

TWELFTH ANNUAL REPORT
OF THE
METEOROLOGICAL COMMITTEE

TO THE
LORDS COMMISSIONERS OF HIS MAJESTY'S
TREASURY.

For the Year ended 31st March, 1917
(the Sixty-second Year of the Meteorological Office).

Presented to Parliament by Command of His Majesty.



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THE METEOROLOGICAL COMMITTEE, 1916-17.

Constituted by Minutes of the Lords Commissioners of H.M. Treasury, dated 20th May, 1905, 31st March, 1910, and 31st March, 1915.

Appointed till

- March 31, 1920 ... Sir NAPIER SHAW, Sc.D., F.R.S., Director,
Chairman.
- Sept. 1, 1919 ... Rear-Admiral JOHN F. PARRY, C.B., Hydro-
grapher of the Navy. Nominated by the
Admiralty.
- March 31, 1920 ... Captain J. M. HARVEY, Principal Examiner
of Masters and Mates, Board of Trade.
Nominated by the Board of Trade.
- Dec. 2, 1921 ... Mr. T. H. MIDDLETON, C.B., Assistant
Secretary of the Board of Agriculture
and Fisheries. Nominated by the Board
of Agriculture and Fisheries.
- Feb. 26, 1918 ... Major H. G. LYONS, D.Sc., F.R.S. Nomi-
nated by the Royal Society.
- March 31, 1920 ... Professor ARTHUR SCHUSTER, F.R.S. Nomi-
nated by the Royal Society.
- March 31, 1920 ... Mr. G. L. BARSTOW, C.B. Nominated by
the Treasury.
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Subject to the discretion of the authorities by which they are respectively nominated, the members of the Committee hold office for a period not exceeding five years, but are eligible for reappointment.

THE GASSIOT COMMITTEE, 1917.

Appointed by the Royal Society in accordance with Treasury Letter of 26th February, 1910, to administer the Gassiot Trust, and to promote the scientific study of the branches of science to which the Trust relates, viz., Meteorology, Terrestrial Magnetism, Atmospheric Electricity, Seismology, and the cognate subjects.

Sir Joseph J. Thomson, O.M. (*President of the Royal Society*).
 Major H. G. Lyons (*Chairman*).
 The Astronomer Royal.
 Dr. C. Chree.
 Mr. W. H. Dines.
 Sir Archibald Geikie, K.C.B.
 Sir R. T. Glazebrook, C.B.
 Sir A. B. Kempe (*Treasurer of the Royal Society*).
 Sir Joseph Larmor, M.P.
 Prof. H. F. Newall.
 Prof. Arthur Schuster (*Secretary of the Royal Society*).
 Sir Napier Shaw.
 Mr. G. W. Walker.
 Prof. W. Watson.
 Mr. C. T. R. Wilson.

ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION, 1917.

Appointed by the Meteorological Committee, 28th March, 1917, at the request of the Department of Scientific and Industrial Research, to be an Advisory Committee, for the administration of a grant by the Department, for the investigation of atmospheric pollution.

Sir Napier Shaw, F.R.S. (*Director of the Meteorological Office*), *ex officio*.
 Captain C. J. P. Cave (*Past President of the Royal Meteorological Society*).
 Mr. J. G. Clark.
 Professor J. B. Cohen, B.Sc., Ph.D., F.R.S. (*Professor of Organic Chemistry, Leeds University*).
 Dr. H. A. Des Voeux (*Hon. Treasurer, Coal Smoke Abatement Society*).
 Mr. J. B. C. Kershaw, F.I.C.
 Dr. R. Lessing, F.C.S.
 Dr. J. S. Owens (*Coal Smoke Abatement Society*).
 Dr. E. J. Russell (*Director of the Rothamsted Experimental Station, Harpenden*).
 Bailie W. Smith (*Convener of the Air Purification Sub-Committee of the Glasgow Corporation*).
 Mr. S. A. Vasey, F.I.C., F.C.S. (*Director of the Lancet Laboratory*).
 Mr. F. J. W. Whipple (*Superintendent of the Statistical Division, Meteorological Office*).

Provided that any Municipal Authority co-operating with the Committee by the installation and maintenance of one or more gauges and the analysis of the products may nominate a representative to be appointed by the Meteorological Committee to hold office as an additional member of the Advisory Committee during the pleasure of the Municipal Authority nominating him.

The Department of Scientific and Industrial Research reserves the right of nominating a member of the Committee.

THE STAFF OF THE METEOROLOGICAL OFFICE AND OF THE OBSERVATORIES OF THE METEOROLOGICAL COMMITTEE, APRIL, 1917.

Members of the staff whose names are in brackets are absent by permission on military service or other special duty.

DIRECTOR.

Sir Napier Shaw, LL.D., Sc.D., F.R.S.

METEOROLOGICAL OFFICE.

Secretarial Staff.

<i>Chief Clerk</i>	...	...	T. D. Bell. <i>Acting Cashier</i> :—J. A. Curtis.
<i>Assistants</i>	...	...	C. E. P. Brooks, M.Sc.; E. L. Hawke, B.A.;* [H. W. Braby, M.A.]; [Lieutenant E. L. Ardley]; H. L. B. Tarrant, Miss A. F. Poole; E. J. Hood; Misses R. E. Smith, D. G. Chambers, E. V. Turney.
<i>Probationers and Boy and Girl Clerks.</i>			[E. L. Clinch]; Misses W. A. Quennell,§ H. G. Chivers,§ F. A. Shields;§ [C. S. Herbert]; Misses G. K. Herbert,§ K. R. Corrin,§ M. L. Taylor.§
<i>Office Keepers</i>	...	...	W. H. Parsons, C. E. Goad, A. Woolley. <i>Store Keeper</i> :—[A. G. Goad].

Marine Division.

<i>Marine Superintendent</i>	...	M. W. Campbell Hepworth,† C.B., R.D., Captain, R.N.R.
<i>Assistants</i>	...	W. Allingham;† W. G. James;† J. T. Williams; H. Keeton; J. E. Belasco;§ [A. A. Lovie].
<i>Probationers and Boy Clerks.</i>		[H. T. Smith]; [2nd Lieutenant J. L. Gray]; A. J. Tabor;§ F. C. Warmington.§

Forecast Division.

<i>Superintendent</i>	...	R. G. K. Lempfert, M.A.
<i>Assistants</i>	...	J. S. Dines,* M.A.; F. J. Brodie,* H. Harries;† R. Sargeant,* [Lieutenant C. D. Stewart, B.Sc.]; [Lieutenant F. Entwistle, B.Sc.]; F. A. Ward, B.Sc.; W. Hayes; A. T. Bench; A. G. W. Howard; [Sergt.-Maj. R. Pyser]; Miss R. M. Chambers.
<i>Probationers</i>	...	[C. F. J. Jestico]; [R. M. Poulter]; [C. C. Newman]; F. W. Beaver;§ J. G. Ellis.§

The staff of the Branch Office at South Farnborough and the Weather Station at Falmouth (*see below*) are associated with this division.

* Inspector of Meteorological Stations.

† Retained after reaching the normal age for Superannuation.

§ Member of the corps of observers for the instruments installed at the Office.

Statistical Division.

<i>Superintendent</i>	...	...	F. J. W. Whipple, M.A.*
<i>Assistants</i>	...	...	J. Sheerman; A. H. Bell; A. R. Simpkins; C. A. Bracey; L. H. Powers; C. W. Heinemann; Miss L. D. Sawyer, B.A.; [Sub-Lieutenant M. T. Spence, R.N.V.R.]; A. E. Pyecock; [W. J. Tomkins].
<i>Probationers and Boy and Girl Clerks.</i>			Misses N. L. Despicht,§ M. Bigelstone,§ M. Enderby,§ W. R. Penfold.§

Instruments-Division.

<i>Superintendent</i>	...	...	R. Corless, M.A.
<i>Assistants</i>	...	...	R. F. Wallace; F. W. Snell; J. H. James; E. P. Pearce; [Lieutenant A. E. Gendle, R.N.V.R.]; [F. Levin].
<i>Probationer and Girl Clerk</i>			[C. V. Ockenden], Miss W. A. Bulgin.§
<i>Lithographers</i>	...	...	Messrs. Wyman & Sons, Ltd.; A. G. King, <i>Artist.</i>

METEOROLOGICAL SECTION, R.E.

[Names underlined are permanent members of the office-staff.]

<i>War Office Representative in Charge.</i>			Major H. G. Lyons, R.E., D.Sc., F.R.S.
<i>Major</i>	...	...	Major E. Gold, R.E., D.S.O.
<i>Captains</i>	...	...	Captain C. J. P. Cave, J.P. (in England); Captain E. M. Wedderburn, D.Sc., W.S., F.R.S.E.
<i>Subalterns</i>	...	...	Lieutenants: J. W. Bispham, M.A., B.Sc.; E. H. Chapman, M.A., B.Sc.; F. Entwistle, B.Sc.; A. E. M. Geddes, M.A., B.Sc.; A. H. R. Goldie, M.A.; E. Kidson, M.A.; J. G. Lamb, M.A., B.Sc.; (one in England). 2nd Lieutenants: D. Brunt, M.A., B.Sc.; T. Harris, M.A., A.R.C.Sc.,
1 Sergeant-major, 3 Sergeants. 27 Corporals, 1 Clerk, 6 Batmen, 1 Driver.			

Reserve of Meteorologists in England.

<i>Professional Assistants</i>	...	E. L. Hawke, B.A.; J. F. Duffin, M.Sc.; E. V. Newnham, B.Sc.
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PROFESSOR OF METEOROLOGY TO THE ROYAL FLYING CORPS.

<i>Major</i>	Major G. I. Taylor, R.F.C.
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METEOROLOGICAL OFFICE, EDINBURGH.

<i>Superintendent</i>	Andrew Watt, M.A.
<i>Assistants</i>	Misses M. Crawford, W. Hume.

METEOROLOGICAL OFFICE, SOUTH FARNBOROUGH.

<i>Meteorologist-in-charge</i>	...	Captain C. J. P. Cave, R.E., J.P.
<i>Professional Assistant</i>	...	R. A. W. Watt, B.Sc.

* Inspector of Meteorological Stations.

§ Member of the corps of observers for the instruments installed at the Office.

OBSERVATORIES.

CENTRAL OBSERVATORY.

Kew Observatory, Old Deer Park, Richmond, Surrey.

<i>Superintendent</i>	...	...	C. Chree, Sc.D., LL.D., F.R.S., <i>Assistant</i> <i>Director of Observatories.</i>
<i>Assistants</i>	...	...	E. Boxall, B. Francis.
<i>Probationer</i>	...	...	[L. G. Hemens.]
<i>Observer and Caretaker</i>	...	...	W. R. Corrin.
<i>Boy Clerks</i>	...	...	A. H. Lupton, L. E. Fletcher.

MAGNETIC OBSERVATORY.

Eskdalemuir, Langholm, Dumfries-shire.

<i>Superintendent</i>	...	...	A. Crichton Mitchell, D.Sc., F.R.S.E.
<i>Assistants</i>	...	...	[Lieutenant A. H. R. Goldie, M.A.], P. N. Skelton, [Lieutenant H. G. Harris], B. G. Brame.
<i>Boy Clerks</i>	...	...	J. Beck, J. Graham.

WESTERN OBSERVATORY.

Valencia Observatory, Cahirciveen, co. Kerry

<i>Superintendent</i>	...	...	L. H. G. Dines, M.A., A.M.I.C.E.
<i>Assistant</i>	...	...	M. Sugrue.
<i>Boy Clerk</i>	...	...	M. J. Morley.

AEROLOGICAL OBSERVATORY.

Benson, near Wallingford.

<i>Director of Aerological</i>	}	W. H. Dines, F.R.S.	
<i>Investigations.</i>			
<i>Assistants</i>	...	...	E. G. Bilham, B.Sc., A.R.C.Sc. [H. W. Baker.]

WEATHER STATION, FALMOUTH OBSERVATORY.

<i>Meteorologist-in-charge</i>	P. Y. Alexander.		
<i>(Honorary).</i>			
<i>Clerk Computer</i>	...	...	J. B. Phillips.
<i>Boy Clerk</i>	...	...	W. J. Fowler.

NORTHERN OBSERVATORY

at King's College, Aberdeen, under the direction of Professor
Charles Niven, F.R.S.

<i>Assistant</i>	G. A. Clarke.
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For the Year ended 31st March, 1917 (the Sixty-second
year of the Meteorological Office).

MAY IT PLEASE YOUR LORDSHIPS,

Within the financial year 1916-17 Meetings of the Committee have been held on 10th May, 24th May, 28th June, 13th September, 25th October, 22nd November, 1916, 24th January and 28th March, 1917.

The period of five years for which Mr. T. H. Middleton was nominated by the Board of Agriculture and Fisheries expired on 2nd December, 1916, and he was reappointed by your Lordships for a further period of five years.

In other respects the membership of the Committee has remained the same as last year.

The necessary work of the various divisions of the Office has been maintained; the observatories (with restricted activity) and the stations for the Daily Weather Service have been kept regularly in operation; the necessary attention has been given to the large number of stations which contribute their observations to the "public memory."

Arising out of the war there has been unprecedented increase in the work of the Forecast Division and the Instruments Division; special arrangements have had to be made to meet them. Many calls for new publications, new editions of existing publications, reports and memoranda, have been received from the Commandants of the Meteorological Section, from various departments of the Admiralty, War Office, Air Board, Ministry of Munitions, Board of Trade, Colonial Office.

It has been customary to expect the secretarial and divisional staff of the Office to find time for the ordinary demands of this kind, which are partly scientific and partly clerical. A new arrangement had to be improvised in this case because the services of the Director's secretary were absorbed by the work of the

Instruments Division. Accordingly a separate section of the staff has been formed in the personal charge of the Director to meet the indispensable requirements. The members of this staff are partly those who have reached or passed the age of superannuation in the Office. With them have been associated three professional members of the staff specially retained for the purpose, and three gentlemen who have volunteered for war-service in the Office.

The administrative work and correspondence has increased in like manner and the large number of changes in the staff in the circumstances of the war have added largely to the difficulties of administration. It has therefore been arranged that for the duration of the war Major Lyons shall relieve the Director of a large part of the administrative work. Major Lyons has also been nominated by the War Office to represent the interests of that department on the Committee.

With the additional duties the accommodation available for the Forecast Division and the Instruments Division had become quite inadequate and by arrangement with the Board of Education through Major Ogilvie, C.B., the Committee have been enabled to make temporary use of the rooms on the third floor of the Office-premises appropriated to the staff of the Science Museum. By this arrangement the staff of the Forecast Division is now provided with accommodation which enables the work to be carried on with less incidental strain upon the working staff, and room has been found by re-arrangement of the accommodation on the second floor for dealing suitably with the enlarged scope of the work of the Instruments Division.

One of the more serious difficulties with which the Forecast Division has had to deal is the reduction of the postal service and the delay of mails. A report of weather in the usual lithographed form loses the greater part of its utility if it is not received on the day of publication. And if delayed over two nights, as many of the mails are now, the report is merely of historic interest.

To overcome these difficulties it has been necessary to devise a series of new forms of report which are manifolded immediately and dispatched by hand or by railway letter in order to secure prompt delivery.

Summer Time.—Some addition to the work of the divisions for Forecasts and Statistics was entailed by the adoption of "Summer-time" from May 21 until the end of September, 1916. The diurnal variations of weather are controlled by the sun and for climatological purposes the fundamental principle of meteorological work is to note the conditions day by day at the same interval before or after true noon throughout the year. Local apparent time is therefore the proper time for observers to keep for climatological purposes; allowing a certain latitude, local mean time is prescribed in the books of instructions for climatological stations and suitable allowance can be made if Greenwich time is used; but there is no means of dealing with observations which are an hour further from or nearer to noon in summer than in winter. As regards the Daily Weather Service

strenuous and very largely successful efforts have been made during the past 50 years to get the contributing stations of all countries of the region extending from Spitsbergen to Algeria and from the Azores to the Ural mountains, to observe at the same point of time, in spite of differences of longitude and consequently of local time, in order that there may be no dawdling in the central offices about the reception of the telegraphic reports. Into this international arrangement any change of practice in time-keeping introduces confusion. For these reasons the Office obtained permission under the Act to retain Greenwich time for the hours of observation at its observatories and stations, but by doing so its reports were belated nominally by an hour and too late for the regular hours of delivery and postage. Special advance-copies of an abbreviated report were manifolded and distributed. With the new hours at post-offices it became impossible to communicate the results of the evening observations except to privileged offices, and it was equally impossible to maintain the evening reports from the health resorts at the usual hour. They had to be made an hour earlier.

Two points raised by the experience of Summer-time are brought out, added to other experiences of work for the war. One is of very general bearing, namely, the considerations that have led the associated countries to select a morning hour like 7 h. G.M.T. for the chief meteorological effort of the day. It is not quite early enough for our "evening" papers and yet it is an uncomfortable hour in winter for office work. Now that the place of meteorological work in the life of the community is well-established the question might be reconsidered by the countries which are associated in meteorological work, after the war.

The other is of a more domestic character. The necessity for keeping the whole number of observers informed as to what action should be taken in regard to the change of clocks resolved itself into the need of regular opportunity of communication. Such communication is obviously a useful agency in the organisation of a system which includes many hundreds of independent but co-operating observers distributed over the three kingdoms and associated only through the Office. In consequence a four-page monthly circular has been set on foot for the purpose and has been found useful in many ways.

Inquiries.—The inquiries addressed to the Office by the Naval and Military authorities and other Departments have involved reference to every kind of meteorological and climatological work including the study of the higher reaches of the atmosphere which it was thought had little bearing on the events of the day and in consequence had been restricted within the narrowest limits.

The pressure upon the section of the Office which deals with the climatology of the Dominions beyond the seas and of foreign countries has been somewhat relieved by the provision of a separate establishment at the instance of the Director of Naval Intelligence which has undertaken some of the work of compilation of the meteorological data from the original sources.

An interesting inquiry was undertaken at the instance of Dr. G. T. Walker, Director-General of Indian Observatories, into the statistical relation between the weather in the middle of the North Atlantic Ocean and subsequent weather of North Western Europe.

Arrangements have been made to assist the Board of Trade in controlling the export of meteorological instruments.

International Co-operation.—Co-operation with allied and neutral countries has been maintained so far as circumstances permit. The preparation of the data for the “Réseau Mondial,” which gives a compendious review of the meteorology of the globe, has been continued as a contribution to international meteorology in which allied and neutral countries are specially interested; the data for 1911, 1912 are completed and printed, those for 1913 nearly ready. In addition a set of normals for the stations included in the “Réseau Mondial” has been prepared and a number of unpublished data for British Colonial stations have been compiled into tables. These have not yet been offered for printing but are available for reference when required.

The restrictions now imposed upon the transmission by post have made it impracticable to keep up the exchange of publications with allied and neutral countries in the same manner as heretofore. Arrangements have been entered into with the Censor's department to obviate any unnecessary restrictions upon the transmission of meteorological publications.

Atmospheric Pollution.—At the close of the year at the request of the Department of Scientific and Industrial Research the Committee undertook the responsibility for the control of expenditure of a grant of £500, made by the Department, for the purpose of continuing the investigation of atmospheric pollution as organised by a Committee appointed for the purpose by a conference on the subject in London in 1912.

In accordance with the conditions laid down by the Department the original committee for the Investigation of Atmospheric Pollution (with provision for additional members) was constituted an Advisory Committee to direct the further investigation while the Meteorological Committee becomes responsible for seeing that the conditions laid down by the Department are duly carried out. The names of the members of the Advisory Committee are given on page 4.

Office Staff.—The changes in the Office Staff have been very numerous, partly in consequence of the calling up of the few remaining members of the staff who could be replaced and of the boys who were employed in 1914-1915 in succession to those who had been among the earlier volunteers for naval or military service; partly also on account of the breakdown in health of the members of the staff on duty and the need to increase the strength of the divisions which were particularly pressed. A considerable number of men have passed through the Office in training for the Meteorological Section R.E. and the Meteorological Service of the Navy.

Various offers of voluntary assistance have been accepted: from Mr. Cecil Broadbent and Mr. Raphael Nahon, who have been attached to the section in the Director's personal charge, from Mr. P. Y. Alexander, who has undertaken the duty of Superintendent of Falmouth Observatory, and from M. de Carvalho, a professor of Geography from Brazil, resident in this country.

Publications.—The periodical issue of *Official Reports and Charts* has been continued with some reduction of detail of the information given for the Observatories.

No addition has been made to the series of *Geophysical Memoirs* already published, although a number of memoirs are ready for publication. Some of these have been held up for the time being, or opportunity for the publication of contributions to Meteorological Science of a less special character has been sought elsewhere. The occasional publications have been restricted to those specially and immediately required. These include additional issues of M.O. 225 *The Weather Map* and the *Meteorological Glossary*; a new edition of the *Barometer Manual for the use of Seamen*; a new edition of *Meteorological Charts of the Mediterranean Basin*. A new edition of *Meteorological Charts of the Southern Ocean between the Cape of Good Hope and New Zealand* is in progress and new editions of the *Seaman's Handbook* and the *Marine Observer's Handbook* have been asked for and are in preparation. The Introduction and Section I. of the *Computer's Handbook* have been issued, and Section II., which deals with the observations of temperature and pressure in the upper air has been extended and completed. Little progress has been made with the *Handbook of Meteorology*, although evidence of the pressing necessity in present circumstances for the speedy publication of a work of that character continues to accumulate. Some progress has been made with *A Handbook of the Weather of the British Coasts*, which is also urgently required.

The *Meteorological Charts of Davis Strait and Baffin Bay*, which were asked for by the Board of Trade in 1913, have been completed a long time, but delay has occurred in the printing of the introductory text.

Observatories.—The work of the Observatories, confined within the strictest limits on account of the lack of permanent and skilled staff, has been continued. Dr. Crichton Mitchell's appointment as Superintendent of the Observatory at Eskdalemuir has been continued. All the Observatories are now associated with the Office in the work of the Daily Weather Report.

Voluntary Stations.—The work of the stations in voluntary co-operation with the Office has been maintained with the exception of Matlock and Stockport. Mealsgate (Silloth and District Joint Water Board) has replaced Aspatia, Rhayader (Birmingham Corporation Water Works) has replaced Llangammarch. The following new stations have been incorporated in the scheme:—

Aylesbury (H.M. Prison);

Sevenoaks (U.D.C.);

Beddgelert (Mr. Lockwood);

Ranelagh, Tenbury and Irvinestown, as well as seven new rainfall stations.

Obituary Notices of the following observers have appeared in the Circular:—Thomas Wainwright (Barnstaple); J. N. White, J.P. (Rocklands, Waterford); Edward Mawley (Berkhamsted); W. J. Eves (Aberdovey); Alfred Cresswell (Birmingham); Rev. V. F. Willson (Rauceby); R. C. Cann-Lippincott (Over Court).

Edinburgh Office.—The following report has been received:—

No change in the staff has occurred during the year. An additional assistant was employed for five months. Some further progress was made with a re-arrangement of the library and with the tabulation of rainfall statistics. The services of at least one additional permanent assistant could be fully utilized in the general work of the Office.

It was noted in last year's report that in the interests of economy in printing it has been decided to discontinue the publication of the Quarterly Reports to the Registrar-General for Scotland as from the beginning of 1916, and to replace them by an Annual Report. The Annual Report for 1916 has been completed, and has involved rather more work than four Quarterly Reports. It includes detailed statistics for 81 stations. Monthly Reports have been supplied as usual.

Statistical summaries of observations at Scottish stations have been regularly prepared and forwarded to the Meteorological Office, London, for publication in the Monthly Weather Report. Returns of Daily Readings in absolute units for two stations were supplied as in former years.

The Observing Stations.—During the year a municipal station has been established at Montrose under the direction of Mr. S. L. Christie, C.E., Burgh Surveyor. Observations have been accepted for the Monthly Weather Report from Smeaton House, near Prestonkirk, Haddington (Sir A. Buchan-Hepburn, Bart.). Observations at Belvidere Hospital, Glasgow, have been discontinued.

The operation of the Summer Time Act caused some confusion, and at a few stations it was not possible to make the observations at the same hours of Greenwich Mean Time throughout the year.

At most stations a high standard of efficiency has been maintained, but at several great difficulties have occurred on account of the dislocation inevitable under war conditions and the returns from these have required very careful scrutiny at the Office. Present experience emphasises the desirability of pressing for the establishment of a certain number of well-distributed stations under public and permanent control.

It is to be noted that there are still a few stations in Scotland which do not as yet fully satisfy the conditions under which observations are accepted for inclusion in the Monthly Weather Report, but the number of these is being steadily reduced.

Inquiries.—Numerous inquiries some of them from Naval or Military authorities, were dealt with either by correspondence or at an interview. In nine cases fees were charged for information supplied, the total fees amounting to £4 2s. 3d. The general usefulness of the Office is steadily becoming more widely known.

The Superintendent attended at the London Office for about a week in May, 1916, and in November, 1916.

The following is the return of expenditure for the year ending 31st March, 1917:—

RECEIPTS.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
Balance carried forward	66	12	4	Salaries and Insurance	432	15	7
From the Meteorological Committee ...	350	0	0	Telephone, telegrams, postage and petty outlays ...	10	5	4
On account of Reports supplied to the Registrar-General for Scotland ...	100	0	0	Furniture and Fittings	3	8	6
				Binding ...	1	3	6
				Balance carried forward	68	19	5
	£516	12	4		£516	12	4

Finance.—A statement of the receipts and payments during the year ended 31st March, 1917, is given on page 15. The amount of the Parliamentary Grant-in-aid for Meteorology, which was paid direct to the Committee by the Treasury, was £22,500, as in the previous year.

The sum total of the subventions from other votes and from the Royal Society as enumerated last year was £1,921 2s. 2d., which, together with the Parliamentary grant of £22,500, provided £24,421 2s. 2d. as the revenue available for the work of the year. Repayments and other miscellaneous receipts totalled £11,340 0s. 8d., making a grand total of £35,761 2s. 10d.

Expenditure, including the recoverable items, amounted to £35,922 4s. 10d., so that the cash balance, which, at the commencement of the financial year was £2,208 15s. 5d., was reduced by £161 2s., and at the close of the year stood at £2,047 13s. 5d.

The balance at the commencement of the year included the sum of £91 10s. mentioned in last year's report as paid in advance for instruments; the amount has been discharged during the year. The sum of £64 1s. 4d. was held to the credit of H.M. Stationery Office on account of forms and publications sold to the public, and £97 16s. on account of War Loan subscriptions deducted from salaries during March, was in hand on 31st March, 1917.

Office Property.—The various inventories of Office property have been duly examined, and appropriate insurances against loss by fire have been maintained.

NAPIER SHAW,

Chairman

24th October, 1917

ACCOUNT of RECEIPTS and PAYMENTS for the year ended 31st March, 1917.

Subject to correction upon audit by the Comptroller and Auditor-General :—

RECEIPTS.				PAYMENTS.			
	£	s.	d.		£	s.	d.
Balance from year 1915-16	—	—	—	Director	1,000	0	0
Parliamentary vote ..	—	—	—	OFFICE SALARIES (in-			
				cluding Insurance):			
DEPARTMENTAL EX-				Monthly	9,355	17	1
PENSES REPAID:				Weekly	1,682	4	11
Forecasts, &c.	2	9	0				11,038 2 0
Marine, Statistical, and	71	7	5	EXPENSES OF OFFICE:			
Administrative	226	16	1	Rent, Heating, and			
Instruments				Lighting	688	8	11
			300 12 6	Furniture and Equip-			
INCIDENTAL EXPENSES				ment	122	16	0
REPAID:				Library	25	3	7
D.W. Report	285	5	2	Insurances and Repairs	73	5	11
Divisional	89	2	6	Incidental Expenses,			
Advertising Account ..	7	12	10	and Consumable			
			382 0 6	Stores	258	10	3
STATIONERY OFFICE ..	—	—	—	Advertising Account ..	7	10	0
			64 2 9				1,175 14 8
TELEGRAPH CHARGES				POST OFFICE:			
REPAID	—	—	—	Postage	754	6	8
			657 2 7	Telephones	82	8	6
TELEPHONE CHARGES				Telegrams	3,177	14	4
REPAID	—	—	—				4,024 9 6
			1 7 8	STATIONERY OFFICE	—	—	—
INSPECTIONS	—	—	—				70 1 5
			148 0 0	TRAVELLING EXPENSES	—	—	—
INSTRUMENTS:							203 3 1
Royal Navy	4,750	14	2	SUPERANNUATION:			
Mercantile Marine, Sta-	4,161	19	6	Pensions not charge-			
tions, &c.			8,912 13 8	able on Fund	111	13	4
SUPERANNUATION				Pensions chargeable on			
ACCOUNT:				Fund	275	12	0
Annuities	573	15	0	Annuities	562	10	0
Interest on Investments	32	5	6	Contribution to fund ..	237	10	0
			606 0 6				1,187 5 4
OBSERVATORIES, BRAN-				COST OF INSTRUMENTS:			
CHES, AND STATIONS:				Royal Navy	4,743	13	2
Kew	727	19	8	For Office use	330	11	8
Eskdale	1,021	2	7	Other Commissions ..	4,727	16	0
Valencia	31	8	5				9,802 0 10
Farnborough	294	1	3	OBSERVATORIES, BRAN-			
Falmouth	13	1	2	CHES, AND STATIONS:			
Benson	10	0	0	Kew	2,134	2	2
Edinburgh	91	9	7	Eskdale	1,693	19	3
Miscellaneous			2,189 2 8	Valencia	693	18	1
LECTURES AND EXPERI-				Farnborough	520	12	3
MENTS	—	—	—	Falmouth	262	3	11
			£37,969 18 3	Benson	480	7	6
				Edinburgh	373	13	0
				Miscellaneous	1,360	7	10
							7,519 4 0
							36,020 0 10
				†LESS WAR LOAN SUB-			
				SCRIPTIONS	—	—	—
							97 18 0
							35,922 4 10
				BALANCE:			
				Cash at Bank	1,964	6	4
				„ at Office	83	7	1
							2,047 13 5
							£37,969 18 3

† Deductions from Salaries during March; lodged with Bank on April 9th.

Note.—On 31st March the amount of Government securities held for the provision of Superannuation Annuities was £28 14s. 2d. 2½ per cent. Consols, and £989 9s. 6d. 5 per cent. War Loan.

The following abstract shows approximately the net payments for this and the preceding years, together with the increase or decrease in 1916-17, as compared with 1915-16:—

NET CHARGES.	1915-16.	1916-17.	Increase.	Decrease.
SALARIES :	£	£	£	£
Director	1,000	1,000	—	—
Office and Observatories ...	13,893	14,467	574	—
GENERAL ADMINISTRATION of Central Office :				
Rent, Heating, and Lighting	685	688	3	—
Furniture and Equipment	230	123	—	107
Library	21	25	4	—
Insurances, Repairs, Incidental Expenses, Consumable Stores, and Advertising Account.	250	148	—	102
STATIONERY OFFICE ...	19	6	—	13
POSTAGE	581	564	—	17
TELEGRAMS	1,701	2,521	820	—
TELEPHONES	79	91	12	—
TRAVELLING EXPENSES ...	—	55	55	—
INSTRUMENTS	498	889	391	—
SUPERANNUATION	1,289	581	—	708
OBSERVATORIES, &c. (exclusive of Salaries) :—				
Kew	281	334	53	—
Eskdale	474	689	215	—
Valencia	123	152	29	—
Farnborough	181	471	290	—
Falmouth	85	122	37	—
Benson	32	111	79	—
Edinburgh	373	374	1	—
Miscellaneous	1,180	1,269	89	—
LECTURES AND EXPERIMENTS.	*	*	—	—
Total expenditure ...	22,975	24,680	1,705	—
NET CREDITS.				
Lectures and Experiments ...	9	—	—	9
Total Net Expenditure £	22,966	24,680	1,714	—
NET INCOME.				
PARLIAMENTARY GRANTS :				
M.O. Vote	22,500	22,500	—	—
Royal Society Vote ...	1,000	1,000	—	—
" " Advisory Committee.	250	250	—	—
ROYAL SOCIETY :				
Gassiot Trust	388	497	109	—
Rosse Trust	11	10	—	1
SCOTT ANTARCTIC FUND ...	164	164	—	—
	24,313	24,421	108	—

* £43 15s. held to the credit of the Schuster Readership.

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