
Suva, Fiji (J. D. W. Vaughan) ..	—	—	—	—	1905	—	—	—
Tahiti, Rikitea (Mangareva). *Bureau Central Met., Paris.*	—	—	—	—	1904	1905	—	—
***o.* ANTARCTIC.**								
***od.* Islands to Southward and South-East of New Zealand:—**								
National Antarctic Expedition, 1901–1904.	—	—	1904	1904	1904	—	—	—

LIST OF CURRENT METEOROLOGICAL PERIODICALS AND JOURNALS CONTAINING OCCASIONAL ARTICLES ON METEOROLOGICAL SUBJECTS RECEIVED FOR THE OFFICE LIBRARY.

Annales de l'Observatoire Municipal, Paris.
Annales du Bureau Central Météorologique de France.
Annalen der Hydrographie und maritimen Meteorologie.
Annali dell' Ufficio Centrale Meteorologico e Geodinamico Italiano.
Annuaire de la Société Météorologique de France.
Annuaire Météorologique de l'Observatoire Royal de Belgique.
Aus dem Archiv der Deutschen Seewarte.
Beiträge zur Physik der freien Atmosphäre.
Boletín mensual del Observatorio meteorológico central de Mexico.
Bollettino bimensuale della Societa Meteorologica Italiana.
Ciel et Terre.
Comptes rendus hebdomadaire des séances de l'Académie des Sciences, Paris.
Das Wetter.
Geographical Journal.
Globe (Le), Journal Géographique.
Himmel und Erde.
Indian Meteorological Memoirs.
Jahrbuch der Astronomie und Geophysik (H. J. Klein).
Journal of Balneology and Climatology
Journal of the Franklin Institute.

Journal of the Meteorological Society of Japan.
Journal of the Royal United Service Institution.
Journal of the Scottish Meteorological Society.
Journal of the Royal Society of Arts.
London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science.
Memoirs and Proceedings of the Manchester Literary and Philosophical Society.
Memorias de Sociedad Cientifica "Antonio Alzate," Mexico.
Meteorologische Zeitschrift.
Mitteilungen aus dem Gebiete des Seewesens, Pola.
Monthly Meteorological Bulletin of the Nicolas Central Physical Observatory.
Monthly Notices of the Royal Astronomical Society.
Monthly Weather Review of the U.S. Weather Bureau.
Nature.
Nature (La).
Nautical Magazine.
Oversigt over det Kongelige danske Videnskabernes Selskab Forhandlinger.
Petermann's (Dr. A.) Mitteilungen aus Justus Perthes' Geographischer Anstalt
Proceedings of the American Philosophical Society.
Proceedings of the Cambridge Philosophical Society.
Proceedings of the Royal Institution.
Proceedings of the Royal Irish Academy.
Proceedings of the Royal Society of London.
Quarterly Journal of the Royal Meteorological Society.
Scientific Proceedings of the Royal Dublin Society.
Scottish Geographical Magazine.
Smithsonian Contributions to Knowledge.
Smithsonian Miscellaneous Collections.
Symons's Meteorological Magazine.
Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap.

In addition to the works summarised in the above lists, a large number of books and pamphlets dealing with meteorological subjects have been received. Some of the more important are referred to on p. 30 of the Report.

The compilation of a complete bibliography of meteorological literature is included in the objects of the International Catalogue of Scientific Literature, and the necessity for the publication in full of the titles of all books and pamphlets received at the office is thereby obviated. It is intended to deal with the matter in due course in connexion with the catalogue of the Library.

APPENDIX VIII.

List of Institutions receiving Publications issued by the Committee.

Observers contributing returns printed in one of the periodical publications receive a copy of the publication. The Committee request that the copies may be returned to the Office after the observer has no personal use for them, in cases where they are not filed in a public library or other institution where the public can consult them.

The *Daily Weather Report* is sent to seaports and to a few places in London for exhibition.

The *Annual Report* is sent to all observers at land stations in connexion with the Office who express a wish to receive it.

Periodical or occasional publications are sent to the institutions named in the following list, generally speaking, in exchange for publications received.

United Kingdom.	
Public Offices:	
Aberdeen ...	B.T., Supt. M.M.O.
Aldershot ...	School of Ballooning.
Avonmouth	B.T., Supt. M.M.O.
Barry ...	B.T. Surveyor.
Belfast ...	B.T., Supt. M.M.O.
Blyth ...	B.T., Supt. M.M.O.
Bristol ...	B.T., Supt. M.M.O.
Cardiff ...	B.T., Supt. M.M.O.
Dartmouth	Admiralty, Royal Naval College.
	B.T., Supt. M.M.O.
Dublin ...	Board of Agriculture and Technical Instruction.
	General Register Office.
	Ordnance Survey Office.
Dundee ...	B.T., Supt. M.M.O.
Edinburgh...	Board of Fisheries.
	General Register Office.
	Royal Observatory.
	*†Royal Scottish Museum.
Glasgow ...	B.T., Supt. M.M.O.
Greenock ...	B.T., Supt. M.M.O.
Gloucester	B.T., Supt. M.M.O.
Grimsby ...	B.T., Supt. M.M.O.
Hartlepool	B.T., Supt. M.M.O.
Hull ...	B.T., Supt. M.M.O.
Leith ...	B.T., Supt. M.M.O.
Liverpool ..	B.T., Supt. M.M.O
London ...	Admiralty, Hydrographer.
	—— Librarian.
	*†—— Royal Naval College.
	—— Royal Observatory.
	Army Medical Department.

United Kingdom—*cont.*	
Public Offices —*cont.*	
London ..	Board of Agriculture (Prof. Middleton).
	*†Board of Education, Secondary Branch.
	—— Solar Physics Observatory.
	Board of Trade, Consultative Branch.
	—— Fisheries and Harbour Department.
	—— Marine Department (Capt. Chalmers).
	—— Standard Weights and Measures Department.
	—— Supt. M.M.O. Dock Street.
	—— Supt. M.M.O. Poplar.
	—— Supt. M.M.O. Tilbury.
	—— Supt. M.M.O. Victoria Docks.
	British Museum, Dept. of Printed Books.
	Chinese Maritime Customs.
	General Post Office.
	General Register Office.
	*Imperial Institute.
	Local Government Board.
	National Physical Laboratory (Bushy House).
	National Physical Laboratory (Kew Obs.).
	Trinity House.

* Receive all publications, including the Daily Weather Report in those cases which are also marked †.

List of Institutions receiving Publications—*cont.*

United Kingdom—*cont.*

Public Offices—*cont.*	
Manchester	B.T., Supt. M.M.O.
Middlesborough.	B.T., Supt. M.M.O.
Newcastle-on-Tyne.	B.T., Supt. M.M.O.
Newport ...	B.T., Supt. M.M.O.
Plymouth ...	B.T., Supt. M.M.O.
Shields North.	B.T., Supt. M.M.O.
Shields South.	B.T., Supt. M.M.O.
Southampton.	B.T. Supt. M.M.O.
	Ordnance Survey Office.
Sunderland	B.T., Supt. M.M.O.
Swansea ...	B.T., Supt. M.M.O.
Institutions:	
Aberdeen ...	Observatory.
Aberystwyth	The University.
Alnwick ...	Duke of Northumberland's Observatory.
Armagh ...	Observatory.
Aspatria ...	Royal Agricultural College.
Belfast ...	Queen's College.
Bexley Heath	Editor, Findlay's Sailing Directions.
Bidston ...	Liverpool Observatory.
Birkenhead	"Conway" Training Ship.
Birmingham	Central Free Library.
	Midland Institute.
	University, Librarian, ——The Principal.
Birr Castle...	Observatory.
Cambridge...	Cavendish Prof. of Physics.
	Observatory.
	Philosophical Society.
	Schuster Reader in Meteorology.
Cardiff ...	University College.
Cirencester...	Royal Agricultural College.
Dublin ...	Royal Dublin Society.
	Royal Irish Academy.
	Trinity College.
Dundee ...	Brown, C. H. (Agent).
	International Commission for Investigation of North Sea.
	University College.
Durham ...	Observatory.
Edinburgh...	Royal Scottish Geographical Society.
	Royal Society.
	*†Scottish Meteorological Society.
	University Library.
Falmouth ...	Observatory.

United Kingdom—*cont.*

Institutions—*cont.*	
Falmouth ...	Royal Cornwall Polytechnic Society.
Glasgow ...	"Nautical Magazine."
	Observatory.
Greenhithe	"Worcester" Training Ship.
Hull ...	Shipmasters' Association.
Jersey ...	St. Louis Observatory.
Leeds ...	University.
Leith ...	Nautical College.
Liverpool ...	Free Public Library.
	Mercantile Marine Service Association.
	Nautical College.
	Richardson, Spence & Co.
	Underwriters' Rooms.
London ...	British Balneological and Climatological Society.
	Eastern Telegraph Co.
	*Guildhall Library.
	Institution of Civil Engineers.
	*†Lloyd's.
	London Institution.
	Metropolitan Water Board.
	*British Rainfall Organisation.
	"Nature."
	Navigation School.
	Royal Astronomical Society.
	Royal Botanic Society.
	Royal College of Science.
	Royal Geographical Society.
	Royal Institution of Great Britain.
	*†Royal Meteorological Society.
	Royal National Lifeboat Institution.
	Royal Society.
	*Royal United Service Institution.
	Sailors' Palace.
	"Shipping Gazette."
	Society of Arts.
	University College.
Manchester	Philosophical Society.
Markree ...	Observatory.
Northampton	Natural History Society.
Oxford ...	Clifton, Prof. R. B.
	Radcliffe Observatory.
	School of Geography.
Plymouth ...	Incorporated Chamber of Commerce.
	Marine Biological Laboratory.

* Receive all publications, including the Daily Weather Report in those cases which are also marked †.

List of Institutions receiving Publications—*cont.*

United Kingdom—*cont.*

Institutions—*cont.*	
Portland ...	Seamen's Reading Room.
Southampton	Forbes, Capt. (Agent).
Southport ...	Fernley Observatory.
South Shields.	Marine Schools.
Stamford ...	Free Library.
Stonyhurst	Observatory.
Torquay ...	Natural History Society.
Valencia ...	Observatory.
York ...	Philosophical Society.

British Colonies and Dependencies.

Australasia.

Adelaide ...	Commonwealth Bureau of Meteorology.
	Public Library.
Brisbane ...	Commonwealth Bureau of Meteorology.
	Public Library.
Hobart ...	Commonwealth Bureau of Meteorology.
Melbourne ...	*†Commonwealth Bureau of Meteorology.
	Commonwealth Statistical Bureau.
	Department of Agriculture.
	Observatory.
	Public Library.
Perth	Commonwealth Bureau of Meteorology.
Sydney ...	Commonwealth Bureau of Meteorology.
	Public Library.
	Royal Society of New South Wales.
Wellington ...	Colonial Museum.
Windsor ...	Observatory.

Canada.

Montreal ...	McGill University.
Toronto ...	*†Meteorological Office.
Victoria (B.C.)	Meteorological Office.

Falkland Islands.

Cape Pembroke	Lighthouse Keeper.

India and Eastern Asia.

Allahabad ...	Meteorological Reporter.
Bangalore ...	Meteorological Department.
Bombay ...	Observatory.
Calcutta ...	Director General of Observatories.
	Surveyor General.
Debra Dun ...	Trigonometrical Survey.
Hong Kong ...	Observatory.
Kodaikanal ...	Observatory.
Simla	Director General of Observatories.
Singapore ...	Principal Civil Medical Officer.

British Colonies and Dependencies—*cont.*

Mediterranean.

Malta	Observatory.

South Africa.

Bloemfontein	Grey College.
Cape Town ...	Observatory.
	Meteorological Commission.
Durban ...	Natal Observatory.
Johannesburg	Transvaal Meteorological Department.

Indian Ocean.

Mauritius ...	Meteorological Society.

West India Islands.

Jamaica ...	Government Meteorologist.

Europe.

Austria-Hungary.

Buda-Pesth ...	Central Meteorological Institute.
Cracow ...	Observatory.
Fiume ...	Nautical Academy.
Innsbruck ...	Observatory.
O'Gyalla ...	Observatory.
Pola	Hydrographic Office.
Prague ...	Hydrographic Office.
	Observatory.
	Royal Society of Sciences.
Trieste ...	Observatory.
Vienna ...	Austrian Meteorological Society.
	Central Hydrographical Bureau.
	*†Central Meteorological Office.
	*Hann, Hofrath Dr. J.

Belgium.

Brussels ...	*†Observatory (Uccle).
Ostend ...	Navigation School.

Bulgaria.

Sofia	Central Meteorological Station.

Denmark.

Copenhagen ...	Hydrographic Office.
	International Council for the Study of the Sea.
	Meteorological Institute.
	Society of Sciences.

* Receive all publications, including the Daily Weather Report in those cases which are also marked †.

LIST OF INSTITUTIONS receiving PUBLICATIONS—*cont.*

EUROPE—*cont.*

France.

Bordeaux ...	Society of Oceanography of the Gulf of Gascony.
Lyons	Observatory.
Marseilles ...	Meteorological Commission.
Paris	*†Central Meteorological Office.
	Hydrographic Office.
	Hydrometric Service.
	Institute of France.
	Meteorological Society.
	Municipal Observatory
Perpignan ...	Meteorological Commission.
Puy-de-Dôme	Observatory.

Germany.

Aachen ...	Meteorological Station.
Berlin ...	Hydrographic Office.
	*†Meteorological Institute.
Bremen ...	Meteorological Observatory.
Carlsruhe ...	Central Meteorological Office.
Darmstadt ...	Hydrographical Bureau.
Dresden ...	Meteorological Institute.
Frankfort ...	Physical Society.
Gotha	M. Justus Perthes' Geographical Institute.
Greifswald ...	Geographical Society.
Halle	Leopold - Carolin Academy.
Hamburg ...	*†Deutsche Seewarte.
	Schück, Capt. A.
Kiel	Commission for the Exploration of the German Ocean.
Leipzig ...	University Library.
Lindenberg ...	Royal Prussian Aeronautical Observatory.
Magdeburg ...	Observatory.
Munich ...	Central Meteorological Office.
	Observatory.
Neustadt ...	Forest Academy.
Potsdam ...	Observatory.
Strassburg ...	Meteorological Agricultural Service.
Stuttgart ...	Central Meteorological Office.
Wilhelmshaven	Observatory.

EUROPE—*cont.*

Greece.

Athens ...	Observatory.

Italy.

Catania ...	Meteorological Observatory.
Florence ...	Observatory.
Milan	Observatory.
Moncalieri ...	Observatory.
Naples ...	Observatory.
Palermo ...	Observatory.
Pesaro ...	Observatory.
Riposto ...	Observatory.
Rome	Central Meteorological Office.
Turin	Observatory.
Venice... ...	Observatory.

Netherlands.

Amsterdam ...	Geographical Society.
	Meteorological Institute.
Helder ...	Rijksinstituut voor het Onderzoek der Zee.
Utrecht, (De Bilt).	*†Royal Meteorological Institute.

Norway.

Christiania ...	Meteorological Institute.

Portugal.

Coimbra ...	Observatory.
Lisbon ...	Observatory.

Azores.

Ponta Delgada	Observatory.

Roumania.

Bucharest ...	Meteorological Institute.

Russia.

Dorpat ...	Observatory.
Helsingfors ...	Society of Sciences.
Kazan ...	Observatory.
Kieff	Observatory.
Koutchino ...	Aerodynamical Institute.
Moscow ...	Observatory.
Nicolaieff ...	Hydrographic Office.
Odessa ...	Observatory.
Pavlovsk ...	Observatory.

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LIST OF INSTITUTIONS receiving PUBLICATIONS—*cont.*

EUROPE—*cont.*

Russia—cont.

St. Petersburg	*†Nicolas Central Physical Observatory.
	Hydrographic Department.
	Imperial Institute of Forestry.
	Woeikof, A.
Tiflis	Observatory.
Warsaw ...	Meteorological Bureau.

Servia.

Belgrade ...	Central Observatory.

Spain.

Barcelona ...	Experimental Farm.
Guardia ...	Observatory.
Madrid ...	Central Meteorological Institute.
	Observatory.
	Observatory, Chamartin de la Rosa.
Malaga ...	Society of Sciences.
San Fernando	Observatory.
Tortosa ...	Ebro Observatory.
Vilafranca del Panades.	Observatory.

Sweden.

Stockholm ...	Central Meteorological Institute.
	Nautical Meteorological Bureau.
	Royal Academy.
Upsala ...	Meteorological Observatory.

Switzerland.

Berne	Hydrometrical Bureau.
Geneva ...	Geographical Society.
Mont Blanc ...	Observatory.
Neuchâtel ...	Observatory.
Zürich... ...	Central Meteorological Office.

AFRICA.

Algiers ...	Meteorological Service.
Cairo	Sanitary Department.
	*† Survey Department.

AMERICA.

United States.

Baltimore ...	Maryland Weather Service.
Cambridge, Mass.	Harvard College Observatory.

AMERICA—*cont.*

United States—cont.

New York ...	American Geographical Society.
	Central Park Observatory.
	State Hydrographer.
	State Library.
Philadelphia ...	American Philosophical Society.
	Franklin Institute.
Washington ...	Chief Signal Officer.
	Department of Agriculture.
	Department of Terrestrial Magnetism.
	Geological Survey.
	Hydrographer's Office.
	Naval Observatory.
	Smithsonian Institution.
	Surgeon General's Office.
	*†Weather Bureau.

Mexico.

Mexico ...	"Antonio Alzate" Scientific Society.
	Central Meteorological Observatory.
Oaxaca ...	Observatory.
Puebla ...	Boletin de Estadistica.
Saltillo ...	Observatory.
San Luis Potosi.	Observatory.
San Salvador	Observatory.

Central America, West Indies.

Costa Rica ...	Meteorological Institute.
Guatemala ...	Central Laboratory.
Havana ...	Observatory.
	Central Meteorological Station.
Porto Rico ...	Engineer in Chief.

Argentina.

Buenos Aires..	Meteorological Office.
	Mons. Lasagna Observatory.
Cordoba ...	National Academy.

Brazil.

Porto Alegre ...	Azambuja, Sr. G. A. de
Rio de Janeiro	Meteorological Department, Ministry of Marine.
	Observatory.

* Receive all publications, including the Daily Weather Report in those cases which are also marked †.

LIST OF INSTITUTIONS receiving PUBLICATIONS—*cont.*

AMERICA—*cont.*	
Chile.	
Valparaiso ...	Meteorological Service.
Ecuador.	
Quito... ...	Observatory.
Uruguay.	
Monte Video ...	Meteorological Society. Observatory, Villa Colon.

ASIA.	
Batavia ...	Observatory.
Beyrout ...	Lee Observatory.
Chemulpo ...	Observatory.
Irkutsk ...	Observatory.
Manila ...	Meteorological Observatory.
Tokio	Imperial Meteorological Observatory.
Zi-ka-wei ...	*Observatory.

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