M.O. 222 *f.*

METEOROLOGICAL OFFICE.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, 1915.

PART IV.

HOURLY VALUES FROM AUTOGRAPHIC RECORDS: 1915.

COMPRISING

HOURLY READINGS OF TERRESTRIAL MAGNETISM AT ESKDALEMUIR OBSERVATORY

AND

SUMMARIES OF THE RESULTS OBTAINED

IN

TERRESTRIAL MAGNETISM, METEOROLOGY, AND ATMOSPHERIC ELECTRICITY

CHIEFLY BY MEANS OF SELF-RECORDING INSTRUMENTS AT THE OBSERVATORIES OF THE METEOROLOGICAL OFFICE.

IN CONTINUATION OF

The Reports of the National Physical Laboratory, 1900–1909, *and (in similar form) Summaries of Results of Geophysical and Meteorological Observations*, 1910, *the Reports of the Kew Committee of the Royal Society*, 1872–1899, *and of the Kew Observatory Committee of the British Association*, 1842–1871.

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PREFACE.

For the years 1911 to 1913, "Hourly Values from Autographic Records" was published in two sections. The issue of the first section, which contained hourly values of pressure, temperature, humidity, wind, rainfall, and sunshine, is now discontinued. The present volume represents the Section 2 of those three years, and is the fifth of the series. It may be regarded as a continuation in extended form of the tables and summaries giving the results of observations in terrestrial magnetism and atmospheric electricity which were included in the reports of the committee of management of the Kew Observatory from 1842 to 1910, and of tables published by the Meteorological Office in the Quarterly Weather Report from 1869 to 1880, and thereafter in Hourly Readings.

The order of the tables has been changed with the present volume. The tables now published fall into three groups. In the first group of tables the mean daily variation of the various meteorological elements is given for each month. The figures refer to the five observatories, Aberdeen, Eskdalemuir, Cahirciveen (Valencia Observatory), Richmond (Kew Observatory), and Falmouth.

In the second group fall Tables I. to XLVIII., in which the readings of the magnetographs at Eskdalemuir Observatory for each hour throughout the year are set out, together with appropriate notes; Tables XLIX. to LXIV., giving results deduced from these readings and corresponding figures for Kew; and Tables LXVII. and LXVIII., in which magnetic data for various stations are set out.

In the third group are the three tables on page 62. These tables show the mean daily variation of potential gradient at Richmond and Eskdalemuir. The values from which the means have been computed are not published.

The tables are followed by notes on the management of the magnetic and electrical instruments and on results of interest. For notes on the meteorological instruments reference may be made to the Year Book, Part IV., Section 1, 1913, but notes on the Meteorological Summaries are included in this volume.

A special feature in the present volume is a discussion of the magnetic results at Eskdalemuir for the five years 1911–1915, by the Superintendent, Dr. A. Crichton Mitchell. The analysis of magnetic disturbances on the system adopted in 1913 and 1914 has been discontinued.

It is proper to add that in all matters concerning the scientific work of the observatories full advantage is taken of the advice of the Gassiot Committee, which was appointed for that purpose by the President and Council of the Royal Society in 1910, in accordance with the scheme approved by the Lords Commissioners of

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H. M. Treasury when the transfer of the administration of the observatories at Kew and Eskdalemuir was effected.

In particular, reference may be made to one point of great importance, namely, the units employed for the representation of the various quantities.

The letter of the Royal Society, dated 14th April 1910, which conveyed to the Meteorological Committee the information of the appointment of the Gassiot Committee, communicated also the following information as to the proceedings at the first meeting held on 13th April 1910:—

> "The question of the units employed in the international publication of meteorological observations was discussed, and it was unanimously resolved—
>
> "(1) That in the opinion of the Gassiot Committee of the Royal Society it is essential that all meteorological returns compiled for international use should be expressed in terms of an international system of units founded on the metric system.
>
> "(2) That a system in which the measure of barometric pressure is expressed in megadynes per square centimetre, and of temperature in absolute degrees Centigrade, would be a satisfactory one."

In furtherance of the views expressed in these resolutions, and therefore departing from the traditional practice of printing meteorological results in Inch-Fahrenheit units in the same volume which gave electrical and magnetic results in C.G.S. units, the meteorological data have been given in C.G.S. units with temperature in absolute degrees.

In 1911, the first year of the British Meteorological and Magnetic Year Book, this principle was carried out in Part III., Section 1 (the *Geophysical Journal*), and in the two sections of Part IV. In 1912 it was adopted for Part III., Section 1 (*Daily Readings*). The expression of pressure in millibars in the *Monthly Weather Report* and in the maps of the *Weekly Weather Report*, Section 2, dates from 1914. At the time of writing it can be added that rainfall has been given in millimetres in the Monthly and Weekly Reports since the beginning of 1915, and that the use of Absolute Temperatures in the descriptive summaries and in the Tables of District-Values in those publications commenced in 1916.

Tables for conversion of meteorological data between Inch-Fahrenheit units and the units used in this publication are given in the 1913 volume and in the *Computer's Handbook*.

In carrying out the arrangement of the tables endeavour has been made to provide (1) that at the head of each column there shall be found an indication of the denomination of the units employed, and (2) that wherever the same quantity is represented the same unit shall be employed, so that the decimal point as regards a particular quantity always has the same meaning.

The exigencies of printing have made it necessary in the tables of diurnal inequalities to reduce the width of the column used to indicate the months and seasons to the space necessary for two letters at most. No difficulty can be experienced by the reduction of the names of the months to their initial letters, J., F., etc., standing for *January*, *February*, and so on, and in the same way Y. will easily be appreciated as representing *Year*. But "W.," "Eq.," and "S.," standing for

Winter, *Equinox*, and *Summer*, require some explanation. The Winter, which "W" represents in these tables, includes the months of *November*, *December*, *January*, *February*; the Summer, *May*, *June*, *July*, *August*; and the Equinox, the remaining four months of the year, viz., *September*, *October*, *March*, and *April*. The division of the year into these seasons is adopted at the suggestion of the Superintendent of Kew Observatory.

In the magnetic tables X has been used to denote the North Component and —Y the West Component, in accordance with the International practice of employing X and Y to denote the North and East Components. In the notes, however, the letters N and W have been generally employed, so as to avoid any confusion between numerical and algebraic increases in the South–North and East-West Components.

The publication of meteorological and geophysical data for the year 1915 is arranged in accordance with the following scheme :—

(*a*) DAILY WEATHER REPORT.—

This includes meteorological observations for 7 a.m. and 6 p.m. at thirty stations and supplementary data from about sixty additional stations in the British Isles, together with data from forty foreign stations, and weather charts of North-Western Europe and the Eastern Atlantic. Issued daily, post free to any address in the United Kingdom for 5s. per official quarter.

(*b*) BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK.—

The serial statistical publications of the Meteorological Office which have been grouped together under this title are as follows :—

Part I.—*Weekly Weather Report*, comprising Section I., Weekly results of observations of the meteorological elements for stations and districts in the British Isles; Section II., Daily synoptic charts of the North Atlantic Ocean and adjoining continents; Annual and Quarterly Appendices. Issued on Friday of each week. Price 6d. per number. Annual subscription (which includes the Monthly Weather Report) 30s., postage paid. The issue of Section II. has been suspended since August 1914.

Part II.—*Monthly Weather Report*, prepared for issue at the end of the month to which it refers, and uniform with a summary issued annually. Price 6d. per number.

Part III.—(1) *Daily Readings* at Stations of the First and Second Orders. Issued in monthly parts within about five weeks of the close of each month. Price 6d. each part. Annual Volume 5s.

(2) *Geophysical Journal* of the Observatories of the Meteorological Office. Issued in monthly parts. Price 1s. each part.

Part IV.—*Hourly Values* from Autographic Records. Terrestrial Magnetism, Atmospheric Electricity and Meteorology. Issued at the end of each year. Price 5s.

Part V.—*Réseau Mondial.*—Monthly and Annual Summaries of Pressure, Temperature, and Precipitation at Land Stations, generally two for each Ten-degree Square of Latitude and Longitude, has been issued for 1911 and 1912. The data for subsequent years have not yet been received, and it is doubtful how far the work for this year can be completed.

The publications include the results of the work of the observatories in the departments of Meteorology, Terrestrial Magnetism, Atmospheric Electricity, and Seismology.

It can scarcely be hoped that all the difficulties in the way of adequate presentation and co-ordination of data for different branches of geophysics have been overcome, but, so far as possible, precautions have been taken to enable the reader to know exactly where he stands when he takes up any question which depends upon a comparison of the results of the observatories of the Meteorological Office *inter se*, or with those of other institutions or other countries.

H. G. LYONS,
Colonel, Director.

METEOROLOGICAL OFFICE,
SOUTH KENSINGTON, S.W. 7, *September 2nd*, 1918.

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HOURLY VALUES FROM AUTOGRAPHIC RECORDS. 1915.

LIST OF OBSERVATORIES.

	Latitude.	Longitude.	G.M.T. of Local Mean Noon.	Height above M.S.L. in metres.
			h m	
Central Observatory:				
Kew Observatory, RICHMOND, Surrey	51° 28′ N.	0° 19′ W.	12 1	5·5
Magnetic Observatory:				
ESKDALEMUIR, Dumfriesshire . .	55 19 N.	3 12 W.	12 13	242·0
Western Observatory:				
Valencia Observatory, CAHIRCIVEEN, Co. Kerry	51 56 N.	10 15 W.	12 41	9·1
Auxiliary Observatories:				
ABERDEEN (Meteorology) . .	57 10 N.	2 6 W.	12 8	14·0
FALMOUTH (Meteorology) . .	50 9 N.	5 4 W.	12 20	50·8

Notes.—(1) The height given is that of the site of the rain-gauge. The heights of other meteorological instruments are shown under the appropriate Tables. The height given for Valencia Observatory in the volume for 1914 was an error. The rain-gauge has not been moved.

(2) Values printed in *italic* type in the following Tables are obtained by interpolation.

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

PRESSURE IN MILLIBARS

Hour, G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
ABERDEEN: Normal 1000+	7·68	7·55	7·54	7·46	7·33	7·19	7·17	7·23	7·46	7·67	7·85	7·86	7·67
1915 Departure.	−12·58	−12·47	−12·45	−12·38	−12·39	−12·46	−12·50	−12·46	−12·34	−12·42	−12·55	−12·66	−12·62
ESKDALEMUIR: [Normal] 900+	83·41	83·30	83·37	83·34	83·26	83·16	83·17	83·29	83·44	83·64	83·73	83·69	83·45
1915 Departure.	−12·04	−12·07	−12·10	−12·11	−12·14	−12·22	−12·22	−12·24	−12·16	−12·09	−12·14	−12·15	−12·12
CAHIRCIVEEN: Normal 1000+	12·74	12·57	12·45	12·45	12·30	12·16	12·09	12·15	12·36	12·63	12·91	13·05	12·89
1915 Departure.	− 9·84	− 9·95	− 9·97	− 9·84	− 9·84	− 9·79	− 9·77	− 9·69	− 9·69	− 9·51	− 9·50	− 9·42	− 9·43
RICHMOND: Normal 1000+	16·16	16·01	16·04	15·97	15·83	15·70	15·73	15·88	16·15	16·38	16·59	16·58	16·22
1915 Departure.	−13·94	−13·99	−13·92	−13·82	−13·72	−13·70	−13·67	−13·66	−13·70	−13·58	−13·72	−13·76	−13·70
FEBRUARY.													
ABERDEEN: Normal 1000+	7·49	7·34	7·26	7·05	6·92	6·85	6·86	6·96	7·20	7·32	7·46	7·53	7·47
1915 Departure.	−12·36	−12·32	−12·31	−12·28	−12·24	−12·18	−12·14	−12·08	−12·10	−12·09	−12·17	−12·21	−12·27
ESKDALEMUIR: [Normal] 900+	78·62	78·50	78·41	78·20	78·13	78·10	78·20	78·29	78·56	78·72	78·78	78·90	78·91
1915 Departure.	− 8·27	− 8·16	− 8·13	− 8·09	− 8·10	− 8·13	− 8·23	− 8·20	− 8·21	− 8·29	− 8·41	− 8·48	− 8·50
CAHIRCIVEEN: Normal 1000+	11·47	11·39	11·23	11·07	10·86	10·81	10·86	10·91	11·16	11·38	11·58	11·68	11·72
1915 Departure.	−13·97	−14·10	−14·25	−14·37	−14·48	−14·52	−14·54	−14·63	−14·76	−14·69	−14·85	−14·80	−14·59
RICHMOND: Normal 1000+	14·68	14·55	14·45	14·22	14·12	14·11	14·14	14·27	14·54	14·67	14·79	14·84	14·62
1915 Departure.	−12·00	−11·82	−11·64	−11·68	−11·72	−11·68	−11·73	−11·71	−11·77	−11·72	−11·72	−11·69	−11·69
MARCH.													
ABERDEEN: Normal 1000+	6·77	6·64	6·51	6·27	6·15	6·10	6·17	6·28	6·47	6·56	6·67	6·70	6·67
1915 Departure.	+ 3·88	+ 4·00	+ 4·04	+ 4·10	+ 4·14	+ 4·19	+ 4·15	+ 4·18	+ 4·25	+ 4·29	+ 4·32	+ 4·34	+ 4·33
ESKDALEMUIR: [Normal] 900+	78·32	78·20	78·08	77·83	77·69	77·66	77·79	77·99	78·24	78·42	78·54	78·61	78·66
1915 Departure.	+ 7·98	+ 8·12	+ 8·06	+ 8·03	+ 8·01	+ 8·00	+ 7·95	+ 7·93	+ 7·86	+ 7·79	+ 7·71	+ 7·73	+ 7·61
CAHIRCIVEEN: Normal 1000+	11·60	11·47	11·34	11·10	10·90	10·86	10·93	11·04	11·24	11·38	11·53	11·57	11·57
1915 Departure.	+ 5·26	+ 5·38	+ 5·42	+ 5·46	+ 5·45	+ 5·44	+ 5·35	+ 5·36	+ 5·30	+ 5·28	+ 5·21	+ 5·22	+ 5·21
RICHMOND: Normal 1000+	12·75	12·68	12·52	12·29	12·21	12·22	12·35	12·51	12·73	12·85	12·90	12·84	12·69
1915 Departure.	+ 2·08	+ 2·08	+ 2·12	+ 2·14	+ 2·15	+ 2·15	+ 2·08	+ 2·17	+ 2·11	+ 2·15	+ 2·16	+ 2·19	+ 2·24
APRIL.													
ABERDEEN: Normal 1000+	9·60	9·42	9·28	9·10	8·99	8·98	9·16	9·29	9·43	9·48	9·54	9·51	9·51
1915 Departure.	+ 1·37	+ 1·39	+ 1·37	+ 1·25	+ 1·15	+ 1·05	+ 0·99	+ 0·86	+ 0·73	+ 0·58	+ 0·63	+ 0·58	+ 0·70
ESKDALEMUIR: [Normal] 900+	88·65	88·53	88·44	88·31	88·22	88·18	88·34	88·46	88·55	88·54	88·50	88·38	88·29
1915 Departure.	− 0·78	− 0·86	− 0·92	− 0·96	− 1·01	− 1·15	− 1·21	− 1·29	− 1·33	− 1·32	− 1·37	− 1·40	− 1·42
CAHIRCIVEEN. Normal 1000+	11·75	11·62	11·41	11·23	11·10	11·05	11·19	11·36	11·54	11·60	11·70	11·75	11·73
1915 Departure.	+ 7·69	+ 7·62	+ 7·59	+ 7·56	+ 7·39	+ 7·25	+ 7·26	+ 7·30	+ 7·30	+ 7·48	+ 7·46	+ 7·52	+ 7·62
RICHMOND: Normal 1000+	13·00	12·84	12·69	12·57	12·48	12·53	12·76	12·92	13·01	13·05	13·04	12·91	12·70
1915 Departure.	+ 4·77	+ 4·81	+ 4·82	+ 4·85	+ 4·86	+ 4·91	+ 4·92	+ 4·93	+ 4·93	+ 4·94	+ 4·79	+ 4·72	+ 4·69
MAY.													
ABERDEEN: Normal 1000+	12·04	11·87	11·73	11·57	11·51	11·54	11·66	11·75	11·86	11·88	11·90	11·90	11·89
1915 Departure.	+ 5·49	+ 5·54	+ 5·51	+ 5·51	+ 5·46	+ 5·46	+ 5·45	+ 5·45	+ 5·49	+ 5·46	+ 5·49	+ 5·45	+ 5·41
ESKDALEMUIR: [Normal] 900+	87·64	87·52	87·41	87·25	87·16	87·20	87·29	87·40	87·48	87·43	87·33	87·22	87·14
1915 Departure.	+ 3·45	+ 3·47	+ 3·52	+ 3·55	+ 3·52	+ 3·54	+ 3·58	+ 3·56	+ 3·61	+ 3·63	+ 3·54	+ 3·49	+ 3·42
CAHIRCIVEEN: Normal 1000+	14·22	14·02	13·82	13·63	13·48	13·46	13·61	13·74	13·88	13·95	14·01	14·06	14·08
1915 Departure.	+ 0·36	+ 0·40	+ 0·43	+ 0·45	+ 0·51	+ 0·51	+ 0·56	+ 0·61	+ 0·65	+ 0·69	+ 0·60	+ 0·51	+ 0·45
RICHMOND: Normal 1000+	15·01	14·88	14·75	14·62	14·58	14·69	14·87	14·99	15·06	15·02	14·95	14·85	14·67
1915 Departure.	+ 0·99	+ 0·97	+ 0·90	+ 0·93	+ 0·96	+ 0·98	+ 0·94	+ 1·01	+ 1·10	+ 1·12	+ 1·17	+ 1·20	+ 1·17
JUNE.													
ABERDEEN: Normal 1000+	12·20	12·05	11·91	11·75	11·73	11·75	11·85	11·94	12·03	12·02	12·04	12·04	12·03
1915 Departure.	+ 3·01	+ 3·05	+ 3·07	+ 3·03	+ 3·04	+ 3·11	+ 3·16	+ 3·19	+ 3·15	+ 3·11	+ 3·06	+ 3·05	+ 3·11
ESKDALEMUIR: [Normal] 900+	86·91	86·77	86·62	86·46	86·41	86·43	86·53	86·64	86·73	86·71	86·66	86·60	86·59
1915 Departure.	+ 2·95	+ 3·00	+ 3·00	+ 3·10	+ 3·05	+ 3·05	+ 2·99	+ 2·96	+ 2·97	+ 2·96	+ 2·83	+ 2·83	+ 2·76
CAHIRCIVEEN: Normal 1000+	14·61	14·43	14·23	14·03	13·91	13·94	14·08	14·20	14·36	14·45	14·52	14·57	14·62
1915 Departure.	+ 0·03	+ 0·02	0·00	0·00	0·00	− 0·04	− 0·13	− 0·10	− 0·11	− 0·02	− 0·11	− 0·13	− 0·17
RICHMOND: Normal 1000+	15·32	15·21	15·06	14·94	14·96	15·06	15·21	15·32	15·41	15·35	15·31	15·26	15·10
1915 Departure.	+ 1·43	+ 1·41	+ 1·42	+ 1·40	+ 1·45	+ 1·46	+ 1·44	+ 1·45	+ 1·40	+ 1·36	+ 1·27	+ 1·18	+ 1·13

Notes.—The Geographical Co-ordinates of the Observatories are as follows :—

	Lat.	Long.	G.M.T. of Local Mean Noon.	Height of Barometer Cistern above M.S.L. in metres.
Aberdeen	57° 10′ N.	2° 6′ W.	12h 8m	26·8
Eskdalemuir	55° 19′ N.	3° 12′ W.	12h 13m	237·3
Cahirciveen (Valencia Observatory)	51° 56′ N.	10° 15′ W.	12h 41m	13·7
Richmond (Kew Observatory)	51° 28′ N.	0° 19′ W.	12h 1m	10·4

NORMALS AND DEPARTURES THEREFROM IN 1915.

JANUARY TO JUNE.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	JANUARY.
7·41	7·32	7·29	7·41	7·46	7·59	7·63	7·74	− 7·74	− 7·77	− 7·70	− 7·66	**7·53**	Normal. ABERDEEN.
−12·61	−12·62	−12·62	−12·62	−12·63	−12·68	−12·59	−12·54	−12·43	−12·33	−12·20	−12·16	−12·50	1915 Dep. ,,
83·13	82·92	82·83	82·89	82·95	83·03	83·08	83·21	83·20	83·24	83·26	83·30	83·25	[Normal.] ESKDALEMUIR.
−12·05	−12·00	−11·95	−11·92	−11·93	−11·94	−11·82	−11·67	−11·61	−11·55	−11·53	−11·47	−11·98	1915 Dep. ,,
12·55	12·27	12·21	12·29	12·38	12·53	12·65	12·77	12·82	12·84	12·81	12·77	12·54	Normal. CAHIRCIVEEN.
− 9·30	− 9·33	− 9·28	− 9·32	− 9·26	− 9·28	− 9·18	− 9·07	− 8·88	− 8·82	− 8·78	− 8·74	− 9·43	1915 Dep. ,,
15·86	15·66	15·67	15·77	15·85	15·99	16·10	16·20	16·22	16·23	16·19	16·12	16·04	Normal. RICHMOND.
−13·71	−13·65	−13·57	−13·72	−13·59	−13·65	−13·67	−13·64	−13·47	−13·59	−13·59	−13·65	−13·69	1915 Dep. ,,
													FEBRUARY.
7·24	7·11	6·98	7·05	7·13	7·36	7·42	7·50	7·48	7·51	7·46	7·45	7·25	Normal. ABERDEEN.
−12·30	−12·41	−12·46	−12·52	−12·59	−12·62	−12·72	−12·74	−12·65	−12·74	−12·76	−12·77	−12·40	1915 Dep. ,,
78·69	78·47	78·32	78·26	78·23	78·43	78·47	78·47	78·44	78·48	78·42	78·41	78·45	[Normal.] ESKDALEMUIR.
− 8·47	− 8·47	− 8·48	− 8·55	− 8·46	− 8·52	− 8·57	− 8·52	− 8·49	− 8·51	− 8·49	− 8·47	− 8·36	1915 Dep. ,,
11·47	11·21	10·98	10 95	10·99	11·20	11·40	11·46	11·46	11·50	11·44	11·42	11·26	Normal. CAHIRCIVEEN.
−14·53	−14·51	−14·32	−14·29	−14·18	−14·12	−14·05	−13·92	−13·77	−13·77	−13·78	−13·85	−14·33	1915 Dep. ,,
14·30	14·03	13·92	13·95	14·05	14·33	14·46	14·56	14·63	14·67	14·62	14·62	14·40	Normal. RICHMOND.
−11·69	−11·73	−11·70	−11·80	−11·95	−12·04	−12·17	−12·39	−12·40	−12·51	−12·32	−12·09	−11·89	1915 Dep. ,,
													MARCH.
6·51	6·36	6·26	6·25	6·31	6·55	6·71	6·84	6·84	6·86	6·81	6·67	6·51	Normal. ABERDEEN.
+ 4·36	+ 4·32	+ 4·27	+ 4·29	+ 4·29	+ 4·29	+ 4·28	+ 4·28	+ 4·32	+ 4·39	+ 4·50	+ 4·69	+ 4·26	1915 Dep. ,,
78·51	78·38	78·27	78·24	78·26	78·45	78·57	78·70	78·66	78·64	78·59	78·52	78·31	[Normal.] ESKDALEMUIR.
+ 7·67	+ 7·74	+ 7·74	+ 7·78	+ 7·87	+ 7·95	+ 8·11	+ 8·18	+ 8·23	+ 8·29	+ 8·44	+ 8·54	+ 7·96	1915 Dep. ,,
11·44	11·23	11·05	10·99	11·00	11·18	11·39	11·57	11·67	11·74	11·71	11·67	11·31	Normal. CAHIRCIVEEN.
+ 5·21	+ 5·21	+ 5·27	+ 5·20	+ 5·20	+ 5·22	+ 5·26	+ 5·25	+ 5·41	+ 5·41	+ 5·50	+ 5·57	+ 5·32	1915 Dep. ,,
12·41	12·14	11·98	11·90	11·98	12·27	12·49	12·68	12·75	12·80	12·76	12·72	12·49	Normal. RICHMOND.
+ 2·27	+ 2·40	+ 2·43	+ 2·37	+ 2·43	+ 2·43	+ 2·53	+ 2·57	+ 2·72	+ 2·70	+ 2·75	+ 2·81	+ 2·32	1915 Dep. ,,
													APRIL.
9·44	9·36	9·22	9·21	9·21	9·37	9·55	9·81	9·85	9·85	9·79	9·72	9·42	Normal. ABERDEEN.
+ 0·69	+ 0·63	+ 0·74	+ 0·82	+ 0·93	+ 0·93	+ 0·97	+ 1·05	+ 1·06	+ 1·18	+ 1·14	+ 1·15	+ 0·94	1915 Dep. ,,
88·23	88·12	87·98	87·97	87·98	88·11	88·32	88·62	88·73	88·79	88·79	88·80	88·38	[Normal.] ESKDALEMUIR.
− 1·38	− 1·33	− 1·33	− 1·27	− 1·19	− 1·19	− 1·06	− 1·05	− 1·05	− 1·07	− 1·10	− 1·18	− 1·18	1915 Dep. ,,
11·65	11·60	11·41	11·31	11·27	11·34	11·43	11·65	11·84	11·87	11·80	11·76	11·51	Normal. CAHIRCIVEEN.
+ 7·70	+ 7·66	+ 7·67	+ 7·64	+ 7·68	+ 7·57	+ 7·59	+ 7·49	+ 7·57	+ 7·38	+ 7·28	+ 7·13	+ 7·50	1915 Dep. ,,
12·53	12·28	12·07	11·98	12·02	12·19	12·46	12·85	13·00	13·08	13·09	13·06	12·67	Normal. RICHMOND.
+ 4·64	+ 4·56	+ 4·54	+ 4·38	+ 4·29	+ 4·26	+ 4·26	+ 4·26	+ 4·42	+ 4·38	+ 4·44	+ 4·44	+ 4·63	1915 Dep. ,,
													MAY.
11·84	11·80	11·69	11·65	11·60	11·69	11·81	12·03	12·18	12·23	12·17	12·09	11·83	Normal. ABERDEEN.
+ 5·37	+ 5·33	+ 5·33	+ 5·38	+ 5·37	+ 5·36	+ 5·35	+ 5·38	+ 5·39	+ 5·51	+ 5·52	+ 5·53	+ 5·43	1915 Dep. ,,
87·04	86·94	86·83	86·76	86·73	86·85	87·02	87·30	87·56	87·71	87·71	87·65	87·25	[Normal.] ESKDALEMUIR.
+ 3·39	+ 3·37	+ 3·41	+ 3·40	+ 3·44	+ 3·46	+ 3·49	+ 3·49	+ 3·56	+ 3·58	+ 3·67	+ 3·68	+ 3·51	1915 Dep. ,,
14·05	14·03	13·94	13·87	13·83	13·84	13·92	14·06	14·30	14·39	14·33	14·24	13·94	Normal. CAHIRCIVEEN.
+ 0·43	+ 0·45	+ 0·40	+ 0·38	+ 0·38	+ 0·39	+ 0·48	+ 0·55	+ 0·72	+ 0·67	+ 0·75	+ 0·78	+ 0·52	1915 Dep. ,,
14·50	14·34	14·16	14·05	14·00	14·11	14·31	14·68	14·96	15·09	15·10	15·03	14·68	Normal. RICHMOND.
+ 1·16	+ 1·09	+ 1·09	+ 1·05	+ 1·06	+ 1·06	+ 1·12	+ 1·14	+ 1·19	+ 1·18	+ 1·15	+ 1·15	+ 1·07	1915 Dep. ,,
													JUNE.
11·95	11·92	11·82	11·77	11·70	11·77	11·85	12·02	12·21	12·30	12·26	12·20	11·95	Normal. ABERDEEN.
+ 3·13	+ 3·09	+ 3·13	+ 3·07	+ 2·99	+ 3·04	+ 3·02	+ 3·01	+ 3·05	+ 3·09	+ 3·05	+ 3·14	+ 3·08	1915 Dep. ,,
86·53	86·49	86·35	86·30	86·24	86·31	86·45	86·62	86·87	86 ·95	86·94	86·86	86·59	[Normal.] ESKDALEMUIR.
+ 2·75	+ 2·75	+ 2·74	+ 2·70	+ 2·69	+ 2·69	+ 2·72	+ 2·77	+ 2·81	+ 2·82	+ 2·84	+ 2·94	+ 2·86	1915 Dep. ,,
14·60	14·56	14·50	14·44	14·37	14·36	14·43	14·51	14·68	14·83	14·75	14·65	14·42	Normal. CAHIRCIVEEN.
− 0·12	− 0·14	− 0·16	− 0·17	− 0·14	− 0·10	− 0·05	− 0·02	+ 0·05	− 0·06	− 0·02	− 0·07	− 0·08	1915 Dep. ,,
14·92	14·75	14·61	14·47	14·40	14·48	14·64	14·92	15·25	15·38	15·41	15·33	15·03	Normal. RICHMOND.
+ 1·02	+ 0·98	+ 0·96	+ 0·84	+ 0·83	+ 0·82	+ 0·91	+ 0·93	+ 1·10	+ 1·10	+ 1·16	+ 1·20	+ 1·18	1915 Dep. ,,

The values for 1915 are given by the departure from the normal; + indicates excess, − defect.
The pressures are for station level, corrected for temperature and gravity, measured at each exact hour, G.M.T.
The normals are for the period 1871–1915. (Eskdalemuir 1911–15 only).

Mean values are calculated by the formula, $\text{mean} = \frac{1}{24}\left\{(1 + \cdots + 23) + \frac{1}{2}(0 + 24)\right\}$

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

PRESSURE IN MILLIBARS.

Hour, G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.
ABERDEEN: Normal 1000+	9·85	9·69	9·54	9·36	9·34	9·36	9·46	9·55	9·64	9·63	9·64	9·66	9·66
1915 Departure.	− 4·30	− 4·24	− 4·20	− 4·16	− 4·14	− 4·19	− 4·21	− 4·21	− 4·26	− 4·32	− 4·33	− 4·36	− 4·32
ESKDALEMUIR: [Normal] 900+	86·77	86·63	86·51	86·37	86·33	86·30	86·39	86·42	86·55	86·55	86·48	86·43	86·41
1915 Departure.	− 4·83	− 4·82	− 4·77	− 4·81	− 4·77	− 4·75	− 4·77	− 4·76	− 4·84	− 4·88	− 4·96	− 4·95	− 4·96
CAHIRCIVEEN: Normal 1000+	14·36	14·18	13·96	13·74	13·59	13·59	13·70	13·81	13·97	14·04	14·10	14·17	14·23
1915 Departure.	− 2·28	− 2·24	− 2·24	− 2·27	− 2·26	− 2·28	− 2·32	− 2·33	− 2·44	− 2·39	− 2·55	− 2·51	− 2·52
RICHMOND: Normal 1000+	14·60	14·46	14·32	14·20	14·21	14·30	14·46	14·59	14·68	14·65	14·60	14·54	14·41
1915 Departure.	− 2·85	− 2·88	− 2·80	− 2·74	− 2·66	− 2·54	− 2·51	− 2·49	− 2·52	− 2·50	− 2·52	− 2·56	− 2·60
AUGUST.													
ABERDEEN: Normal 1000+	8·70	8·53	8·41	8·23	8·14	8·14	8·27	8·37	8·49	8·54	8·57	8·59	8·57
1915 Departure.	+ 2·91	+ 2·98	+ 2·99	+ 2·97	+ 3·03	+ 3·09	+ 3·11	+ 3·15	+ 3·15	+ 3·21	+ 3·25	+ 3·20	+ 3·21
ESKDALEMUIR: [Normal] 900+	85·82	85·70	85·62	85·46	85·35	85·37	85·50	85·57	85·67	85·69	85·65	85·60	85·56
1915 Departure.	+ 1·70	+ 1·74	+ 1·71	+ 1·71	+ 1·73	+ 1·74	+ 1·77	+ 1·81	+ 1·80	+ 1·83	+ 1·80	+ 1·85	+ 1·90
CAHIRCIVEEN: Normal 1000+	13·02	12·85	12·64	12·44	12·25	12·20	12·33	12·48	12·65	12·75	12·86	12·91	12·92
1915 Departure.	+ 3·20	+ 3·25	+ 3·24	+ 3·23	+ 3·18	+ 3·21	+ 3·19	+ 3·24	+ 3·23	+ 3·29	+ 3·24	+ 3·28	+ 3·34
RICHMOND: Normal 1000+	14·15	14·00	13·87	13·74	13·66	13·72	13·91	14·05	14·17	14·20	14·16	14·06	13·91
1915 Departure.	+ 1·20	+ 1·19	+ 1·26	+ 1·19	+ 1·24	+ 1·28	+ 1·31	+ 1·31	+ 1·33	+ 1·40	+ 1·46	+ 1·50	+ 1·56
SEPTEMBER.													
ABERDEEN: Normal 1000+	10·79	10·67	10·56	10·36	10·24	10·20	10·24	10·48	10·63	10·71	10·75	10·69	10·66
1915 Departure.	+ 1·79	+ 1·83	+ 1·82	+ 1·76	+ 1·75	+ 1·73	+ 1·91	+ 1·79	+ 1·74	+ 1·78	+ 1·76	+ 1·73	+ 1·72
ESKDALEMUIR: [Normal] 900+	89·25	89·13	89·02	88·83	88·73	88·70	88·84	89·00	89·16	89·26	89·23	89·14	89·05
1915 Departure.	− 1·29	− 1·32	− 1·30	− 1·28	− 1·32	− 1·36	− 1·38	− 1·41	− 1·44	− 1·45	− 1·50	− 1·41	− 1·37
CAHIRCIVEEN: Normal 1000+	14·41	14·25	14·04	13·82	13·65	13·59	13·71	13·94	14·14	14·29	14·44	14·44	14·41
1915 Departure.	− 1·23	− 1·32	− 1·39	− 1·50	− 1·57	− 1·51	− 1·53	− 1·50	− 1·53	− 1·41	− 1·52	− 1·50	− 1·41
RICHMOND: Normal 1000+	15·80	15·69	15·53	15·38	15·29	15·31	15·52	15·72	15·90	16·02	16·00	15·88	15·72
1915 Departure.	− 0·24	− 0·26	− 0·17	− 0·21	− 0·16	− 0·16	− 0·12	− 0·21	− 0·20	− 0·14	− 0·17	− 0·19	− 0·18
OCTOBER.													
ABERDEEN: Normal 1000+	7·52	7·38	7·25	7·04	6·97	6·92	7·03	7·19	7·43	7·52	7·63	7·62	7·55
1915 Departure.	+ 8·39	+ 8·46	+ 8·42	+ 8·40	+ 8·39	+ 8·37	+ 8·37	+ 8·42	+ 8·48	+ 8·45	+ 8·44	+ 8·37	+ 8·34
ESKDALEMUIR: [Normal] 900+	85·68	85·55	85·42	85·15	85·02	85·04	85·12	85·31	85·54	85·55	85·57	85·60	85·47
1915 Departure.	+ 4·10	+ 4·12	+ 4·07	+ 3·85	+ 3·80	+ 4·11	+ 4·07	+ 4·06	+ 4·05	+ 3·80	+ 3·71	+ 3·92	+ 3·88
CAHIRCIVEEN: Normal 1000+	10·73	10·60	10·45	10·21	10·08	10·08	10·13	10·25	10·56	10·74	10·89	10·93	10·90
1915 Departure.	+ 1·59	+ 1·68	+ 1·77	+ 1·81	+ 1·85	+ 1·95	+ 2·03	+ 2·15	+ 2·17	+ 2·20	+ 2·03	+ 1·98	+ 1·84
RICHMOND: Normal 1000+	12·71	12·61	12·43	12·23	12·19	12·18	12·27	12·51	12·78	12·88	12·89	12·84	12·59
1915 Departure.	+ 4·01	+ 3·96	+ 4·00	+ 3·92	+ 3·92	+ 3·87	+ 3·87	+ 3·80	+ 3·81	+ 3·77	+ 3·73	+ 3·69	+ 3·72
NOVEMBER.													
ABERDEEN: Normal 1000+	6·79	6·63	6·58	6·42	6·35	6·30	6·35	6·46	6·72	6·81	6·95	6·92	6·74
1915 Departure.	+ 3·59	+ 3·54	+ 3·52	+ 3·43	+ 3·34	+ 3·26	+ 3·14	+ 3·14	+ 3·13	+ 3·16	+ 3·11	+ 3·02	+ 3·07
ESKDALEMUIR: [Normal] 900+	80·80	80·59	80·52	80·33	80·16	80·11	80·09	80·19	80·42	80·52	80·56	80·53	80·35
1915 Departure.	+ 5·31	+ 5·31	+ 5·27	+ 5·18	+ 5·08	+ 5·05	+ 5·05	+ 5·03	+ 5·00	+ 5·02	+ 5·04	+ 5·00	+ 4·95
CAHIRCIVEEN: Normal 1000+	11·34	11·19	11·02	10·91	10·75	10·72	10·74	10·82	11·09	11·33	11·51	11·58	11·39
1915 Departure.	+ 2·72	+ 2·67	+ 2·58	+ 2·59	+ 2·52	+ 2·39	+ 2·24	+ 2·13	+ 2·05	+ 2·03	+ 1·88	+ 1·78	+ 1·68
RICHMOND: Normal 1000+	13·09	12·91	12·85	12·70	12·61	12·61	12·66	12·83	13·13	13·26	13·41	13·33	13·02
1915 Departure.	− 0·24	− 0·26	− 0·21	− 0·20	0·00	+ 0·01	+ 0·08	+ 0·17	+ 0·37	+ 0·45	+ 0·42	+ 0·30	+ 0·29
DECEMBER.													
ABERDEEN: Normal 1000+	4·32	4·18	4·17	4·05	3·92	3·80	3·81	3·87	4·07	4·26	4·50	4·46	4·28
1915 Departure.	− 6·65	− 6·62	− 6·64	− 6·56	− 6·55	− 6·64	− 6·74	− 6·76	− 6·76	− 6·89	− 7·10	− 7·18	− 7·33
ESKDALEMUIR: [Normal] 900+	75·23	75·15	75·21	75·18	75·03	74·88	74·81	74·80	74·97	75·13	75·22	75·17	74·95
1915 Departure.	− 3·12	− 3·11	− 3·18	− 3·20	− 3·25	− 3·37	− 3·51	− 3·58	− 3·65	− 3·75	− 3·90	− 3·89	− 3·83
CAHIRCIVEEN: Normal 1000+	9·59	9·39	9·24	9·23	9·07	8·95	8·92	8·99	9·19	9·46	9·77	9·91	9·69
1915 Departure.	−12·01	−12·20	−12·34	−12·42	−12·41	−12·52	−12·74	−12·73	−12·66	−12·47	−12·40	−12·04	−11·68
RICHMOND: Normal 1000+	12·72	12·55	12·58	12·49	12·34	12·22	12·29	12·40	12·65	12·88	13·14	13·02	12·69
1915 Departure.	− 9·38	− 9·38	− 9·12	− 9·11	− 9·06	− 9·14	− 9·19	− 9·34	− 9·44	− 9·54	− 9·57	− 9·49	− 9·55
YEAR.													
ABERDEEN: Normal 1000+	8·65	8·50	8·39	8·22	8·13	8·09	8·17	8·28	8·45	8·53	8·63	8·62	8·56
1915 Departure.	− 0·46	− 0·41	− 0·40	− 0·41	− 0·42	− 0·43	− 0·44	− 0·45	− 0·44	− 0·47	− 0·51	− 0·55	− 0·55
ESKDALEMUIR: [Normal] 900+	83·93	83·80	83·72	83·56	83·46	83·43	83·51	83·61	83·77	83·85	83·85	83·82	83·74
1915 Departure.	− 0·41	− 0·38	− 0·40	− 0·42	− 0·45	− 0·46	− 0·50	− 0·51	− 0·52	− 0·57	− 0·63	− 0·62	− 0·64
CAHIRCIVEEN: Normal 1000+	12·49	12·33	12·15	11·99	11·83	11·78	11·86	11·97	12·18	12·33	12·48	12·55	12·51
1915 Departure.	− 1·54	− 1·57	− 1·59	− 1·61	− 1·64	− 1·65	− 1·70	− 1·68	− 1·71	− 1·62	− 1·70	− 1·76	− 1·63
RICHMOND: Normal 1000+	14·17	14·03	13·92	13·78	13·71	13·72	13·85	14·00	14·19	14·27	14·32	14·25	14·03
1915 Departure.	− 2·02	− 2·01	− 1·94	− 1·94	− 1·90	− 1·88	− 1·88	− 1·88	− 1·89	− 1·86	− 1·89	− 1·91	− 1·91

NORMALS AND DEPARTURES THEREFROM IN 1915.

JULY TO DECEMBER AND YEAR.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	mb.	**JULY.**
9·61	9·60	9·54	9·46	9·40	9·47	9·56	9·72	9·87	9·95	9·89	9·82	9·60	Normal. ABERDEEN.
− 4·39	− 4·38	− 4·34	− 4·30	− 4·29	− 4·28	− 4·37	− 4·40	− 4·44	− 4·42	− 4·44	− 4·43	− 4·31	1915 Dep. ,,
86·35	86·29	86·22	86·13	86·07	86·10	86·21	86·41	86·64	86·71	86·71	86·65	86·41	[Normal.] ESKDALEMUIR.
− 4·91	− 4·86	− 4·85	− 4·81	− 4·80	− 4·83	− 4·76	− 4·79	− 4·90	− 4·91	− 4·90	− 4·89	− 4·84	1915 Dep. ,,
14·24	14–25	14·20	14·13	14·07	14·09	14·16	14·27	14·45	14·55	14·51	14·40	14·10	Normal. CAHIRCIVEEN.
− 2·52	− 2·57	− 2·54	− 2·59	− 2·62	− 2·62	− 2·68	− 2·73	− 2·79	− 2·93	− 2·98	− 3·00	− 2·52	1915 Dep. ,,
14·26	14·12	13·99	13·84	13·75	13·79	13·94	14·22	14·52	14·67	14·69	14·64	14·33	Normal. RICHMOND.
− 2·58	− 2·47	− 2·47	− 2·40	− 2·41	− 2·43	− 2·49	− 2·67	− 2·72	− 2·98	− 3·01	− 3·04	− 2·63	1915 Dep. ,,
													AUGUST.
8·53	8·49	8·40	8·34	8·30	8·36	8·48	8·72	8·78	8·81	8·74	8·66	8·48	Normal. ABERDEEN.
+ 3·21	+ 3·18	+ 3·15	+ 3·19	+43·17	+ 3·16	+ 3·09	+ 3·09	+ 3·09	+ 3·06	+ 3·05	+ 3·04	+ 3·11	1915 Dep. ,,
85·56	85·50	85·44	85·37	85·36	85·42	85·57	85·88	86·02	86·08	86·07	86·01	85·62	[Normal.] ESKDALEMUIR
+ 1·84	+ 1·79	+ 1·75	+ 1·73	+ 1·72	+ 1·70	+ 1·65	+ 1·61	+ 1·58	+ 1·53	+ 1·57	+ 1·56	+ 1·73	1915 Dep. ,,
12·93	12·92	12·83	12·74	12·69	12·70	12·77	12·96	13·14	13·15	13·09	12·99	12·76	Normal. CAHIRCIVEEN.
+ 3·41	+ 3·45	+ 3·45	+ 3·51	+ 3·59	+ 3·60	+ 3·64	+ 3·68	+ 3·79	+ 3·74	+ 3·77	+ 3·77	+ 3·42	1915 Dep. ,,
13·76	13·60	13·45	13·32	13·25	13·33	13·53	13·90	14·07	14·18	14·19	14·12	13·84	Normal. RICHMOND.
+ 1·57	+ 1·64	+ 1·57	+ 1·62	+ 1·60	+ 1·49	+ 1·42	+ 1·41	+ 1·46	+ 1·43	+ 1·43	+ 1·49	+ 1·42	1915 Dep. ,,
													SEPTEMBER.
10·56	10·46	10·33	10·30	10·33	10·50	10·70	10·89	10·88	10·89	10·82	10·74	10·57	Normal. ABERDEEN.
+ 1·72	+ 1·70	+ 1·73	+ 1·76	+ 1·73	+ 1·67	+ 1·69	+ 1·66	+ 1·73	+ 1·77	+ 1·78	+ 1·81	+ 1·75	1915 Dep. ,,
88·95	88·81	88·67	88·59	88·59	88·72	88·93	89·13	89·21	89·27	89·27	89·20	88·98	[Normal.] ESKDALEMUIR.
− 1·39	− 1·41	− 1·35	− 1·35	− 1·30	− 1·27	− 1·18	− 1·17	− 1·12	− 1·17	− 1·17	− 1·16	− 1·32	1915 Dep. ,,
14·35	14·24	14·07	13·96	13·95	14·04	14·16	14·39	14·47	14·44	14·37	14·27	14·14	Normal. CAHIRCIVEEN.
− 1·30	− 1·31	− 1·27	− 1·25	− 1·17	− 1·11	− 1·05	− 1·03	− 1·01	− 1·05	− 1·00	− 1·01	− 1·30	1915 Dep. ,,
15·49	15·29	15·10	15·01	15·04	15·19	15·45	15·72	15·79	15·84	15·79	15·71	15·56	Normal. RICHMOND.
− 0·17	− 0·21	− 0·24	− 0·30	− 0·38	− 0·43	− 0·50	− 0·53	− 0·53	− 0·54	− 0·43	− 0·32	− 0·28	1915 Dep. ,,
													OCTOBER.
7·38	7·28	7·18	7·21	7·31	7·56	7·62	7·69	7·69	7·68	7·59	7·55	7·39	Normal. ABERDEEN.
+ 8·32	+ 8·26	+ 8·27	+ 8·22	+ 8·21	+ 8·23	+ 8·27	+ 8·30	+ 8·32	+ 8·31	+ 8·31	+ 8·26	+ 8·34	1915 Dep. ,,
85·25	85·10	84·96	84·95	85·11	85·35	85·47	85·56	85·59	85·58	85·52	85·47	85·35	[Normal.] ESKDALEMUIR.
+ 3·84	+ 3·81	+ 3·85	+ 3·86	+ 3·94	+ 3·96	+ 3·98	+ 4·00	+ 4·04	+ 4·01	+ 4·06	+ 4·02	+ 3·95	1915 Dep. ,,
10·69	10·54	10·41	10·40	10·45	10·65	10·81	10·88	10·93	10·94	10·84	10·73	10·59	Normal. CAHIRCIVEEN.
+ 1·79	+ 1·57	+ 1·53	+ 1·36	+ 1·28	+ 1·15	+ 1·04	+ 0·95	+ 1·02	+ 1·00	+ 1·01	+ 1·06	+ 1·60	1915 Dep. ,,
12·33	12·17	12·08	12·10	12·25	12·56	12·69	12·80	12·89	12·89	12·81	12·75	12·53	Normal. RICHMOND.
+ 3·61	+ 3·58	+ 3·50	+ 3·51	+ 3·49	+ 3·47	+ 3·44	+ 3·38	+ 3·41	+ 3·36	+ 3·30	+ 3·29	+ 3·66	1915 Dep. ,,
													NOVEMBER.
6·56	6·47	6·39	6·49	6·56	6·72	6·74	6·77	6·77	6·74	6·67	6·66	6·62	Normal. ABERDEEN.
+ 3·12	+ 3·14	+ 3·22	+ 3·25	+ 3·20	+ 3·23	+ 3·13	+ 3·13	+ 3·15	+ 3·11	+ 3·06	+ 2·96	+ 3·20	1915 Dep. ,,
80·21	80·11	80·06	80·17	80·31	80·53	80·61	80·69	80·71	80·70	80·64	80·62	80·41	[Normal.] ESKDALEMUIR.
+ 4·93	+ 4·88	+ 4·88	+ 4·88	+ 4·89	+ 4·86	+ 4·83	+ 4·85	+ 4·99	+ 4·97	+ 4·99	+ 4·90	+ 5·00	1915 Dep. ,,
11·09	10·88	10·70	10·79	10·89	11·11	11·25	11·33	11·37	11·37	11·35	11·35	11·11	Normal. CAHIRCIVEEN.
+ 1·67	+ 1·59	+ 1·66	+ 1·62	+ 1·61	+ 1·69	+ 1·73	+ 1·81	+ 1·93	+ 1·90	+ 1·88	+ 1·82	+ 1·99	1915 Dep. ,,
12·76	12·55	12·53	12·62	12·76	12·96	13·04	13·12	13·17	13·15	13·10	13·04	12·92	Normal RICHMOND.
+ 0·20	+ 0·24	+ 0·22	+ 0·22	+ 0·19	+ 0·14	+ 0·10	+ 0·07	+ 0·03	− 0·02	− 0·07	− 0·14	+ 0·11	1915 Dep. ,,
													DECEMBER.
4·06	4·02	4·00	4·17	4·20	4·34	4·37	4·45	4·44	4·46	4·41	4·38	4·19	Normal. ABERDEEN.
− 7·29	− 7·42	− 7·45	− 7·45	− 7·32	− 7·33	− 7·22	− 7·06	− 7·03	− 6·90	− 6·77	− 6·66	− 6·98	1915 Dep. ,,
74·66	74·50	74·51	74·66	74·67	74·78	74·83	75·00	75·10	75·25	75·36	75·48	74·97	[Normal.] ESKDALEMUIR.
− 3·81	− 3·74	− 3·67	− 3·61	− 3·43	− 3·38	− 3·26	− 3·16	− 3·15	− 3·17	− 3·09	− 3·17	− 3·46	1915 Dep. ,,
9·37	9·15	9·08	9·16	9·36	9·51	9·59	9·67	9·68	9·69	9·62	9·58	9·39	Normal. CAHIRCIVEEN.
−11·43	−11·25	−10·98	−10·81	−10·97	−10·97	−11·07	−11·25	−11·21	−11·36	−11·56	−11·70	−11·81	1915 Dep. ,,
12·40	12·24	12·29	12·41	12·50	12·63	12·76	12·88	12·91	12·94	12·94	12·84	12·62	Normal. RICHMOND.
− 9·78	− 9·76	− 9·81	− 9·74	− 9·81	− 9·84	− 9·72	− 9·61	− 9·50	− 9·40	− 9·26	− 9·02	− 9·47	1915 Dep. ,,
													YEAR.
8·42	8·35	8·26	8·28	8·29	8·44	8·54	8·68	8·73	8·75	8·69	8·63	8·44	Normal. ABERDEEN.
− 0·55	− 0·60	− 0·59	− 0·58	− 0·58	− 0·58	− 0·59	− 0·57	− 0·54	− 0·49	− 0·48	− 0·45	− 0·50	1915 Dep. ,,
83·59	83·47	83·37	83·36	83·38	83·51	83·63	83·80	83·90	83·95	83·94	83·91	83·66	[Normal.] ESKDALEMUIR.
− 0·63	− 0·62	− 0·60	− 0·60	− 0·55	− 0·55	− 0·49	− 0·46	− 0·43	− 0·43	− 0·39	− 0·39	− 0·51	1915 Dep. ,,
12·37	12·24	12·12	12·08	12·10	12·21	12·33	12·46	12·57	12·61	12·55	12·49	12·25	Normal. CAHIRCIVEEN.
− 1·58	− 1·60	− 1·55	− 1·55	− 1·55	− 1·55	− 1·53	− 1·52	− 1·43	− 1·49	− 1·54	− 1·52	− 1·59	1915 Dep. ,,
13·79	13·61	13·49	13·45	13·49	13·65	13·82	14·04	14·18	14·24	14·22	14·16	13·93	Normal. RICHMOND.
− 1·95	− 1·96	− 1·96	− 1·99	− 2·02	− 2·11	− 2·06	− 2·09	− 2·02	− 2·07	− 2·03	− 1·98	− 1·97	1915 Dep. ,,

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

TEMPERATURE (in degrees absolute).

Hour, G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.
ABERDEEN: Normal 200+	76·16	76·13	76·07	76·05	75·98	75·98	75·94	75·95	75·96	76·10	76·32	76·78	77·11
1915 Departure.	− 0·15	− 0·16	− 0·10	0·0	− 0·11	− 0·04	− 0·10	− 0·08	+ 0·11	+ 0·04	− 0·09	− 0·13	− 0·13
ESKDALEMUIR: [Normal] 200+	75·05	75·00	74·97	74·83	74·73	74·60	74·63	74·55	74·56	74·63	75·15	75·57	76·04
1915 Departure.	− 0·18	− 0·11	− 0·19	− 0·21	− 0·21	− 0·25	− 0·25	− 0·27	− 0·33	− 0·17	− 0·27	− 0·16	− 0·14
CAHIRCIVEEN: Normal 200+	79·81	79·82	79·76	79·77	79·73	79·74	79·69	79·72	79·69	79·77	79·94	80·30	80·61
1915 Departure.	− 0·33	− 0·24	− 0·28	− 0·29	− 0·24	− 0·15	− 0·27	− 0·12	− 0·28	− 0·38	− 0·50	− 0·60	− 0·70
RICHMOND: Normal 200+	76·45	76·37	76·29	76·28	76·20	76·18	76·10	76·11	76·08	76·31	76·78	77·38	77·86
1915 Departure.	+ 0·86	+ 0·87	+ 0·72	+ 0·65	+ 0·57	+ 0·57	+ 0·56	+ 0·61	+ 0·64	+ 0·59	+ 0·57	+ 0·51	+ 0·37
FEBRUARY.													
ABERDEEN: Normal 200+	76·13	76·06	75·98	75·91	75·82	75·79	75·76	75·76	75·80	76·13	76·62	77·24	77·69
1915 Departure.	− 0·05	− 0·06	− 0·03	− 0·03	− 0·05	− 0·03	+ 0·02	+ 0·13	− 0·02	+ 0·15	+ 0·11	− 0·04	− 0·26
ESKDALEMUIR: [Normal] 200+	75·39	75·30	75·18	75·12	75·02	74·93	74·95	74·85	74·95	75·36	76·04	76·70	77·26
1915 Departure.	− 1·23	− 1·17	− 1·13	− 1·17	− 1·13	− 1·01	− 0·92	− 1·00	− 1·04	− 0·90	− 0·98	− 0·92	− 0·87
CAHIRCIVEEN: Normal 200+	79·57	79·58	79·51	79·48	79·41	79·39	79·32	79·37	79·33	79·60	79·97	80·49	80·87
1915 Departure.	− 1·62	− 1·47	− 1·47	− 1·54	− 1·52	− 1·27	− 1·29	− 1·22	− 0·94	− 1·03	− 1·03	− 1·11	− 1·50
RICHMOND: Normal 200+	76·78	76·66	76·52	76·44	76·34	76·31	76·23	76·23	76·28	76·85	77·48	78·34	78·91
1915 Departure.	+ 0·21	+ 0·13	+ 0·16	+ 0·22	+ 0·06	+ 0·09	+ 0·18	+ 0·24	+ 0·25	+ 0·21	+ 0·29	+ 0·39	+ 0·38
MARCH.													
ABERDEEN: Normal 200+	76·45	76·34	76·23	76·16	76·04	75·97	75·92	76·06	76·48	77·24	77·88	78·48	78·86
1915 Departure.	− 0·03	− 0·05	+ 0·09	+ 0·24	+ 0·20	+ 0·18	+ 0·04	− 0·10	+ 0·02	+ 0·23	+ 0·31	+ 0·20	+ 0·23
ESKDALEMUIR: [Normal] 200+	75·22	75·06	75·02	74·90	74·87	74·72	74·69	74·75	75·38	76·12	76·95	77·62	78·10
1915 Departure.	− 0·75	− 0·92	− 0·84	− 0·87	− 0·90	− 1·02	− 1·18	− 1·08	− 0·57	− 0·15	− 0·03	+ 0·17	+ 0·21
CAHIRCIVEEN: Normal 200+	79·62	79·55	79·43	79·37	79·26	79·22	79·13	79·16	79·39	80·04	80·62	81·19	81·55
1915 Departure.	− 0·94	− 1·04	− 1·19	− 1·14	− 1·26	− 1·25	− 1·23	− 1·12	− 1·06	− 0·82	− 0·67	− 0·60	− 0·54
RICHMOND: Normal 200+	77·37	77·21	76·97	76·81	76·62	76·54	76·42	76·59	77·21	78·24	79·17	80·15	80·77
1915 Departure.	− 0·25	− 0·22	− 0·17	− 0·08	− 0·06	+ 0·01	+ 0·05	+ 0·16	+ 0·27	− 0·03	− 0·34	− 0·59	− 0·81
APRIL.													
ABERDEEN: Normal 200+	77·91	77·73	77·55	77·43	77·30	77·24	77·45	78·22	78·93	79·72	80·23	80·67	80·91
1915 Departure.	+ 0·19	+ 0·10	+ 0·14	+ 0·19	+ 0·15	+ 0·20	− 0·01	+ 0·33	+ 0·48	+ 0·60	+ 0·58	+ 0·58	+ 0·53
ESKDALEMUIR: [Normal] 200+	76·66	76·36	76·23	76·10	75·95	75·78	76·17	77·22	78·73	79·94	80·71	81·19	81·84
1915 Departure.	− 0·29	− 0·33	− 0·28	− 0·22	− 0·06	+ 0·01	− 0·18	+ 0·01	− 0·25	− 0·50	− 0·61	− 0·36	− 0·43
CAHIRCIVEEN: Normal 200+	80·94	80·80	80·65	80·56	80·41	80·36	80·29	80·69	81·31	82·10	82·65	83·25	83·59
1915 Departure.	+ 0·76	+ 0·63	+ 0·59	+ 0·44	+ 0·53	+ 0·76	+ 0·75	+ 0·68	+ 0·67	+ 0·48	+ 0·45	+ 0·17	+ 0·08
RICHMOND: Normal 200+	79·41	79·13	78·79	78·57	78·32	78·21	78·34	79·20	80·20	81·44	82·36	83·37	83·97
1915 Departure.	− 0·36	− 0·39	− 0·45	− 0·35	− 0·44	− 0·56	− 0·70	− 0·55	− 0·49	− 0·28	− 0·17	− 0·14	− 0·28
MAY													
ABERDEEN: Normal 200+	80·02	79·84	79·62	79·44	79·29	79·65	80·36	81·24	81·75	82·28	82·64	83·01	83·22
1915 Departure.	− 1·35	− 1·42	− 1·49	− 1·51	− 1·49	− 1·48	− 1·15	− 1·14	− 1·13	− 1·05	− 1·22	− 1·11	− 1·13
ESKDALEMUIR: [Normal] 200+	78·95	78·59	78·37	78·16	78·13	78·40	79·33	80·38	81·63	82·53	83·43	84·06	84·72
1915 Departure.	− 1·70	− 1·59	− 1·68	− 1·76	− 1·63	− 1·51	− 1·14	− 0·79	− 0·70	− 0·55	− 0·08	− 0·01	+ 0·08
CAHIRCIVEEN: Normal 200+	82·84	82·66	82·48	82·35	82·19	82·15	82·35	83·20	83·95	84·77	85·21	85·73	85·98
1915 Departure.	+ 1·22	+ 1·16	+ 1·08	+ 0·94	+ 0·94	+ 0·95	+ 0·97	+ 0·96	+ 0·95	+ 0·86	+ 1·04	+ 1·16	+ 1·18
RICHMOND: Normal 200+	82·15	81·73	81·33	81·09	80·81	81·00	81·57	82·81	83·85	85·00	85·81	86·70	87·23
1915 Departure.	+ 0·34	+ 0·29	+ 0·37	+ 0·18	+ 0·29	+ 0·31	+ 0·28	+ 0·18	+ 0·22	+ 0·46	+ 0·54	+ 0·77	+ 0·96
JUNE.													
ABERDEEN: Normal 200+	82·92	82·64	82·39	82·23	82·19	82·77	83·62	84·43	84·88	85·34	85·68	86·02	86·13
1915 Departure.	+ 0·25	+ 0·13	+ 0·05	− 0·07	− 0·08	− 0·05	− 0·07	− 0·14	− 0·20	− 0·24	0·00	− 0·36	− 0·24
ESKDALEMUIR: [Normal] 200+	81·77	81·39	81·29	81·02	81·00	81·45	82·48	83·58	84·70	85·50	86·33	86·88	87·45
1915 Departure.	− 0·95	− 0·92	− 1·03	− 0·76	− 0·86	− 0·71	− 0·60	− 0·17	− 0·04	+ 0·08	+ 0·35	+ 0·55	+ 0·59
CAHIRCIVEEN: Normal 200+	85·28	85·12	84·95	84·85	84·72	84·75	85·11	85·86	86·50	87·20	87·65	88·16	88·41
1915 Departure.	+ 0·66	+ 0·63	+ 0·65	+ 0·67	+ 0·64	+ 0·73	+ 0·84	+ 0·87	+ 0·89	+ 0·71	+ 0·74	+ 0·69	+ 0·76
RICHMOND: Normal 200+	85·44	85·02	84·62	84·31	84·05	84·51	85·13	86·18	87·14	88·26	89·03	89·95	90·49
1915 Departure.	− 0·11	− 0·16	− 0·16	− 0·18	− 0·22	− 0·36	− 0·25	− 0·11	− 0·10	+ 0·02	+ 0·27	+ 0·54	+ 0·70

The Temperature is obtained photographically from a mercurial thermometer with a large cylindrical bulb 10 cm. long, and a long stem. The column of mercury in the stem is broken at a convenient point by a small air space, which moves up or down with the rise or fall of temperature. Except at Eskdalemuir, where the screen stands in the open, the bulb is exposed in a louvred screen attached to the north wall of the observatory, and the stem is bent twice at right angles so that whilst one vertical portion containing the air speck is within the room where the photographic record is obtained, the other with the bulb itself is in the open air and at least 60 cm. from the wall. Two such thermometers are in the screen, one being used as a dry bulb and the other as a wet bulb; the screen also contains two control thermometers with bulbs of the same size.

NORMALS AND DEPARTURES THEREFROM IN 1915.

JANUARY TO JUNE.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	JANUARY.
77·38	77·43	77·33	77·05	76·80	76·62	76·54	76·40	76·34	76·27	76·23	76·16	76·46	Normal. ABERDEEN.
− 0·07	− 0·09	− 0·01	+ 0·04	+ 0·16	+ 0·21	+ 0·24	+ 0·18	+ 0·16	− 0·02	− 0·08	− 0·21	− 0·02	1915 Dep. ,,
76·20	76·33	76·18	75·83	75·51	75·42	75·26	75·21	75·04	75·13	74·98	74·92	75·22	[Normal.] ESKDALEMUIR.
− 0·11	− 0·03	− 0·03	− 0·08	− 0·06	− 0·10	− 0·20	− 0·25	− 0·34	− 0·53	− 0·45	− 0·28	− 0·20	1915 Dep. ,,
80·89	80·90	80·88	80·65	80·32	80·11	80·03	79·93	79·91	79·83	79·85	79·78	80·07	Normal. CAHIRCIVEEN.
− 0·67	− 0·68	− 0·72	− 0·54	− 0·47	− 0·40	− 0·28	− 0·36	− 0·27	− 0·34	− 0·17	− 0·23	− 0·39	1915 Dep. ,,
78·30	78·43	78·39	78·01	77·59	77·28	77·12	76·95	76·83	76·69	76·61	76·47	76·94	Normal. RICHMOND.
+ 0·33	+ 0·28	+ 0·43	+ 0·55	+ 0·75	+ 0·94	+ 0·94	+ 0·91	+ 0·88	+ 0·85	+ 0·82	+ 0·96	+ 0·66	1915 Dep. ,,
										..			
													FEBRUARY.
78·06	78·16	78·10	77·82	77·39	77·02	76·77	76·57	76·43	76·29	76·21	76·13	76·65	Normal. ABERDEEN.
− 0·51	− 0·45	− 0·44	− 0·35	− 0·32	− 0·22	− 0·14	− 0·15	− 0·09	− 0·20	− 0·20	− 0·14	− 0·14	1915 Dep. ,,
77·43	77·63	77·42	77·26	76·72	76·30	76·02	75·90	75·74	75·72	75·59	75·53	75·95	[Normal.] ESKDALEMUIR.
− 1·24	− 1·28	− 1·24	− 1·39	− 1·38	− 1·17	− 1·06	− 0·97	− 1·06	− 1·26	− 1·32	− 1·22	− 1·12	1915 Dep. ,,
81·13	81·18	81·19	81·00	80·72	80·25	80·03	79·88	79·82	79·72	79·68	79·59	80·02	Normal. CAHIRCIVEEN.
− 1·63	− 1·57	− 1·41	− 1·44	− 1·31	− 1·36	− 1·38	− 1·65	− 1·50	− 1·64	− 1·64	− 1·67	− 1·40	1915 Dep. ,,
79·37	79·55	79·59	79·28	78·83	78·22	77·81	77·50	77·32	77·12	76·96	76·78	77·54	Normal. RICHMOND.
+ 0·45	+ 0·63	+ 0·56	+ 0·45	+ 0·39	+ 0·41	+ 0·36	+ 0·26	+ 0·42	+ 0·39	+ 0·42	+ 0·23	+ 0·31	1915 Dep. ,,
													MARCH.
79·09	79·13	79·11	78·90	78·56	78·01	77·53	77·22	77·02	76·80	76·65	76·49	77·34	Normal. ABERDEEN.
+ 0·22	+ 0·33	+ 0·47	+ 0·43	+ 0·44	+ 0·45	+ 0·45	+ 0·28	+ 0·19	+ 0·25	+ 0·18	+ 0·16	+ 0·22	1915 Dep. ,,
78·34	78·54	78·46	78·12	77·66	77·03	76·43	76·09	75·76	75·56	75·34	75·26	76·28	[Normal.] ESKDALEMUIR.
+ 0·15	+ 0·16	+ 0·34	+ 0·27	+ 0·08	+ 0·05	+ 0·03	− 0·06	− 0·32	− 0·51	− 0·74	− 0·59	− 0·35	1915 Dep. ,,
81·90	81·95	82·00	81·84	81·57	81·10	80·60	80·26	80·10	79·91	79·81	79·63	80·36	Normal. CAHIRCIVEEN.
− 0·53	− 0·56	− 0·40	− 0·36	− 0·37	− 0·32	− 0·40	− 0·59	− 0·70	− 0·72	− 0·83	− 1·02	− 0·78	1915 Dep. ,,
81·32	81·51	81·68	81·44	81·01	80·17	79·45	78·87	78·47	78·04	77·72	77·42	78·74	Normal. RICHMOND.
− 0·81	− 0·93	− 0·74	− 0·64	− 0·40	− 0·19	− 0·14	− 0·35	− 0·34	− 0·39	− 0·42	− 0·46	− 0·31	1915 Dep. ,,
													APRIL.
81·09	81·07	81·02	80·75	80·49	80·11	79·58	79·06	78·77	78·46	78·19	77·97	79·16	Normal. ABERDEEN.
+ 0·69	+ 0·83	+ 0·63	+ 0·50	+ 0·45	+ 0·57	+ 0·50	+ 0·48	+ 0·39	+ 0·27	+ 0·22	+ 0·13	+ 0·40	1915 Dep. ,,
82·05	82·30	82·25	82·00	81·52	80·73	79·46	78·52	77·83	77·40	76·96	76·66	78·91	[Normal.] ESKDALEMUIR.
− 0·34	− 0·41	− 0·43	− 0·46	− 0·56	− 0·47	− 0·54	− 0·37	− 0·31	− 0·24	− 0·34	− 0·19	− 0·33	1915 Dep. ,,
83·89	83·95	84·00	83·85	83·63	83·14	82·51	81·93	81·61	81·34	81·17	80·99	82·03	Normal. CAHIRCIVEEN.
+ 0·32	+ 0·04	+ 0·09	0·00	+ 0·03	+ 0·10	+ 0·31	+ 0·46	+ 0·63	+ 0·71	+ 0·89	+ 0·94	+ 0·44	1915 Dep. ,,
84·53	84·80	84·92	84·71	84·32	83·59	82·47	81·56	80·93	80·32	79·92	79·48	81·39	Normal. RICHMOND.
− 0·25	− 0·26	− 0·33	− 0·15	+ 0·10	+ 0·08	+ 0·24	+ 0·17	+ 0·28	+ 0·16	+ 0·01	− 0·07	− 0·20	1915 Dep. ,,
													MAY.
83·39	83·35	83·31	83·09	82·95	82·59	82·19	81·59	81·12	80·73	80·38	80·12	81·54	Normal. ABERDEEN.
− 1·13	− 1·16	− 1·14	− 1·06	− 1·01	− 0·91	− 0·85	− 1·01	− 1·07	− 1·17	− 1·22	− 1·32	− 1·18	1915 Dep. ,,
84·93	85·19	85·02	84·89	84·37	83·74	82·70	81·46	80·40	79·81	79·32	79·08	81·61	[Normal.] ESKDALEMUIR.
+ 0·04	+ 0·08	+ 0·07	+ 0·03	− 0·38	− 0·55	− 0·73	− 1·14	− 1·71	− 1·63	− 1·70	− 1·85	− 0·87	1915 Dep. ,,
86·22	86·30	86·39	86·27	86·15	85·65	85·09	84·37	83·80	83·44	83·18	82·91	84·28	Normal. CAHIRCIVEEN.
+ 1·13	+ 0·89	+ 0·97	+ 1·05	+ 1·16	+ 1·02	+ 1·14	+ 1·11	+ 1·22	+ 1·09	+ 1·17	+ 1·14	+ 1·06	1915 Dep. ,,
87·80	88·02	88·28	88·16	87·92	87·33	86·37	85·09	84·16	83·41	82·77	82·25	84·60	Normal. RICHMOND.
+ 1·12	+ 1·24	+ 1·14	+ 1·21	+ 1·16	+ 0·96	+ 0·82	+ 0·51	+ 0·54	+ 0·45	+ 0·34	+ 0·09	+ 0·61	1915 Dep. ,,
													JUNE.
86·32	86·27	86·22	86·03	85·96	85·61	85·23	84·70	84·11	83·70	83·35	83·02	84·53	Normal. ABERDEEN.
− 0·47	− 0·38	− 0·48	− 0·39	− 0·08	− 0·09	− 0·18	+ 0·16	+ 0·38	+ 0·39	+ 0·23	+ 0·19	− 0·08	1915 Dep. ,,
87·64	87·89	87·91	87·64	87·27	86·74	85·87	84·76	83·54	82·86	82·27	81·88	84·55	[Normal.] ESKDALEMUIR.
+ 0·67	+ 0·49	+ 0·65	+ 0·51	+ 0·58	+ 0·54	+ 0·17	− 0·10	− 0·38	− 0·62	− 0·77	− 0·87	− 0·11	1915 Dep. ,,
88·68	88·75	88·82	88·75	88·65	88·06	87·58	86·98	86·25	85·87	85·63	85·37	86·78	Normal. CAHIRCIVEEN.
+ 0·79	+ 0·84	+ 0·81	+ 0·76	+ 0·52	+ 0·62	+ 0·50	+ 0·64	+ 0·80	+ 0·75	+ 0·70	+ 0·64	+ 0·71	1915 Dep. ,,
91·14	91·39	91·68	91·54	91·35	90·83	90·02	88·71	87·55	86·74	86·11	85·55	87·97	Normal. RICHMOND.
+ 1·01	+ 0·76	+ 0·74	+ 0·96	+ 1·16	+ 1·01	+ 0·58	+ 0·27	+ 0·16	+ 0·05	+ 0·06	+ 0·01	+ 0·28	1915 Dep. ,,

The heights of the thermometers above the ground are :—

At Aberdeen	12·5 metres.
,, Eskdalemuir	0·9 ,,
,, Cahirciveen (Valencia Observatory)	1·3 ,,
,, Richmond (Kew Observatory)	3·0 ,,

The normals for temperature are for the 45 years, 1871–1915 (Eskdalemuir, 1911–1915 only).
The values for 1915 are given by the departure from the normal ; + indicates excess, − defect.
Temperature values are measured at each exact hour G.M.T.

Mean values are calculated by the formula $\frac{1}{24}\left\{(1+\ldots 23)+\frac{1}{2}(0+24)\right\}$

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

TEMPERATURE (in degrees absolute).

Hour, G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.
ABERDEEN: Normal 200+	84·88	84·66	84·45	84·25	84·12	84·52	85·18	86·03	86·58	87·10	87·46	87·83	87·99
1915 Departure.	− 0·35	− 0·49	− 0·56	− 0·60	− 0·61	− 0·47	− 0·32	− 0·28	− 0·26	− 0·30	− 0·32	− 0·58	− 0·41
ESKDALEMUIR: [Normal] 200+	83·60	83·27	83·05	82·90	82·83	83·07	84·00	85·09	86·12	86·84	87·62	88·09	88·62
1915 Departure.	− 1·72	− 1·70	− 1·54	− 1·65	− 1·53	− 1·49	− 1·36	− 1·01	− 0·95	− 0·94	− 1·09	− 1·32	− 1·22
CAHIRCIVEEN: Normal 200+	86·66	86·52	86·37	86·29	86·18	86·18	86·40	87·04	87·59	88·29	88·73	89·17	89·42
1915 Departure	− 0·53	− 0·47	− 0·36	− 0·17	− 0·15	0·00	− 0·07	− 0·15	− 0·28	− 0·62	− 0·85	− 0·83	− 0·79
RICHMOND: Normal 200+	87·46	87·07	86·66	86·35	86·08	86·29	86·94	88·01	89·00	90·11	90·93	91·81	92·32
1915 Departure	− 0·69	− 0·62	− 0·61	− 0·59	− 0·58	− 0·48	− 0·53	− 0·69	− 0·83	− 0·89	− 0·85	− 0·91	− 0·97
AUGUST.													
ABERDEEN: Normal 200+	84·85	84·64	84·42	84·24	84·07	84·06	84·52	85·41	86·14	86·86	87·28	87·72	87·96
1915 Departure.	+ 0·70	+ 0·69	+ 0·89	+ 0·91	+ 1·06	+ 1·04	+ 0·76	+ 0·50	+ 0·38	+ 0·21	+ 0·20	− 0·02	+ 0·10
ESKDALEMUIR: [Normal] 200+	83·46	83·17	83·03	82·78	82·63	82·57	83·09	84·00	85·31	86·43	87·19	87·70	88·21
1915 Departure.	+ 0·43	+ 0·48	+ 0·48	+ 0·54	+ 0·54	+ 0·52	+ 0·50	+ 0·48	+ 0·33	+ 0·47	+ 0·18	+ 0·17	− 0·10
CAHIRCIVEEN: Normal 200+	86·93	86·82	86·66	86·61	86·51	86·46	86·46	86·95	87·55	88·28	88·77	89·29	89·56
1915 Departure.	+ 0·06	− 0·01	− 0·03	+ 0·05	+ 0·08	− 0·17	− 0·18	− 0·21	− 0·15	− 0·11	+ 0·02	+ 0·08	+ 0·03
RICHMOND: Normal 200+	87·15	86·79	86·41	86·17	85·94	85·86	86·16	87·21	88·30	89·58	90·45	91·41	91·99
1915 Departure.	+ 0·11	+ 0·20	+ 0·33	+ 0·36	+ 0·35	+ 0·37	+ 0·37	+ 0·16	+ 0·07	− 0·09	+ 0·03	− 0·26	− 0·35
SEPTEMBER.													
ABERDEEN: Normal 200+	83·21	83·02	82·81	82·69	82·55	82·45	82·44	83·03	83·87	84·86	85·51	86·05	86·31
1915 Departure.	+ 0·78	+ 0·76	+ 0·81	+ 0·77	+ 0·88	+ 0·86	+ 0·75	+ 0·72	+ 0·62	+ 0·41	+ 0·39	+ 0·30	+ 0·38
ESKDALEMUIR: [Normal] 200+	81·23	80·90	80·67	80·53	80·48	80·27	80·30	80·93	82·42	83·75	84·90	85·40	86·03
1915 Departure.	− 0·32	− 0·08	+ 0·11	+ 0·11	+ 0·14	+ 0·17	+ 0·27	+ 0·32	+ 0·36	+ 0·66	+ 0·65	+ 0·60	+ 0·48
CAHIRCIVEEN: Normal 200+	85·72	85·63	85·51	85·45	85·32	85·29	85·21	85·35	85·89	86·63	87·24	87·86	88·18
1915 Departure.	+ 0·96	+ 0·95	+ 0·93	+ 0·92	+ 1·19	+ 1·23	+ 1·20	+ 1·32	+ 1·27	+ 1·32	+ 1·40	+ 1·33	+ 1·20
RICHMOND: Normal 200+	84·92	84·66	84·35	84·15	83·94	83·83	83·77	84·38	85·38	86·76	87·82	88·92	89·53
1915 Departure.	− 0·03	− 0·15	− 0·16	− 0·20	− 0·15	− 0·16	− 0·20	− 0·20	+ 0·06	+ 0·20	+ 0·42	+ 0·65	+ 0·77
OCTOBER.													
ABERDEEN: Normal 200+	80·65	80·53	80·41	80·33	80·25	80·20	80·14	80·18	80·54	81·27	81·99	82·60	82·98
1915 Departure.	+ 0·23	+ 0·28	+ 0·22	+ 0·16	+ 0·21	+ 0·16	+ 0·07	+ 0·09	+ 0·09	+ 0·07	+ 0·11	+ 0·45	+ 0·34
ESKDALEMUIR: [Normal] 900+	79·16	79·02	79·03	78·95	78·90	78·72	78·73	78·75	79·43	80·44	81·49	82·08	82·60
1915 Departure.	− 0·94	− 0·84	− 0·72	− 0·64	− 0·76	− 0·76	− 0·89	− 0·67	− 0·61	− 0·30	− 0·30	− 0·11	+ 0·24
CAHIRCIVEEN: Normal 200+	83·28	83·23	83·12	83·10	83·04	83·04	82·97	82·96	83·09	83·71	84·22	84·83	85·10
1915 Departure.	+ 0·63	+ 0·48	+ 0·39	+ 0·61	+ 0·49	+ 0·57	+ 0·69	+ 0·69	+ 0·60	+ 0·72	+ 0·85	+ 0·90	+ 1·03
RICHMOND: Normal 200+	81·57	81·43	81·23	81·14	81·01	80·94	80·84	80·95	81·44	82·50	83·54	84·53	85·10
1915 Departure.	− 0·51	− 0·37	− 0·31	− 0·25	− 0·14	− 0·11	0·00	+ 0·15	+ 0·08	− 0·01	− 0·06	− 0·15	− 0·22
NOVEMBER.													
ABERDEEN: Normal 200+	78·29	78·22	78·17	78·11	78·05	78·03	78·00	78·05	78·11	78·41	78·83	79·35	79·75
1915 Departure.	− 2·18	− 2·21	− 2·21	− 2·16	− 2·16	− 2·09	− 2·05	− 2·05	− 2·16	− 2·14	− 2 24	− 2·15	− 2·34
ESKDALEMUIR: [Normal] 200+	76·29	76·26	76·28	76·21	76·21	76·15	76·26	76·13	76·25	76·64	77·48	78·05	78·58
1915 Departure.	− 3·88*	− 4·09	− 3·98*	− 4·11*	− 4·16*	− 4·09*	− 3·77*	− 4·18	− 3·78	− 3·31	− 2·95*	− 2·68*	− 2·50*
CAHIRCIVEEN: Normal 200+	81·27	81·30	81·20	81·19	81·12	81·11	81·07	81·07	81·02	81·26	81·66	82·18	82·45
1915 Departure.	− 1·96	− 2·00	− 2·08	− 2·15	− 2·33	− 2·37	− 2·35	− 2·30	− 2·39	− 2·42	− 2·18	− 2·12	− 2·05
RICHMOND: Normal 200+	78·90	78·82	78·70	78·66	78·57	78·54	78·42	78·42	78·52	79·05	79·77	80·56	81·09
1915 Departure.	− 2·71	− 2·88	− 2·91	− 3·01	− 3·05	− 2·98	− 2·90	− 2·90	− 2·88	− 2·96	− 2·75	− 2·48	− 2·44
DECEMBER.													
ABERDEEN: Normal 200+	76·52	76·47	76·45	76·42	76·38	76·40	76·37	76·38	76·36	76·46	76·68	77·05	77·32
1815 Departure.	− 0·38	− 0·30	− 0·36	− 0·30	− 0·27	− 0·51	− 0·51	− 0·63	− 0·57	− 0·59	− 0·53	− 0·36	− 0·49
ESKDALEMUIR: [Normal] 200+	75·88	75·81	75·82	75·76	75·74	75·65	75·72	75·63	75·73	75·75	76·15	76·52	76·92
1915 Departure.	− 0·87	− 0·78	− 0·73	− 0·73	− 0·68	− 0·78	− 0·88	− 0·83	− 0·93	− 0·78	− 0·80	− 0·79	− 0·77
CAHIRCIVEEN: Normal 200+	80·31	80·35	80·29	80·28	80·21	80·21	80·13	80·14	80·11	80·18	80·35	80·80	81·05
1915 Departure.	− 0·14	− 0·09	+ 0·15	+ 0·06	+ 0·11	0·00	− 0·02	− 0·05	− 0·06	+ 0·17	− 0·01	− 0·32	− 0·20
RICHMOND: Normal 200+	77·18	77·13	77·01	76·98	76·90	76·91	76·86	76·90	76·88	77·17	77·55	78·17	78·60
1915 Departure.	+ 2·21	+ 2·12	+ 2·01	+ 1·99	+ 2·01	+ 1·97	+ 1·91	+ 1·88	+ 1·93	+ 1·98	+ 2·11	+ 2·12	+ 2·24
YEAR.													
ABERDEEN: Normal 200+	79·83	79·69	79·55	79·44	79·34	79·42	79·64	80·06	80·45	80·98	81·43	81·90	82·19
1915 Departure.	− 0·19	− 0·23	− 0·22	− 0·20	− 0·19	− 0·18	− 0·21	− 0·22	− 0·22	− 0·22	− 0·23	− 0·27	− 0·29
ESKDALEMUIR: [Normal] 200+	78·56	78·34	78·25	78·11	78·04	78·03	78·36	78·82	79·60	80·33	81·12	81·66	82·20
1915 Departure.	− 1·04	− 1·00	− 0·97	− 0·96	− 0·94	− 0·91	− 0·86	− 0·76	− 0·71	− 0·53	− 0·49	− 0·41	− 0·37
CAHIRCIVEEN: Normal 200+	82·69	82·62	82·49	82·44	82·34	82·33	82·35	82·63	82·87	83·49	83·92	84·44	84·75
1915 Departure.	− 0·11	− 0·13	− 0·13	− 0·13	− 0·12	− 0·09	− 0·09	− 0·06	+ 0·02	− 0 11	− 0·06	− 0·11	− 0·14
RICHMOND: Normal 200+	81·23	81·00	80·74	80·58	80·40	80·43	80·57	81·08	81·69	82·61	83·39	84·27	84·82
1915 Departure.	− 0·08	− 0·10	− 0·10	− 0·11	− 0·11	− 0·11	− 0·11	− 0·09	− 0·06	− 0·07	+ 0·01	+ 0·04	+ 0·03

* 20 observations only.

NORMALS AND DEPARTURES THEREFROM IN 1915.

JULY TO DECEMBER AND YEAR.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
													JULY.
a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	a.	
88·18	88·16	88·14	87·90	87·79	87·44	87·06	86·48	85·94	85·50	85·15	84·89	86·37	Normal. ABERDEEN.
− 0·62	− 0·69	− 0·63	− 0·55	− 0·70	− 0·74	− 0·59	− 0·30	− 0·33	− 0·27	− 0·32	− 0·41	− 0·47	1915 Dep. ,,
88·81	89·17	89·08	88·95	88·54	88·06	87·23	86·20	85·13	84·44	83·94	83·63	86·03	[Normal.] ESKDALEMUIR.
− 1·57	− 1·65	− 1·68	− 1·55	− 1·69	− 1·34	− 1·38	− 1·43	− 1·57	− 1·49	− 1·58	− 1·74	− 1·44	1915 Dep. ,,
89·70	89·74	89·84	89·74	89·65	89·10	88·65	88·01	87·37	87·05	86·88	86·68	87·94	Normal. CAHIRCIVEEN.
− 0·84	− 0·83	− 0·68	− 0·51	− 0·46	− 0·59	− 0·61	− 0·66	− 0·49	− 0·35	− 0·51	− 0·49	− 0·49	1915 Dep. ,,
92·99	93·30	93·58	93·47	93·31	92·76	91·99	90·57	89·50	88·72	88·07	87·47	89·89	Normal. RICHMOND.
− 1·22	− 1·49	− 1·28	− 1·47	− 1·46	− 1·31	− 1·19	− 1·08	− 0·78	− 0·74	− 0·75	− 0·63	− 0·92	1915 Dep. ,,
													AUGUST.
88·17	88·16	88·11	87·88	87·61	87·22	86·73	86·09	85·66	85·29	85·06	84·81	86·17	Normal. ABERDEEN.
− 0·02	− 0·07	− 0·15	− 0·12	− 0·17	− 0·06	− 0·01	+ 0·18	+ 0·27	+ 0·53	+ 0·60	+ 0·78	+ 0·35	1915 Dep. ,,
88·43	88·68	88·61	88·51	88·08	87·40	86·26	85·28	84·51	84·07	83·71	83·43	85·55	[Normal.] ESKDALEMUIR.
− 0·11	− 0·34	− 0·05	− 0·02	− 0·07	− 0·30	− 0·19	− 0·04	+ 0·07	+ 0·12	+ 0·11	+ 0·39	+ 0·17	1915 Dep. ,,
89·87	89·92	89·95	89·76	89·57	89·06	88·58	87·86	87·42	87·18	87·07	86·91	88·05	Normal. CAHIRCIVEEN.
− 0·04	+ 0·04	+ 0·09	+ 0·43	+ 0·28	+ 0·21	+ 0·17	+ 0·22	+ 0·28	+ 0·19	+ 0·03	+ 0·01	+ 0·05	1915 Dep. ,,
92·60	92·85	93·06	92·89	92·61	91·91	90·80	89·58	88·79	88·12	87·58	87·11	89·34	Normal. RICHMOND.
− 0·62	− 0·45	− 0·61	− 0·44	− 0·31	− 0·30	− 0·23	− 0·20	− 0·02	− 0·01	+ 0·01	+ 0·05	− 0·06	1915 Dep. ,,
													SEPTEMBER.
86·53	86·54	86·43	86·15	85·79	85·20	84·65	84·18	83·89	83·62	83·40	83·18	84·38	Normal. ABERDEEN.
+ 0·16	+ 0·13	− 0·03	− 0·12	− 0·08	+ 0·07	+ 0·22	+ 0·37	+ 0·46	+ 0·51	+ 0·48	+ 0·61	+ 0·44	1915 Dep. ,,
86·31	86·60	86·48	86·19	85·50	84·38	83·21	82·64	82·05	81·73	81·36	81·09	83·09	[Normal.] ESKDALEMUIR.
+ 0·50	+ 0·46	+ 0·61	+ 0·42	+ 0·29	+ 0·20	+ 0·20	+ 0·09	− 0·06	− 0·20	− 0·38	− 0·46	+ 0·23	1915 Dep. ,,
88·50	88·50	88·51	88·24	87·94	87·36	86·76	86·33	86·16	85·96	85·86	85·68	86·64	Normal. CAHIRCIVEEN.
+ 1·15	+ 1·09	+ 1·21	+ 1·32	+ 1·27	+ 1·24	+ 1·07	+ 1·17	+ 1·18	+ 1·07	+ 0·99	+ 0·86	+ 1·16	1915 Dep. ,,
90·13	90·35	90·46	90·18	89·68	88·59	87·42	86·66	86·11	85·62	85·19	84·84	86·78	Normal. RICHMOND.
+ 0·63	+ 0·69	+ 0·46	+ 0·37	+ 0·28	+ 0·19	+ 0·21	+ 0·28	+ 0·20	− 0·05	− 0·10	− 0·21	+ 0·17	1915 Dep. ,,
													OCTOBER.
83·22	83·25	83·11	82·72	82·22	81·75	81·39	81·15	80·99	80·80	80·69	80·54	81·39	Normal. ABERDEEN.
+ 0·28	+ 0·29	+ 0·25	+ 0·36	+ 0·52	+ 0·61	+ 0·76	+ 0·78	+ 0·67	+ 0·57	+ 0·51	+ 0·41	+ 0·34	1915 Dep. ,,
82·88	83·05	82·77	82·32	81·28	80·41	79·92	79·64	79·29	79·29	79·12	79·08	80·30	[Normal.] ESKDALEMUIR.
+ 0·22	+ 0·19	+ 0·08	− 0·10	− 0·28	− 0·40	− 0·42	− 0·53	+ 0·62	− 0·53	− 0·67	− 0·74	− 0·43	1915 Dep. ,,
85·32	85·34	85·29	85·04	84·66	84·11	83·87	83·67	83·56	83·38	83·30	83·18	83·88	Normal. CAHIRCIVEEN.
+ 0·93	+ 0·99	+ 0·96	+ 0·90	+ 0·93	+ 0·90	+ 0·93	+ 0·81	+ 0·88	+ 0·84	+ 0·82	+ 0·73	+ 0·78	1915 Dep. ,,
85·60	85·72	85·63	85·16	84·41	83·60	83·05	82·60	82·31	82·00	81·76	81·48	82·83	Normal. RICHMOND.
− 0·12	− 0·08	− 0·07	− 0·19	− 0·15	− 0·27	− 0·24	− 0·35	− 0·39	− 0·46	− 0·47	− 0·26	− 0·19	1915 Dep. ,,
													NOVEMBER.
79·97	79·97	79·78	79·38	79·04	78·84	78·71	78·58	78·52	78·41	78·32	78·20	78·70	Normal. ABERDEEN.
− 2·23	− 2·29	− 2·21	− 2·27	− 2·21	− 2·28	− 2·21	− 2·25	− 2·31	− 2·27	− 2·22	− 2·16	− 2·20	1915 Dep. ,,
78·71	78·67	78·31	77·79	77·23	77·03	76·82	76·66	76·44	76·41	76·20	76·23	76·96	[Normal.] ESKDALEMUIR.
− 2·50	− 2·57	− 2·66	− 2·86	− 3·14	− 3·27	− 3·24	− 3·33	− 3·47	− 3·53*	− 3·78*	− 3·87*	− 3·41	1915 Dep. ,,
82·71	82·73	82·65	82·33	81·98	81·74	81·63	81·48	81·42	81·32	81·29	81·21	81·63	Normal. CAHIRCIVEEN.
− 2·01	− 1·83	− 1·72	− 1·72	− 1·77	− 1·95	− 1·84	− 1·75	− 1·79	− 1·84	− 1·82	− 1·92	− 2·03	1915 Dep. ,,
81·49	81·56	81·40	80·93	80·40	80·01	79·77	79·47	79·29	79·09	78·97	78·80	79·60	Normal. RICHMOND.
− 2·34	− 2·34	− 2·31	− 2·34	− 2·21	− 2·12	− 2·08	− 2·03	− 2·03	− 2·25	− 2·52	− 2·75	− 2·56	1915 Dep. ,,
													DECEMBER.
77·54	77·52	77·34	77·10	76·96	76·84	76·78	76·69	76·68	76·61	76·58	76·50	76·75	Normal. ABERDEEN.
− 0·60	− 0·65	− 0·49	− 0·47	− 0·54	− 0·38	− 0·35	− 0·35	− 0·35	− 0·26	− 0·28	− 0·26	− 0·44	1915 Dep. ,,
77·08	77·11	76·83	76·55	76·37	76·33	76·19	76·13	76·12	76·03	75·92	75·90	76·16	[Normal.] ESKDALEMUIR.
− 0·79	− 0·79	− 0·83	− 0·77	− 0·83	− 0·73	− 0·69	− 0·77	− 0·97	− 0·98	− 0·99	− 0·77	− 0·81	1915 Dep. ,,
81·27	81·30	81·22	81·01	80·77	80·59	80·55	80·44	80·44	80·36	80·37	80·31	80·53	Normal. CAHIRCIVEEN.
− 0·18	− 0·24	− 0·25	− 0·36	− 0·29	− 0·25	− 0·37	− 0·49	− 0·49	− 0·31	− 0·07	− 0·03	− 0·15	1915 Dep. ,,
78·95	79·01	78·89	78·45	78·14	77·88	77·72	77·56	77·46	77·35	77·27	77·16	77·62	Normal. RICHMOND.
+ 2·13	+ 2·05	+ 2·11	+ 2·12	+ 2·20	+ 2·32	+ 2·46	+ 2·59	+ 2·60	+ 2·60	+ 2·55	+ 2·37	+ 2·18	1915 Dep. ,,
													YEAR.
82·41	82·42	82·33	82·06	81·80	81·44	81·10	80·73	80·46	80·21	80·02	79·83	80·79	Normal. ABERDEEN.
− 0·36	− 0·35	− 0·35	− 0·33	− 0·30	− 0·23	− 0·18	− 0·14	− 0·14	− 0·14	− 0·18	− 0·18	− 0·23	1915 Dep. ,,
82·40	82·60	82·41	82·17	81·67	81·13	80·45	79·86	79·32	79·04	78·73	78·56	80·05	[Normal.] ESKDALEMUIR.
− 0·42	− 0·48	− 0·40	− 0·50	− 0·62	− 0·63	− 0·67	− 0·73	− 0·89	− 0·95	− 1·05	− 1·02	− 0·72	1915 Dep. ,,
85·00	85·05	85·06	84·89	84·63	84·19	83·66	83·43	83·16	82·97	82·82	82·69	83·51	Normal. CAHIRCIVEEN.
− 0·32	− 0·15	− 0·08	− 0·06	− 0·04	+ 0·03	+ 0·10	− 0·09	− 0·03	− 0·07	− 0·02	− 0·09	− 0·08	1915 Dep. ,,
85·35	85·54	85·63	85·35	84·96	84·36	83·67	82·93	82·39	81·94	81·58	81·32	82·77	Normal. RICHMOND.
+ 0·03	+ 0·01	+ 0·01	+ 0·04	+ 0·13	+ 0·13	+ 0·14	+ 0·08	+ 0·13	+ 0·04	0·00	− 0·14	0·00	1915 Dep. ,,

* 29 observations only.

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

RELATIVE HUMIDITY

Hours, G.M.T.		0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.		%	%	%	%	%	%	%	%	%	%	%	%	%
ABERDEEN :	Normal.	81·1	81·1	81·2	81·4	81·5	81·7	81·8	81·8	81·8	81·8	81·1	79·9	78·7
	1915 Departure.	+ 5·0	+ 4·0	+ 4·0	+ 5·0	+ 3·0	+ 5·0	+ 3·0	+ 2·0	+ 2·0	+ 4·0	+ 5·0	+ 5·0	+ 3·0
ESKDALEMUIR :	[Normal].	87·3	87·3	87·8	88·4	87·9	87·9	88·2	89·0	88·6	88·6	86·0	86·4	85·4
	1915 Departure.	+ 0·6	+ 0·6	+ 0·5	+ 0·5	+ 0·2	+ 0·2	− 0·2	+ 1·1	− 0·1	− 0·3	− 2·2	− 2·3	− 1·0
CAHIRCIVEEN :	Normal.	86·8	86·6	87·1	86·9	87·2	87·0	87·1	87·1	87·1	86·8	86·8	86·0	85·3
	1915 Departure.	− 2·0	− 3·0	− 2·8	− 2·9	− 2·9	− 2·6	− 1·7	− 3·8	− 2·3	− 1·8	− 1·8	− 2·5	− 2·2
RICHMOND :	Normal.	86·4	86·2	86·6	86·4	86·5	86·2	86·8	86·7	86·7	86·1	85·4	82·8	81·5
	1915 Departure.	− 4·1	− 3·7	− 3·5	− 3·7	− 3·1	− 2·6	− 2·6	− 2·6	− 2·4	− 2·5	− 3·2	− 3·4	− 2·8
FEBRUARY.														
ABERDEEN :	Normal.	80·8	81·1	81·1	81·4	81·5	81·5	81·6	81·6	81·4	80·7	79·3	77·8	76·2
	1915 Departure.	+ 2·0	+ 3·0	+ 3·0	+ 3·0	+ 2·0	+ 2·0	+ 2·0	+ 3·0	+ 4·0	+ 3·0	+ 3·0	+ 3·0	+ 4·0
ESKDALEMUIR :	[Normal].	86·8	87·3	86·9	87·6	87·1	87·7	86·4	86·7	87·1	88·1	84·7	84·4	83·4
	1915 Departure.	+ 0·4	− 0·9	− 1·5	− 1·7	− 0·5	+ 0·1	+ 0·2	+ 0·1	+ 1·2	− 0·7	+ 0·1	− 2·6	− 1·1
CAHIRCIVEEN :	Normal.	87·2	87·1	87·3	87·5	87·5	87·5	87·7	87·1	87·5	87·1	86·4	84·7	82·8
	1915 Departure.	+ 1·4	+ 1·3	+ 1·8	+ 1·3	+ 1·7	+ 0·1	+ 0·9	+ 0·7	− 0·8	− 0·3	− 0·2	+ 1·2	+ 3·4
RICHMOND :	Normal.	84·9	84·7	85·2	85·1	85·6	85·3	85·8	85·4	85·5	83·9	82·1	78·5	76·4
	1915 Departure.	+ 0·5	+ 1·1	+ 1·6	+ 1·4	+ 1·2	+ 2·0	+ 2·0	+ 3·0	+ 1·8	+ 2·7	+ 2·0	+ 2·0	+ 2·5
MARCH.														
ABERDEEN :	Normal.	81·4	82·2	82·2	82·5	82·7	83·0	83·0	82·9	81·2	79·1	76·4	74·8	73·0
	1915 Departure.	− 1·0	− 2·0	− 2·0	− 3·0	− 1·0	− 1·0	− 2·0	− 2·0	0·0	− 2·0	− 2·0	− 3·0	− 2·0
ESKDALEMUIR :	[Normal].	86·1	87·0	87·0	88·2	87·3	87·8	87·5	87·9	87·0	85·6	81·6	80·5	79·0
	1915 Departure.	− 3·2	− 1·1	− 1·6	+ 0·4	− 0·3	− 0·3	+ 1·4	+ 0·9	− 0·4	− 2·7	− 2·0	− 3·5	− 2·2
CAHIRCIVEEN :	Normal.*	86·5	86·6	86·8	87·0	87·2	87·1	87·2	87·3	86·8	85·1	83·1	80·8	79·3
	1915 Departure.	+ 0·5	+ 0·4	+ 0·4	+ 0·1	− 0·4	− 0·8	− 1·1	− 2·0	− 1·3	− 0·7	− 1·2	− 1·5	− 0·8
RICHMOND :	Normal.	85·3	85·4	86·6	86·5	87·1	86·8	87·2	86·4	84·9	81·2	77·9	73·4	71·2
	1915 Departure.	+ 1·0	+ 0·6	+ 0·6	+ 0·7	0·0	+ 0·1	− 0·2	0·0	− 1·0	− 0·7	− 1·5	− 1·3	+ 0·4
APRIL.														
ABERDEEN :	Normal.	82·6	83·3	83·7	84·0	84·3	84·4	83·7	82·0	79·1	76·0	73·4	72·0	70·9
	1915 Departure.	− 3·0	− 2·0	− 3·0	− 3·0	− 3·0	− 2·0	− 2·0	− 1·0	− 3·0	− 3·0	− 3·0	− 4·0	− 4·0
ESKDALEMUIR :	[Normal].	86·3	86·6	86·2	86·9	87·1	87·7	86·9	85·4	81·5	77·7	74·1	71·6	69·1
	1915 Departure.	+ 1·6	+ 1·8	+ 1·2	+ 1·8	+ 1·2	+ 1·3	+ 1·0	0·0	− 0·1	+ 0·9	+ 2·8	0·0	+ 1·7
CAHIRCIVEEN :	Normal.	85·8	86·2	86·7	86·6	86·9	86·9	87·0	86·5	84·1	81·9	79·6	77·2	76·3
	1915 Departure.	− 1·1	− 0·4	− 0·4	+ 0·1	0·0	− 1·1	− 0·8	0·0	+ 0·9	+ 1·8	+ 2·2	+ 4·1	+ 3·0
RICHMOND :	Normal.	83·4	84·2	85·5	86·0	86·9	86·7	86·7	83·6	79·9	74·9	70·2	66·3	63·5
	1915 Departure.	− 1·3	− 1·2	− 0·4	− 0·9	− 0·9	− 1·0	− 0·9	− 1·7	− 0·1	− 1·8	− 2·1	− 2·9	− 0·3
MAY.														
ABERDEEN :	Normal.	84·3	84·9	85·3	85·8	86·1	85·5	83·5	80·2	77·6	75·4	74·0	72·8	71·9
	1915 Departure.	− 2·0	− 1·0	− 1·0	− 2·0	− 2·0	− 2·0	− 2·0	0·0	− 1·0	− 3·0	− 3·0	− 3·0	− 3·0
ESKDALEMUIR :	[Normal].	87·5	88·0	88·0	88·7	88·9	88·7	87·2	84·7	79·8	76·4	73·1	70·7	68·8
	1915 Departure.	− 2·4	− 1·8	− 1·2	− 0·1	− 0·8	− 2·2	− 2·0	− 4·0	− 3·7	− 3·5	− 5·2	− 5·9	− 7·4
CAHIRCIVEEN :	Normal.	86·7	87·1	87·2	87·4	87·8	87·9	87·5	85·6	82·2	79·2	77·3	75·6	74·7
	1915 Departure.	− 3·7	− 4·4	− 4·2	− 4·1	− 4·3	− 4·9	− 4·3	− 3·7	− 3·1	− 2·1	− 1·8	− 1·5	− 2·2
RICHMOND :	Normal.†	83·2	84·6	86·2	86·8	87·5	86·7	85·2	81·0	76·2	71·3	68·0	65·0	62·7
	1915 Departure.	− 3·5	− 3·0	− 3·9	− 2·0	− 2·0	− 2·3	− 2·3	− 2·0	− 0·7	− 0·5	+ 0·3	− 0·6	− 1·3
JUNE.														
ABERDEEN :	Normal.	84·3	85·0	85·9	86·1	86·4	86·1	82·0	78·7	76·2	74·6	73·3	72·2	71·8
	1915 Departure.	− 3·0	− 3·0	− 3·0	− 3·0	− 3·0	− 3·0	− 2·0	− 2·0	0·0	− 2·0	− 2·0	− 1·0	− 1·0
ESKDALEMUIR :	[Normal].	88·7	89·1	89·5	89·9	90·0	89·6	87·6	84·3	80·0	76·9	74·6	72·1	71·0
	1915 Departure.	− 1·0	− 0·6	+ 0·1	− 0·6	− 0·5	− 0·7	− 0·5	− 1·9	− 2·8	− 2·1	− 3·5	− 4·2	− 5·5
CAHIRCIVEEN :	Normal.	87·0	87·2	87·9	87·9	88·2	88·2	87·3	85·3	82·5	79·9	77·9	76·5	76·0
	1915 Departure.	− 3·2	− 2·9	− 3·7	− 2·6	− 2·0	− 1·8	− 2·7	− 2·9	− 2·3	− 1·1	− 0·8	− 1·5	− 1·8
RICHMOND :	Normal.†	83·2	84·5	86·0	87·3	87·8	85·9	83·8	79·6	75·6	71·2	67·7	64·7	62·3
	1915 Departure.	− 2·4	− 1·1	− 1·1	− 1·8	− 1·6	− 1·2	− 1·0	− 1·6	− 1·8	− 2·1	− 2·5	− 4·2	− 3·6

The Relative Humidity of the air for each hour is deduced from the readings of the dry and wet bulb thermometers (see note to Table LXX.) by means of Glaisher's factors; complete saturation being taken as 100.

The normals for humidity are obtained from the observations for 30 years, 1886–1915 (Eskdalemuir 1911–1915 only).

* Cahirciveen Normals for March are for 29 years only, 1892 being omitted. † The Richmond Normals for May and June are for 29 years only, 1891 being omitted.

NORMALS AND DEPARTURES THEREFROM IN 1915.

JANUARY TO JUNE.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
													JANUARY.
%	%	%	%	%	%	%	%	%	%	%	%	%	
78·2	78·0	78·4	79·8	80·4	80·8	81·0	81·1	81·1	81·1	81·1	81·0	80·7	Normal. ABERDEEN.
+ 4·0	+ 4·0	+ 3·0	+ 2·0	+ 3·0	+ 2·0	+ 2·0	+ 4·0	+ 2·0	+ 5·0	+ 4·0	+ 4·0	+ 3·0	1915 Dep. ,,
85·9	85·6	84·9	86·0	86·8	87·1	87·5	87·9	87·7	86·4	86·9	87·1	87·1	[Normal.] ESKDALEMUIR.
− 2·4	− 2·8	− 2·4	− 1·3	− 0·6	− 0·8	− 0·9	− 1·0	+ 0·2	− 0·7	+ 0·4	+ 0·9	− 0·6	1915 Dep. ,,
84·3	84·0	84·3	84·8	85·6	86·1	86·3	86·5	86·6	86·5	86·4	86·7	86·2	Normal. CAHIRCIVEEN.
− 1·9	− 1·5	− 1·3	− 2·4	− 1·6	− 1·8	− 3·1	− 1·5	− 2·4	− 2·0	− 2·9	− 1·8	− 2·3	1915 Dep. ,,
79·7	79·4	79·6	81·4	82·5	83·9	84·3	85·1	85·1	85·9	85·8	86·4	84·5	Normal. RICHMOND.
− 2·1	− 1·5	− 2·0	− 2·4	− 2·9	− 3·2	− 3·4	− 4·2	− 4·2	− 4·2	− 4·2	− 4·4	− 3·2	1915 Dep. ,,
													FEBRUARY.
75·8	75·4	75·7	76·7	78·4	79·6	80·2	80·2	80·4	80·6	80·7	81·0	79·6	Normal. ABERDEEN.
+ 3·0	+ 5·0	+ 4·0	+ 3·0	+ 2·0	+ 2·0	+ 3·0	+ 3·0	+ 4·0	+ 3·0	+ 3·0	+ 3·0	+ 3·0	1915 Dep. ,,
83·8	83·6	84·8	84·1	85·2	86·1	86·1	86·4	87·7	86·8	86·8	87·0	86·1	[Normal.] ESKDALEMUIR.
+ 0·5	+ 1·0	− 0·1	+ 0·4	+ 0·7	+ 0·3	+ 1·1	0·0	− 1·8	− 0·4	0·0	− 0·6	− 0·3	1915 Dep. ,,
81·7	81·3	81·5	82·1	83·4	84·9	85·4	86·1	86·1	86·3	86·8	87·1	85·5	Normal. CAHIRCIVEEN.
+ 3·9	+ 4·3	+ 2·9	+ 1·8	+ 1·0	+ 1·9	+ 2·0	+ 2·1	+ 0·7	+ 1·4	+ 0·3	+ 1·1	+ 1·5	1915 Dep. ,,
74·6	73·7	73·7	74·7	77·1	79·8	81·2	82·7	83·2	84·0	84·4	84·8	81·6	Normal. RICHMOND.
+ 2·6	+ 1·1	+ 1·2	+ 1·0	+ 0·6	+ 1·2	+ 2·3	+ 2·3	+ 1·8	+ 1·3	+ 0·6	+ 1·0	+ 1·6	1915 Dep. ,,
													MARCH.
72·4	72·1	72·4	73·4	75·1	77·3	79·0	80·1	80·7	81·2	81·4	81·6	78·7	Normal. ABERDEEN.
− 2·0	− 3·0	− 4·0	− 3·0	− 4·0	− 3·0	− 6·0	− 2·0	− 1·0	− 1·0	0·0	− 1·0	− 3·0	1915 Dep. ,,
78·7	78·7	78·3	79·8	80·6	83·7	84·8	85·4	85·9	86·1	86·6	86·1	84·2	[Normal.] ESKDALEMUIR.
− 1·0	− 0·6	− 1·8	− 1·4	− 1·6	− 0·9	− 2·2	− 2·8	− 3·4	− 1·8	− 1·5	− 2·9	− 1·4	1915 Dep. ,,
78·2	78·2	78·1	78·7	79·7	81·3	83·5	84·7	85·0	85·6	85·8	86·5	83·7	Normal.* CAHIRCIVEEN.
− 0·9	− 0·8	− 1·3	− 0·8	− 0·9	− 1·5	− 1·0	− 0·4	+ 0·4	+ 0·5	− 0·1	+ 0·9	− 0·6	1915 Dep. ,,
68·9	67·7	67·7	68·4	70·6	74·1	77·2	80·2	81·4	83·4	84·4	85·5	79·3	Normal. RICHMOND.
+ 0·5	+ 1·8	+ 0·6	+ 0·1	− 0·6	− 1·0	− 1·0	− 0·9	+ 0·8	− 0·5	+ 0·7	+ 0·9	0·0	1915 Dep. ,,
													APRIL.
70·5	70·6	70·9	71·6	73·0	74·6	77·0	79·2	80·3	81·3	82·3	82·8	78·0	Normal. ABERDEEN.
− 4·0	− 5·0	− 4·0	− 4·0	− 3·0	− 4·0	− 3·0	− 3·0	− 3·0	− 2·0	− 2·0	− 2·0	− 3·0	1915 Dep. ,,
68·8	68·5	67·8	68·9	70·6	73·5	78·6	81·1	83·7	85·1	86·2	86·3	79·2	[Normal.] ESKDALEMUIR.
+ 1·3	+ 2·1	+ 1·6	+ 0·7	+ 0·7	− 0·3	+ 0·5	− 0·6	− 0·6	− 0·5	+ 1·8	+ 2·0	+ 0·9	1915 Dep. ,,
75·8	75·5	75·7	75·9	77·1	78·8	81·0	83·4	84·5	85·2	85·7	85·9	82·1	Normal. CAHIRCIVEEN.
+ 1·3	+ 2·6	+ 1·4	+ 2·4	+ 1·6	+ 1·7	+ 0·9	+ 0·2	− 0·5	+ 0·5	− 1·1	− 1·0	+ 0·8	1915 Dep. ,,
62·0	60·8	60·7	61·0	62·6	65·6	69·7	74·0	76·9	79·5	81·5	83·0	74·7	Normal. RICHMOND.
− 1·5	− 1·0	− 0·6	− 1·3	− 1·2	− 0·7	− 0·2	− 1·4	− 2·8	− 2·3	− 2·0	− 1·8	− 1·2	1915 Dep. ,,
													MAY.
71·9	71·8	72·0	72·5	73·2	74·2	76·2	78·7	80·7	82·1	83·5	84·3	78·5	Normal ABERDEEN.
− 3·0	− 4·0	− 3·0	− 4·0	− 3·0	− 3·0	− 5·0	− 4·0	− 4·0	− 4·0	− 3·0	− 2·0	− 3·0	1915 Dep. ,,
68·6	68·1	68·1	69·1	69·8	72·1	76·6	80·7	83·8	85·9	87·0	87·4	79·2	[Normal.] ESKDALEMUIR.
− 6·3	− 6·2	− 6·0	− 5·9	− 3·9	− 3·8	− 3·6	− 3·3	− 1·6	− 2·4	− 2·8	− 2·5	− 3·6	1915 Dep. ,,
74·3	74·6	74·6	74·6	74·6	77·0	78·9	81·7	83·8	85·2	86·1	86·6	81·2	Normal. CAHIRCIVEEN.
− 1·1	− 1·1	− 1·6	− 1·2	− 1·8	− 1·3	− 2·0	− 2·3	− 3·0	− 3·1	− 4·5	− 4·3	− 2·7	1915 Dep. ,,
60·8	59·9	59·4	59·6	60·6	62·7	66·6	71·8	75·5	78·8	81·0	83·2	73·4†	Normal. RICHMOND.
− 2·6	− 3·1	− 2·7	− 3·0	− 3·2	− 2·1	− 2·8	− 3·0	− 4·3	− 4·6	− 4·3	− 3·0	− 2·5	1915 Dep. ,,
													JUNE.
71·3	71·2	72·0	72·5	72·6	73·9	75·5	77·6	80·1	82·0	83·6	84·3	78·1	Normal. ABERDEEN.
0·0	0·0	− 1·0	− 2·0	− 3·0	− 1·0	− 1·0	− 2·0	− 4·0	− 5·0	− 4·0	− 3·0	− 2·0	1915 Dep. ,,
69·6	69·4	68·8	70·8	71·7	73·8	77·1	81·1	84·5	86·3	87·6	88·9	80·2	[Normal.] ESKDALEMUIR.
− 4·8	− 3·8	− 4·7	− 4·6	− 4·4	− 5·2	− 4·1	− 3·4	− 2·3	− 2·5	− 1·1	− 1·1	− 2·7	1915 Dep. ,,
75·4	75·3	75·3	74·7	74·7	77·2	79·1	81·7	84·3	85·5	86·2	87·0	81·7	Normal. CAHIRCIVEEN.
− 0·9	− 2·0	− 1·8	− 1·1	+ 0·4	− 0·2	− 0·1	− 2·4	− 2·1	− 2·8	− 2·9	− 2·7	− 1·9	1915 Dep. ,,
60·3	59·2	58·5	58·8	59·8	61·9	65·4	70·5	74·9	78·4	80·8	83·2	72·8	Normal.† RICHMOND.
− 3·7	− 2·0	− 1·8	− 2·0	− 2·7	− 1·6	− 0·6	− 0·4	− 0·6	− 0·3	− 0·6	− 1·4	− 1·7	1915 Dep. ,,

The values for 1915 are given by the departure from the normal; + indicates excess, − defect.

The mean values are calculated by the formula, mean $= \frac{1}{24}\left\{(1 + \cdots 23) + \frac{1}{2}(0+24)\right\}$

* Cahirciveen Normals for March are for 29 years only, 1892 being omitted. † The Richmond Normals for May and June are for 29 years only, 1891 being omitted.

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

RELATIVE HUMIDITY.

Hour, G.M.T.		0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.		%	%	%	%	%	%	%	%	%	%	%	%	%
ABERDEEN :	Normal.	84·9	85·2	85·8	86·0	86·4	85·2	82·9	80·0	77·0	74·7	73·1	72·0	71·9
	1915 Departure.	0·0	+ 1·0	0·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0	0·0	0·0	+ 1·0	+ 2·0	0·0
ESKDALEMUIR :	[Normal].	89·9	90·6	90·9	91·2	90·5	90·5	88·9	86·1	82·2	78·5	76·1	74·4	73·4
	1915 Departure.	+ 0·7	+ 1·5	+ 1·1	+ 1·1	+ 1·1	+ 1·3	+ 0·6	+ 0·3	+ 0·5	− 0·7	− 0·2	− 0·7	− 1·4
CAHIRCIVEEN :	Normal.	88·2	88·4	88·7	89·0	89·2	89·6	89·0	87·7	85·5	83·1	81·2	79·4	78·6
	1915 Departure.	+ 0·4	+ 0·2	− 0·1	− 0·1	− 0·2	− 0·3	− 0·5	− 0·2	+ 0·7	+ 0·9	+ 2·2	+ 1·5	+ 1·4
RICHMOND :	Normal.	83·8	85·3	86·5	87·3	88·2	87·2	85·5	81·0	76·1	70·9	67·3	63·6	61·7
	1915 Departure.	+ 2·7	+ 2·4	+ 2·0	+ 1·9	+ 1·8	+ 1·1	+ 0·7	+ 0·8	+ 2·1	+ 2·6	+ 2·2	+ 1·4	+ 1·5
AUGUST.														
ABERDEEN :	Normal.*	85·0	85·6	86·1	86·5	87·1	87·1	85·7	82·5	79·7	76·1	74·3	72·7	71·6
	1915 Departure.	+ 2·0	+ 2·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0	+ 2·0	+ 3·0	+ 5·0	+ 6·0	+ 5·0	+ 5·0
ESKDALEMUIR :	[Normal].	90·6	90·6	90·7	91·1	91·2	91·0	90·4	89·0	85·5	81·9	79·0	77·2	76·1
	1915 Departure.	− 1·5	− 0·2	0·0	+ 0·1	+ 0·1	+ 0·8	+ 0·6	+ 0·4	0·0	− 0·2	+ 0·7	− 0·9	+ 0·1
CAHIRCIVEEN :	Normal.	88·7	88·9	89·5	89·3	89·6	89·6	89·5	88·9	87·1	84·5	82·4	80·5	79·3
	1915 Departure.	− 0·6	+ 0·3	+ 0·1	+ 0·7	+ 0·8	+ 0·9	+ 0·4	+ 0·6	+ 1·4	+ 0·9	+ 0·3	− 0·9	− 1·0
RICHMOND :	Normal.	86·0	87·0	87·9	88·8	89·3	89·4	88·6	85·3	80·7	74·8	70·3	65·8	63·8
	1915 Departure.	+ 3·8	+ 3·8	+ 3·2	+ 2·9	+ 3·2	+ 3·1	+ 3·0	+ 3·5	+ 3·2	+ 3·8	+ 2·6	+ 4·6	+ 3·8
SEPTEMBER.														
ABERDEEN :	Normal.*	85·0	85·4	85·7	85·9	86·2	86·2	86·3	84·9	82·2	78·6	75·7	73·5	72·4
	1915 Departure.	+ 2·0	+ 3·0	+ 1·0	+ 2·0	+ 1·0	0·0	+ 1·0	0·0	+ 2·0	0·0	0·0	0·0	+ 1·0
ESKDALEMUIR :	[Normal].	87·7	87·9	87·9	88·0	87·3	87·6	87·1	86·7	84·5	82·2	76·8	75·2	73·5
	1915 Departure.	+ 2·8	+ 1·2	+ 2·9	+ 2·7	+ 2·7	+ 2·3	+ 2·2	+ 0·9	+ 0·6	− 2·2	− 2·2	− 2·5	− 3·2
CAHIRCIVEEN :	Normal.	87·4	87·7	87·8	88·1	88·3	88·0	88·3	88·0	87·3	84·7	82·2	79·8	78·7
	1915 Departure.	− 3·3	− 3·5	− 3·2	− 1·4	− 1·7	− 1·2	− 1·1	− 1·4	− 1·0	− 1·0	− 1·5	− 1·5	− 1·2
RICHMOND :	Normal.	87·8	88·5	89·5	89·6	90·1	90·1	90·5	88·5	85·0	79·8	74·7	70·0	66·9
	1915 Departure.	+ 2·3	+ 2·1	+ 2·0	+ 1·9	+ 2·3	+ 2·3	+ 1·9	+ 2·6	+ 1·3	− 1·0	− 2·8	− 4·7	− 4·6
OCTOBER.														
ABERDEEN :	Normal.	85·2	85·6	85·7	85·8	85·7	85·8	86·0	86·0	84·8	83·0	80·2	77·9	76·3
	1915 Departure.	+ 1·0	0·0	0·0	+ 1·0	+ 1·0	+ 2·0	+ 3·0	+ 2·0	+ 1·0	+ 2·0	+ 4·0	+ 3·0	+ 4·0
ESKDALEMUIR :	[Normal].	89·3	90·2	89·7	89·9	89·5	89·6	89·0	89·6	88·6	87·7	83·9	82·0	79·9
	1915 Departure.	+ 1·1	+ 0·6	+ 0·3	+ 0·8	+ 0·2	+ 0·7	+ 0·6	+ 1·4	+ 0·6	− 0·9	− 1·3	− 2·1	− 3·7
CAHIRCIVEEN :	Normal.	86·6	86·8	87·0	87·0	87·0	87·0	86·9	87·2	86·9	85·8	84·1	81·6	80·2
	1915 Departure.	+ 1·4	+ 2·2	+ 1·7	+ 1·4	+ 1·6	+ 0·1	+ 0·2	− 0·2	+ 0·6	0·0	+ 0·4	+ 0·1	− 0·4
RICHMOND :	Normal.	90·0	90·0	90·7	90·6	91·3	91·1	91·3	90·7	89·4	86·1	82·6	78·2	75·2
	1915 Departure.	+ 0·7	+ 2·0	+ 0·9	+ 1·1	+ 0·5	+ 1·4	+ 1·6	+ 1·3	+ 1·6	+ 1·8	+ 1·3	+ 1·0	+ 0·7
NOVEMBER.														
ABERDEEN :	Normal.	83·6	83·6	83·7	83·6	83·6	83·8	83·6	83·7	83·5	82·9	81·5	80·1	78·8
	1915 Departure.	− 1·0	− 1·0	− 1·0	0·0	+ 1·0	0·0	− 1·0	− 1·0	− 1·0	− 1·0	0·0	0·0	− 1·0
ESKDALEMUIR :	[Normal].	85·0	85·1	85·8	86·2	85·8	85·5	85·8	86·0	85·1	85·4	84·2	82·4	81·2
	1915 Departure.	− 3·4	− 3·8	− 1·8	+ 0·4	− 0·9	− 1·8	− 3·3	− 3·7	− 2·9	− 4·3	− 2·2	− 3·1	− 4·4
CAHIRCIVEEN :	Normal.	86·7	86·7	87·1	87·3	87·3	87·5	87·6	87·7	87·7	87·2	86·4	84·8	83·4
	1915 Departure.	− 2·2	− 2·3	− 1·9	− 2·5	− 2·3	− 2·1	− 2·4	− 4·0	− 3·1	− 2·7	− 3·1	− 2·8	− 2·4
RICHMOND :	Normal.	88·9	88·7	89·3	89·2	89·3	89·0	89·6	89·2	89·2	87·5	85·9	83·0	80·7
	1915 Departure.	− 0·7	− 0·3	− 1·2	− 0·9	− 0·3	− 0·7	− 0·8	+ 0·4	− 1·3	− 0·3	− 1·4	− 3·1	− 3·2
DECEMBER.														
ABERDEEN :	Normal.	82·6	83·0	83·2	83·3	83·4	83·4	83·0	83·2	83·2	82·8	82·5	81·6	80·7
	1915 Departure.	+ 4·0	+ 3·0	+ 3·0	+ 3·0	+ 3·0	+ 4·0	+ 4·0	+ 5·0	+ 4·0	+ 5·0	+ 4·0	+ 5·0	+ 5·0
ESKDALEMUIR :	[Normal].	88·3	88·6	87·7	88·4	88·1	87·9	88·2	88·7	88·8	89·2	89·1	87·1	86·9
	1915 Departure.	− 0·4	− 0·6	− 0·6	− 1·6	− 2·7	− 2·6	− 2·1	− 0·4	− 0·7	− 0·3	− 1·0	− 0·1	− 0·7
CAHIRCIVEEN :	Normal.	87·9	88·0	87·6	87·7	88·0	87·6	87·9	88·0	87·9	87·7	87·5	86·4	86·1
	1915 Departure.	+ 1·8	+ 1·0	+ 1·0	+ 1·7	+ 0·6	+ 0·8	+ 1·2	+ 0·8	− 0·5	− 1·6	− 1·2	+ 0·3	+ 0·7
RICHMOND :	Normal.	87·6	87·2	87·8	87·4	87·8	87·6	88·0	87·5	87·8	87·0	86·3	84·1	82·8
	1915 Departure.	+ 0·3	+ 1·0	+ 0·2	+ 1·1	+ 1·7	+ 2·3	+ 1·7	+ 2·0	+ 1·5	+ 1·9	+ 0·9	+ 0·7	+ 0·3
YEAR.														
ABERDEEN :	Normal.	83·4	83·8	84·1	84·4	84·6	84·4	83·6	82·3	80·6	78·8	77·1	75·6	74·5
	1915 Departure.	+ 1·0	+ 0·0	0·0	+ 1·0	0·0	+ 1·0	0·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0
ESKDALEMUIR :	[Normal].	87·0	88·2	88·2	88·5	88·3	88·4	87·6	87·0	84·9	83·4	80·3	79·0	77·6
	1915 Departure.	− 0·5	− 0·3	− 0·1	+ 0·5	+ 0·1	0·0	0·0	− 0·4	− 0·7	− 1·6	− 1·4	− 2·7	− 2·7
CAHIRCIVEEN :	Normal.	86·8	87·3	87·6	87·7	87·8	87·8	87·8	87·2	86·0	84·4	82·9	81·1	80·1
	1915 Departure.	− 0·5	− 0·9	− 1·0	− 0·8	− 0·7	− 1·1	− 1·0	− 1·3	− 0·8	− 0·6	− 0·5	− 0·4	− 0·3
RICHMOND :	Normal.	85·9	86·3	87·3	87·6	88·1	87·7	87·4	86·1	83·1	79·6	76·5	73·0	70·7
	1915 Departure.	0·0	+ 0·4	+ 0·1	+ 0·1	+ 0·3	+ 0·3	+ 0·3	− 0·2	+ 0·3	+ 0·3	− 0·3	− 0·9	− 0·5

* **The Aberdeen Normals for August and September are for 29 years only, 1893 being omitted.**

NORMALS AND DEPARTURES THEREFROM IN 1915.

JULY TO DECEMBER AND YEAR.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
													JULY.
%	%	%	%	%	%	%	%	%	%	%	%	%	Normal. ABERDEEN.
71·3	71·5	71·8	72·7	73·5	74·7	76·4	79·1	81·5	83·0	83·9	84·8	78·5	1915 Dep. ,,
+ 2·0	+ 4·0	+ 3·0	+ 3·0	+ 3·0	+ 4·0	+ 2·0	+ 1·0	− 1·0	0·0	0·0	0·0	+ 1·0	[Normal.] ESKDALEMUIR.
73·0	72·7	72·4	74·0	75·6	77·4	80·8	84·6	86·9	88·2	89·7	90·0	82·4	1915 Dep. ,,
+ 0·4	0·0	+ 0·5	− 1·3	− 1·0	− 1·0	− 1·2	0·0	+ 1·0	+ 0·5	+ 0·6	+ 0·7	+ 0·2	Normal. CAHIRCIVEEN.
77·9	77·6	77·0	77·1	76·9	79·1	81·1	83·7	85·9	87·1	87·6	88·2	83·7	1915 Dep. ,,
+ 1·6	+ 2·2	+ 1·1	+ 0·2	+ 1·0	+ 0·6	− 0·3	− 0·4	− 0·2	− 0·4	− 0·2	+ 0·1	+ 0·5	Normal. RICHMOND.
59·6	58·6	58·0	58·3	59·3	61·5	65·2	71·0	75·8	79·2	81·8	84·0	73·0	1915 Dep. ,,
+ 1·7	+ 3·1	+ 1·4	+ 2·5	+ 3·2	+ 3·8	+ 2·7	+ 3·6	+ 2·1	+ 2·0	+ 2·8	+ 2·1	+ 2·2	
													AUGUST.
71·3	70·9	71·9	72·6	74·2	76·1	78·7	81·3	82·5	83·6	84·3	85·0	79·5	Normal.* ABERDEEN.
+ 5·0	+ 7·0	+ 6·0	+ 7·0	+ 7·0	+ 5·0	+ 4·0	+ 3·0	+ 2·0	+ 2·0	+ 3·0	+ 2·0	+ 3·0	1915 Dep. ,,
75·2	74·6	74·9	75·2	77·0	80·4	84·9	87·3	89·5	89·8	89·9	90·7	84·3	[Normal.] ESKDALEMUIR.
− 0·1	+ 0·5	− 1·4	− 1·8	− 2·0	− 1·1	− 2·1	− 0·8	− 1·3	− 0·9	− 0·5	− 1·5	− 0·5	1915 Dep. ,,
78·5	78·2	78·2	78·7	79·1	81·1	83·2	85·5	86·9	87·8	88·1	88·3	84·7	Normal. CAHIRCIVEEN.
− 0·9	0·0	+ 0·3	− 1·0	+ 0·6	+ 0·5	+ 0·9	+ 0·3	0·0	− 0·1	+ 0·4	+ 0·2	+ 0·2	1915 Dep. ,,
61·3	60·1	60·1	60·2	62·0	65·3	70·6	76·1	79·6	82·5	84·3	86·0	75·8	Normal. RICHMOND.
+ 6·4	+ 5·7	+ 5·3	+ 5·4	+ 4·3	+ 6·0	+ 4·7	+ 5·3	+ 3·8	+ 3·3	+ 4·2	+ 3·9	+ 4·2	1915 Dep. ,,
													SEPTEMBER.
71·9	72·1	72·5	73·9	75·8	78·4	80·7	82·1	83·1	84·0	84·5	84·9	80·3	Normal.* ABERDEEN.
+ 2·0	+ 2·0	+ 1·0	+ 3·0	+ 3·0	+ 4·0	+ 2·0	+ 2·0	+ 3·0	+ 3·0	+ 2·0	+ 3·0	+ 2·0	1915 Dep. ,,
72·9	72·2	72·8	73·8	77·3	81·3	84·4	85·1	87·3	87·1	87·4	87·4	82·3	[Normal.] ESKDALEMUIR.
− 2·5	− 2·7	− 2·9	− 2·1	− 1·6	− 0·3	− 0·3	0·0	+ 1·3	+ 1·4	+ 1·5	+ 2·6	− 0·1	1915 Dep. ,,
77·8	77·6	77·7	78·7	79·6	82·2	84·2	85·6	86·2	86·7	87·2	87·4	84·2	Normal. CAHIRCIVEEN.
− 0·9	− 1·4	− 1·6	− 3·0	− 2·1	− 2·6	− 1·9	− 2·2	− 2·1	− 2·6	− 3·7	− 3·5	− 2·0	1915 Dep. ,,
64·7	63·6	63·4	64·6	67·4	72·5	77·5	81·1	83·2	85·2	86·4	87·8	79·2	Normal. RICHMOND.
− 4·1	− 3·3	− 2·0	− 1·4	− 1·1	− 0·5	+ 0·3	− 0·3	+ 0·6	+ 1·9	+ 2·2	+ 2·5	− 0·1	1915 Dep. ,,
													OCTOBER.
75·9	75·2	76·4	77·9	80·3	82·1	83·5	83·8	84·3	84·7	84·8	85·2	82·4	Normal. ABERDEEN.
+ 3·0	+ 3·0	+ 3·0	+ 2·0	+ 2·0	+ 1·0	− 1·0	0·0	0·0	− 1·0	0·0	0·0	+ 2·0	1915 Dep. ,,
78·5	78·0	79·6	81·1	84·8	86·7	87·7	88·0	89·6	89·0	89·5	89·2	86·3	[Normal.] ESKDALEMUIR.
− 4·0	− 3·8	− 3·3	− 1·9	− 1·5	+ 1·2	− 0·2	+ 0·9	+ 0·9	+ 0·4	+ 0·9	+ 1·4	− 0·5	1915 Dep. ,,
79·4	79·0	79·1	80·3	81·8	83·9	84·5	85·1	85·6	86·1	86·3	86·8	84·4	Normal. CAHIRCIVEEN.
− 0·1	+ 0·6	+ 1·1	+ 1·6	+ 1·3	+ 1·9	+ 2·5	+ 2·3	+ 1·7	+ 1·3	+ 2·0	+ 1·4	+ 1·0	1915 Dep. ,,
73·1	72·0	72·6	74·8	78·9	82·9	85·1	87·2	87·6	88·7	89·1	90·0	84·6	Normal. RICHMOND.
− 0·5	− 0·8	− 0·4	− 0·5	+ 0·1	+ 1·3	+ 1·2	+ 1·0	+ 1·7	+ 1·3	+ 1·2	+ 1·0	+ 0·8	1915 Dep. ,,
													NOVEMBER.
78·5	78·5	79·5	80·5	81·5	82·0	82·5	82·5	82·9	82·8	83·2	83·3	82·1	Normal. ABERDEEN.
− 1·0	− 1·0	− 1·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	+ 1·0	0·0	0·0	1915 Dep. ,,
81·9	82·1	83·2	83·4	84·3	84·7	85·0	85·2	85·3	85·9	86·2	85·4	84·6	[Normal.] ESKDALEMUIR.
− 3·3	− 2·6	− 3·0	− 3·3	− 2·6	− 1·5	− 4·2	− 4·4	− 4·1	− 4·3	− 2·6	− 3·7	− 3·0	1915 Dep. ,,
82·4	82·0	82·4	83·6	84·8	85·3	85·6	86·2	86·2	86·4	86·5	86·8	85·8	Normal. CAHIRCIVEEN.
− 2·0	− 3·1	− 3·9	− 2·2	− 3·0	− 2·1	− 2·9	− 3·9	− 3·1	− 3·3	− 3·3	− 2·5	− 2·8	1915 Dep. ,,
78·8	78·3	78·7	81·4	83·5	85·1	85·8	86·8	87·2	88·1	88·3	88·7	85·9	Normal. RICHMOND.
− 2·4	− 1·8	− 1·2	− 1·1	− 1·9	− 1·6	− 1·4	− 2·2	− 1·4	− 1·5	− 1·0	− 0·5	− 1·3	1915 Dep. ,,
													DECEMBER.
80·1	80·0	81·0	81·5	81·9	82·3	82·6	82·5	82·6	82·7	82·7	82·6	82·3	Normal. ABERDEEN.
+ 6·0	+ 8·0	+ 6·0	+ 5·0	+ 4·0	+ 4·0	+ 3·0	+ 3·0	+ 3·0	+ 3·0	+ 3·0	+ 3·0	+ 5·0	1915 Dep. ,,
87·0	87·1	88·1	88·3	89·0	88·7	88·8	88·5	89·2	88·7	89·3	88·4	88·3	[Normal.] ESKDALEMUIR.
− 1·3	− 1·4	− 0·8	− 1·3	− 1·6	− 0·7	− 1·1	− 1·1	− 0·9	− 1·0	− 1·0	− 0·7	− 1·1	1915 Dep. ,,
85·5	85·3	85·5	86·4	86·7	87·0	87·0	87·5	87·8	87·7	87·9	87·8	87·2	Normal. CAHIRCIVEEN.
− 0·1	+ 0·1	+ 0·1	+ 0·2	− 0·8	− 0·7	+ 0·2	+ 1·7	+ 1·3	+ 0·6	+ 0·8	+ 2·3	+ 0·4	1915 Dep. ,,
81·6	81·0	81·8	83·8	84·8	85·9	86·0	86·6	86·6	87·2	87·0	87·6	85·9	Normal. RICHMOND.
+ 1·3	+ 2·1	+ 1·9	+ 1·1	+ 1·1	+ 0·6	+ 0·2	+ 0·2	+ 0·4	− 0·3	− 0·2	− 0·1	+ 0·9	1915 Dep. ,,
													YEAR.
74·1	74·0	74·6	75·5	76·7	78·0	79·4	80·7	81·7	82·4	83·0	83·4	79·9	Normal. ABERDEEN.
+ 1·0	+ 2·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0	0·0	0·0	+ 1·0	+ 1·0	+ 1·0	+ 1·0	1915 Dep. ,,
77·3	76·9	77·1	78·2	79·7	81·6	83·8	85·4	86·9	87·3	87·9	87·9	83·8	[Normal.] ESKDALEMUIR.
− 2·3	− 1·9	− 2·1	− 2·3	− 1·9	− 1·5	− 1·8	− 1·7	− 1·2	− 1·2	− 0·5	− 0·5	− 1·2	1915 Dep. ,,
79·3	79·0	79·1	79·6	80·3	82·0	83·3	84·8	85·7	86·3	86·7	87·1	84·2	Normal. CAHIRCIVEEN.
− 0·2	0·0	− 0·4	− 0·4	− 0·3	− 0·3	− 0·4	− 0·5	− 0·8	− 0·8	− 1·3	− 0·8	− 0·7	1915 Dep. ,,
68·8	67·9	67·9	67·2	70·8	73·4	76·2	79·4	81·4	83·4	84·5	85·8	79·2	Normal. RICHMOND.
− 0·4	0·0	− 0·1	+ 1·6	− 0·4	+ 0·2	+ 0·2	0·0	− 0·2	− 0·3	0·0	+ 0·1	0·0	1915 Dep. ,,

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

WIND SPEED (in Metres per second).

Hour, G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s
ABERDEEN: Normal.	4·49	4·42	4·41	4·39	4·37	4·39	4·49	4·45	4·55	4·58	4·57	4·66	4·81
1915 Departure.	− 0·94	− 1·12	− 0·98	− 0·87	− 0·89	− 0·79	− 0·92	− 0·86	− 1·01	− 1·22	− 0·92	− 0·64	− 0·94
ESKDALEMUIR: [Normal].	5·52	5·70	5·62	5·38	5·49	5·32	5·19	5·11	5·20	5·33	5·82	6·10	6·52
1915 Departure.	− 0·56	− 0·56	− 0·46	− 0·31	− 0·49	− 0·39	− 0·15	+ 0·13	+ 0·36	+ 0·61	+ 0·53	+ 0·30	+ 0·16
CAHIRCIVEEN: Normal.	6·52	6·45	6·42	6·34	6·33	6·33	6·29	6·31	6·32	6·41	6·30	6·26	6·85
1915 Departure.	+ 1·59	+ 1·79	+ 1·90	+ 1·84	+ 1·70	+ 1·61	+ 1·70	+ 1·38	+ 1·23	+ 1·07	+ 0·87	+ 1·22	+ 1·06
RICHMOND: Normal.	3·39	3·27	3·31	3·31	3·27	3·33	3·33	3·33	3·40	3·50	3·74	4·14	4·32
1915 Departure.	+ 0·58	+ 0·58	+ 0·59	+ 0·27	+ 0·44	+ 0·12	+ 0·28	+ 0·14	+ 0·32	− 0·26	+ 0·11	− 0·16	+ 0·02
FEBRUARY.													
ABERDEEN: Normal.	4·32	4·28	4·23	4·27	4·26	4·21	4·28	4·30	4·35	4·41	4·55	4·80	5·08
1915 Departure.	+ 0·94	+ 1·07	+ 0·61	+ 0·59	+ 0·43	+ 0·36	+ 0·24	+ 0·45	+ 0·51	+ 0·34	+ 0·78	+ 0·80	+ 0·48
ESKDALEMUIR: [Normal].	5·65	5·71	5·64	5·91	5·79	5·79	5·77	5·65	5·86	6·03	6·45	6·90	7·38
1915 Departure.	− 0·03	− 0·23	− 0·44	− 0·31	− 0·51	− 0·27	+ 0·16	− 0·03	− 0·37	+ 0·05	− 0·33	+ 0·11	+ 0·22
CAHIRCIVEEN: Normal.	6·21	6·10	6·07	6·11	6·01	6·03	5·97	5·96	5·92	6·00	5·94	5·97	6·66
1915 Departure.	− 0·26	− 0·21	− 0·32	− 0·08	+ 0·09	+ 0·19	+ 0·28	+ 0·28	+ 1·31	+ 0·85	+ 0·70	+ 1·26	+ 1·10
RICHMOND: Normal.	3·40	3·38	3·40	3·34	3·34	3·34	3·36	3·35	3·46	3·76	4·13	4·69	4·91
1915 Departure.	+ 0·77	+ 0·52	+ 0·65	+ 0·60	+ 0·63	+ 0·55	+ 0·85	+ 0·60	+ 0·98	0·00	+ 0·18	− 0·05	+ 0·29
MARCH.													
ABERDEEN: Normal.	4·15	4·09	4·06	4·12	4·08	4·16	4·14	4·29	4·47	4·76	5·00	5·26	5·57
1915 Departure.	− 0·58	− 0·59	− 0·52	− 0·62	− 0·44	− 0·57	− 0·52	− 0·72	− 0·87	− 0·85	− 0·49	− 0·94	− 0·80
ESKDALEMUIR: [Normal].	5·37	5·45	5·50	5·40	5·40	5·31	5·46	5·64	5·93	6·50	6·90	7·48	7·68
1915 Departure.	− 1·31	− 1·79	− 1·71	− 1·60	− 1·57	− 1·19	− 1·40	− 1·89	− 1·61	− 1·48	− 1·50	− 1·60	− 1·55
CAHIRCIVEEN: Normal.	5·51	5·50	5·44	5·36	5·24	5·20	5·29	5·22	5·36	5·62	5·82	5·94	6·58
1915 Departure.	− 2·10	− 2·19	− 2·00	− 1·74	− 1·72	− 1·90	− 2·03	− 1·94	− 2·17	− 1·85	− 2·04	− 1·76	− 2·19
RICHMOND: Normal.	3·20	3·20	3·23	3·14	3·14	3·15	3·23	3·35	3·72	4·30	4·76	5·14	5·23
1915 Departure.	− 0·70	− 0·93	− 0·85	− 1·06	− 0·92	− 0·65	− 0·48	− 0·57	− 0·32	− 0·61	− 0·43	− 0·71	− 0·82
APRIL.													
ABERDEEN: Normal.	3·30	3·26	3·33	3·30	3·27	3·31	3·33	3·64	4·14	4·56	4·90	5·14	5·33
1915 Departure.	− 0·33	− 0·29	− 0·33	− 0·26	− 0·29	− 0·21	− 0·33	− 0·20	− 0·05	+ 0·19	+ 0·58	+ 0·44	+ 0·07
ESKDALEMUIR: [Normal].	4·71	4·65	4·60	4·38	4·37	4·48	4·44	4·83	5·62	6·41	7·07	7·46	7·69
1915 Departure.	− 0·09	− 0·23	− 0·10	+ 0·05	+ 0·27	+ 0·46	+ 0·35	+ 0·69	+ 0·71	+ 0·48	+ 0·24	+ 0·32	+ 0·23
CAHIRCIVEEN: Normal.	4·75	4·67	4·66	4·61	4·62	4·60	4·64	4·74	5·03	5·41	5·72	5·83	6·40
1915 Departure.	+ 0·31	+ 0·02	+ 0·35	+ 0·46	+ 0·92	+ 0·83	+ 0·26	+ 0·05	− 0·01	+ 0·37	− 0·33	− 0·15	− 0·43
RICHMOND: Normal.	2·75	2·71	2·71	2·63	2·63	2·61	2·83	3·31	3·83	4·30	4·71	5·03	5·22
1915 Departure.	− 0·37	− 0·51	− 0·18	− 0·10	− 0·09	− 0·28	− 0·24	− 0·31	− 0·19	− 0·48	− 0·17	− 0·37	− 0·31
MAY.													
ABERDEEN: Normal.	2·74	2·72	2·67	2·70	2·74	2·85	3·03	3·43	3·93	4·27	4·51	4·68	4·82
1915 Departure.	− 0·62	− 0·61	− 0·49	− 0·26	− 0·28	− 0·36	− 0·39	− 0·30	− 0·37	− 0·59	− 0·46	− 0·62	− 0·58
ESKDALEMUIR: [Normal].	3·59	3·50	3·48	3·47	3·49	3·61	3·86	4·29	4·88	5·46	5·77	5·84	5·97
1915 Departure.	− 0·44	− 0·46	− 0·58	− 0·66	− 0·47	− 0·48	− 0·53	− 0·33	− 0·48	− 0·95	− 1·06	− 1·26	− 1·34
CAHIRCIVEEN: Normal.	4·15	4·09	4·06	4·09	4·03	4·05	4·07	4·24	4·56	5·01	5·31	5·41	5·93
1915 Departure.	− 0·93	− 0·87	− 1·00	− 1·04	− 0·98	− 0·56	− 0·65	− 0·77	− 1·23	− 1·27	− 1·50	− 1·11	− 1·05
RICHMOND: Normal.	2·39	2·32	2·28	2·22	2·21	2·21	2·58	3·11	3·55	3·95	4·24	4·54	4·65
1915 Departure.	+ 0·57	+ 0·48	+ 0·38	+ 0·40	+ 0·47	+ 0·54	+ 0·49	+ 0·30	+ 0·42	− 0·08	+ 0·15	− 0·01	+ 0·18
JUNE.													
ABERDEEN: Normal.	2·39	2·40	2·38	2·40	2·45	2·54	2·76	3·11	3·48	3·81	4·00	4·30	4·46
1915 Departure.	− 0·47	− 0·37	− 0·26	− 0·36	− 0·53	− 0·63	− 0·73	− 0·93	− 0·72	− 0·95	− 0·68	− 0·82	− 0·64
ESKDALEMUIR: [Normal].	3·06	3·13	3·22	3·32	3·42	3·59	3·91	4·47	4·98	5·24	5·63	5·82	5·87
1915 Departure.	− 0·68	− 0·80	− 0·89	− 0·85	− 0·81	− 0·81	− 0·82	− 1·04	− 1·13	− 1·10	− 1·28	− 1·21	− 1·25
CAHIRCIVEEN: Normal.	3·80	3·70	3·65	3·62	3·62	3·63	3·73	3·97	4·30	4·72	4·97	5·17	5·57
1915 Departure.	− 0·40	− 0·68	− 0·44	− 0·56	− 0·67	− 0·42	− 0·16	+ 0·25	− 0·21	− 0·43	− 1·05	− 0·94	− 1·26
RICHMOND: Normal.	2·16	2·09	2·03	1·97	1·95	2·07	2·52	2·95	3·25	3·56	3·82	4·13	4·17
1915 Departure	− 0·02	− 0·13	0·00	− 0·22	+ 0·02	+ 0·04	− 0·01	− 0·18	− 0·33	− 0·48	− 0·30	− 0·44	− 0·28

At Aberdeen, Cahirciveen, and Richmond, the speed of the wind is obtained from the records of a Robinson cup-anemometer having cups 9 inches (0·23 metre) in diameter carried on arms measuring 2 feet (0·61 metre) from the centre of the cup to the spindle. The mean speed is found from the travel of the cups in the sixty minutes centering at the hour G.M.T., by multiplying by the factor 2·2, and is converted to metres per second.

At Eskdalemuir the speeds are obtained from the records of a Dines' pressure-tube anemometer. They represent mean values for sixty minutes centering at the hour G.M.T.

NORMALS AND DEPARTURES THEREFROM IN 1915.

JANUARY TO JUNE.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	JANUARY.
4·89	4·87	4·77	4·70	4·68	4·66	4·65	4·62	4·52	4·47	4·49	4·49	4·58	Normal. ABERDEEN.
− 0·97	− 0·67	− 0·69	− 0·72	− 0·88	− 0·68	− 0·71	− 0·87	− 0·69	− 0·88	− 0·96	− 0·97	− 0·87	1915 Dep. ,,
6·33	6·53	6·38	6·19	5·85	5·86	5·89	5·63	5·79	5·73	5·68	5·51	5·64	[Normal.] ESKDALEMUIR.
+ 0·37	+ 0·08	− 0·08	+ 0·31	+ 0·16	+ 0·10	− 0·32	− 0·86	− 0·67	− 0·94	− 0·65	− 0·69	− 0·14	1915 Dep. ,,
7·07	7·13	7·08	6·82	6·63	6·43	6·39	6·29	6·37	6·47	6·54	6·51	6·52	Normal. CAHIRCIVEEN.
+ 0·99	+ 1·13	+ 1·04	+ 1·17	+ 0·95	+ 0·86	+ 1·03	+ 1·25	+ 1·22	+ 1·10	+ 0·96	+ 1·31	+ 1·27	1915 Dep. ,,
4·33	4·35	4·10	3·84	3·73	3·68	3·70	3·67	3·57	3·56	3·39	3·39	3·65	Normal. RICHMOND.
+ 0·38	+ 0·44	+ 0·07	+ 0·41	− 0·04	+ 0·32	+ 0·27	+ 0·52	+ 0·36	+ 0·58	+ 0·48	+ 0·64	+ 0·28	1915 Dep. ,,
													FEBRUARY.
5·10	5·16	4·97	4·68	4·41	4·34	4·31	4·27	4·33	4·30	4·22	4·31	4·48	Normal. ABERDEEN.
+ 0·53	+ 0·25	+ 0·32	+ 0·47	+ 0·48	+ 0·42	+ 0·93	+ 0·84	+ 1·08	+ 1·10	+ 0·61	+ 0·97	+ 0·61	1915 Dep. ,,
7·73	7·85	7·42	6·96	6·46	6·20	6·06	6·01	5·97	5·94	5·74	5·73	6·29	[Normal.] ESKDALEMUIR.
− 0·04	− 0·16	0·0	+ 0·29	+ 0·03	+ 0·17	+ 0·31	+ 0·39	+ 0·26	+ 0·30	− 0·02	− 0·03	− 0·02	1915 Dep. ,,
6·94	6·98	6·70	6·79	6·55	6·20	6·12	6·05	6·13	6·19	6·14	6·19	6·25	Normal. CAHIRCIVEEN.
+ 0·72	+ 0·42	+ 0·50	− 0·03	+ 0·10	+ 0·18	− 0·27	− 0·41	− 0·63	− 0·34	− 0·18	+ 0·01	+ 0·21	1915 Dep. ,,
4·99	4·93	4·77	4·46	4·06	3·85	3·77	3·69	3·66	3·54	3·47	3·40	3·88	Normal. RICHMOND.
+ 0·08	+ 0·44	+ 0·64	+ 0·31	+ 0·15	+ 0·47	0·00	+ 0·40	+ 0·50	+ 0·90	+ 0·81	+ 0·88	+ 0·47	1915 Dep. ,,
													MARCH.
5·52	5·46	5·37	5·14	4·72	4·44	4·21	4·09	4·10	4·07	4·12	4·13	4·56	Normal. ABERDEEN.
− 0·47	− 0·57	− 0·35	− 0·49	− 0·46	− 0·72	− 0·55	− 0·34	− 0·42	− 0·45	− 0·57	− 0·49	− 0·58	1915 Dep. ,,
7·77	8·05	8·00	7·59	7·04	6·46	5·96	5·60	5·52	5·42	5·36	5·33	6·28	[Normal.] ESKDALEMUIR.
− 2·13	− 1·88	− 1·32	− 1·18	− 1·26	− 0·86	− 0·80	− 0·47	− 0·78	− 0·95	− 1·20	− 1·24	− 1·37	1915 Dep. ,,
6·82	6·89	6·83	6·76	6·56	6·20	5·86	5·71	5·65	5·56	5·49	5·49	5·85	Normal. CAHIRCIVEEN.
− 1·95	− 1·87	− 1·68	− 2·20	− 1·66	− 1·88	− 2·05	− 2·31	− 2·51	− 2·47	− 2·37	− 2·40	− 2·03	1915 Dep. ,,
5·26	5·29	5·10	4·97	4·54	4·01	3·69	3·58	3·55	3·33	3·22	3·19	3·97	Normal. RICHMOND.
− 0·89	− 1·03	− 1·14	− 0·56	− 0·79	− 0·55	− 0·96	− 1·08	− 1·23	− 1·19	− 1·17	− 0·90	− 0·82	1915 Dep. ,,
													APRIL.
5·39	5·36	5·28	5·06	4·71	4·36	3·81	3·47	3·43	3·31	3·26	3·28	4·09	Normal. ABERDEEN.
0·00	− 0·03	− 0·01	− 0·02	− 0·52	− 0·62	− 0·43	− 0·37	− 0·31	− 0·22	− 0·22	− 0·41	− 0·15	1915 Dep. ,,
7·71	7·77	7·74	7·54	7·05	6·29	5·63	5·24	5·01	4·83	4·80	4·72	5·85	[Normal.] ESKDALEMUIR.
− 0·04	+ 0·25	+ 0·45	+ 0·64	+ 0·71	+ 0·70	+ 0·20	+ 0·47	+ 0·45	+ 0·04	+ 0·23	− 0·07	+ 0·31	1915 Dep. ,,
6·61	6·64	6·64	6·61	6·39	6·04	5·54	5·09	4·94	4·77	4·73	4·73	5·40	Normal. CAHIRCIVEEN.
− 0·27	− 0·47	− 0·44	− 0·55	− 0·31	− 0·21	− 0·49	− 0·28	− 0·14	− 0·18	− 0·03	+ 0·48	− 0·02	1915 Dep. ,,
5·29	5·28	5·31	5·19	4·91	4·39	3·88	3·50	3·30	3·09	2·89	2·74	3·85	Normal. RICHMOND.
− 0·30	− 0·34	− 0·61	− 0·40	− 0·49	− 0·25	− 0·44	− 0·23	− 0·27	+ 0·02	− 0·32	− 0·32	− 0·30	1915 Dep. ,,
													MAY.
4·88	4·89	4·79	4·63	4·38	4·09	3·61	3·13	2·91	2·78	2·75	2·72	3·66	Normal. ABERDEEN.
− 0·63	− 0·58	− 0·41	− 0·49	− 0·59	− 0·65	− 0·60	− 0·64	− 0·70	− 0·70	− 0·53	− 0·50	− 0·51	1915. Dep. ,,
6·10	6·14	6·15	6·30	6·21	5·80	4·77	3·83	3·40	3·31	3·35	3·59	4·69	[Normal.] ESKDALEMUIR.
− 1·22	− 0·87	− 1·20	− 0·68	− 0·29	− 0·25	− 0·55	− 0·41	− 0·44	− 0·44	− 0·46	− 0·49	− 0·67	1915 Dep. ,,
6·16	6·21	6·19	6·16	5·97	5·63	5·14	4·65	4·30	4·13	4·13	4·13	4·90	Normal. CAHIRCIVEEN.
− 0·73	− 0·98	− 1·25	− 1·15	− 1·19	− 1·20	− 1·39	− 1·30	− 1·15	− 0·93	− 1·27	− 1·04	− 1·06	1915 Dep. ,,
4·76	4·69	4·71	4·70	4·50	4·12	3·61	3·16	2·87	2·66	2·48	2·38	3·44	Normal. RICHMOND.
− 0·06	+ 0·20	+ 0·15	+ 0·29	+ 0·12	+ 0·75	+ 0·85	+ 0·85	+ 0·90	+ 1·04	+ 0·77	+ 0·53	+ 0·42	1915 Dep. ,,
													JUNE.
4·49	4·48	4·41	4·18	3·94	3·64	3·26	2·87	2·55	2·47	2·38	2·38	3·30	Normal. ABERDEEN.
− 0·55	− 0·48	− 0·97	− 0·87	− 0·94	− 0·36	− 0·62	− 0·71	− 0·70	− 0·75	− 0·75	− 0·55	− 0·66	1915 Dep. ,,
5·97	5·94	5·95	5·97	5·96	5·60	4·92	4·15	3·47	3·33	3·04	3·00	4·58	[Normal.] ESKDALEMUIR.
− 1·32	− 1·31	− 1·41	− 1·27	− 1·33	− 1·10	− 0·76	− 0·72	− 0·74	− 0·87	− 0·88	− 0·71	− 1·02	1915 Dep. ,,
5·81	5·89	5·88	5·76	5·59	5·31	4·85	4·39	4·06	3·82	3·74	3·79	4·56	Normal. CAHIRCIVEEN.
− 1·31	− 1·18	− 1·10	− 1·14	− 1·35	− 1·37	− 1·49	− 1·27	− 1·29	− 0·91	− 0·57	− 0·40	− 0·83	1915 Dep. ,,
4·21	4·33	4·35	4·27	4·20	3·95	3·45	2·92	2·69	2·46	2·29	2·16	3·16	Normal. RICHMOND.
− 0·30	− 0·25	− 0·55	− 0·25	− 0·20	+ 0·13	+ 0·22	+ 0·19	+ 0·03	+ 0·05	+ 0·09	+ 0·01	− 0·13	1915 Dep. ,,

The heights of the anemometers (centres of cups of Robinson anemometers) above the general surface of the ground are :—Aberdeen, 22·9 metres ; Eskdalemuir, 15·0 metres ; Cahirciveen, 13·9 metres ; Richmond, 19·8 metres. The heights above the roofs of the buildings on which the instruments are erected are :—Aberdeen, 3·7 metres ; Eskdalemuir, 6·7 metres ; Cahirciveen, 2·1 metres ; Richmond, 2·1 metres.

The normals for wind speed are for the 35 years, 1881–1915 (Eskdalemuir, 1911–15 only).

The values for 1915 are given by the departure from the normal ; + indicates excess, − defect.

The mean values are calculated by the formula, mean $= \frac{1}{24}\left\{(1+\cdots 23)+\frac{1}{2}(0+24)\right\}$

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

WIND SPEED (in Metres per Second).

Hour, G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.
ABERDEEN : Normal.	2·37	2·35	2·34	2·38	2·35	2·38	2·56	2·95	3·36	3·69	3·88	4·13	4·17
1915 Departure.	− 0·33	− 0·39	− 0·41	− 0·44	− 0·36	− 0·19	+ 0·05	+ 0·04	+ 0·10	− 0·29	− 0·03	− 0·36	− 0·61
ESKDALEMUIR : [Normal].	2·96	2·76	2·72	2·79	2·74	2·83	3·14	3·82	4·37	4·69	5·13	5·28	5·42
1915 Departure.	+ 0·17	+ 0·14	+ 0·13	+ 0·03	+ 0·28	− 0·19	+ 0·05	+ 0·24	+ 0·30	+ 0·44	+ 0·53	+ 0·60	+ 0·54
CAHIRCIVEEN : Normal.	3·72	3·65	3·68	3·64	3·67	3·60	3·67	3·86	4·22	4·64	4·87	5·01	5·51
1915 Departure.	+ 0·35	+ 0·48	+ 0·64	+ 0·92	+ 0·78	+ 0·65	+ 0·88	+ 0·97	+ 0·68	+ 0·72	+ 0·49	+ 0·46	+ 0·47
RICHMOND : Normal.	1·98	1·89	1·86	1·81	1·79	1·82	2·18	2·63	3·03	3·39	3·64	3·90	3·99
1915 Departure.	+ 0·34	+ 0·35	+ 0·40	+ 0·30	+ 0·29	+ 0·42	+ 0·38	+ 0·13	+ 0·28	+ 0·09	− 0·04	− 0·05	+ 0·32
AUGUST.													
ABERDEEN : Normal	2·47	2·47	2·41	2·42	2·44	2·39	2·50	2·76	3·25	3·62	3·88	4·12	4·28
1915 Departure.	− 0·30	− 0·20	− 0·26	− 0·16	− 0·13	− 0·04	+ 0·05	− 0·12	− 0·40	− 0·73	− 0·64	− 0·70	− 0·85
ESKDALEMUIR : [Normal].	2·76	2·60	2·61	2·68	2·85	2·77	2·82	3·27	3·89	4·38	4·70	4·91	5·23
1915 Departure.	+ 0·28	+ 0·22	− 0·07	− 0·10	− 0·24	− 0·29	− 0·06	− 0·32	− 0·47	− 0·67	− 0·76	− 0·82	− 0·74
CAHIRCIVEEN : Normal.	3·96	3·92	3·89	3·89	3·91	3·90	3·84	3·94	4·30	4·71	4·95	5·12	5·60
1915 Departure.	− 1·20	− 1·41	− 1·47	− 1·34	− 0·87	− 0·76	− 0·64	− 1·19	− 1·02	− 0·94	− 1·05	− 0·70	− 0·38
RICHMOND : Normal.	2·09	2·02	1·92	1·88	1·88	1·89	2·07	2·48	3·06	3·48	3·76	4·04	4·14
1915 Departure.	− 0·64	− 0·62	− 0·45	− 0·58	− 0·43	− 0·67	− 0·62	− 0·84	− 1·06	− 1·12	− 1·21	− 1·11	− 1·13
SEPTEMBER.													
ABERDEEN : Normal.	2·86	2·79	2·79	2·84	2·83	2·84	2·84	2·96	3·30	3·62	3·90	4·19	4·32
1915 Departure.	− 0·05	+ 0·04	+ 0·08	+ 0·15	+ 0·27	+ 0·26	+ 0·03	+ 0·14	+ 0·29	− 0·01	+ 0·07	+ 0·03	− 0·02
ESKDALEMUIR : [Normal].	3·10	3·30	3·24	3·43	3·32	3·49	3·48	3·64	3·97	4·52	5·02	5·26	5·63
1915 Departure.	− 0·71	− 0·49	− 0·58	− 0·84	− 0·40	− 0·24	− 0·29	− 0·29	− 0·48	− 0·24	− 0·15	− 0·47	− 0·72
CAHIRCIVEEN : Normal.	4·22	4·15	4·21	4·20	4·28	4·25	4·24	4·24	4·31	4·69	4·92	5·05	5·60
1915 Departure.	+ 0·23	+ 0·38	+ 0·28	+ 0·26	+ 0·22	− 0·04	− 0·10	− 0·32	− 0·25	− 0·17	− 0·29	+ 0·36	+ 0·28
RICHMOND : Normal.	1·93	1·88	1·84	1·89	1·89	1·86	1·94	2·14	2·61	3·14	3·58	3·95	3·98
1915 Departure.	+ 0·24	+ 0·01	+ 0·13	− 0·23	− 0·22	− 0·31	− 0·11	− 0·08	+ 0·08	+ 0·12	+ 0·10	0·00	+ 0·26
OCTOBER.													
ABERDEEN : Normal.	3·82	3·82	3·83	3·81	3·80	3·75	3·77	3·85	4·00	4·18	4·43	4·62	4·81
1915 Departure.	+ 0·27	+ 0·24	+ 0·32	+ 0·33	+ 0·22	+ 0·34	+ 0·30	+ 0·12	+ 0·24	− 0·19	+ 0·17	+ 0·23	+ 0·06
ESKDALEMUIR : [Normal].	3·44	3·51	3·61	3·71	3·84	3·87	3·82	3·68	3·89	4·40	5·02	5·34	5·58
1915 Departure.	− 0·97	− 0·75	− 0·69	− 0·66	− 0·92	− 1·12	− 1·06	− 0·65	− 0·95	− 1·26	− 1·33	− 1·49	− 1·38
CAHIRCIVEEN : Normal.	5·01	4·97	5·00	4·96	5·03	5·06	5·06	5·03	5·09	5·21	5·39	5·55	6·07
1915 Departure.	− 1·21	− 1·16	− 0·90	− 1·14	− 1·30	− 0·73	− 0·76	− 0·77	− 0·74	− 0·48	− 1·13	− 0·70	− 0·46
RICHMOND : Normal.	2·39	2·36	2·38	2·35	2·34	2·36	2·44	2·49	2·70	3·16	3·54	4·09	4·23
1915 Departure.	− 0·55	− 0·67	− 0·56	− 0·62	− 0·48	− 0·66	− 0·53	− 0·50	− 0·45	− 0·81	− 0·64	− 0·64	− 0·62
NOVEMBER.													
ABERDEEN : Normal.	4·22	4·18	4·15	4·10	4·09	4·09	4·14	4·17	4·29	4·33	4·35	4·54	4·72
1915 Departure.	+ 0·28	+ 0·10	+ 0·43	+ 0·51	+ 0·44	+ 0·74	+ 0·42	+ 0·38	− 0·02	− 0·44	− 0·02	− 0·14	− 0·05
ESKDALEMUIR : [Normal].	5·38	5·62	5·45	5·56	5·79	5·63	5·64	5·60	5·64	5·73	6·24	6·53	6·83
1915 Departure.	− 2·63	− 2·34	− 2·22	− 1·99	− 1·67	− 1·61	− 1·61	− 1·57	− 1·51	− 1·51	− 1·98	− 2·03	− 2·18
CAHIRCIVEEN : Normal.	5·86	5·83	5·68	5·73	5·67	5·75	5·65	5·72	5·62	5·76	5·71	5·68	6·28
1915 Departure.	− 0·81	− 0·74	− 0·56	− 0·95	− 0·88	− 0·99	− 0·44	− 0·90	− 1·09	− 1·18	− 1·42	− 0·95	− 0·80
RICHMOND : Normal.	3·01	2·98	2·99	2·99	3·05	3·00	2·96	2·99	3·04	3·30	3·53	4·06	4·28
1915 Departure.	− 0·34	− 0·50	− 0·30	− 0·39	− 0·18	− 0·14	+ 0·16	− 0·04	+ 0·14	− 0·42	− 0·30	0·00	+ 0·23
DECEMBER.													
ABERDEEN : Normal.	4·40	4·39	4·42	4·40	4·39	4·42	4·38	4·38	4·45	4·44	4·46	4·53	4·70
1915 Departure.	+ 0·01	+ 0·50	+ 0·65	+ 0·58	+ 0·52	+ 0·81	+ 0·97	+ 0·87	+ 0·90	+ 0·35	+ 1·13	+ 1·20	+ 1·10
ESKDALEMUIR : [Normal].	6·12	5·91	5·90	5·77	5·69	5·83	5·96	6·03	6·22	6·40	6·60	6·97	7·24
1915 Departure.	− 2·12	− 1·99	− 2·02	− 1·75	− 1·87	− 1·81	− 2·05	− 1·74	− 1·49	− 1·49	− 1·40	− 1·68	− 1·56
CAHIRCIVEEN : Normal.	6·55	6·50	6·51	6·56	6·47	6·50	6·41	6·37	6·32	6·33	6·20	6·18	6·70
1915 Departure.	− 0·60	− 0·24	− 0·18	− 0·11	− 0·26	− 0·53	− 0·48	− 0·05	+ 0·27	+ 0·07	− 0·52	− 0·35	− 0·43
RICHMOND : Normal.	3·57	3·45	3·49	3·42	3·47	3·44	3·45	3·50	3·56	3·67	3·83	4·17	4·39
1915 Departure.	+ 0·44	+ 0·50	+ 0·32	+ 0·28	+ 0·40	+ 0·18	+ 0·10	+ 0·23	+ 0·49	+ 0·37	+ 0·93	+ 1·18	+ 1·19
YEAR.													
ABERDEEN : Normal.	3·46	3·43	3·42	3·43	3·42	3·44	3·52	3·69	3·96	4·19	4·37	4·58	4·76
1915 Departure.	− 0·18	− 0·23	− 0·10	− 0·07	− 0·08	− 0·02	− 0·07	− 0·09	− 0·11	− 0·37	− 0·04	+ 0·04	− 0·24
ESKDALEMUIR : [Normal].	4·31	4·32	4·30	4·15	4·35	4·38	4·62	4·67	5·04	5·42	5·86	6·16	6·42
1915 Departure.	− 0·76	− 0·77	− 0·80	− 0·58	− 0·70	− 0·66	− 0·78	− 0·57	− 0·60	− 0·59	− 0·70	− 0·76	− 0·80
CAHIRCIVEEN : Normal.	5·02	4·96	4·94	4·93	4·91	4·91	4·91	4·97	5·11	5·38	5·51	5·60	6·15
1915 Departure.	− 0·42	− 0·40	− 0·31	− 0·29	− 0·25	− 0·22	− 0·18	− 0·25	− 0·27	− 0·27	− 0·61	− 0·28	− 0·34
RICHMOND : Normal.	2·69	2·63	2·62	2·58	2·58	2·59	2·77	2·97	3·27	3·65	3·94	4·32	4·46
1915 Departure.	+ 0·03	− 0·08	+ 0·01	− 0·11	− 0·01	− 0·07	− 0·01	− 0·09	+ 0·03	− 0·33	− 0·13	− 0·19	− 0·26

NORMALS AND DEPARTURES THEREFROM IN 1915.

JULY TO DECEMBER AND YEAR.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	m/s.	JULY.
4·23	4·22	4·19	4·00	3·76	3·48	3·06	2·70	2·43	2·32	2·33	2·37	3·15	Normal. ABERDEEN.
− 0·92	− 0·77	− 0·92	− 0·90	− 0·61	− 0·48	− 0·35	− 0·49	− 0·25	− 0·38	− 0·43	− 0·31	− 0·40	1915 Dep. ,,
5·56	5·63	5·57	5·50	5·45	5·06	4·49	3·64	3·33	3·14	2·99	2·95	4·13	[Normal.] ESKDALEMUIR.
+ 0·54	+ 0·27	+ 0·65	+ 0·81	+ 0·61	+ 0·71	+ 0·60	+ 0·43	+ 0·72	+ 0·48	+ 0·41	+ 0·16	+ 0·39	1915 Dep. ,,
5·72	5·78	5·79	5·64	5·53	5·26	4·85	4·30	3·96	3·78	3·69	3·72	4·50	Normal. CAHIRCIVEEN.
+ 0·39	+ 0·19	+ 0·44	+ 0·27	+ 0·14	+ 0·17	+ 0·20	+ 0·40	+ 0·74	+ 0·80	+ 0·56	+ 0·49	+ 0·54	1915 Dep. ,,
4·07	4·18	4·14	4·07	3·94	3·61	3·17	2·69	2·44	2·26	2·07	1·98	2·94	Normal. RICHMOND.
+ 0·22	+ 0·16	+ 0·41	+ 0·39	+ 0·07	+ 0·16	− 0·17	− 0·08	+ 0·06	+ 0·29	+ 0·24	+ 0·36	+ 0·21	1915 Dep. ,,
													AUGUST.
4·28	4·24	4·12	3·97	3·65	3·29	2·90	2·69	2·62	2·60	2·51	2·48	3·16	Normal. ABERDEEN.
− 0·54	− 0·49	− 0·41	− 0·25	− 0·51	− 0·59	− 0·57	− 0·43	− 0·34	− 0·26	− 0·34	− 0·24	− 0·38	1915 Dep. ,,
5·44	5·57	5·46	5·43	5·03	4·60	3·93	3·36	3·20	3·02	2·91	2·85	3·89	[Normal.] ESKDALEMUIR.
− 0·77	− 0·79	− 0·34	− 0·37	− 0·46	− 0·29	− 0·45	− 0·27	+ 0·07	+ 0·24	− 0·03	+ 0·19	− 0·31	1915 Dep. ,,
5·82	5·87	5·90	5·73	5·52	5·17	4·62	4·23	4·06	3·94	3·95	3·97	4·61	Normal. CAHIRCIVEEN.
− 0·74	− 0·62	− 0·59	− 0·83	− 0·91	− 0·80	− 1·27	− 1·31	− 1·34	− 1·32	− 1·31	− 1·30	− 1·00	1915 Dep. ,,
4·20	4·28	4·23	4·12	3·94	3·53	2·97	2·65	2·48	2·28	2·15	2·09	2·98	Normal. RICHMOND.
− 1·21	− 1·15	− 1·13	− 1·21	− 1·36	− 1·28	− 1·23	− 0·92	− 0·86	− 0·63	− 0·61	− 0·62	− 0·92	1915 Dep. ,,
													SEPTEMBER.
4·34	4·37	4·25	3·99	3·58	3·18	2·95	2·93	2·85	2·90	2·84	2·88	3·35	Normal. ABERDEEN.
− 0·11	− 0·10	− 0·26	− 0·29	− 0·07	− 0·16	+ 0·04	− 0·06	− 0·20	− 0·24	− 0·16	− 0·07	− 0·02	1915 Dep. ,,
5·83	5·74	5·52	5·27	4·75	4·13	3·83	3·67	3·35	3·16	3·05	3·14	4·16	[Normal.] ESKDALEMUIR.
− 0·64	− 0·41	− 0·33	− 0·43	− 0·32	− 0·39	− 0·41	− 0·52	− 0·60	− 0·58	− 0·60	− 0·72	− 0·47	1915 Dep. ,,
5·84	5·73	5·77	5·59	5·35	4·86	4·49	4·27	4·30	4·26	4·21	4·24	4·71	Normal. CAHIRCIVEEN.
+ 0·02	+ 0·04	+ 0·06	+ 0·42	+ 0·38	+ 0·54	+ 0·26	+ 0·42	+ 0·54	+ 0·52	+ 0·41	+ 0·17	+ 0·18	1915 Dep. ,,
4·07	4·11	3·99	3·80	3·39	2·88	2·53	2·47	2·31	2·18	2·06	1·93	2·77	Normal. RICHMOND.
+ 0·03	+ 0·08	+ 0·25	+ 0·33	+ 0·26	+ 0·44	+ 0·54	+ 0·36	+ 0·09	+ 0·21	+ 0·15	+ 0·20	+ 0·11	1915 Dep. ,,
													OCTOBER.
4·74	4·70	4·51	4·12	3·89	3·75	3·75	3·78	3·78	3·78	3·85	3·84	4·05	Normal. ABERDEEN.
+ 0·28	+ 0·34	+ 0·46	+ 0·60	+ 0·75	+ 0·65	+ 0·80	+ 0·74	+ 0·53	+ 0·46	+ 0·53	+ 0·31	+ 0·37	1915 Dep. ,,
5·67	5·59	5·31	4·79	4·27	3·85	3·71	3·63	3·38	3·64	3·57	3·55	4·22	[Normal.] ESKDALEMUIR.
− 1·31	− 1·35	− 1·16	− 1·21	− 1·10	− 1·11	− 0·82	− 1·03	− 0·89	− 1·02	− 1·05	− 0·87	− 1·06	1915 Dep. ,,
6·22	6·27	6·22	5·97	5·66	5·39	5·22	5·16	5·10	5·07	5·06	5·04	5·37	Normal. CAHIRCIVEEN.
− 0·60	− 0·69	− 0·82	− 0·76	− 0·73	− 0·75	− 0·59	− 1·01	− 1·06	− 0·95	− 1·11	− 1·11	− 0·86	1915 Dep. ,,
4·24	4·14	3·87	3·51	3·05	2·82	2·71	2·65	2·59	2·55	2·48	2·41	2·98	Normal. RICHMOND.
− 0·71	− 0·53	− 0·48	− 0·41	− 0·57	− 0·45	− 0·35	− 0·08	− 0·34	− 0·22	− 0·49	− 0·38	− 0·51	1915 Dep. ,,
													NOVEMBER.
4·70	4·53	4·37	4·20	4·19	4·26	4·21	4·24	4·19	4·17	4·13	4·23	4·27	Normal. ABERDEEN.
− 0·42	− 0·41	− 0·37	− 0·35	− 0·27	− 0·03	+ 0·06	− 0·05	+ 0·05	− 0·05	− 0·20	+ 0·13	+ 0·03	1915 Dep. ,,
6·91	6·91	6·48	6·18	5·98	5·92	5·89	5·70	5·53	5·51	5·49	5·45	5·92	[Normal.] ESKDALEMUIR.
− 1·87	− 1·86	− 1·52	− 1·70	− 1·54	− 1·70	− 1·71	− 1·82	− 2·02	− 2·23	− 2·42	− 2·86	− 1·89	1915 Dep. ,,
6·43	6·48	6·43	6·19	5·98	5·95	5·91	5·89	5·86	5·90	5·88	5·89	5·91	Normal. CAHIRCIVEEN.
− 0·66	− 0·57	− 0·44	− 0·36	− 0·19	− 0·38	− 0·40	− 0·43	− 0·76	− 0·84	− 0·91	− 0·82	− 0·73	1915 Dep. ,,
4·34	4·28	3·99	3·60	3·41	3·33	3·29	3·25	3·19	3·15	3·07	3·03	3·38	Normal. RICHMOND.
+ 0·24	+ 0·20	− 0·02	− 0·21	− 0·40	− 0·16	− 0·01	− 0·22	− 0·41	− 0·40	− 0·59	− 0·52	− 0·17	1915 Dep. ,,
													DECEMBER.
4·62	4·50	4·46	4·39	4·41	4·36	4·38	4·37	4·40	4·42	4·36	4·40	4·43	Normal. ABERDEEN.
+ 1·03	+ 0·97	+ 0·99	+ 0·95	+ 0·76	+ 0·94	+ 0·87	+ 0·62	+ 0·78	+ 0·63	+ 0·39	+ 0·09	+ 0·78	1915 Dep. ,,
7·41	7·59	7·22	6·82	6·65	6·71	6·80	6·77	6·57	6·30	6·08	6·14	6·48	[Normal.] ESKDALEMUIR.
− 1·56	− 1·70	− 1·57	− 1·33	− 1·27	− 1·36	− 1·25	− 1·35	− 1·51	− 1·84	− 2·05	− 1·79	− 1·65	1915 Dep. ,,
6·86	6·88	6·76	6·65	6·53	6·45	6·46	6·38	6·45	6·49	6·50	6·56	6·50	Normal. CAHIRCIVEEN.
− 0·64	− 0·81	− 0·93	− 1·01	− 0·78	− 0·94	− 0·82	− 0·84	− 0·64	− 0·56	− 0·16	− 0·42	− 0·48	1915 Dep. ,,
4·46	4·33	4·03	3·78	3·74	3·72	3·66	3·66	3·69	3·60	3·57	3·57	3·74	Normal. RICHMOND.
+ 1·24	+ 1·12	+ 1·07	+ 1·06	+ 0·74	+ 0·71	+ 0·91	+ 0·94	+ 0·81	+ 0·87	+ 0·68	+ 0·63	+ 0·70	1915 Dep. ,,
													YEAR.
4·77	4·73	4·63	4·42	4·19	3·99	3·76	3·60	3·51	3·47	3·44	3·46	3·92	Normal. ABERDEEN.
− 0·24	− 0·21	− 0·22	− 0·19	− 0·23	− 0·19	− 0·10	− 0·15	− 0·10	− 0·15	− 0·22	− 0·17	− 0·14	1915 Dep. ,,
6·54	6·61	6·43	6·21	5·69	5·54	5·16	4·77	4·53	4·44	4·34	4·33	5·19	[Normal.] ESKDALEMUIR.
− 0·84	− 0·81	− 0·65	− 0·51	− 0·30	− 0·45	− 0·50	− 0·51	− 0·50	− 0·64	− 0·73	− 0·76	− 0·66	1915 Dep. ,,
6·36	6·40	6·35	6·22	6·02	5·74	5·45	5·20	5·10	5·03	5·01	5·02	5·42	Normal. CAHIRCIVEEN.
− 0·40	− 0·45	− 0·43	− 0·51	− 0·46	− 0·48	− 0·60	− 0·59	− 0·59	− 0·50	− 0·50	− 0·42	− 0·40	1915 Dep. ,,
4·52	4·52	4·38	4·19	3·95	3·67	3·38	3·16	3·03	2·89	2·76	2·69	3·40	Normal. RICHMOND.
− 0·11	− 0·07	− 0·11	− 0·02	− 0·23	+ 0·01	− 0·11	+ 0·05	− 0·03	+ 0·13	+ 0·01	+ 0·04	− 0·06	1915 Dep. ,,

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

RAINFALL IN MILLIMETRES.

Hour, G.M.T.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JANUARY.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
ABERDEEN : Normal.	0·06	0·08	0·08	0·08	0·08	0·09	0·09	0·09	0·09	0·08	0·06	0·07
1915 Departure.	− 0·01	0·00	+ 0·03	+ 0·01	+ 0·07	+ 0·08	+ 0·10	+ 0·08	+ 0·07	+ 0·02	− 0·02	− 0·01
ESKDALEMUIR : [Normal].	0·11	0·13	0·12	0·14	0·13	0·15	0·16	0·20	0·15	0·17	0·14	0·17
1915 Departure.	0·00	− 0·05	0·00	− 0·03	− 0·04	− 0·01	+ 0·03	+ 0·10	− 0·02	− 0·04	− 0·01	0·00
CAHIRCIVEEN : Normal.	0·22	0·21	0·22	0·21	0·21	0·18	0·20	0·21	0·22	0·19	0·16	0·18
1915 Departure.	+ 0·14	+ 0·12	+ 0·43	+ 0·08	− 0·04	− 0·01	+ 0·02	+ 0·03	− 0·05	+ 0·08	+ 0·08	− 0·10
RICHMOND : Normal.	0·06	0·06	0·07	0·07	0·07	0·06	0·06	0·08	0·07	0·06	0·05	0·05
1915 Departure.	+ 0·08	+ 0·05	− 0·03	− 0·02	+ 0·09	+ 0·15	+ 0·08	+ 0·11	+ 0·05	+ 0·01	+ 0·06	+ 0·13
FALMOUTH : Normal.	0·16	0·17	0·16	0·18	0·16	0·16	0·18	0·16	0·16	0·15	0·13	0·15
1915 Departure.	− 0·07	+ 0·03	+ 0·15	+ 0·15	+ 0·15	+ 0·16	+ 0·20	+ 0·16	+ 0·19	+ 0·02	+ 0·08	− 0·07
FEBRUARY.												
ABERDEEN : Normal.	0·09	0·09	0·08	0·09	0·09	0·08	0·09	0·08	0·10	0·11	0·07	0·08
1915 Departure.	− 0·01	− 0·02	+ 0·05	− 0·02	− 0·03	− 0·01	+ 0·14	+ 0·16	+ 0·15	+ 0·15	+ 0·22	+ 0·16
ESKDALEMUIR : [Normal].	0·23	0·28	0·25	0·22	0·22	0·27	0·26	0·25	0·25	0·17	0·18	0·20
1915 Departure.	+ 0·11	+ 0·09	− 0·10	− 0·01	− 0·03	− 0·01	+ 0·07	+ 0·16	+ 0·25	+ 0·06	+ 0·05	− 0·03
CAHIRCIVEEN : Normal.	0·20	0·20	0·21	0·21	0·21	0·18	0·19	0·19	0·17	0·17	0·19	0·19
1915 Departure.	+ 0·22	+ 0·25	+ 0·19	+ 0·31	+ 0·18	+ 0·18	+ 0·40	+ 0·42	+ 0·34	+ 0·22	+ 0·49	+ 0·37
RICHMOND : Normal.	0·07	0·07	0·06	0·06	0·07	0·06	0·05	0·06	0·06	0·07	0·05	0·05
1915 Departure.	0·00	+ 0·07	+ 0·03	+ 0·04	+ 0·01	+ 0·07	+ 0·11	+ 0·12	+ 0·17	+ 0·11	+ 0·11	+ 0·02
FALMOUTH : Normal.	0·15	0·14	0·18	0·14	0·15	0·14	0·12	0·15	0·15	0·15	0·10	0·11
1915 Departure.	+ 0·12	+ 0·13	+ 0·25	+ 0·23	+ 0·31	+ 0·09	+ 0·03	+ 0·10	+ 0·11	+ 0·10	− 0·10	+ 0·02
MARCH.												
ABERDEEN : Normal.	0·07	0·08	0·08	0·08	0·09	0·09	0·09	0·10	0·12	0·11	0·07	0·06
1915 Departure.	− 0·07	− 0·04	− 0·01	+ 0·09	− 0·02	− 0·06	− 0·04	− 0·05	− 0·03	− 0·02	− 0·00	0·00
ESKDALEMUIR : [Normal].	0·19	0·17	0·20	0·18	0·19	0·21	0·19	0·23	0·18	0·14	0·13	0·18
1915 Departure.	− 0·07	− 0·09	− 0·03	− 0·03	− 0·13	− 0·17	− 0·10	− 0·11	− 0·05	− 0·08	− 0·06	0·00
CAHIRCIVEEN : Normal.	0·17	0·16	0·19	0·16	0·17	0·18	0·19	0·20	0·16	0·16	0·13	0·13
1915 Departure.	− 0·14	− 0·12	− 0·14	− 0·15	− 0·15	− 0·13	− 0·16	− 0·14	− 0·09	− 0·10	− 0·06	− 0·09
RICHMOND : Normal.	0·05	0·05	0·05	0·05	0·05	0·07	0·06	0·05	0·05	0·05	0·04	0·05
1915 Departure.	− 0·01	+ 0·02	− 0·01	− 0·02	− 0·04	− 0·07	− 0·06	− 0·02	− 0·01	− 0·04	− 0·03	− 0·03
FALMOUTH : Normal.	0·13	0·15	0·14	0·12	0·11	0·11	0·12	0·12	0·13	0·13	0·10	0·10
1915 Departure.	− 0·10	− 0·13	− 0·11	− 0·06	− 0·07	− 0·04	− 0·09	− 0·10	− 0·09	− 0·12	− 0·08	− 0·09
APRIL.												
ABERDEEN : Normal.	0·07	0·07	0·06	0·07	0·08	0·08	0·09	0·09	0·08	0·06	0·06	0·06
1915 Departure.	− 0·03	− 0·05	− 0·04	− 0·07	− 0·03	− 0·02	− 0·05	− 0·09	− 0·08	− 0·04	− 0·01	− 0·01
ESKDALEMUIR : [Normal].	0·20	0·14	0·13	0·17	0·17	0·15	0·12	0·09	0·11	0·13	0·13	0·15
1915 Departure.	− 0·07	− 0·04	− 0·09	− 0·05	− 0·05	+ 0·06	− 0·05	− 0·03	− 0·02	+ 0·14	+ 0·18	+ 0·01
CAHIRCIVEEN : Normal.	0·16	0·14	0·15	0·15	0·15	0·15	0·15	0·14	0·15	0·12	0·11	0·13
1915 Departure.	− 0·01	+ 0·05	+ 0·03	− 0·04	0·00	− 0·11	− 0·13	− 0·04	− 0·10	− 0·11	− 0·08	− 0·12
RICHMOND : Normal.	0·05	0·05	0·05	0·06	0·06	0·06	0·06	0·06	0·06	0·06	0·05	0·05
1915 Departure.	+ 0·03	− 0·01	− 0·03	− 0·05	− 0·06	− 0·06	− 0·03	− 0·01	− 0·04	− 0·02	+ 0·02	0·00
FALMOUTH : Normal.	0·12	0·12	0·11	0·12	0·12	0·12	0·13	0·13	0·12	0·09	0·06	0·10
1915 Departure.	− 0·09	− 0·08	− 0·08	− 0·06	+ 0·05	+ 0·03	− 0·03	− 0·03	+ 0·01	− 0·05	− 0·03	− 0·10
MAY.												
ABERDEEN : Normal.	0·08	0·06	0·07	0·07	0·08	0·09	0·07	0·06	0·06	0·05	0·05	0·07
1915 Departure.	− 0·08	− 0·04	− 0·05	− 0·06	− 0·02	− 0·01	− 0·03	− 0·02	− 0·01	− 0·02	+ 0·01	− 0·02
ESKDALEMUIR : [Normal].	0·09	0·10	0·09	0·09	0·09	0·11	0·09	0·07	0·07	0·08	0·08	0·09
1915 Departure.	− 0·03	− 0·03	− 0·04	− 0·06	− 0·03	− 0·03	− 0·07	− 0·03	− 0·02	− 0·03	− 0·04	− 0·07
CAHIRCIVEEN : Normal.	0·11	0·12	0·14	0·14	0·13	0·13	0·13	0·12	0·12	0·10	0·07	0·10
1915 Departure.	0·00	− 0·04	− 0·08	− 0·02	− 0·08	− 0·10	+ 0·01	− 0·03	− 0·04	− 0·07	+ 0·01	− 0·02
RICHMOND : Normal.	0·06	0·05	0·06	0·05	0·08	0·07	0·06	0·06	0·06	0·06	0·04	0·06
1915 Departure.	+ 0·18	+ 0·10	+ 0·05	+ 0·08	+ 0·08	+ 0·05	+ 0·11	+ 0·09	+ 0·07	+ 0·18	+ 0·06	+ 0·03
FALMOUTH : Normal.	0·08	0·09	0·10	0·10	0·09	0·09	0·09	0·09	0·08	0·08	0·06	0·07
1915 Departure.	+ 0·11	+ 0·09	+ 0·16	+ 0·12	+ 0·18	+ 0·05	− 0·02	− 0·03	− 0·06	+ 0·04	+ 0·09	+ 0·02
JUNE.												
ABERDEEN : Normal.	0·06	0·06	0·06	0·06	0·06	0·07	0·06	0·06	0·05	0·08	0·07	0·07
1915 Departure.	+ 0·08	+ 0·05	+ 0·03	− 0·01	− 0·05	− 0·04	0·00	− 0·04	− 0·04	− 0·08	− 0·01	− 0·04
ESKDALEMUIR : [Normal].	0·09	0·08	0·26	0·13	0·11	0·08	0·09	0·06	0·03	0·05	0·09	0·17
1915 Departure.	− 0·07	− 0·06	− 0·24	− 0·07	+ 0·01	0·00	− 0·02	− 0·05	− 0·02	− 0·05	− 0·04	+ 0·15
CAHIRCIVEEN : Normal.	0·14	0·14	0·13	0·15	0·14	0·14	0·16	0·15	0·15	0·11	0·09	0·10
1915 Departure.	− 0·11	− 0·05	− 0·09	− 0·13	− 0·09	− 0·08	− 0·03	− 0·02	− 0·14	− 0·02	+ 0·06	+ 0·12
RICHMOND : Normal.	0·07	0·06	0·06	0·07	0·08	0·07	0·08	0·07	0·06	0·07	0·07	0·09
1915 Departure.	− 0·07	− 0·06	− 0·06	− 0·07	− 0·08	− 0·07	− 0·07	+ 0·07	− 0·06	− 0·07	− 0·06	− 0·09
FALMOUTH : Normal.	0·08	0·10	0·12	0·11	0·10	0·11	0·09	0·08	0·08	0·07	0·07	0·08
1915 Departure.	+ 0·13	+ 0·06	+ 0·04	− 0·05	+ 0·01	+ 0·01	+ 0·12	− 0·04	− 0·05	− 0·05	− 0·02	− 0·06

The amounts of rainfall are obtained at each observatory from the autographic records of a Beckley rain-gauge for each sixty minutes centering at the hour G.M.T.

The heights of the receiving surfaces of the gauges above the ground, and also above M.S.L., are as follows :—

	Height above Ground.	Height above M.S.L.
Aberdeen	0·6 metre	14·6 metres
Eskdalemuir	0·4 „	242·3 „
Cahirciveen (Valencia Observatory)	0·6 „	9·7 „
Richmond (Kew Observatory)	0·5 „	6·0 „
Falmouth	0·6 „	51·4 „

NORMALS AND DEPARTURES THEREFROM IN 1915.

JANUARY TO JUNE.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Day.	Hour, G.M.T.
mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	JANUARY.
0·07	0·06	0·06	0·07	0·06	0·07	0·07	0·07	0·07	0·06	0·07	0·07	1·75	Normal. ABERDEEN.
− 0·04	− 0·02	+ 0·07	+ 0·20	+ 0·06	+ 0·08	+ 0·15	+ 0·03	− 0·02	− 0·02	+ 0·02	+ 0·01	+ 0·94	1915 Dep. ,,
0·18	0·20	0·16	0·18	0·14	0·14	0·14	0·18	0·15	0·11	0·12	0·10	3·57	[Normal.] ESKDALEMUIR.
+ 0·06	+ 0·08	− 0·06	+ 0·02	+ 0·06	− 0·05	− 0·05	− 0·03	+ 0·01	− 0·03	− 0·02	− 0·02	− 0·10	1915 Dep. ,,
0·18	0·20	0·20	0·16	0·17	0·21	0·18	0·20	0·22	0·22	0·21	0·23	4·79	Normal. CAHIRCIVEEN.
− 0·09	+ 0·10	− 0·09	− 0·06	+ 0·16	− 0·08	− 0·02	− 0·08	− 0·12	− 0·17	− 0·06	+ 0·01	+ 0·28	1915 Dep. ,,
0·06	0·06	0·07	0·06	0·07	0·07	0·07	0·06	0·06	0·05	0·06	0·06	1·51	Normal. RICHMOND.
+ 0·23	+ 0·26	+ 0·16	+ 0·15	+ 0·05	+ 0·02	+ 0·04	+ 0·06	+ 0·11	0·00	+ 0·02	+ 0·06	+ 1·92	1915 Dep. ,,
0·16	0·19	0·16	0·16	0·17	0·14	0·15	0·14	0·15	0·17	0·16	0·18	3·85	Normal. FALMOUTH.
− 0·05	− 0·06	− 0·02	+ 0·08	+ 0·09	+ 0·06	+ 0·22	+ 0·13	+ 0·06	− 0·01	+ 0·02	− 0·11	+ 1·56	1915 Dep. ,,
													FEBRUARY.
0·08	0·07	0·08	0·08	0·08	0·07	0·08	0·07	0·07	0·07	0·08	0·09	1·97	Normal. ABERDEEN.
+ 0·12	− 0·03	0·00	− 0·02	0·00	− 0·02	− 0·01	+ 0·07	+ 0·08	+ 0·07	+ 0·03	+ 0·02	+ 1·25	1915 Dep. ,,
0·26	0·29	0·31	0·36	0·28	0·33	0·28	0·33	0·32	0·23	0·27	0·21	6·25	[Normal.] ESKDALEMUIR.
+ 0·11	+ 0·24	+ 0·08	+ 0·10	+ 0·10	+ 0·10	+ 0·18	+ 0·24	+ 0·24	+ 0·12	+ 0·04	+ 0·02	+ 2·18	1915 Dep. ,,
0·16	0·16	0·18	0·20	0·21	0·18	0·19	0·21	0·20	0·20	0·21	0·22	4·63	Normal. CAHIRCIVEEN.
+ 0·39	+ 0·32	+ 0·22	− 0·04	+ 0·01	− 0·08	+ 0·02	− 0·05	− 0·01	+ 0·08	− 0·04	+ 0·21	+ 4·60	1915 Dep. ,,
0·06	0·07	0·05	0·06	0·06	0·05	0·06	0·05	0·06	0·05	0·05	0·06	1·41	Normal. RICHMOND.
+ 0·04	+ 0·01	+ 0·02	+ 0·07	− 0·03	+ 0·12	+ 0·17	+ 0·06	+ 0·22	+ 0·02	− 0·01	+ 0·06	+ 1·61	1915 Dep. ,,
0·13	0·14	0·14	0·14	0·13	0·14	0·15	0·15	0·17	0·17	0·16	0·16	3·46	Normal. FALMOUTH.
+ 0·11	+ 0·21	+ 0·34	+ 0·52	+ 0·30	+ 0·27	+ 0·29	+ 0·23	+ 0·12	+ 0·09	+ 0·32	+ 0·06	4·25	1915 Dep. ,,
													MARCH.
0·08	0·07	0·08	0·08	0·08	0·09	0·08	0·08	0·07	0·06	0·07	0·07	1·95	Normal. ABERDEEN.
+ 0·04	+ 0·15	+ 0·03	0·00	− 0·02	− 0·03	0·00	− 0·03	− 0·03	− 0·01	− 0·02	− 0·03	− 0·20	1915 Dep. ,,
0·16	0·18	0·17	0·15	0·15	0·18	0·20	0·24	0·22	0·20	0·20	0·15	4·39	[Normal.] ESKDALEMUIR.
− 0·02	+ 0·17	0·00	− 0·10	− 0·13	− 0·14	− 0·11	− 0·19	− 0·15	− 0·06	− 0·08	− 0·05	− 1·78	1915 Dep. ,,
0·15	0·14	0·12	0·12	0·12	0·13	0·13	0·14	0·13	0·13	0·14	0·16	3·61	Normal. CAHIRCIVEEN.
− 0·11	− 0·09	− 0·10	− 0·07	− 0·10	− 0·09	− 0·07	− 0·07	− 0·05	− 0·04	− 0·08	− 0·15	− 2·49	1915 Dep. ,,
0·06	0·05	0·06	0·06	0·06	0·07	0·05	0·06	0·06	0·06	0·06	0·05	1·32	Normal. RICHMOND.
− 0·03	+ 0·02	− 0·03	− 0·02	− 0·04	− 0·05	− 0·04	− 0·04	− 0·04	− 0·03	− 0·01	− 0·01	− 0·64	1915 Dep. ,,
0·11	0·13	0·10	0·10	0·10	0·13	0·12	0·11	0·12	0·11	0·12	0·11	2·82	Normal. FALMOUTH.
− 0·10	− 0·10	− 0·09	− 0·05	− 0·05	− 0·09	− 0·06	− 0·07	− 0·05	− 0·05	− 0·10	− 0·11	− 2·00	1915 Dep. ,,
													APRIL.
0·07	0·07	0·07	0·08	0·07	0·08	0·06	0·06	0·06	0·06	0·07	0·07	1·69	Normal. ABERDEEN.
+ 0·06	− 0·05	− 0·05	− 0·08	− 0·06	+ 0·02	− 0·03	+ 0·02	− 0·02	− 0·02	− 0·04	− 0·04	− 0·81	1915 Dep. ,,
0·15	0·13	0·11	0·11	0·13	0·21	0·18	0·16	0·15	0·13	0·18	0·18	3·51	[Normal.] ESKDALEMUIR.
+ 0·04	− 0·02	− 0·06	0·00	− 0·02	− 0·18	− 0·10	− 0·03	− 0·04	− 0·06	− 0·06	− 0·04	− 0·58	1915 Dep. ,,
0·13	0·13	0·12	0·12	0·13	0·14	0·12	0·14	0·13	0·13	0·13	0·12	3·24	Normal. CAHIRCIVEEN.
− 0·09	− 0·04	− 0·04	− 0·05	− 0·07	− 0·10	− 0·09	− 0·14	− 0·09	− 0·10	− 0·10	− 0·07	− 1·64	1915 Dep. ,,
0·06	0·07	0·06	0·07	0·07	0·06	0·05	0·05	0·06	0·05	0·05	0·05	1·37	Normal. RICHMOND.
− 0·03	− 0·04	− 0·01	− 0·04	− 0·04	− 0·02	− 0·03	− 0·03	0·00	+ 0·06	+ 0·07	+ 0·07	− 0·30	1915 Dep. ,,
0·09	0·08	0·07	0·07	0·07	0·10	0·09	0·10	0·09	0·10	0·08	0·09	2·37	Normal. FALMOUTH.
− 0·08	− 0·04	− 0·04	− 0·01	+ 0·02	+ 0·01	0·00	− 0·04	− 0·02	− 0·08	− 0·06	− 0·07	− 0·87	1915 Dep. ,,
													MAY.
0·08	0·08	0·10	0·09	0·11	0·11	0·08	0·07	0·08	0·09	0·08	0·08	1·86	Normal. ABERDEEN.
− 0·01	− 0·06	− 0·06	− 0·06	− 0·09	− 0·08	− 0·01	− 0·04	− 0·07	− 0·09	− 0·08	− 0·08	− 1·08	1915 Dep. ,,
0·11	0·12	0·08	0·05	0·13	0·09	0·10	0·09	0·09	0·11	0·10	0·08	2·20	[Normal.] ESKDALEMUIR.
− 0·04	− 0·01	− 0·02	− 0·02	− 0·02	− 0·01	− 0·05	+ 0·04	− 0·05	− 0·10	− 0·09	− 0·06	− 0·91	1915 Dep. ,,
0·10	0·09	0·10	0·09	0·10	0·09	0·10	0·10	0·09	0·10	0·09	0·11	2·57	Normal. CAHIRCIVEEN.
− 0·02	0·00	− 0·06	− 0·01	− 0·05	+ 0·02	− 0·04	− 0·02	− 0·04	− 0·07	− 0·02	− 0·05	− 0·82	1915 Dep. ,,
0·05	0·07	0·07	0·09	0·08	0·06	0·06	0·04	0·04	0·04	0·04	0·05	1·40	Normal. RICHMOND.
+ 0·01	− 0·03	− 0·02	− 0·02	− 0·04	− 0·02	− 0·02	− 0·01	+ 0·06	+ 0·05	0·00	+ 0·15	+ 1·19	1915 Dep. ,,
0·05	0·06	0·06	0·07	0·06	0·07	0·07	0·08	0·08	0·07	0·08	0·08	1·85	Normal. FALMOUTH.
− 0·01	− 0·01	− 0·03	+ 0·41	+ 0·11	+ 0·03	− 0·04	0·00	− 0·06	+ 0·03	+ 0·04	+ 0·06	*+ 1·28	1915 Dep. ,,
													JUNE.
0·07	0·07	0·07	0·08	0·09	0·08	0·07	0·06	0·07	0·07	0·05	0·05	1·59	Normal. ABERDEEN.
− 0·07	+ 0·12	− 0·06	− 0·07	− 0·04	− 0·06	− 0·07	− 0·01	− 0·01	− 0·01	+ 0·01	+ 0·07	− 0·35	1915 Dep. ,,
0·12	0·11	0·09	0·26	0·17	0·09	0·06	0·12	0·11	0·11	0·10	0·08	2·66	[Normal.] ESKDALEMUIR.
+ 0·10	+ 0·02	− 0·06	− 0·23	− 0·16	− 0·05	− 0·05	− 0·12	− 0·09	− 0·09	− 0·08	− 0·06	− 1·33	1915 Dep. ,,
0·10	0·09	0·11	0·11	0·13	0·13	0·12	0·12	0·12	0·12	0·14	0·15	3·04	Normal. CAHIRCIVEEN.
+ 0·22	+ 0·21	+ 0·11	− 0·01	− 0·02	− 0·10	+ 0·08	− 0·10	− 0·11	− 0·11	− 0·11	− 0·11	− 0·63	1915 Dep. ,,
0·08	0·08	0·09	0·09	0·11	0·08	0·09	0·09	0·09	0·09	0·07	0·07	1·88	Normal. RICHMOND.
− 0·08	+ 0·09	− 0·03	− 0·09	− 0·10	− 0·07	− 0·07	− 0·06	− 0·09	− 0·08	− 0·06	− 0·07	− 1·40	1915 Dep. ,,
0·10	0·08	0·08	0·08	0·08	0·07	0·06	0·08	0·08	0·08	0·09	0·10	2·07	Normal. FALMOUTH.
+ 0·34	− 0·03	+ 0·04	0·00	+ 0·01	− 0·02	− 0·02	− 0·02	+ 0·07	+ 0·10	− 0·02	+ 0·01	+ 0·56	1915 Dep. ,,

The normals for rainfall are based upon the hourly tabulations of rainfall during the period of 45 years, 1871–1915 (Eskdalemuir 1911–1915).

The values for 1915 are given by the departure from the normal; + indicates excess, − defect.

Amounts of snow or rain which cannot be distributed among the actual hours of fall are omitted from the hourly means. In preparing the normals, however, an approximate allocation of such falls to their proper hours has been made.

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS:

RAINFALL IN MILLIMETERS.

Hour, G.M.T.		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.
JULY.		mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
ABERDEEN :	Normal.	0·07	0·08	0·08	0·09	0·09	0·07	0·07	0·08	0·07	0·08	0·08	0·12
	1915 Departure.	− 0·02	− 0·01	− 0·04	+ 0·08	+ 0·01	− 0·06	− 0·06	− 0·06	− 0·04	+ 0·06	+ 0·19	+ 0·41
ESKDALEMUIR :	[Normal].	0·04	0·04	0·07	0·13	0·13	0·12	0·08	0·10	0·09	0·12	0·10	0·12
	1915 Departure.	+ 0·08	+ 0·06	+ 0·05	− 0·02	+ 0·12	+ 0·14	+ 0·02	+ 0·02	+ 0·19	+ 0·25	+ 0·20	+ 0·09
CAHIRCIVEEN :	Normal.	0·15	0·15	0·16	0·16	0·16	0·17	0·17	0·18	0·16	0·13	0·10	0·11
	1915 Departure.	+ 0·19	+ 0·06	+ 0·16	+ 0·15	+ 0·10	+ 0·20	+ 0·13	+ 0·10	0·00	+ 0·10	+ 0·05	+ 0·03
RICHMOND :	Normal.	0·06	0·07	0·07	0·06	0·06	0·06	0·08	0·06	0·06	0·06	0·08	0·09
	1915 Departure.	− 0·06	− 0·04	− 0·07	+ 0·03	− 0·02	− 0·06	− 0·08	+ 0·04	+ 0·35	+ 0·02	− 0·01	+ 0·06
FALMOUTH :	Normal.	0·11	0·11	0·15	0·13	0·12	0·13	0·11	0·11	0·11	0·10	0·06	0·09
	1915 Departure.	− 0·03	+ 0·02	− 0·09	+ 0·04	+ 0·01	+ 0·03	+ 0·21	+ 0·07	− 0·01	+ 0·02	+ 0·05	+ 0·08
AUGUST.													
ABERDEEN :	Normal.	0·10	0·10	0·10	0·11	0·11	0·11	0·11	0·10	0·09	0·11	0·07	0·08
	1915 Departure.	− 0·09	− 0·09	− 0·09	− 0·08	− 0·09	− 0·03	+ 0·06	− 0·06	− 0·06	− 0·06	+ 0·06	+ 0·05
ESKDALEMUIR :	[Normal].	0·08	0·12	0·13	0·11	0·13	0·16	0·12	0·08	0·07	0·07	0·13	0·20
	1915 Departure.	0·00	+ 0·02	− 0·01	− 0·05	+ 0·11	+ 0·08	− 0·06	− 0·05	− 0·05	− 0·03	+ 0·01	− 0·05
CAHIRCIVEEN :	Normal.	0·18	0·16	0·15	0·20	0·22	0·22	0·21	0·19	0·19	0·16	0·14	0·14
	1915 Departure.	− 0·11	− 0·01	+ 0·03	+ 0·12	− 0·03	− 0·08	+ 0·02	+ 0·10	− 0·05	− 0·13	− 0·06	− 0·06
RICHMOND :	Normal.	0·06	0·07	0·07	0·05	0·06	0·05	0·07	0·06	0·07	0·07	0·07	0·09
	1915 Departure.	+ 0·05	− 0·06	− 0·06	− 0·01	− 0·05	0·00	− 0·05	− 0·04	0·00	− 0·06	− 0·04	0·00
FALMOUTH :	Normal.	0·12	0·12	0·14	0·13	0·13	0·15	0·12	0·12	0·13	0·11	0·11	0·10
	1915 Departure.	− 0·10	− 0·05	− 0·11	− 0·06	+ 0·13	0·00	− 0·07	− 0·06	+ 0·06	− 0·06	− 0·09	− 0·05
SEPTEMBER.													
ABERDEEN :	Normal.	0·07	0·07	0·06	0·08	0·08	0·09	0·11	0·11	0·11	0·11	0·09	0·08
	1915 Departure.	+ 0·05	− 0·02	0·00	− 0·03	− 0·03	− 0·06	+ 0·04	+ 0·01	+ 0·01	+ 0·14	+ 0·06	+ 0·02
ESKDALEMUIR :	[Normal].	0·10	0·06	0·07	0·06	0·09	0·07	0·07	0·11	0·11	0·06	0·13	0·13
	1915 Departure.	− 0·03	− 0·02	− 0·01	+ 0·04	+ 0·08	+ 0·04	+ 0·02	+ 0·01	− 0·09	− 0·04	− 0·09	− 0·09
CAHIRCIVEEN :	Normal.	0·17	0·17	0·19	0·17	0·17	0·15	0·16	0·16	0·17	0·13	0·14	0·14
	1915 Departure.	+ 0·24	+ 0·12	+ 0·20	+ 0·06	+ 0·08	− 0·01	+ 0·14	− 0·05	− 0·07	− 0·05	0·00	− 0·04
RICHMOND :	Normal.	0·09	0·07	0·08	0·08	0·09	0·06	0·06	0·05	0·07	0·06	0·05	0·05
	1915 Departure.	− 0·02	+ 0·01	+ 0·02	− 0·02	− 0·02	− 0·04	− 0·06	− 0·05	− 0·07	− 0·06	− 0·05	− 0·05
FALMOUTH :	Normal.	0·15	0·15	0·14	0·13	0·12	0·12	0·14	0·12	0·13	0·12	0·10	0·10
	1915 Departure.	− 0·04	− 0·10	− 0·12	− 0·05	− 0·07	− 0·07	− 0·02	0·00	+ 0·08	− 0·02	+ 0·11	− 0·05
OCTOBER.													
ABERDEEN :	Normal.	0·08	0·10	0·11	0·11	0·10	0·12	0·12	0·12	0·12	0·12	0·09	0·09
	1915 Departure.	− 0·06	− 0·07	0·00	0·00	− 0·07	− 0·03	− 0·04	− 0·04	− 0·01	+ 0·07	0·00	− 0·02
ESKDALEMUIR :	[Normal].	0·10	0·09	0·14	0·13	0·11	0·15	0·18	0·15	0·21	0·18	0·20	0·14
	1915 Departure.	− 0·07	− 0·05	− 0·08	− 0·11	− 0·06	− 0·07	− 0·05	− 0·11	− 0·05	+ 0·08	+ 0·01	− 0·11
CAHIRCIVEEN :	Normal.	0·20	0·21	0·21	0·21	0·21	0·22	0·20	0·18	0·18	0·18	0·17	0·19
	1915 Departure.	− 0·04	− 0·08	+ 0·05	+ 0·05	+ 0·04	+ 0·10	+ 0·09	+ 0·07	+ 0·17	+ 0·16	+ 0·10	+ 0·12
RICHMOND :	Normal.	0·10	0·10	0·10	0·08	0·09	0·10	0·09	0·09	0·09	0·09	0·08	0·11
	1915 Departure.	− 0·04	0·00	− 0·05	− 0·03	− 0·01	− 0·02	− 0·01	− 0·02	− 0·03	0·00	− 0·04	− 0·05
FALMOUTH :	Normal.	0·22	0·19	0·20	0·21	0·22	0·21	0·20	0·21	0·17	0·17	0·13	0·17
	1915 Departure.	+ 0·10	− 0·01	+ 0·04	+ 0·03	+ 0·12	− 0·11	− 0·07	− 0·16	− 0·01	− 0·11	− 0·10	− 0·16
NOVEMBER.													
ABERDEEN :	Normal.	0·12	0·13	0·11	0·14	0·13	0·12	0·11	0·11	0·11	0·11	0·11	0·10
	1915 Departure.	− 0·04	− 0·02	− 0·01	− 0·01	− 0·02	+ 0·01	+ 0·08	+ 0·02	+ 0·05	+ 0·09	− 0·04	− 0·05
ESKDALEMUIR :	[Normal].	0·26	0·25	0·22	0·22	0·21	0·18	0·19	0·21	0·23	0·22	0·24	0·23
	1915 Departure.	− 0·14	− 0·07	+ 0·03	− 0·02	+ 0·07	0·00	− 0·11	− 0·07	− 0·17	− 0·16	− 0·18	− 0·14
CAHIRCIVEEN :	Normal.	0·22	0·21	0·22	0·21	0·21	0·19	0·22	0·22	0·19	0·19	0·18	0·18
	1915 Departure.	− 0·01	− 0·03	+ 0·08	+ 0·13	+ 0·09	− 0·04	+ 0·04	+ 0·42	+ 0·12	+ 0·32	+ 0·08	+ 0·02
RICHMOND :	Normal.	0·08	0·09	0·08	0·08	0·09	0·08	0·08	0·07	0·06	0·06	0·06	0·07
	1915 Departure.	− 0·04	− 0·02	− 0·01	− 0·02	+ 0·01	+ 0·05	0·00	− 0·04	+ 0·04	+ 0·02	− 0·01	− 0·01
FALMOUTH :	Normal.	0·18	0·17	0·19	0·22	0·16	0·19	0·18	0·20	0·18	0·18	0·16	0·17
	1915 Departure.	− 0·08	− 0·07	− 0·15	− 0·17	+ 0·06	− 0·11	− 0·05	− 0·09	− 0·08	+ 0·02	+ 0·01	− 0·06
DECEMBER.													
ABERDEEN :	Normal.	0·11	0·11	0·12	0·13	0·13	0·12	0·12	0·11	0·11	0·12	0·10	0·10
	1915 Departure.	+ 0·12	+ 0·04	+ 0·06	− 0·03	+ 0·04	+ 0·14	+ 0·14	+ 0·15	+ 0·17	+ 0·09	+ 0·07	+ 0·07
ESKDALEMUIR :	[Normal].	0·25	0·21	0·18	0·26	0·25	0·26	0·30	0·31	0·34	0·32	0·30	0·24
	1915 Departure.	− 0·02	0·00	+ 0·12	− 0·03	0·00	− 0·02	− 0·04	0·00	− 0·03	+ 0·20	+ 0·05	+ 0·02
CAHIRCIVEEN :	Normal.	0·23	0·22	0·24	0·26	0·24	0·24	0·25	0·24	0·21	0·20	0·19	0·21
	1915 Departure.	+ 0·35	− 0·08	+ 0·22	+ 0·05	− 0·07	+ 0·11	+ 0·30	+ 0·26	− 0·03	+ 0·11	+ 0·10	− 0·05
RICHMOND :	Normal.	0·07	0·08	0·08	0·09	0·08	0·07	0·07	0·07	0·08	0·07	0·07	0·07
	1915 Departure.	+ 0·04	+ 0·02	+ 0·23	+ 0·16	+ 0·01	+ 0·08	+ 0·09	+ 0·05	+ 0·12	+ 0·13	+ 0·19	+ 0·21
FALMOUTH :	Normal.	0·21	0·24	0·23	0·24	0·23	0·21	0·21	0·21	0·20	0·23	0–19	0·19
	1915 Departure.	0·00	+ 0·17	+ 0·06	+ 0·08	+ 0·09	+ 0·14	+ 0·24	+ 0·02	0·00	+ 0·03	+ 0·25	+ 0·15
YEAR.													
ABERDEEN :	Normal.	0·08	0·09	0·08	0·09	0·09	0·09	0·09	0·09	0·09	0·10	0·08	0·08
	1915 Departure.	− 0·01	− 0·03	0·00	− 0·01	− 0·02	0·00	+ 0·03	+ 0·01	+ 0·02	+ 0·03	+ 0·04	+ 0·05
ESKDALEMUIR :	[Normal].	0·14	0·14	0·15	0·15	0·15	0·16	0·15	0·15	0·14	0·14	0·15	0·17
	1915 Departure.	− 0·02	− 0·02	− 0·03	− 0·03	+ 0·01	0·00	− 0·03	− 0·01	0·00	+ 0·03	+ 0·01	− 0·02
CAHIRCIVEEN :	Normal.	0·18	0·17	0·18	0·19	0·19	0·18	0·19	0·18	0·17	0·15	0·14	0·15
	1915 Departure.	+ 0·06	+ 0·02	+ 0·09	+ 0·04	− 0·01	0·00	+ 0·06	+ 0·09	+ 0·01	+ 0·04	+ 0·06	+ 0·01
RICHMOND :	Normal.	0·07	0·07	0·07	0·07	0·07	0·07	0·07	0·07	0·07	0·07	0·06	0·07
	1915 Departure.	+ 0·01	0·00	0·00	0·00	0·00	+ 0·01	0·00	+ 0·02	+ 0·05	+ 0·01	+ 0·02	+ 0·02
FALMOUTH :	Normal.	0·14	0·15	0·16	0·15	0·14	0·15	0·14	0·14	0·14	0·13	0·11	0·12
	1915 Departure.	0·00	0·00	− 0·02	0·00	+ 0·07	+ 0·01	+ 0·04	− 0·01	+ 0·01	− 0·01	+ 0·01	− 0·03

NORMALS AND DEPARTURES THEREFROM IN 1915.

JULY TO DECEMBER AND YEAR.

13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.	Hour, G.M.T.
mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	JULY.
0·13	0·14	0·16	0·15	0·12	0·12	0·10	0·09	0·08	0·10	0·07	0·09	2·33	Normal. ABERDEEN.
+ 0·32	+ 0·16	− 0·01	− 0·01	+ 0·07	+ 0·16	+ 0·16	+ 0·02	− 0·05	− 0·08	+ 0·01	− 0·04	+ 1·17	1915 Dep. ,,
0·10	0·14	0·07	0·14	0·12	0·16	0·10	0·12	0·13	0·05	0·08	0·08	2·43	[Normal.] ESKDALEMUIR.
+ 0·11	+ 0·24	+ 0·08	+ 0·05	+ 0·01	− 0·11	− 0·06	+ 0·05	− 0·04	0·00	+ 0·05	+ 0·12	+ 1·70	1915 Dep. ,,
0·10	0·11	0·10	0·11	0·12	0·12	0·12	0·12	0·11	0·12	0·13	0·15	3·21	Normal. CAHIRCIVEEN.
− 0·01	0·00	− 0·05	− 0·06	− 0·01	0·00	− 0·03	+ 0·06	+ 0·01	+ 0·08	+ 0·11	+ 0·24	+ 1·61	1915 Dep. ,,
0·13	0·11	0·12	0·11	0·08	0·09	0·09	0·10	0·07	0·08	0·08	0·07	1·94	Normal. RICHMOND.
0·00	+ 0·03	− 0·01	0·00	+ 0·09	+ 0·14	+ 0·11	+ 0·26	+ 0·11	+ 0·21	+ 0·51	− 0·05	+ 1·56	1915 Dep. ,,
0·10	0·12	0·12	0·09	0·09	0·08	0·10	0·11	0·08	0·09	0·10	0·09	2·50	Normal. FALMOUTH.
+ 0·15	+ 0·07	+ 0·24	+ 0·16	+ 0·34	− 0·01	− 0·06	− 0·05	+ 0·08	+ 0·13	− 0·01	− 0·07	+ 1·37	1915 Dep. ,,
													AUGUST.
0·10	0·10	0·10	0·11	0·14	0·10	0·11	0·11	0·11	0·09	0·10	0·07	2·43	Normal. ABERDEEN.
+ 0·01	− 0·03	− 0·07	− 0·08	− 0·09	− 0·01	− 0·06	− 0·08	− 0·08	− 0·06	− 0·05	− 0·06	− 1·14	1915 Dep. ,,
0·18	0·18	0·18	0·25	0·28	0·15	0·14	0·09	0·11	0·10	0·11	0·09	3·26	[Normal.] ESKDALEMUIR.
− 0·11	− 0·05	− 0·12	− 0·18	− 0·24	− 0·13	− 0·10	− 0·08	− 0·06	+ 0·02	+ 0·06	+ 0·06	− 1·01	1915 Dep. ,,
0·13	0·13	0·15	0·15	0·15	0·17	0·17	0·16	0·15	0·16	0·16	0·17	4·01	Normal. CAHIRCIVEEN.
− 0·10	− 0·12	− 0·14	− 0·15	− 0·13	− 0·17	− 0·15	− 0·16	− 0·13	− 0·12	+ 0·01	− 0·08	− 1·70	1915 Dep. ,,
0·08	0·11	0·12	0·10	0·11	0·11	0·09	0·08	0·09	0·06	0·05	0·05	1·84	Normal. RICHMOND.
+ 0·03	+ 0·05	+ 0·41	+ 0·09	− 0·09	+ 0·77	− 0·06	− 0·06	− 0·06	+ 0·05	− 0·04	+ 0·04	+ 0·81	1915 Dep. ,,
0·11	0·08	0·11	0·09	0·10	0·12	0·12	0·11	0·11	0·13	0·11	0·12	2·79	Normal. FALMOUTH.
− 0·01	− 0·01	− 0·09	− 0·09	− 0·10	− 0·12	− 0·12	− 0·11	− 0·10	− 0·05	− 0·07	− 0·11	− 1·44	1915 Dep. ,,
													SEPTEMBER.
0·09	0·08	0·09	0·08	0·10	0·08	0·08	0·09	0·08	0·09	0·09	0·08	2·09	Normal. ABERDEEN.
+ 0·01	+ 0·07	+ 0·02	+ 0·03	+ 0·01	− 0·01	− 0·06	− 0·04	− 0·02	− 0·01	+ 0·05	0·00	+ 0·24	1915 Dep. ,,
0·10	0·10	0·10	0·08	0·09	0·13	0·11	0·11	0·08	0·07	0·08	0·16	2·27	[Normal.] ESKDALEMUIR.
− 0·02	− 0·05	− 0·02	− 0·02	+ 0·03	− 0·11	− 0·11	− 0·10	+ 0·01	− 0·02	− 0·04	− 0·05	− 0·68	1915 Dep. ,,
0·11	0·13	0·13	0·14	0·17	0·16	0·17	0·16	0·15	0·17	0·19	0·18	3·78	Normal. CAHIRCIVEEN.
+ 0·03	+ 0·03	+ 0·13	− 0·09	− 0·11	− 0·08	− 0·12	+ 0·09	− 0·06	+ 0·06	+ 0·15	+ 0·25	+ 0·90	1915 Dep. ,,
0·07	0·06	0·05	0·07	0·09	0·07	0·08	0·09	0·09	0·06	0·08	0·08	1·70	Normal. RICHMOND.
− 0·05	− 0·06	− 0·04	+ 0·03	+ 0·22	+ 0·13	+ 0·08	+ 0·08	+ 0·08	+ 0·02	+ 0·19	− 0·01	+ 0·26	1915 Dep. ,,
0·10	0·09	0·10	0·09	0·11	0·10	0·12	0·12	0·10	0·10	0·11	0·13	2·79	Normal. FALMOUTH.
− 0·07	− 0·05	− 0·09	− 0·05	− 0·06	− 0·08	− 0·11	− 0·08	− 0·10	− 0·10	− 0·10	− 0·12	− 1·36	1915 Dep. ,,
													OCTOBER.
0·10	0·09	0·08	0·08	0·10	0·12	0·11	0·12	0·11	0·09	0·09	0·09	2·46	Normal. ABERDEEN.
+ 0·02	− 0·03	− 0·03	− 0·05	− 0·04	+ 0·11	+ 0·02	− 0·03	− 0·04	− 0·01	0·00	+ 0·06	− 0·29	1915 Dep. ,,
0·08	0·07	0·12	0·14	0·15	0·12	0·11	0·10	0·13	0·12	0·13	0·12	3·17	[Normal.] ESKDALEMUIR.
− 0·00	− 0·01	− 0·01	− 0·04	− 0·05	− 0·03	0·00	− 0·05	− 0·06	− 0·10	− 0·09	− 0·07	− 1·24	1915 Dep. ,,
0·18	0·17	0·16	0·18	0·20	0·19	0·23	0·20	0·19	0·19	0·21	0·19	4·65	Normal. CAHIRCIVEEN.
− 0·01	+ 0·02	+ 0·16	+ 0·20	+ 0·67	+ 0·04	+ 0·10	+ 0·32	+ 0·38	+ 0·51	+ 0·15	+ 0·02	+ 3·39	1915 Dep. ,,
0·12	0·09	0·10	0·10	0·10	0·09	0·10	0·10	0·09	0·08	0·07	0·06	2·22	Normal. RICHMOND.
+ 0·07	+ 0·01	− 0·05	− 0·05	− 0·09	− 0·08	− 0·07	− 0·02	− 0·03	− 0·02	− 0·02	0·00	− 0·65	1915 Dep. ,,
0·15	0·15	0·14	0·16	0·16	0·17	0·16	0·16	0·17	0·18	0·16	0·21	4·27	Normal. FALMOUTH.
− 0·14	− 0·08	− 0·06	− 0·06	− 0·12	+ 0·02	− 0·03	+ 0·19	+ 0·24	+ 0·22	+ 0·32	+ 0·31	+ 0·37	1915 Dep. ,,
													NOVEMBER.
0·10	0·10	0·10	0·09	0·10	0·11	0·10	0·10	0·12	0·13	0·12	0·12	2·69	Normal. ABERDEEN.
− 0·02	− 0·08	+ 0·03	− 0·01	− 0·01	− 0·06	− 0·02	− 0·01	− 0·03	− 0·09	− 0·05	− 0·07	− 0·36	1915 Dep. ,,
0·22	0·24	0·18	0·20	0·24	0·25	0·20	0·19	0·23	0·24	0·20	0·30	5·35	[Normal.] ESKDALEMUIR.
+ 0·08	+ 0·04	− 0·06	− 0·13	− 0·08	− 0·08	− 0·11	− 0·13	− 0·17	− 0·18	− 0·15	− 0·19	− 2·12	1915 Dep. ,,
0·17	0·16	0·18	0·16	0·18	0·20	0·17	0·17	0·18	0·20	0·21	0·20	4·62	Normal. CAHIRCIVEEN.
+ 0·05	− 0·06	− 0·02	− 0·04	− 0·01	+ 0·14	+ 0·04	− 0·03	− 0·03	− 0·13	− 0·18	− 0·05	+ 0·90	1915 Dep. ,,
0·07	0·07	0·09	0·09	0·10	0·08	0·08	0·08	0·08	0·08	0·09	0·09	1·90	Normal. RICHMOND.
− 0·03	− 0·02	+ 0·06	0·00	− 0·08	− 0·01	− 0·01	+ 0·04	+ 0·17	+ 0·03	+ 0·04	− 0·05	+ 0·11	1915 Dep. ,,
0·16	0·20	0·17	0·18	0·21	0·20	0·19	0·18	0·18	0·17	0·16	0·17	4·35	Normal. FALMOUTH.
− 0·07	− 0·10	− 0·01	− 0·11	− 0·09	− 0·10	0·00	− 0·12	− 0·15	− 0·10	− 0·04	− 0·09	− 1·75	1915 Dep. ,,
													DECEMBER.
0·10	0·10	0·10	0·11	0·11	0·10	0·10	0·11	0·12	0·10	0·10	0·09	2·62	Normal. ABERDEEN.
+ 0·14	+ 0·09	+ 0·09	+ 0·04	+ 0·03	+ 0·06	+ 0·09	+ 0·12	+ 0·08	+ 0·12	+ 0·11	+ 0·12	+ 2·15	1915 Dep. ,,
0·29	0·25	0·35	0·38	0·35	0·31	0·31	0·34	0·35	0·25	0·29	0·20	6·89	[Normal.] ESKDALEMUIR.
− 0·19	− 0·18	− 0·17	− 0·12	− 0·04	− 0·15	− 0·05	− 0·09	− 0·03	0·00	− 0·06	− 0·08	− 0·91	1915 Dep. ,,
0·20	0·21	0·21	0·20	0·20	0·20	0·23	0·25	0·25	0·23	0·21	0·21	5·33	Normal. CAHIRCIVEEN.
− 0·18	− 0·12	− 0·03	+ 0·01	− 0·04	− 0·05	− 0·06	+ 0·07	+ 0·02	+ 0·14	+ 0·09	+ 0·21	+ 1·33	1915 Dep. ,,
0·08	0·07	0·09	0·09	0·07	0·08	0·07	0·07	0·07	0·07	0·07	0·08	1·81	Normal. RICHMOND.
+ 0·24	+ 0·10	+ 0·15	+ 0·30	+ 0·23	+ 0·04	− 0·02	+ 0·01	+ 0·04	+ 0·04	+ 0·06	+ 0·07	+ 2·59	1915 Dep. ,,
0·19	0·22	0·22	0·19	0·19	0·19	0·18	0·20	0·20	0·22	0·22	0·21	5·02	Normal. FALMOUTH.
+ 0·18	+ 0·42	+ 0·10	+ 0·13	+ 0·19	+ 0·13	+ 0·12	+ 0·42	+ 0·40	+ 0·36	+ 0·25	+ 0·15	+ 4·08	1915 Dep. ,,
													YEAR.
0·09	0·09	0·09	0·09	0·10	0·09	0·09	0·09	0·09	0·08	0·08	0·08	2·11	Normal. ABERDEEN.
+ 0·05	+ 0·02	0·00	− 0·01	− 0·02	+ 0·02	+ 0·01	0·00	− 0·02	− 0·01	0·00	0·00	+ 0·15	1915 Dep. ,,
0·16	0·17	0·16	0·18	0·19	0·18	0·16	0·17	0·17	0·14	0·15	0·14	3·77	[Normal.] ESKDALEMUIR.
+ 0·01	+ 0·04	− 0·04	− 0·04	− 0·05	− 0·08	− 0·05	− 0·04	− 0·04	− 0·04	− 0·04	− 0·03	− 0·51	1915 Dep. ,,
0·14	0·14	0·15	0·15	0·16	0·16	0·16	0·16	0·16	0·16	0·17	0·17	3·95	Normal. CAHIRCIVEEN.
+ 0·01	+ 0·02	0·00	− 0·04	+ 0·02	− 0·05	− 0·03	0·00	− 0·02	+ 0·01	− 0·01	+ 0·04	+ 0·42	1915 Dep. ,,
0·08	0·08	0·08	0·08	0·08	0·08	0·07	0·07	0·07	0·06	0·06	0·06	1·70	Normal. RICHMOND.
+ 0·03	+ 0·03	+ 0·05	+ 0·04	+ 0·01	+ 0·08	+ 0·01	+ 0·02	+ 0·05	+ 0·03	+ 0·07	+ 0·02	+ 0·58	1915 Dep. ,,
0·12	0·13	0·12	0·12	0·12	0·13	0·13	0·13	0·13	0·13	0·13	0·14	3·20	Normal. FALMOUTH.
+ 0·02	+ 0·02	+ 0·03	+ 0·07	+ 0·05	0·00	+ 0·01	+ 0·04	+ 0·04	+ 0·05	+ 0·04	− 0·01	+ 0·43	1915 Dep. ,,

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS: NORMALS AND DEPARTURES THEREFROM IN 1915.

DURATION OF BRIGHT SUNSHINE (in hours arranged according to Local Apparent Time).

JANUARY TO JUNE.

Hour, L.A.T.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	Day.
JANUARY.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.
ABERDEEN: Normal.	..	..	..	..	..	0·04	0·16	0·23	0·24	0·23	0·18	0·07	..	..	..	..	..	1·15
1915 Departure.	..	..	..	..	..	−0·03	−0·02	−0·06	−0·09	−0·12	−0·09	−0·04	..	..	..	..	..	−0·45
ESKDALEMUIR: [Normal].	..	..	..	..	0·01	0·08	0·12	0·16	0·16	0·17	0·17	0·09	0·01	..	..	..	..	0·97
1915 Departure.	..	..	..	..	−0·01	+0·01	+0·05	+0·09	+0·05	+0·09	+0·08	+0·08	−0·01	..	..	..	..	+0·43
CAHIRCIVEEN: Normal.	..	..	..	..	0·01	0·11	0·23	0·27	0·28	0·27	0·23	0·15	0·03	..	..	..	..	1·58
1915 Departure.	..	..	..	..	−0·01	−0·07	−0·10	−0·08	+0·01	+0·05	+0·01	−0·03	−0·01	..	..	..	..	−0·23
RICHMOND: Normal.	..	..	..	..	..	0·08	0·18	0·23	0·26	0·25	0·23	0·11	0·01	..	..	..	..	1·35
1915 Departure.	..	..	..	..	..	+0·01	+0·04	−0·05	−0·06	−0·03	−0·04	−0·02	0·00	..	..	..	..	−0·15
FALMOUTH: Normal.	..	..	..	..	0·02	0·18	0·28	0·33	0·29	0·28	0·25	0·17	0·02	..	..	..	..	1·82
1915 Departure.	..	..	..	..	0·00	−0·03	+0·04	+0·03	+0·11	+0·08	+0·02	−0·04	0·00	..	..	..	..	+0·21
FEBRUARY.																		
ABERDEEN: Normal.	..	..	..	..	0·06	0·24	0·34	0·38	0·38	0·38	0·35	0·27	0·10	0·01	..	..	..	2·51
1915 Departure.	..	..	..	..	+0·08	+0·01	+0·01	−0·12	−0·12	−0·06	−0·10	−0·07	−0·03	0·00	..	..	..	−0·40
ESKDALEMUIR: [Normal].	..	..	..	0·01	0·09	0·17	0·21	0·24	0·21	0·24	0·20	0·13	0·07	..	..	..	..	1·57
1915 Departure.	..	..	..	0·00	+0·09	+0·07	+0·05	+0·05	−0·05	−0·03	+0·04	−0·02	−0·02	..	..	..	..	+0·18
CAHIRCIVEEN: Normal.	..	..	..	..	0·10	0·25	0·32	0·34	0·34	0·33	0·33	0·27	0·16	0·02	..	..	..	2·40
1915 Departure.	..	..	..	..	−0·02	+0·02	+0·04	−0·06	+0·05	+0·02	+0·03	−0·03	−0·06	−0·02	..	..	..	−0·03
RICHMOND: Normal.	..	..	..	0·00	0·06	0·19	0·27	0·30	0·31	0·33	0·30	0·24	0·10	0·00	..	..	..	2·10
1915 Departure.	..	..	..	+0·01	+0·03	+0·05	+0·08	+0·03	+0·04	+0·01	+0·08	+0·04	+0·04	+0·02	..	..	..	+0·43
FALMOUTH: Normal.	..	..	..	0·01	0·17	0·32	0·36	0·40	0·41	0·40	0·37	0·32	0·17	0·01	..	..	..	2·94
1915 Departure.	..	..	..	+0·01	+0·04	+0·10	+0·02	−0·01	−0·10	+0·01	−0·01	−0·02	+0·06	+0·04	..	..	..	+0·14
MARCH.																		
ABERDEEN: Normal.	..	..	..	0·09	0·23	0·29	0·33	0·33	0·33	0·31	0·30	0·27	0·23	0·11	0·01	..	..	2·83
1915 Departure.	..	..	..	+0·09	+0·06	+0·08	+0·04	+0·06	+0·08	+0·06	+0·12	+0·02	+0·09	+0·04	0·00	..	..	+0·74
ESKDALEMUIR: [Normal].	..	..	..	0·12	0·23	0·31	0·34	0·37	0·36	0·37	0·35	0·30	0·22	0·10	0·01	..	..	3·08
1915 Departure.	..	..	..	+0·10	+0·19	+0·17	+0·11	+0·10	+0·11	+0·06	+0·06	+0·05	+0·02	0·00	+0·01	..	..	+0·98
CAHIRCIVEEN: Normal.	..	..	..	0·13	0·32	0·39	0·42	0·45	0·45	0·43	0·42	0·39	0·34	0·19	0·02	..	..	3·95
1915 Departure.	..	..	..	−0·04	+0·04	+0·06	−0·01	0·00	+0·05	+0·08	+0·03	+0·05	+0·07	+0·18	+0·02	..	..	+0·55
RICHMOND: Normal.	..	..	0·00	0·09	0·23	0·33	0·37	0·40	0·40	0·40	0·37	0·35	0·28	0·13	0·01	..	..	3·36
1915 Departure.	..	..	+0·01	+0·01	0·00	−0·07	−0·08	−0·10	−0·07	−0·11	−0·11	−0·08	−0·08	−0·05	−0·01	..	..	−0·74
FALMOUTH: Normal.	..	..	0·01	0·16	0·37	0·43	0·46	0·49	0·48	0·48	0·47	0·45	0·39	0·21	0·01	..	..	4·41
1915 Departure.	..	..	−0·01	−0·05	−0·02	−0·03	−0·01	−0·02	−0·01	0·00	+0·01	−0·05	−0·09	−0·01	0·00	..	..	−0·17
APRIL.																		
ABERDEEN: Normal.	..	0·02	0·12	0·24	0·31	0·35	0·36	0·37	0·37	0·38	0·36	0·35	0·32	0·27	0·13	0·02	..	3·97
1915 Departure.	..	+0·03	+0·14	+0·10	+0·07	+0·11	+0·04	+0·05	+0·01	+0·06	+0·07	+0·09	+0·10	+0·09	+0·08	+0·02	..	+1·06
ESKDALEMUIR: [Normal].	..	0·02	0·15	0·31	0·37	0·40	0·43	0·42	0·41	0·42	0·43	0·44	0·38	0·34	0·19	0·03	..	4·74
1915 Departure.	..	+0·03	+0·05	0·00	−0·02	−0·01	+0·02	+0·03	+0·06	0·00	+0·04	+0·04	+0·07	+0·02	+0·01	+0·02	..	+0·36
CAHIRCIVEEN: Normal.	..	0·01	0·16	0·35	0·42	0·46	0·48	0·48	0·49	0·49	0·48	0·47	0·43	0·39	0·22	0·02	..	5·35
1915 Departure.	..	−0·01	−0·03	−0·09	−0·13	−0·12	−0·16	−0·14	−0·04	−0·11	−0·07	−0·13	−0·08	−0·04	−0·06	−0·02	..	−1·23
RICHMOND: Normal.	..	0·01	0·13	0·31	0·40	0·45	0·48	0·50	0·49	0·49	0·49	0·46	0·43	0·35	0·18	0·01	..	5·18
1915 Departure.	..	0·00	+0·07	+0·09	+0·07	+0·08	+0·05	+0·02	−0·03	−0·05	−0·02	−0·03	+0·02	+0·03	+0·04	+0·01	..	+0·35
FALMOUTH: Normal.	..	0·01	0·18	0·39	0·47	0·51	0·54	0·55	0·55	0·56	0·55	0·54	0·52	0·41	0·22	0·07	..	6·07
1915 Departure.	..	−0·01	−0·03	−0·09	−0·16	−0·21	−0·24	−0·20	−0·16	−0·11	−0·08	−0·07	−0·12	0·00	0·00	−0·07	..	−1·55
MAY.																		
ABERDEEN: Normal.	0·01	0·14	0·25	0·29	0·32	0·34	0·34	0·35	0·36	0·36	0·36	0·36	0·34	0·31	0·26	0·16	0·02	4·57
1915 Departure.	+0·03	+0·19	+0·15	+0·13	+0·10	+0·13	+0·11	+0·10	+0·16	+0·15	+0·17	+0·19	+0·21	+0·19	+0·16	+0·13	+0·02	+2·32
ESKDALEMUIR: [Normal].	0·02	0·11	0·22	0·28	0·32	0·42	0·43	0·45	0·45	0·44	0·41	0·40	0·39	0·38	0·33	0·18	0·01	5·24
1915 Departure.	+0·01	+0·03	+0·10	+0·20	+0·15	+0·17	+0·20	+0·14	+0·04	+0·01	0·00	+0·05	+0·03	−0·01	+0·06	+0·06	+0·01	+1·25
CAHIRCIVEEN: Normal.	0·00	0·15	0·36	0·42	0·45	0·48	0·50	0·51	0·52	0·53	0·52	0·52	0·50	0·47	0·39	0·22	0·01	6·55
1915 Departure.	+0·01	+0·01	−0·04	−0·09	−0·12	−0·09	−0·03	+0·02	−0·02	−0·03	−0·05	−0·07	−0·10	−0·08	−0·03	+0·03	+0·03	−0·65
RICHMOND: Normal.	..	0·10	0·34	0·44	0·49	0·51	0·52	0·54	0·52	0·52	0·50	0·49	0·47	0·44	0·38	0·19	0·01	6·46
1915 Departure.	..	+0·07	+0·07	+0·04	+0·03	+0·05	+0·06	+0·02	+0·07	+0·06	+0·07	+0·04	+0·09	+0·05	+0·05	+0·05	+0·01	+0·83
FALMOUTH: Normal.	..	0·13	0·39	0·48	0·51	0·55	0·57	0·58	0·58	0·59	0·59	0·61	0·59	0·55	0·48	0·16	..	7·36
1915 Departure.	..	+0·03	−0·08	−0·11	−0·08	−0·04	−0·03	−0·02	−0·07	−0·08	−0·07	−0·06	−0·06	−0·04	−0·03	+0·05	..	−0·69
JUNE.																		
ABERDEEN: Normal.	0·05	0·18	0·24	0·27	0·30	0·32	0·33	0·35	0·35	0·35	0·36	0·34	0·32	0·30	0·28	0·21	0·07	4·62
1915 Departure.	+0·05	+0·15	+0·13	+0·17	+0·19	+0·21	+0·21	+0·18	+0·21	+0·19	+0·17	+0·17	+0·14	+0·21	+0·20	+0·10	+0·07	+2·75
ESKDALEMUIR: [Normal].	0·03	0·16	0·24	0·31	0·36	0·37	0·43	0·45	0·44	0·44	0·44	0·41	0·36	0·40	0·34	0·23	0·04	5·45
1915 Departure.	−0·01	+0·09	+0·08	+0·10	+0·04	+0·04	+0·01	+0·06	+0·05	+0·05	+0·08	+0·04	+0·04	+0·06	+0·10	+0·09	+0·04	+0·07
CAHIRCIVEEN: Normal.	0·02	0·20	0·32	0·39	0·42	0·44	0·46	0·46	0·48	0·50	0·50	0·49	0·47	0·43	0·37	0·27	0·04	6·26
1915 Departure.	−0·02	−0·07	−0·07	−0·07	−0·04	−0·06	−0·08	−0·07	−0·06	−0·03	−0·02	−0·05	−0·08	−0·08	−0·10	−0·05	−0·02	−0·07
RICHMOND: Normal.	..	0·16	0·34	0·41	0·44	0·48	0·50	0·50	0·52	0·51	0·51	0·50	0·48	0·45	0·42	0·28	0·03	6·53
1915 Departure.	..	0·00	−0·05	−0·01	+0·01	+0·11	+0·12	+0·08	+0·04	+0·09	+0·05	+0·03	+0·11	+0·04	−0·02	−0·10	−0·01	+0·49
FALMOUTH: Normal.	0·01	0·23	0·38	0·44	0·47	0·49	0·53	0·53	0·54	0·57	0·58	0·58	0·58	0·55	0·49	0·30	0·01	7·28
1915 Departure.	−0·01	−0·10	−0·11	−0·11	−0·06	−0·07	−0·07	−0·05	−0·03	−0·05	−0·08	−0·13	−0·14	−0·16	−0·17	−0·12	−0·00	−1·46

The hourly duration of sunshine is obtained from the records of the Campbell-Stokes recorder, in which instrument the sun's rays are focussed through a 10 cm. spherical lens of crown glass upon a strip of blue card exposed in a metal bowl, the duration of sunshine being shown by the length of the scorch on the card. The hourly amounts are measured from 30 minutes before to 30 minutes after each hour of Local Apparent Time. The height of the recorder above the ground at the several stations is as follows:—

Aberdeen	20·7 metres,
Eskdalemuir	1·5 ,,
Cahirciveen (Valencia Observatory)	12·8 ,,
Richmond (Kew Observatory)	13·3 ,,
Falmouth	10·4 ,,

The values for 1915 are given by the excess or defect from the normal: + indicates excess, − defect.
The normals for sunshine are based upon the hourly tabulations of sunshine in the period of 35 years, from 1881–1915 (Eskdalemuir 1911–15 only).

HOURLY VALUES OF THE METEOROLOGICAL ELEMENTS: NORMALS AND DEPARTURES THEREFROM IN 1915.

DURATION OF BRIGHT SUNSHINE (in hours arranged according to Local Apparent Time).

JULY TO DECEMBER AND YEAR.

Hour, L.A.T.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	Day.
JULY.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.	hr.
ABERDEEN : Normal.	0·03	0·15	0·20	0·25	0·28	0·29	0·29	0·29	0·30	0·30	0·29	0·28	0·28	0·25	0·21	0·15	0·04	3·88
1915 Departure.	+0·06	+0·16	+0·16	+0·07	+0·16	+0·12	+0·06	−0·03	−0·03	−0·06	−0·06	−0·04	−0·05	−0·01	0·00	+0·02	+0·02	+0·55
ESKDALEMUIR : [Normal].	0·02	0·12	0·25	0·32	0·32	0·36	0·38	0·39	0·39	0·39	0·41	0·43	0·41	0·35	0·28	0·15	0·02	4·99
1915 Departure.	0·00	+0·02	−0·01	+0·03	+0·03	+0·03	+0·03	+0·04	−0·07	−0·08	−0·06	−0·03	−0·07	−0·02	+0·04	+0·07	−0·01	−0·06
CAHIRCIVEEN : Normal.	0·01	0·11	0·23	0·28	0·32	0·36	0·39	0·41	0·43	0·43	0·44	0·44	0·41	0·39	0·31	0·19	0·02	5·17
1915 Departure.	−0·01	−0·05	+0·02	0·00	+0·03	+0·03	−0·06	−0·04	0·00	+0·05	+0·09	+0·04	+0·02	+0·09	+0·08	+0·02	0·00	+0·31
RICHMOND : Normal.	..	0·13	0·34	0·42	0·46	0·50	0·52	0·52	0·51	0·52	0·51	0·49	0·47	0·44	0·40	0·25	0·02	6·50
1915 Departure.	..	+0·05	+0·03	0·00	−0·04	−0·07	−0·02	−0·07	−0·07	−0·07	−0·08	−0·01	−0·02	−0·06	−0·07	−0·04	−0·02	−0·56
FALMOUTH : Normal.	..	0·19	0·37	0·44	0·48	0·51	0·54	0·56	0·55	0·56	0·56	0·58	0·56	0·56	0·47	0·26	0·00	7·19
1915 Departure.	..	+0·08	+0·10	+0·06	0·00	0·00	−0·01	−0·05	−0·01	−0·03	−0·03	0·00	−0·01	−0·06	−0·07	+0·05	+0·01	+0·03
AUGUST.																		
ABERDEEN : Normal.	..	0·05	0·17	0·23	0·28	0·30	0·31	0·32	0·33	0·33	0·32	0·31	0·28	0·22	0·15	0·04	..	3·04
1915 Departure.	..	−0·03	−0·04	0·00	−0·04	−0·06	+0·04	+0·05	+0·12	+0·20	+0·17	+0·19	+0·06	+0·05	+0·02	−0·02	..	+0·71
ESKDALEMUIR : [Normal].	..	0·03	0·13	0·26	0·35	0·38	0·36	0·39	0·40	0·38	0·39	0·37	0·36	0·31	0·17	0·03	..	4·31
1915 Departure.	..	0·00	0·00	+0·03	+0·03	−0·03	−0·08	−0·10	−0·11	−0·10	−0·07	−0·03	+0·06	+0·07	+0·06	0·00	..	−0·27
CAHIRCIVEEN : Normal.	..	0·03	0·19	0·29	0·34	0·39	0·42	0·43	0·44	0·46	0·45	0·45	0·42	0·37	0·27	0·07	..	5·02
1915 Departure.	..	−0·02	+0·06	+0·10	+0·08	+0·10	+0·14	+0·14	+0·16	+0·17	+0·28	+0·23	+0·14	+0·10	+0·09	−0·02	..	+1·75
RICHMOND : Normal.	..	0·02	0·22	0·37	0·47	0·51	0·54	0·54	0·53	0·52	0·52	0·50	0·47	0·43	0·32	0·07	..	6·03
1915 Departure.	..	−0·01	−0·10	−0·11	−0·19	−0·08	−0·02	−0·01	−0·07	−0·08	−0·09	−0·05	+0·01	−0·04	−0·11	−0·01	..	−0·96
FALMOUTH : Normal.	..	0·04	0·29	0·44	0·50	0·55	0·56	0·58	0·59	0·59	0·60	0·57	0·55	0·51	0·47	0·05	..	6·89
1915 Departure.	..	−0·03	−0·04	+0·13	+0·07	+0·09	+0·11	+0·09	+0·05	+0·11	+0·07	+0·10	+0·12	+0·16	−0·09	−0·02	..	+0·92
SEPTEMBER.																		
ABERDEEN : Normal.	..	..	0·03	0·16	0·26	0·30	0·32	0·32	0·33	0·32	0·31	0·29	0·27	0·18	0·03	..	..	3·12
1915 Departure.	..	..	+0·05	+0·13	+0·21	+0·22	+0·28	+0·32	+0·23	+0·15	+0·11	+0·15	+0·06	+0·06	−0·01	..	..	+1·96
ESKDALEMUIR : [Normal].	..	..	0·01	0·18	0·34	0·40	0·43	0·45	0·45	0·45	0·47	0·45	0·37	0·25	0·04	..	..	4·29
1915 Departure.	..	..	+0·02	+0·14	+0·17	+0·18	+0·11	+0·08	−0·03	−0·01	+0·02	+0·02	−0·03	+0·03	+0·01	..	..	+0·71
CAHIRCIVEEN : Normal.	..	..	0·02	0·18	0·33	0·40	0·45	0·46	0·47	0·47	0·47	0·45	0·40	0·27	0·06	..	..	4·43
1915 Departure.	..	..	0·00	−0·01	+0·03	+0·06	+0·07	+0·10	+0·07	+0·07	+0·05	+0·09	+0·16	+0·13	+0·03	..	..	0·85
RICHMOND : Normal.	..	..	0·02	0·18	0·33	0·43	0·50	0·52	0·52	0·52	0·51	0·51	0·44	0·31	0·05	..	..	4·84
1915 Departure.	..	..	−0·01	−0·03	+0·07	+0·16	+0·16	+0·13	+0·17	+0·12	+0·06	+0·01	+0·06	+0·10	−0·01	..	..	+0·99
FALMOUTH : Normal.	..	..	0·06	0·27	0·43	0·49	0·52	0·54	0·55	0·56	0·54	0·53	0·49	0·36	0·07	..	..	5·41
1915 Departure.	..	..	+0·01	+0·04	+0·02	−0·01	−0·06	−0·07	0·00	−0·03	+0·04	+0·04	+0·05	+0·13	+0·08	..	..	+0·24
OCTOBER.																		
ABERDEEN : Normal.	..	..	..	0·02	0·12	0·25	0·29	0·30	0·31	0·31	0·30	0·25	0·15	0·02	..	..	..	2·32
1915 Departure.	..	..	..	+0·02	0·00	+0·07	+0·03	+0·11	+0·09	+0·07	+0·13	+0·15	+0·09	+0·02	..	..	..	+0·78
ESKDALEMUIR : [Normal].	..	..	..	0·03	0·17	0·28	0·30	0·30	0·31	0·33	0·29	0·25	0·19	0·03	..	..	..	2·48
1915 Departure.	..	..	..	+0·01	+0·01	0·00	+0·03	+0·04	+0·03	+0·04	+0·05	+0·02	0·00	0·00	..	..	..	+0·23
CAHIRCIVEEN : Normal.	..	..	..	0·01	0·20	0·34	0·38	0·41	0·42	0·43	0·40	0·36	0·25	0·06	..	..	..	3·26
1915 Departure.	..	..	..	−0·01	+0·02	+0·02	−0·02	−0·01	−0·03	−0·04	−0·07	−0·05	+0·02	0·00	..	..	..	−0·17
RICHMOND : Normal.	..	..	..	0·03	0·17	0·28	0·35	0·39	0·38	0·39	0·38	0·32	0·21	0·04	..	..	..	2·04
1915 Departure.	..	..	..	−0·03	−0·09	−0·18	−0·15	−0·15	−0·19	−0·14	−0·12	−0·09	−0·11	−0·03	..	..	..	−1·28
FALMOUTH : Normal.	..	..	..	0·05	0·29	0·40	0·44	0·45	0·45	0·44	0·43	0·38	0·28	0·07	..	..	..	3·68
1915 Departure.	..	..	..	−0·03	−0·04	+0·08	+0·02	−0·01	+0·04	+0·03	+0·01	+0·03	+0·02	0·00	..	..	..	−0·15
NOVEMBER.																		
ABERDEEN : Normal.	..	..	..	..	..	0·09	0·20	0·23	0·25	0·25	0·21	0·11	0·01	..	..	..	..	1·35
1915 Departure.	..	..	..	..	..	+0·02	+0·03	+0·12	+0·07	+0·04	+0·01	+0·04	+0·01	..	..	..	..	+0·34
ESKDALEMUIR : [Normal].	..	..	..	..	0·05	0·19	0·28	0·30	0·28	0·28	0·28	0·18	0·02	..	..	..	..	1·86
1915 Departure.	..	..	..	..	+0·07	+0·10	+0·14	+0·13	+0·16	+0·15	+0·14	+0·15	+0·03	..	..	..	..	+1·07
CAHIRCIVEEN : Normal.	..	..	..	..	0·02	0·20	0·31	0·35	0·35	0·35	0·31	0·22	0·06	0·00	..	..	..	2·17
1915 Departure.	..	..	..	..	+0·01	+0·07	+0·06	+0·03	+0·08	+0·02	+0·06	+0·05	+0·02	..	..	..	..	+0·40
RICHMOND : Normal.	..	..	..	..	0·01	0·10	0·21	0·28	0·31	0·30	0·28	0·20	0·04	..	..	..	..	1·73
1915 Departure.	..	..	..	..	0·00	+0·03	+0·06	+0·11	+0·06	+0·01	0·00	+0·05	+0·02	..	..	..	..	+0·34
FALMOUTH : Normal.	..	..	..	..	0·07	0·28	0·35	0·38	0·38	0·37	0·33	0·25	0·07	..	..	..	..	2·48
1915 Departure.	..	..	..	..	+0·04	+0·03	+0·03	+0·10	+0·13	+0·05	+0·11	+0·11	+0·03	..	..	..	..	+0·63
DECEMBER.																		
ABERDEEN : Normal.	..	..	..	..	..	0·01	0·11	0·19	0·21	0·19	0·13	0·02	..	..	..	..	..	0·86
1915 Departure.	..	..	..	..	..	−0·01	−0·06	−0·09	−0·03	−0·04	−0·01	+0·01	..	..	..	..	..	−0·23
ESKDALEMUIR : [Normal].	..	..	..	..	..	0·03	0·10	0·11	0·16	0·13	0·10	0·03	..	..	..	..	..	0·66
1915 Departure.	..	..	..	..	..	+0·01	+0·01	+0·02	−0·01	+0·01	+0·07	+0·03	..	..	..	..	..	+0·14
CAHIRCIVEEN : Normal.	..	..	..	..	..	0·06	0·20	0·26	0·26	0·24	0·19	0·10	0·00	..	..	..	..	1·31
1915 Departure.	..	..	..	..	..	−0·03	−0·05	−0·02	+0·03	+0·02	+0·03	+0·05	+0·02	..	..	..	..	+0·05
RICHMOND : Normal.	..	..	..	..	..	0·05	0·17	0·21	0·22	0·23	0·20	0·09	..	..	..	..	..	1·17
1915 Departure.	..	..	..	..	..	+0·02	+0·08	+0·07	0·00	−0·09	−0·11	−0·03	..	..	..	..	..	−0·06
FALMOUTH : Normal.	..	..	..	..	0·01	0·14	0·27	0·31	0·32	0·29	0·25	0·13	0·01	..	..	..	..	1·73
1915 Departure.	..	..	..	..	−0·01	−0·07	−0·06	+0·04	+0·01	−0·05	−0·07	+0·01	−0·01	..	..	..	..	−0·21
YEAR.																		
ABERDEEN : Normal.	0·01	0·05	0·08	0·13	0·18	0·24	0·28	0·31	0·31	0·31	0·29	0·24	0·19	0·14	0·09	0·05	0·01	2·91
1915 Departure.	+0·01	+0·04	+0·06	+0·06	+0·07	+0·07	+0·06	+0·05	+0·06	+0·05	+0·06	+0·08	+0·06	+0·05	+0·04	+0·02	+0·01	+0·85
ESKDALEMUIR : [Normal].	0·01	0·04	0·08	0·15	0·22	0·28	0·32	0·34	0·34	0·34	0·33	0·29	0·23	0·18	0·11	0·05	0·01	3·32
1915 Departure.	..	+0·01	+0·02	+0·05	+0·06	+0·07	+0·05	+0·05	+0·01	+0·01	+0·04	+0·04	+0·01	+0·01	+0·03	+0·02	0·00	+0·48
CAHIRCIVEEN : Normal.	..	0·04	0·11	0·17	0·24	0·32	0·38	0·40	0·41	0·41	0·40	0·36	0·29	0·22	0·14	0·06	0·01	3·96
1915 Departure.	..	−0·01	−0·01	−0·02	−0·01	0·00	−0·01	−0·01	+0·03	+0·03	+0·03	+0·01	+0·01	+0·02	0·00	0·00	0·00	+0·06
RICHMOND : Normal.	..	0·04	0·12	0·19	0·25	0·32	0·37	0·40	0·40	0·40	0·39	0·35	0·28	0·22	0·15	0·07	0·01	3·96
1915 Departure.	..	0·00	0·00	−0·01	0·00	+0·01	+0·05	+0·02	0·00	−0·01	−0·01	−0·01	+0·02	0·00	−0·01	−0·01	−0·01	+0·03
FALMOUTH : Normal.	..	0·05	0·14	0·22	0·32	0·40	0·45	0·48	0·47	0·47	0·46	0·43	0·35	0·27	0·19	0·07	..	4·77
1915 Departure.	..	0·00	−0·01	−0·01	−0·02	0·00	−0·02	−0·02	0·00	0·00	−0·01	−0·01	−0·01	+0·01	−0·03	−0·01	..	−0·14

I.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **January, 1915.**

Hour, G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit)+															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1011	1010	1010	1019	1019	1028	1021	1013	1007	1014	986	‡	..	..	..	..	..	..	..	..	..	..	..	..	‡	..
2 c	‡	..	..	..	..	..	..	..	..	..	..	‡	997	1002	1005	1006	1007	1008	1009	1006	1008	1006	1004	1003	1002	..
3 c	1001	1002	1002	1002	1002	1009	1009	1009	1008	1005	1002	998	998	1009	1016	1014	1012	1013	1012	1012	1012	1010	1014	1011	1012	1008
4	1011	1009	1010	1011	1020	1020	1020	1013	1013	1011	1013	1011	1011	1010	1000	1001	1011	1013	1013	1010	1008	1012	1012	1007	1008	1011
5	1007	1015	1010	1011	1018	1030	1030	1013	1005	1005	985	966	976	983	973	1008	987	991	989	995	997	1019	1010	1005	1004	1001
6	1003	1002	1004	998	1004	1010	1009	1011	1003	997	993	992	998	1003	999	1003	1008	1009	1008	1004	1005	1010	1008	1004	1007	1004
7	1006	1013	1016	1006	1008	1000	1023	1017	1012	1003	997	993	990	993	995	996	1004	1005	1003	1001	1003	1019	1013	1008	1009	1005
8	1008	1005	1007	1005	1007	1012	1018	1017	1008	999	1001	997	989	980	992	996	991	999	1002	1016	1012	1009	1012	1011	1009	1004
9	1009	1009	1008	1009	1011	1011	1011	1012	1009	1003	1002	‡	..	..	..	..	..	..	..	..	..	..	..	..	‡	..
10	‡	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	‡	..
11	‡	..	..	..	..	..	..	..	..	..	..	..	‡	1004	1005	1010	1010	1011	1012	1013	1013	1013	1013	1013	1011	..
12	1010	1011	1010	1010	1013	1015	1018	1019	1018	1018	1010	1002	998	1002	1009	1011	1013	1014	1017	1019	1019	1005	984	992	992	1010
13	992	1008	999	1004	1008	1007	1009	1009	1010	1011	1009	1007	1005	1006	1008	1008	1010	1012	1013	1018	1017	1009	996	993	995	1007
14	994	1006	1005	1006	1004	1014	1012	1009	1009	1007	1006	1005	1009	1008	1008	1008	1003	993	996	997	997	997	1003	997	1001	1004
15	1000	997	1000	1002	1012	1010	1010	1008	1004	1002	1001	1001	1003	1008	1012	1011	1008	1009	1008	1010	1011	1011	1010	1010	1008	1007
16	1008	1010	1008	1011	1012	1013	1016	1015	1012	1010	1010	1010	1007	1008	1008	1012	1012	1012	1009	1005	1004	1006	1008	1008	1006	1010
17	1005	1006	1007	1009	1011	1014	1012	1012	1011	1008	1009	1006	1008	1014	1016	1014	1013	1014	1016	1004	1016	1015	1016	1014	1010	1011
18 c	1009	1008	1009	1009	1012	1015	1018	1016	1014	1012	1007	1002	1003	1006	1013	1015	1013	1013	1013	1013	1014	1013	1011	1010	1010	1011
19 c	1010	1014	1012	1013	1014	1014	1014	1015	1014	1010	1005	1005	1005	1009	1014	1014	1011	1012	1014	1015	1015	1015	1015	1014	1012	1012
20	1011	1011	1012	1012	1013	1016	1018	1018	1017	1014	1011	1009	1009	1015	1019	1022	1015	1013	1011	1010	1003	1006	1013	1012	1010	1013
21	1010	1014	1013	1011	1013	1016	1018	1019	1018	1014	1010	1007	1010	1010	1013	1013	1014	1016	1017	1017	1015	1014	1014	1013	1015	1014
22	1014	1022	1017	1017	1019	1022	1024	1026	1023	1021	1017	1008	1002	996	1000	1000	1006	1009	1014	1016	1014	1013	1010	1010	1006	1013
23	1005	1019	1007	1008	1010	1008	1012	1012	1010	1010	1006	1004	1001	1004	1004	1007	1006	1009	1012	1015	1014	1009	1008	1011	1010	1009
24	1010	1010	1010	1011	1011	1013	1013	1015	1015	1014	1013	1010	1006	1003	999	990	983	991	1005	1010	1006	1001	1007	1011	1015	1007
25	1014	1014	1005	1025	1046	1019	1016	1011	994	1006	1009	995	993	996	1000	989	984	954	986	998	1002	1070	1016	995	999	1005
26	999	1000	998	997	1006	1013	1009	1008	1003	1004	1005	1003	994	1004	1007	1004	1004	995	997	1011	991	987	1000	1006	1003	1002
27	1002	999	1014	995	1001	1005	1014	1017	1004	980	984	979	976	994	997	1004	994	993	997	995	1000	1004	1013	1010	1002	999
28	1002	1005	1003	1001	1004	1014	1009	1009	1010	1006	1002	1001	1000	1000	999	*991*	1004	1006	1004	1010	1010	1009	1004	1004	1004	1005
29	1003	1006	1006	1008	1008	1011	1012	1014	1014	1006	1008	1004	1005	1004	1002	993	987	998	1008	1014	1014	1025	1005	1012	1005	1007
30	1005	1003	1005	997	1008	1009	1009	1010	1013	1017	1017	1008	1004	1003	1005	1004	1005	1010	995	1010	1012	1009	1018	1010	1008	1008
31 c	1007	1007	1008	1006	1006	1007	1013	1016	1016	1012	999	989	988	990	996	999	1003	1007	1010	1008	1009	1008	1008	1007	1007	1005
Mean †	1006	1008	1007	1008	1012	1013	1015	1014	1011	1009	1006	1001	1000	1002	1004	1005	1004	1004	1006	1009	1009	1012	1008	1007	1006	1007

II.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **January, 1915.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											5000 γ (·05 C.G.S. unit)+															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	100	100	98	107	95	99	108	114	122	121	112	101	113	129	109	100	106	101	98	93	*90*	86	88	100	100	104
2 c	100	103	105	104	104	104	102	100	97	98	§	..	..	..	..	..	..	..	..	..	..	..	..	..	§	..
3 c	§	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	§	..
4	§	..	..	..	..	..	..	..	..	..	..	§	106	109	104	100	101	102	100	96	95	93	93	91	91	..
5	90	89	91	98	103	106	111	113	103	102	102	108	116	118	97	85	110	82	74	69	87	87	94	90	105	97
6	104	100	79	93	102	99	96	101	96	93	101	110	118	121	107	106	105	102	102	100	97	100	95	86	91	100
7	89	107	91	93	95	104	109	106	100	108	114	120	116	125	112	106	103	102	97	94	93	84	83	89	90	102
8	89	96	99	99	101	104	100	101	100	97	97	104	112	119	115	100	103	106	101	84	91	95	98	99	100	101
9	98	101	103	102	102	102	101	101	100	99	103	107	108	110	109	103	91	105	107	105	106	103	102	102	102	103
10	101	100	104	100	102	103	103	102	109	105	104	107	107	113	111	108	106	105	105	105	104	104	103	102	105	105
11	103	98	102	101	101	101	101	99	98	99	103	107	111	111	108	106	109	108	108	103	103	100	100	100	100	103
12	99	101	102	103	104	105	105	104	103	102	102	102	109	116	118	113	114	113	110	109	108	90	62	77	75	102
13	73	85	99	99	96	96	95	94	94	96	100	104	107	111	110	109	111	107	106	106	106	103	84	86	75	99
14	74	73	81	82	84	91	96	100	100	101	104	105	111	118	113	112	117	119	116	113	103	109	103	82	90	101
15	88	88	87	93	88	83	93	97	96	95	102	108	115	115	112	104	102	102	100	99	99	98	97	96	98	98
16	97	99	99	101	102	102	101	100	98	100	101	107	112	108	109	106	106	106	107	104	100	96	93	90	88	102
17	87	94	99	102	102	101	100	100	97	97	100	106	110	114	111	110	108	110	107	98	87	100	99	98	99	102
18 c	97	96	96	96	98	98	95	96	96	99	101	103	107	110	109	106	106	106	106	101	99	99	98	92	96	100
19 c	95	100	99	99	100	100	100	99	98	97	96	98	102	108	105	102	101	102	102	100	99	98	98	95	97	100
20	96	98	99	99	100	101	98	98	98	99	102	107	111	117	111	107	108	112	113	107	106	99	98	98	98	103
21	97	98	95	96	96	97	97	96	96	97	101	103	105	108	108	105	103	102	102	101	101	100	96	94	96	100
22	95	100	95	98	101	103	106	104	108	105	106	109	115	113	111	110	110	108	103	100	97	90	89	85	94	103
23	94	100	99	102	99	96	99	99	97	96	99	102	105	109	108	104	104	103	102	102	96	94	96	96	99	100
24	98	98	99	99	99	99	98	98	99	101	103	103	106	107	107	111	123	113	103	101	98	93	93	96	99	102
25	98	95	100	91	61	81	85	97	107	112	120	108	100	106	106	106	108	83	108	102	77	68	81	84	88	95
26	87	90	94	90	90	86	85	90	93	101	106	109	108	103	104	106	108	105	104	67	77	85	87	87	90	94
27	89	89	94	78	85	82	82	89	93	110	118	115	117	118	113	104	111	90	102	98	88	81	85	83	85	96
28	85	80	74	92	91	89	89	92	91	92	96	103	106	111	112	103	104	103	90	93	96	95	85	70	92	94
29	91	92	94	89	91	94	95	96	95	97	104	103	107	110	105	103	101	101	99	97	94	91	87	89	87	97
30	87	92	71	81	87	90	92	93	94	92	97	103	105	104	102	99	97	101	100	98	96	94	82	81	94	93
31 c	93	93	96	94	93	95	95	94	95	96	95	104	109	111	112	108	101	97	96	95	94	94	94	94	93	98
Mean †	91	94	93	95	95	97	97	99	98	99	102	106	109	112	109	105	107	104	102	97	96	94	91	89	93	99

c International quiet day. † Mean for 23 days—1st, 2nd, 3rd, 4th, 9th, 10th, 11th and 27th omitted. ‡ Light failed. § Instrument under adjustment.

III.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **January, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	178	178	178	174	171	169	165	165	163	161	165	175	183	198	220	225	219	214	203	196	193	187	184	181	179	185
2 c	180	181	180	181	180	179	179	179	179	178	178	178	176	180	183	181	181	181	182	183	185	185	185	184	184	181
3 c	186	185	185	185	183	182	181	181	181	181	181	181	179	181	182	182	181	181	181	181	181	181	181	181	181	182
4	182	181	181	181	179	178	177	177	175	174	170	173	175	177	182	184	184	183	182	183	183	182	181	182	181	179
5	183	180	179	176	172	168	169	169	174	176	179	179	179	184	199	208	200	200	202	202	195	185	179	180	176	184
6	177	167	176	177	177	178	181	180	182	183	182	180	177	180	186	186	185	185	185	185	186	184	184	185	183	181
7	184	174	167	171	172	174	174	177	178	178	178	179	178	183	190	193	190	188	189	190	189	186	181	181	179	181
8	180	179	179	179	180	180	179	180	181	182	183	182	179	183	187	195	195	191	191	191	186	185	183	182	180	184
9	181	181	180	181	182	183	183	183	183	183	183	183	185	186	187	189	195	192	189	188	187	185	185	184	183	185
10	184	183	181	181	181	182	182	182	183	185	188	190	188	185	186	188	185	185	185	184	184	184	183	183	181	184
11	182	182	182	182	182	182	182	182	182	182	184	186	186	190	188	184	183	183	183	183	183	183	183	182	182	183
12	184	183	183	182	181	181	181	182	183	182	182	184	184	183	184	184	184	183	183	184	184	190	201	195	198	185
13	199	193	189	188	188	187	186	186	185	184	186	186	185	185	185	186	186	185	185	185	185	189	197	196	196	188
14	197	198	194	194	193	190	188	187	186	185	185	184	184	186	189	189	190	191	194	196	200	199	194	198	198	191
15	199	196	195	191	187	185	185	183	184	185	187	187	187	188	189	190	191	190	190	188	187	187	187	188	188	188
16	189	188	188	188	187	186	185	185	185	185	188	188	190	192	193	192	191	191	191	191	191	192	192	193	193	189
17	194	192	190	189	189	189	188	187	187	185	185	185	185	183	188	189	190	190	189	192	194	188	187	188	189	188
18 c	190	190	190	190	189	188	187	187	186	186	189	190	190	191	193	191	191	191	190	190	190	189	189	190	190	189
19 c	191	189	189	189	189	188	188	187	188	190	192	191	188	187	190	190	189	190	188	187	187	187	187	187	186	189
20	187	187	187	188	187	185	185	185	185	184	184	183	181	181	186	187	186	188	188	192	195	196	192	192	191	187
21	191	188	187	186	185	184	183	183	182	182	183	183	181	179	181	183	183	184	184	184	184	183	183	182	180	183
22	181	177	178	179	180	180	180	180	178	178	178	178	179	181	182	184	186	186	186	186	186	186	186	186	185	182
23	186	180	180	181	183	183	183	184	184	184	184	183	181	181	183	183	184	186	186	186	187	188	187	187	186	184
24	186	185	185	185	185	184	184	183	183	182	182	183	184	186	190	190	190	192	192	191	191	194	192	188	185	187
25	185	183	181	162	158	167	172	174	175	175	179	185	187	188	192	193	199	215	205	199	204	184	177	185	185	184
26	185	186	187	188	186	181	182	183	183	182	183	185	188	190	192	191	192	194	198	202	202	203	197	194	193	190
27	193	190	178	182	183	185	186	184	186	185	183	184	185	186	191	192	‡	‡	195	198	203	204	195	186	186	..
28	185	185	185	183	182	181	184	187	187	185	185	185	185	187	191	195	197	197	199	197	196	195	197	201	196	190
29	196	195	193	192	191	189	189	188	188	187	188	191	189	190	192	196	197	196	194	193	193	191	192	192	193	192
30	193	190	190	191	189	189	189	189	187	185	183	182	186	187	192	192	193	196	196	196	193	193	192	189	189	190
31 c	188	189	189	189	189	188	187	186	183	183	184	180	180	183	186	190	192	193	192	191	191	190	191	191	191	188
Mean †	188	186	185	184	183	183	183	183	183	183	184	184	184	185	189	190	190	191	191	191	191	190	189	189	188	187

c International quiet day. † Mean for 23 days, 1st, 2nd, 3rd, 4th, 9th, 10th, 11th and 27th omitted. ‡ Drier changed.

IV.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **January, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0-2).	Date.
Jan.	h m	h m	γ	° ′ ″	° ′	°		
6	12 22	12 32	16803	17 44 10		11·1	1	1
,,	10 49	11 9			69 37·1	11·1	0	2
						11·1	0	3
						11·1	1	4
						11·1	1	5
8	11 34	11 45		17 42 45		11·0	1	6
,,	10 40	11 8			69 37·2	11·0	1	7
						10·9	1	8
						10·9	1	9
						10·9	0	10
12	11 1	11 13	16794	17 41 19		10·9	0	11
,,	10 36	10 50			69 36·6	10·9	1	12
						10·8	1	13
						10·8	1	14
						10·8	1	15
20	11 16	11 27	16805	17 41 39		10·8	0	16
,,	10 42	11 4			69 35·9	10·7	1	17
						10·7	0	18
						10·7	0	19
						10·7	1	20
22	10 57	11 14		17 43 56		10·6	0	21
,,	10 25	10 45			69 35·6	10·6	1	22
						10·6	0	23
						10·6	1	24
						10·6	2	25
26	11 13	11 25	16793	17 42 37		10·5	2	26
,,	10 45	11 1			69 36·2	10·5	1	27
						10·5	1	28
						10·5	1	29
29	10 57	11 10	16800	17 41 2		10·5	1	30
,,	10 25	10 46			69 36·5	10·5	0	31

* Mean of the Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

JANUARY, 1915

The principal disturbances of the month were on the 4th, 5th and 6th, and on the 25th and 26th. The former was of a relatively slight character. Preceded by a small but well-marked "bay," shown on N at $3^d\ 21^h\ 50^m$, it began with a "sudden commencement" at $4^d\ 3^h\ 34^m$, showing at first a small downward movement on the W trace. The subsequent disturbance lasted until the early hours of the 6th. A fairly well-marked case of "repetition" took place on 12th, 13th, and 14th, from about 20^h to 24^h in each case, and was shown on all three traces. The second principal disturbance of the month began at $25^d\ 2^h$. The highly pulsationary character of this disturbance during the first 20 hours of its continuance is particularly noticeable, the period of the pulsations averaging about 2 minutes.

During the month the distribution of pulsations of short period among the different hours of the day was of the usual character, about 50 per cent. of the whole number falling between 8^h and 16^h.

V.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **February, 1915.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1007	1006	1007	1007	1009	1011	1012	1012	1011	1013	1012	1010	1009	1008	1008	1004	1003	1013	1017	1017	1003	997	998	1002	1010	1008
2	1010	1012	1013	1013	1017	1024	1033	1038	1018	1021	1019	1013	1006	998	1006	1004	1005	1003	1003	1001	1007	1008	1008	1008	1007	1012
3	1006	1006	1007	1007	1007	1006	1006	1007	1007	1005	1005	1006	1003	1010	1011	1009	1004	1003	1011	1010	1012	1005	1007	1011	1012	1007
4	1012	1007	1007	1010	1015	1020	1023	1021	1017	1012	1001	997	996	1002	1009	1012	1010	1008	1011	1012	1012	1013	1013	1011	1018	1011
5	1018	1020	1006	999	1014	1020	1002	1013	1009	1007	1006	993	981	987	994	1006	1001	998	1002	1005	1011	1014	1011	1008	1008	1005
6	1007	1009	1010	1010	1009	1012	1016	1011	1007	1004	1001	1000	996	999	998	996	995	995	996	1002	1004	1005	1008	1008	1007	1004
7 c	1007	1007	1007	1007	1007	1008	1008	1008	1007	1007	1006	1000	997	1000	1006	1011	1011	1015	1016	1017	1017	1015	1011	1011	1011	1009
8	1011	1010	1009	1011	1012	1011	1010	1015	1017	1014	988	969	981	991	989	1001	1002	980	994	999	992	988	996	986	993	999
9	992	1010	999	990	992	999	1002	999	994	990	985	982	980	980	984	994	991	989	984	993	985	990	999	1000	998	992
10	998	998	998	996	999	999	994	1001	997	994	989	989	988	986	989	991	999	996	1007	1005	1006	1002	1005	1002	1004	997
11 c	1004	1002	1003	1002	1005	1006	1008	1008	1006	1001	994	992	990	991	994	999	1003	1006	1008	1009	1009	1007	1007	1009	1010	1003
12	1009	1012	1013	1012	1013	1017	1019	1013	1009	1014	1004	994	997	996	996	999	1002	1003	1011	1008	1010	1012	1010	1010	1010	1008
13	1010	1010	1010	1010	1012	1015	1012	1011	1013	1010	1006	1003	1004	1000	1000	1004	1005	1000	998	1002	1008	1008	1008	1008	1007	1007
14 c	1007	1008	1008	1009	1010	1012	1014	1011	1010	1009	1004	999	999	999	1001	1002	1002	1004	1003	1009	1013	1012	1012	1012	1012	1007
15	1011	1012	1012	1012	1013	1014	1013	1018	1011	1007	1002	995	996	995	999	999	992	998	1008	1013	1013	1013	1013	1013	1014	1007
16 c	1014	1013	1012	1013	1014	1014	1013	1013	1012	1008	1001	997	996	999	1004	1004	1003	1007	1011	1012	1013	1013	1013	1013	1013	1009
17 c	1012	1012	1012	1012	1014	1015	1013	1013	1012	1010	1003	1000	998	1003	1005	1003	993	989	995	1002	998	1001	1009	1008	1011	1005
18	1011	1007	1005	1007	1008	1011	1012	1008	1010	1001	993	990	993	1000	1005	1008	1011	1010	1012	1013	1015	1010	1000	1007	1009	1006
19	1009	1008	1009	1010	1011	1012	1013	1013	1011	1008	1007	1007	997	998	1001	1007	995	971	982	968	972	983	983	967	1017	998
20	1016	1000	1006	1006	987	1002	997	999	991	994	982	971	975	992	996	990	1003	1001	1002	1000	1001	1016	1020	985	1000	997
21	1000	997	1001	997	996	1005	994	1003	1015	1000	994	996	976	988	1002	1001	1008	1005	1021	1010	1007	1007	1006	1007	1005	1002
22	1005	1005	1006	1005	1009	1009	1016	1013	1001	996	983	990	992	1001	997	990	1002	1006	1010	1018	994	1006	979	1023	1016	1003
23	1015	995	1000	995	998	998	1004	998	994	992	986	967	968	983	995	995	1001	994	995	992	993	1005	1009	1010	1013	995
24	1013	1004	1003	1005	997	1010	1011	1009	994	995	961	960	974	983	995	997	994	989	994	1010	1021	1035	1019	1004	990	999
25	990	992	994	993	1001	1009	1009	1010	1004	995	970	975	986	990	995	1005	980	999	1001	1000	1026	1012	1003	1000	1000	998
26	1000	1004	996	993	1006	994	1008	1011	1005	994	973	974	975	974	982	998	1011	1004	1007	1002	1005	1011	1026	1014	1004	999
27	1003	996	998	995	995	1004	1006	1004	996	1000	999	996	989	992	996	999	1002	1005	1008	1013	1012	1014	1012	1008	1014	1002
28	1014	1009	1005	1005	1002	1007	1007	1008	1005	1005	1005	1000	994	999	999	1004	1004	1006	1004	1006	1008	1007	1010	1018	1007	1005
Mean	1008	1006	1006	1005	1006	1009	1010	1010	1007	1004	996	992	991	994	998	1001	1001	1000	1004	1005	1009	1007	1007	1006	1008	1004

VI.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **February, 1915.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											5000 γ (·05 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	93	94	94	94	91	89	89	90	94	102	105	108	108	108	103	99	102	106	105	104	102	70	76	95	99	97
2	98	96	94	96	99	111	123	121	107	113	110	104	101	93	96	94	94	94	95	93	93	95	93	94	94	100
3	94	92	93	93	93	93	93	93	95	101	106	109	102	99	99	96	98	99	101	100	99	94	94	94	91	97
4	90	92	91	93	95	95	98	98	103	107	106	112	112	113	111	102	97	97	97	96	95	95	97	94	92	99
5	92	87	69	78	85	73	98	89	96	105	112	114	119	122	112	102	97	94	92	92	89	91	95	94	93	96
6	92	92	94	94	90	88	89	91	92	94	103	113	119	117	117	117	106	100	81	82	91	91	92	93	94	97
7 c	94	93	92	92	92	91	91	91	91	94	99	104	104	103	104	103	101	101	99	98	98	96	89	91	96	96
8	96	93	94	94	92	92	92	91	90	93	93	105	134	136	121	112	132	110	104	91	90	79	80	107	86	101
9	86	58	52	62	89	79	84	88	91	93	95	103	112	123	129	124	109	114	97	101	84	80	89	74	90	92
10	89	91	92	92	90	87	89	93	91	92	93	99	104	105	104	100	100	91	92	95	94	92	94	96	90	94
11 c	90	94	93	92	91	91	91	90	89	88	85	91	96	98	100	98	96	95	95	94	94	93	92	91	94	93
12	93	96	94	89	90	86	81	79	88	97	98	102	99	100	101	104	102	97	102	101	92	93	92	94	94	95
13	94	94	94	93	95	96	96	96	96	97	98	99	107	102	103	99	96	91	82	91	92	92	90	91	93	95
14 c	93	95	95	95	95	95	95	92	95	98	103	104	104	104	102	95	94	93	91	94	94	94	92	93	92	96
15	92	94	97	96	95	95	96	95	96	104	108	105	104	106	109	111	99	101	104	98	95	93	92	93	94	99
16 c	94	94	95	96	97	97	95	94	95	96	96	99	101	103	102	98	96	98	98	96	95	95	94	93	93	97
17 c	92	93	94	94	95	95	94	93	94	94	101	109	110	110	107	102	99	98	98	91	86	85	85	87	76	96
18	76	87	91	91	89	91	94	91	93	96	100	103	105	105	100	98	98	100	98	97	95	93	85	88	74	94
19	74	86	89	92	93	92	91	90	89	90	97	108	111	120	133	133	134	93	101	109	91	60	67	105	25	97
20	25	33	43	40	47	58	67	79	86	101	109	117	122	131	133	116	106	101	101	100	100	83	69	83	83	87
21	83	80	80	71	68	74	75	85	94	95	93	109	122	114	115	104	96	102	68	82	96	95	93	94	94	91
22	93	92	90	84	84	81	85	87	87	95	105	113	115	119	119	102	100	95	94	99	86	24	51	72	66	90
23	66	70	92	83	87	84	83	86	86	93	99	103	107	109	108	116	107	80	51	83	93	94	94	99	88	91
24	88	87	84	77	89	85	84	86	85	92	96	109	118	115	113	107	106	84	92	83	78	54	56	61	73	88
25	73	85	95	99	97	89	87	88	86	86	88	97	108	123	115	118	98	96	94	88	81	77	77	87	90	93
26	90	89	90	97	82	79	86	81	78	80	88	94	121	122	119	108	106	63	99	86	90	78	59	60	63	89
27	62	78	83	84	87	86	84	81	87	84	89	101	113	113	111	101	95	93	91	81	86	85	89	91	97	91
28	97	101	93	87	89	87	88	89	93	96	101	109	109	110	108	105	100	94	90	79	89	83	79	91	92	94
Mean	86	87	88	87	89	88	90	90	92	96	99	105	110	112	111	106	102	96	93	93	92	84	84	89	86	95

c International quiet day.

VII.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **February, 1915.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	191	191	191	191	190	189	188	187	184	180	180	183	185	187	189	189	187	188	187	187	191	203	202	194	192	189
2	192	191	190	188	187	182	171	163	167	168	178	184	189	190	188	190	191	192	190	191	189	188	188	188	188	185
3	187	188	188	188	188	187	187	186	184	183	186	186	190	189	187	188	187	187	186	185	184	186	186	183	183	186
4	183	185	185	184	183	183	181	180	179	179	183	184	186	184	183	183	184	186	186	184	184	183	183	183	180	183
5	180	172	170	175	179	179	177	175	175	174	176	181	187	187	187	186	192	194	192	191	189	184	183	183	183	182
6	183	183	183	183	183	183	183	183	182	183	183	182	181	181	183	186	192	195	198	197	192	190	187	186	184	186
7 c	184	184	184	184	185	185	185	185	183	183	183	184	186	186	183	183	183	183	183	183	182	183	184	183	182	184
8	182	182	182	181	181	182	182	181	180	179	178	178	175	177	182	186	195	211	214	226	224	219	206	187	160	190
9	160	163	164	163	168	178	186	187	187	187	187	186	187	189	193	204	222	214	214	207	210	208	187	182	183	189
10	183	186	186	187	187	187	186	183	183	184	186	186	186	187	188	188	191	193	191	189	188	189	187	187	186	187
11 c	186	186	186	186	186	185	185	185	185	188	188	186	183	182	183	186	189	190	189	188	187	187	187	187	186	186
12	186	186	185	185	183	183	182	182	181	177	178	177	180	180	182	186	188	190	187	186	186	186	185	186	186	184
13	186	186	185	184	183	183	182	180	179	179	180	183	183	184	183	184	185	185	191	189	186	185	185	185	185	184
14 c	185	184	184	183	183	183	182	181	179	179	179	179	181	183	183	183	184	184	186	184	183	183	183	183	183	183
15	183	183	183	183	183	182	181	179	178	176	176	177	178	179	180	187	190	188	186	184	184	184	183	183	183	182
16 c	183	183	183	183	183	183	182	181	180	181	183	186	186	186	186	186	186	183	183	183	182	182	182	182	183	183
17 c	183	183	182	182	182	181	181	179	179	176	176	175	179	180	181	183	186	188	190	189	191	190	186	184	182	183
18	182	181	180	181	183	182	180	180	179	179	179	179	182	183	184	183	183	181	181	180	179	180	184	182	180	181
19	180	179	179	180	180	180	180	180	180	179	177	174	177	181	184	188	195	235	235	239	239	233	223	178	180	194
20	180	166	154	154	164	167	181	186	184	178	175	175	181	183	186	195	194	193	192	194	193	193	185	185	187	181
21	187	190	189	191	190	186	186	184	182	181	183	179	181	186	190	198	198	195	197	193	186	185	185	183	183	188
22	183	183	182	182	181	180	178	177	179	177	178	179	184	185	188	190	190	189	187	186	197	206	199	180	171	185
23	171	171	170	168	175	184	186	185	189	187	183	185	194	197	195	198	199	221	229	220	211	198	189	179	176	191
24	176	175	178	175	167	177	183	183	186	186	187	186	187	190	192	193	198	211	213	207	195	190	182	179	179	187
25	179	182	180	176	179	183	185	187	189	187	186	186	186	188	192	198	211	208	205	204	198	188	190	188	184	190
26	184	184	183	176	175	182	183	185	187	188	185	184	183	187	195	199	202	217	203	202	197	195	190	183	178	189
27	178	179	181	182	183	183	184	184	183	180	179	174	175	179	183	187	189	190	189	189	187	186	183	184	180	183
28	180	178	176	179	183	183	182	179	179	179	179	172	172	177	182	183	184	185	187	190	187	188	187	180	181	181
Mean	182	182	181	181	181	182	182	182	182	181	181	181	183	185	186	189	192	196	195	195	193	192	189	184	182	186

c International quiet day.

VIII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **February, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
Feb.	h m	h m	γ	° ′ ″	° ′	°		
2	11 56	12 7	16799	17 41 49		10·4	1	1
,,	11 20	11 44			69 36·1	10·4	1	2
						10·3	0	3
						10·3	1	4
						10·2	1	5
5	10 55	11 10		17 43 44		10·2	1	6
						10·2	0	7
						10·2	2	8
						10·2	2	9
9	11 49	12 0	16774	17 43 59		10·1	1	10
,,	11 13	11 35			69 37·4	10·1	0	11
12	11 31	11 50	16791	17 40 13		10·1	1	12
						10·1	1	13
						10·1	0	14
16	11 52	12 6	16793	17 41 1		10·1	1	15
,,	11 13	11 36			69 37·0	10·0	0	16
						10·0	1	17
						10·0	1	18
						10·0	2	19
19	11 10	11 22	16805	17 42 33		9·9	2	20
,,	10 40	10 59			69 36·2	9·9	2	21
						9·9	2	22
						9·9	2	23
						9·9	2	24
						9·9	1	25
						9·9	1	26
23	11 13	11 24	16769	17 44 30		9·9	1	27
,,	10 39	11 3			69 38·8	9·9	1	28

* Mean of the Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

FEBRUARY, 1915.

The only disturbances worthy of special mention were those which began on the **8th** and **19th.** The former began at $8^d\ 9^h\ 34^m$, and ended about 24^h on the following day. The absolute range was N, 68 γ, W, 101 γ, V, 77 γ, and hence the disturbance was comparatively slight. Its earlier portion, from 10^h to 14^h on the 8th was characterised by numerous oscillations of 2 to 3 minutes period. The most prominent portion of the disturbance centred at $8^d\ 23\frac{1}{2}^h$.

A (possible) example of repetition of disturbance is noticeable on 14th and 15th, occurring about 24^h on both days. The disturbance consisted of an isolated group of eight pulsations of short period, and was repeated on the second day.

From $19^d\ 11^h$ until the end of the month was a time of almost continuous disturbance, the only moderately quiet intervals being the earlier hours of the 20th, 22nd, 25th, 26th, and 27th. Short period pulsations were noticeable by their occurrence between 10^h and 24^h on each day of this prolonged disturbance, and by their almost total absence during the remaining portion of each day.

IX.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **March, 1915.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	15,000 γ (·15 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1007	1006	1005	1002	1005	1004	1008	1007	1005	1000	994	992	995	995	997	1003	1004	1005	1007	1008	1010	1012	1010	1010	1012	1004
2 c	1012	1009	1010	1009	1010	1010	1010	1010	1007	998	992	987	986	993	999	998	1003	1007	1003	1004	1010	1013	1011	1011	1010	1004
3 c	1009	1009	1010	1009	1011	1013	1012	1009	1004	997	992	990	995	999	1003	1006	1008	1008	1010	1013	1014	1013	1013	1014	1014	1007
4	1014	1015	1013	1012	1012	1013	1013	1012	1009	1004	996	990	989	997	1006	1011	1013	1010	1013	1016	1017	1018	1016	1012	1017	1009
5	1017	1009	1013	1008	1008	1012	1012	1009	1008	1002	993	984	983	987	994	1000	1004	1008	1008	1011	1012	1013	1014	1014	1014	1005
6	1014	1016	1015	1016	1017	1018	1019	1019	1016	1005	992	990	992	993	997	1008	1020	1016	1021	1023	1011	1011	1017	1020	1022	1011
7	1021	1042	1042	1039	1022	1021	1010	1009	1006	992	980	976	972	980	988	1001	1007	1015	1015	1021	1007	986	996	1003	999	1006
8	999	982	996	1015	1009	1005	1012	997	993	954	937	946	950	958	977	998	968	994	997	1010	1004	991	1017	1006	1009	988
9	1009	1005	1003	1001	1002	994	995	994	984	978	971	952	986	956	980	991	996	999	1005	1007	1012	1015	1011	1002	1006	994
10	1006	998	1002	1004	996	1010	1008	1000	993	982	966	970	972	979	983	993	1001	1003	997	1005	1007	1009	1030	1008	1008	997
11	1007	1006	1007	1008	1009	1010	1008	1011	994	980	968	956	967	978	991	994	1000	1005	1008	1013	1006	1009	1010	1009	1010	998
12	1010	1009	1009	1007	1008	1008	1009	1006	1005	1001	990	984	981	986	987	1001	1008	1009	1006	1011	1014	1013	1014	1011	1013	1004
13	1013	1020	1008	1010	1011	1011	1011	1010	1001	995	986	984	984	987	992	1001	1007	1010	1011	1013	1014	1013	1014	1013	1014	1005
14 c	1014	1013	1014	1014	1013	1015	1012	1012	1009	995	977	966	971	976	987	999	1009	1010	1009	1013	1014	1015	1022	1021	1012	1004
15 c	1012	1013	1015	1016	1016	1017	1017	1016	1014	1006	992	985	981	982	986	996	1004	1006	1008	1013	1013	1017	1016	1017	1016	1007
16	1015	1011	1012	1006	1015	1015	1019	1015	1010	997	982	975	978	980	988	997	1007	1011	1015	1019	1020	1014	1007	1010	1041	1005
17	1041	1000	1011	1005	1004	1007	1010	1011	1009	1000	989	977	967	974	985	1000	998	1004	999	1006	1010	1013	1012	1007	1010	1001
18	1010	1009	1010	1010	1007	1011	1017	1019	1017	1005	997	981	989	990	995	1000	995	1001	989	1011	1014	1014	1015	1012	1013	1005
19	1013	1011	1014	1009	1015	1019	1019	1006	1004	994	982	966	955	969	986	995	986	994	993	1000	1000	1005	1025	1015	1014	999
20	1014	1008	1010	1005	1019	1011	989	1012	1008	994	986	984	980	970	993	1009	1010	1013	990	1006	1031	1035	1013	1010	1010	1004
21**	1010	1010	1007	1010	1012	1012	1002	998	1007	992	989	986	984	973	996	1003	1005	1004	1005	1000	1027	1001	1006	993	993	1001
22	992	962	999	979	994	986	995	999	993	985	971	954	974	971	973	984	998	1024	1008	1021	1005	1018	1004	1001	995	991
23	995	998	997	1000	1003	998	1006	1004	1000	979	939	952	968	969	983	987	1002	993	1006	1009	1010	1022	1041	1002	999	994
24	999	1004	999	1002	1005	1005	999	1007	1013	995	987	977	976	968	970	985	1004	1008	1015	1017	1014	1001	1004	1007	1010	999
25	1010	1009	1014	993	1007	1003	1006	1002	997	992	964	969	968	993	992	1009	1007	1009	1016	1000	1000	1005	1016	1023	1008	1000
26	1008	1034	1011	1003	1008	1004	1004	996	994	975	970	969	967	970	981	993	1000	1009	1008	1012	1011	1012	1012	1013	1016	999
27	1016	1015	1009	1002	1005	1007	1002	1007	1002	999	981	984	988	990	994	1003	1008	1013	1014	1018	1011	1009	1010	1007	1009	1004
28 c	1008	1003	1007	1006	1010	1007	1011	1013	1009	987	981	973	971	979	984	1001	1006	1009	1012	1013	1013	1012	1012	1014	1014	1002
29	1014	1013	1011	1007	1011	1011	1013	1011	998	989	977	974	973	979	990	1003	1008	1008	1013	1021	1019	1021	1024	1028	1024	1005
30	1024	1013	1012	1013	1012	1023	1013	1015	1002	973	968	967	968	968	981	997	1002	1002	1011	1012	1018	1027	1012	1008	1009	1001
31	1009	1012	1003	1003	1004	1006	1008	1005	993	984	976	976	974	979	984	1000	1007	1008	1013	1014	1016	1014	1012	1012	1016	1001
Mean	1011	1009	1009	1007	1009	1009	1009	1008	1003	991	980	975	977	980	988	999	1003	1007	1007	1012	1012	1012	1014	1011	1012	1002

X.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **March, 1915.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	5000 γ (·05 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	92	92	91	95	85	86	87	86	85	85	87	94	105	108	106	102	100	97	96	96	95	94	93	92	92	94
2 c	92	93	92	89	87	87	86	88	86	83	85	94	110	119	120	116	110	104	106	103	99	97	93	91	91	97
3 c	91	92	91	91	89	88	87	87	83	82	87	98	109	113	109	103	101	100	101	101	99	97	95	94	92	95
4	92	92	91	92	92	92	91	88	82	78	81	91	103	117	116	112	109	105	105	104	102	98	98	91	82	97
5	81	83	81	64	73	79	85	84	79	75	79	90	101	106	107	106	101	100	99	99	97	96	95	93	93	90
6	93	92	92	92	93	93	92	91	85	79	85	92	107	109	112	114	119	107	108	107	100	93	98	98	97	98
7	97	93	93	93	92	85	97	117	93	77	78	89	97	107	111	114	107	103	101	102	100	60	60	24	6	89
8	5	31	65	50	73	74	75	76	73	75	101	99	113	117	118	135	118	96	86	65	58	67	48	68	59	80
9	59	64	75	71	81	92	65	69	72	75	89	94	112	114	113	112	101	96	91	91	94	81	61	67	63	85
10	63	75	82	74	97	74	78	78	72	73	76	87	100	116	113	112	104	91	91	91	94	95	91	89	95	89
11	95	91	91	90	90	90	90	89	85	93	94	105	118	116	113	107	100	95	91	91	90	91	91	93	93	96
12	93	93	96	97	80	81	84	85	83	81	85	94	106	111	111	106	100	91	86	71	90	92	96	96	90	92
13	90	91	90	88	87	88	89	86	81	79	86	101	107	114	112	107	100	91	91	94	92	92	94	95	93	94
14 c	92	95	94	93	91	89	89	86	78	74	78	84	100	110	114	110	103	96	95	94	95	93	90	86	90	93
15 c	90	95	94	93	91	91	91	88	78	71	76	89	105	116	116	113	106	97	88	89	90	84	89	95	95	93
16	95	93	96	96	93	76	78	78	73	65	73	88	105	115	117	112	105	99	99	100	96	88	52	62	60	89
17	60	46	68	84	81	84	84	83	78	70	80	93	113	119	124	122	105	95	93	89	84	89	90	89	90	89
18	90	91	94	96	89	89	88	84	80	75	83	90	112	121	122	119	111	105	101	102	96	93	93	92	94	97
19	94	90	100	115	73	72	76	77	73	73	78	92	110	126	118	125	111	105	93	72	71	73	42	59	63	88
20	62	75	93	90	99	112	120	121	79	74	87	97	118	118	126	133	131	123	98	79	64	70	65	82	82	97
21**	82	88	87	87	89	81	74	85	75	78	88	104	114	120	118	123	127	106	83	60	62	59	5	62	65	85
22	65	108	79	74	72	79	60	74	77	74	88	89	106	114	120	113	103	90	80	66	83	81	67	78	103	86
23	103	88	85	85	88	94	93	87	73	69	83	105	114	124	123	112	105	94	90	93	93	90	80	65	85	93
24	85	93	87	87	84	77	81	90	73	70	76	85	103	114	114	108	103	94	90	87	55	72	61	62	72	85
25	72	78	70	53	72	67	74	75	69	73	75	93	93	121	113	120	117	80	74	84	82	87	90	85	94	85
26	93	68	48	61	64	73	75	78	73	69	80	86	102	114	120	116	105	100	90	89	78	90	91	87	89	85
27	89	81	61	68	81	78	81	79	68	65	70	85	103	115	117	114	105	98	94	95	96	94	76	87	87	87
28 c	87	90	93	81	75	78	83	71	65	64	75	95	82	120	117	112	103	93	91	91	91	90	90	92	93	89
29	93	83	82	83	83	83	83	72	65	65	74	89	104	118	124	119	108	95	97	96	96	94	93	83	80	91
30	80	86	88	82	95	66	72	76	69	66	75	87	111	127	138	135	115	104	93	91	90	60	50	65	73	88
31	73	77	83	84	83	82	78	70	68	71	72	80	100	115	122	122	113	103	96	95	86	87	90	90	94	90
Mean	82	84	85	84	85	83	83	84	77	74	81	92	106	116	117	115	108	98	93	90	88	85	78	81	82	90

c International quiet day. ** Day "proposed for reproduction" by the International Magnetic Commission (double star). *Vide* Plate at end of volume.

XI.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **March, 1915.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	181	183	183	182	182	183	182	182	182	183	182	180	176	176	179	181	182	183	183	182	182	183	183	183	183	182
2 c	183	184	182	182	183	182	182	181	182	182	181	178	175	174	177	185	188	190	189	188	187	186	186	186	185	183
3 c	185	184	184	183	183	182	182	182	182	181	181	176	173	172	176	180	182	182	181	180	180	180	180	180	181	180
4	180	180	180	180	180	180	179	179	180	179	174	169	168	171	174	176	178	179	178	178	178	177	177	179	179	177
5	179	178	170	169	174	177	177	178	181	180	176	172	172	176	178	181	182	182	182	180	180	179	179	180	180	178
6	180	180	180	180	180	180	179	179	181	178	175	174	172	175	178	180	181	181	178	178	184	187	183	181	179	179
7	178	178	178	177	175	177	178	170	172	178	178	176	176	174	174	178	181	182	181	180	186	202	192	169	143	178
8	143	138	128	128	148	166	173	180	186	190	187	182	182	184	181	186	209	217	206	206	204	201	188	174	168	179
9	168	168	173	170	154	142	156	171	174	176	177	177	178	177	177	180	186	189	186	186	185	186	185	182	181	175
10	181	181	181	181	166	159	166	173	180	181	181	179	177	177	182	186	190	193	193	189	187	186	176	175	177	180
11	176	179	179	179	179	179	178	179	181	179	178	177	176	177	178	181	184	185	183	183	184	184	181	181	180	180
12	180	180	178	168	168	174	175	175	177	178	176	175	172	172	177	180	181	182	182	183	180	179	179	179	178	177
13	178	175	175	176	176	176	176	176	178	176	172	170	166	168	172	177	180	180	178	177	177	177	177	178	178	175
14 c	177	177	177	176	176	176	176	178	179	177	177	175	175	175	179	180	182	179	177	177	177	177	176	174	175	177
15 c	175	175	175	175	175	175	175	176	178	178	176	171	170	171	174	177	179	180	182	181	179	179	177	175	176	176
16	176	176	175	173	167	168	170	172	175	175	172	169	165	167	171	176	178	177	175	172	173	178	183	168	124	172
17	124	133	149	156	163	168	169	170	171	170	167	165	164	169	170	175	183	191	189	184	182	179	176	176	176	170
18	176	175	175	171	172	173	173	174	172	171	166	164	160	160	164	172	186	197	196	187	182	179	177	176	175	175
19	175	175	173	152	144	150	152	162	169	173	172	167	167	167	177	188	191	196	197	195	194	188	174	160	156	173
20	156	160	162	166	162	155	149	148	159	164	160	159	159	167	172	176	182	194	217	217	197	165	159	168	171	170
21 **	170	170	173	174	174	173	175	170	164	163	162	156	159	166	169	174	193	125	255	239	208	145	159	167	168	174
22	168	127	134	127	130	123	127	150	159	166	170	171	169	174	182	191	204	212	204	198	187	181	167	156	140	165
23	140	158	168	174	174	170	165	169	170	170	168	163	165	165	167	172	180	188	185	181	179	177	156	149	147	169
24	147	151	164	170	171	172	171	165	166	169	167	168	167	167	172	173	175	177	178	181	190	186	182	178	175	172
25	175	172	169	159	142	158	167	171	171	169	167	165	166	165	169	172	181	194	199	197	194	189	183	176	164	174
26	165	133	136	147	156	163	166	171	172	170	167	168	166	164	168	174	178	183	184	184	183	178	176	176	174	168
27	174	168	164	168	171	171	171	171	173	171	169	164	157	158	164	170	172	173	175	175	178	178	180	178	176	171
28 c	176	175	168	171	172	172	169	171	171	172	169	164	162	164	169	172	174	175	174	173	172	173	174	173	173	171
29	173	166	164	169	170	170	171	174	177	176	173	166	159	156	159	166	173	175	175	173	172	172	171	170	162	169
30	162	164	168	169	159	155	157	160	166	169	167	163	159	159	163	173	185	190	186	178	175	175	171	168	163	168
31	163	163	168	171	171	171	172	175	175	170	166	160	157	156	160	167	173	175	178	175	175	172	171	171	171	169
Mean	170	168	169	168	168	168	170	172	174	175	173	170	168	169	173	177	183	184	188	186	184	180	177	174	170	174

c International quiet day. ** Day "proposed for reproduction" by the International Magnetic Commission (double star). *Vide* Plate at end of volume.

XII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **March, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
Mar.	h m	h m	γ	° ′ ″	° ′	°		
						9·9	0	1
5	11 11	11 24	16758	17 41 56		9·9	0	2
,,	10 35	10 55			69 37·7	9·9	0	3
						9·9	0	4
						9·8	1	5
						9·8	1	6
9	11 14	11 25	16737	17 44 3				
,,	10 39	11 4			69 39·2	9·8	2	7
						9·8	2	8
						9·8	2	9
						9·8	1	10
						9·7	1	11
12	11 11	11 24	16769	17 40 46		9·7	1	12
,,	10 35	11 1			69 37·6	9·7	0	13
						9·7	0	14
						9·7	0	15
						9·8	2	16
						9·7	2	17
23	12 50	12 58	16761	17 47 37		9·7	1	18
,,	12 26	12 43			69 38·0	9·6	1	19
						9·7	2	20
						9·7	2	21
						9·7	2	22
						9·7	2	23
26	11 12	11 24	16751	17 41 4		9·7	1	24
,,	10 36	11 0			69 38·4	9·7	2	25
						9·7	1	26
						9·6	1	27
						9·6	0	28
						9·6	1	29
30	11 42	11 53	16765	17 44 26		9·6	1	30
	11 12	11 33			69 38·2	9·6	0	31

* Mean of the Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

MARCH, 1915.

The first five days of the month were very quiet. At $6^d\ 15^h\ 24^m$ there occurred the sudden commencement, sharply marked on all three components, of a disturbance which continued until 24^h on the 10th. The initial portion of this disturbance may be regarded as due to a disturbing vector of components N, 31γ, W, 26γ, V, -3γ, superposed on the earth's field at the instant preceding the sudden commencement. The most prominent movements took place at $7^d\ 23^h\ 10^m$, $8^d\ 16^h\ 25^m$, $9^d\ 3^h\ 40^m$, $10^d\ 3^h\ 59^m$, and $10^d\ 21^h\ 50^m$, as shown by the N trace. The fourth of these showed the action of a disturbing force which changed from (S, W, down) to (N, E, up). The absolute range during the whole disturbance was N, 128γ; W, 156γ; V, 190γ.

A fairly large but brief disturbance began at 22^h on the 16th. When regarded as a disturbing field, superposed on a hypothetically undisturbed field, and represented by vector diagrams on the three co-ordinate planes, it shows (1) on the horizontal plane an initial rapid oscillation about a direction N, 77° E, followed by three large counter clockwise rotations; (2) on the N, V plane, seven alternate clockwise and counter clockwise rotations during a period of 3 hours; and (3) on the W, V plane, a similar alternation, but less clearly marked.

The period from $20^d\ 6^h$ to $26^d\ 4^h$ was one of almost continual disturbance. One of its features* was the repetition on the N trace of the following day of that part which occurred between $20^d\ 18^h\ 25^m$ and $20^d\ 21^h$, not only the main features of the movement, but also the minor pulsations superposed thereon being reproduced. The same is true of the V trace, except that superposed disturbances are added.

* Plate at end of volume.

XIII.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **April, 1915.**

Hour G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1016	1016	1013	1012	1011	1012	1014	1012	1008	991	982	974	973	982	999	1007	1018	1013	1010	1013	1014	1011	1011	1011	1011	1005
2	1010	1016	1010	1012	1016	1020	1016	1020	1017	1000	982	976	968	956	986	1011	1007	1002	986	1011	1022	1022	1012	1017	1024	1004
3	1024	1018	1011	1012	1017	1000	1020	1004	1002	993	978	968	959	977	988	1003	1016	1024	1022	1024	1018	1017	1017	1022	1015	1005
4	1015	1023	1018	1009	1013	1008	1013	1014	1007	992	979	971	972	983	989	997	1003	1013	1027	1016	1017	1017	1013	1014	1012	1005
5	1012	1007	1007	1008	1010	1008	1012	1013	1014	1007	987	972	968	972	975	997	1011	1017	1017	1021	1020	1018	1017	1022	1024	1005
6	1024	1018	1018	1014	1014	1016	1018	1018	1013	1015	989	976	975	983	988	1002	1006	1013	1027	1027	1027	1026	1022	1026	1018	1011
7	1018	1018	1012	1017	1014	1017	1021	1021	1018	1008	993	982	977	984	992	1002	1011	1016	1023	1035	1066	1037	1032	1036	1031	1015
8**	1031	1021	1022	1012	1025	1012	1015	1022	1022	1012	990	963	960	952	973	1030	1018	1013	1017	1025	1022	1027	1016	1010	1006	1008
9	1006	1006	1003	1003	1005	1008	1009	1008	1007	1000	991	984	983	986	993	1002	1007	1018	1021	1018	1015	1013	1012	1012	1012	1005
10 c	1012	1012	1012	1012	1012	1011	1009	1009	1006	998	990	983	981	986	992	1000	1007	1012	1017	1017	1017	1016	1016	1017	1017	1006
11 c	1017	1020	1021	1018	1021	1019	1019	1022	1017	1008	996	988	987	988	998	1008	1018	1023	1009	1018	1017	1017	1017	1017	1017	1012
12 c	1017	1016	1017	1017	1017	1016	1016	1016	1013	1004	997	983	983	989	992	999	1006	1014	1018	1021	1013	1017	1020	1020	1018	1009
13 c	1018	1017	1015	1016	1017	1017	1022	1024	1019	1011	999	993	990	993	995	1006	1018	1024	1026	1023	1022	1022	1022	1018	1018	1014
14	1017	1019	1019	1019	1019	1020	1019	1016	1012	1004	992	985	986	994	995	1013	1027	1006	1012	1020	1020	1023	1019	1026	1017	1012
15	1017	1015	1014	1016	1014	1016	1016	1016	1012	1002	990	980	980	986	989	996	997	1036	1007	1036	1017	1021	1005	1013	1006	1008
16	1006	1009	1008	1007	1009	1010	997	1006	999	987	983	975	972	972	989	996	1007	1044	1016	999	992	1012	999	1001	996	1000
17	996	1000	1011	1005	1002	1006	1011	1010	1003	993	982	973	967	971	982	995	1001	1010	1022	1022	1026	1024	1025	1025	1036	1000
18	1036	1041	1020	1011	999	1018	1020	998	997	1000	990	976	970	971	981	992	1002	1015	1031	1032	1031	1034	1030	1028	1024	1009
19	1024	1015	1005	996	1006	1030	1016	1010	1001	996	989	976	966	970	985	991	1005	1032	1051	1018	1010	1000	998	1010	1029	1004
20	1029	1002	990	992	996	1002	1007	1005	994	970	980	981	979	983	990	1002	1010	1016	1019	1020	1010	1007	1014	1008	1007	1000
21	1007	1006	1007	1011	1007	1008	1010	995	1005	998	991	988	981	986	987	997	1003	1016	1027	1050	1007	1002	1016	1005	986	1004
22	986	1000	1022	1011	1005	1003	1010	1009	1004	1000	992	977	963	966	991	1011	1002	1039	1037	1020	1028	1015	994	1011	1047	1005
23	1047	1032	993	1010	1011	1006	1002	1002	999	991	985	981	982	972	988	1001	1014	1011	1021	1017	1014	1015	1011	1008	1009	1004
24	1009	1006	1009	1007	1008	1011	1011	1011	1004	996	988	983	986	984	982	998	1008	1011	1025	1017	1018	1015	1012	1021	1017	1005
25	1017	1011	1011	1013	1008	1010	1015	1012	1014	1007	995	980	977	988	995	1004	1016	1017	1016	1020	1019	1010	1013	1016	1007	1007
26	1007	1012	1012	1012	1024	1037	1037	1015	1006	976	937	956	977	984	975	1001	1032	1053	1047	1001	995	997	1002	1006	1007	1004
27	1007	1009	1008	1008	1009	1009	1011	1012	1008	996	988	980	976	980	982	990	999	1012	1010	1012	1016	1015	1015	1012	1008	1003
28 c	1008	1007	1007	1004	1007	1007	1006	1008	1007	998	984	979	977	980	989	998	1004	1014	1016	1022	1016	1017	1016	1019	1014	1004
29	1014	1009	1009	1010	1011	1012	1014	1019	1015	1002	987	974	975	979	988	995	1005	1012	1023	1027	1022	1024	1025	1016	1017	1007
30	1017	1016	1014	1012	1011	1012	1015	1020	1017	1004	1003	996	984	987	998	1007	1005	1009	1032	1036	1034	1026	1015	1015	1016	1012
Mean	1015	1014	1011	1010	1011	1013	1014	1012	1009	999	987	978	976	979	988	1002	1009	1019	1021	1021	1019	1017	1015	1016	1016	1007

XIV.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **April, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											5000 γ (·05 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	93	96	82	74	75	75	72	72	64	60	67	77	100	115	123	122	118	108	101	95	81	93	91	89	89	89
2	89	93	86	97	88	82	81	85	80	59	63	86	115	124	131	141	140	130	111	100	103	98	95	78	66	98
3	66	68	84	83	68	87	80	68	63	67	74	93	113	123	123	117	112	103	68	85	92	95	86	68	63	87
4	63	75	71	80	75	81	81	76	65	68	72	80	99	119	119	116	108	92	79	86	88	86	79	84	84	86
5	84	87	86	84	80	81	82	80	69	63	66	71	88	114	122	118	112	105	97	96	95	87	91	93	96	90
6	96	88	88	83	90	83	80	74	67	66	72	79	96	109	110	111	104	102	103	99	97	97	100	97	89	91
7	89	91	90	88	83	80	81	79	74	65	64	72	87	106	115	111	108	103	102	102	101	77	70	87	91	89
8**	91	48	52	52	66	60	71	74	72	70	80	90	110	123	121	132	121	108	99	99	100	100	94	90	86	89
9	85	83	80	80	78	74	72	70	64	63	70	80	99	110	109	101	91	87	87	90	91	89	88	88	88	85
10 c	88	87	86	85	83	80	75	72	67	64	70	78	90	102	107	105	98	94	91	91	91	91	91	91	92	87
11 c	92	91	89	85	84	81	80	78	73	70	70	78	90	99	107	107	106	100	89	92	92	92	92	91	91	89
12 c	91	89	89	86	83	80	76	72	69	69	71	80	98	110	113	108	101	97	91	82	82	85	89	91	93	88
13 c	93	91	90	89	86	85	83	79	76	76	81	88	101	114	112	103	99	95	91	90	90	91	91	90	92	91
14	92	92	90	89	85	81	77	71	65	64	70	82	103	123	122	116	111	95	91	91	91	87	84	80	86	90
15	86	88	89	88	85	82	77	70	66	67	73	84	103	114	129	130	118	127	103	80	69	69	42	31	64	86
16	64	82	85	85	83	80	88	80	63	57	67	83	105	120	124	123	121	103	95	80	73	63	55	43	44	84
17	44	63	63	60	77	74	71	69	66	66	70	79	92	103	107	103	99	95	93	96	98	98	94	94	91	83
18	91	80	63	70	86	64	65	64	98	79	80	86	101	113	116	116	112	95	101	102	97	90	79	94	86	89
19	85	95	73	67	56	63	81	84	79	78	69	80	99	117	117	116	115	113	90	88	78	66	61	56	47	84
20	47	23	46	68	74	68	70	76	77	70	85	85	100	116	120	112	113	109	104	90	79	79	83	81	84	83
21	84	88	85	85	77	74	72	85	80	79	81	87	100	105	108	108	101	101	106	46	53	84	88	66	20	84
22	20	69	57	57	63	68	68	64	62	59	68	79	96	116	122	136	107	122	112	90	41	15	40	75	36	76
23	36	1	63	68	66	64	62	59	59	65	76	84	104	106	112	106	102	98	97	89	80	87	85	85	84	78
24	84	89	81	78	78	75	71	70	68	69	75	82	97	109	110	110	106	95	95	90	84	82	88	88	85	86
25	85	82	83	84	80	85	74	65	64	68	73	83	100	113	114	110	106	100	92	84	71	84	84	74	77	86
26	77	79	81	85	81	69	59	50	76	63	63	82	97	122	133	130	143	149	122	84	75	79	83	85	84	90
27	84	84	80	79	77	73	69	68	66	67	70	79	93	107	108	106	102	102	91	89	91	88	88	85	83	85
28 c	83	83	81	77	78	70	68	65	58	58	66	78	92	104	110	106	101	98	94	88	85	84	85	83	75	83
29	74	78	84	76	72	69	69	62	61	57	67	82	102	114	122	116	107	99	93	86	83	78	67	75	83	83
30	83	83	82	78	74	72	69	57	54	57	67	80	92	114	123	123	115	106	103	98	93	78	83	82	78	86
Mean	78	78	79	79	78	75	74	71	69	66	71	82	99	113	117	115	110	104	96	89	85	83	82	80	78	86

c International quiet day. ** Day "proposed for reproduction" by the International Magnetic Commission (double star). *Vide* Plate at end of volume.

XV.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **April, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	171	168	168	169	169	169	169	169	169	169	164	160	156	156	160	169	173	184	192	188	187	180	176	175	174	171
2	174	168	170	164	159	160	161	163	164	166	166	158	151	152	156	164	178	198	215	204	188	184	183	181	167	172
3	167	165	168	171	171	168	161	161	158	154	155	154	156	160	165	171	176	180	189	182	174	172	172	165	152	167
4	152	155	159	162	165	167	167	167	165	161	159	156	149	148	155	168	178	184	192	187	180	176	168	167	167	166
5	168	169	172	173	173	172	169	170	170	169	169	165	157	153	162	170	174	177	177	174	172	173	173	170	167	170
6	167	168	168	169	167	167	168	168	169	167	166	163	154	153	161	165	166	170	170	172	172	170	167	166	166	166
7	166	165	165	164	165	166	166	169	169	169	170	166	159	154	157	161	164	166	168	170	169	185	174	168	145	166
8**	146	128	138	146	148	154	157	158	158	158	158	159	155	165	163	165	169	171	172	172	171	170	171	173	173	160
9	173	171	172	171	171	170	170	169	167	167	166	162	158	160	163	167	171	175	174	173	171	171	171	171	170	169
10 c	170	170	170	170	170	171	173	173	169	165	163	160	156	155	156	161	166	170	171	171	171	170	171	171	170	167
11 c	170	169	169	169	169	168	168	167	166	168	167	165	161	161	159	161	164	172	178	175	173	171	171	171	170	168
12 c	171	171	171	171	170	170	170	169	168	170	168	162	155	155	160	167	170	173	177	179	179	175	173	171	170	169
13 c	170	170	171	170	170	168	168	168	167	166	164	161	156	157	164	167	169	171	172	170	169	169	169	169	169	167
14	169	168	168	168	169	168	169	168	166	164	164	160	156	155	163	168	175	181	178	174	171	169	171	167	166	168
15	167	168	168	169	170	169	169	169	167	163	156	154	152	153	162	167	168	173	187	193	197	191	175	160	159	169
16	159	163	168	171	172	172	168	165	165	163	162	160	157	161	173	181	190	206	215	214	204	186	154	161	156	175
17	156	156	153	155	163	171	172	173	175	175	176	172	169	169	175	178	179	176	178	175	172	172	171	172	165	170
18	165	157	155	160	144	142	152	152	144	148	156	156	156	160	166	171	175	182	181	177	176	176	173	162	165	162
19	165	160	154	153	149	136	135	138	141	150	161	163	160	164	173	176	176	181	192	198	199	192	185	169	149	165
20	149	141	137	142	137	147	153	156	156	154	153	156	157	164	172	184	195	200	203	208	202	189	180	176	175	168
21	175	174	168	160	161	163	164	161	157	159	160	160	159	160	168	172	176	178	184	202	199	187	180	182	175	171
22	175	160	152	164	171	172	172	171	169	165	156	151	152	157	162	172	182	183	201	208	203	171	164	124	116	168
23	116	113	133	152	164	169	171	170	168	164	162	156	156	164	168	172	180	180	181	183	184	177	176	176	174	165
24	174	173	172	173	173	173	172	171	171	169	165	162	158	158	161	164	171	178	181	181	182	180	176	172	169	171
25	169	171	172	172	172	169	168	168	167	165	162	156	149	156	161	169	173	179	181	184	184	180	178	177	176	170
26	176	175	173	168	165	157	155	154	148	153	158	159	161	164	183	204	238	270	289	267	238	212	196	188	184	190
27	184	183	183	181	181	181	179	178	177	176	173	167	159	159	167	171	176	179	183	180	179	177	178	179	180	176
28 c	180	180	178	178	176	176	175	173	175	174	172	167	160	160	164	169	172	173	176	180	180	179	178	176	176	174
29	176	174	172	171	173	173	171	172	168	163	160	156	159	152	160	166	169	176	177	176	178	177	176	175	173	169
30	173	173	173	173	172	172	172	172	165	162	156	148	145	145	156	166	175	179	180	180	180	180	178	176	176	169
Mean	166	164	165	166	166	166	166	166	165	164	163	160	156	158	164	170	176	182	187	187	183	179	174	170	166	169

c International quiet day. ** Day " proposed for reproduction " by the International Magnetic Commission (double star). *Vide* Plate at end of volume.

XVI.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **April, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
Apr.	h m	h m	γ	° ′ ″	° ′	°		
6	12 10	12 23	16766	17 42 5		9·5	1	1
,,	11 36	11 57			69 38·0	9·5	1	2
						9·5	1	3
						9·5	1	4
						9·5	0	5
						9·4	0	6
						9·4	1	7
13	11 17	11 30	16786	17 39 59		9·4	2	8
,,	10 43	11 6			69 36·9	9·4	0	9
						9·4	0	10
						9·4	1	11
						9·4	0	12
						9·4	0	13
						9·4	1	14
16	11 12	11 21	16758	17 41 37		9·4	2	15
,,	10 37	10 55			69 38·1	9·5	2	16
						9·5	0	17
						9·5	1	18
						9·5	2	19
						9·5	2	20
						9·5	2	21
20	11 2	11 12	16772	17 39 14		9·5	2	22
,,	10 30	10 50			69 37·6	9·5	2	23
						9·5	0	24
						9·6	1	25
						9·6	2	26
						9·6	0	27
27	11 35	11 46	16763	17 39 37		9·6	0	28
,,	11 10	11 25			69 37·8	9·6	0	29
						9·6	1	30

* Mean of Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

APRIL, 1915.

The principal disturbance of the month began on the 19th, and, with the intermission of a few hours on the 21st and 22nd, continued until the evening of the 23rd. The most important movements took place between $22^d\ 12^h$ and $23^d\ 2^h$, within which interval the absolute range was N, 106γ; W, 166γ; V, 108γ. There was also a disturbance* from $7^d\ 20^h$ until $8^d\ 24^h$. Its chief feature was the unusually large amplitude of the pulsations of short period, and these were exhibited not only on the N and W traces, but also—what is less usual—on the V trace. On the N trace, the motion of the light spot was almost too rapid for the photographic paper, and, in consequence, the details of a rather interesting case cannot be worked out. The pulsations had a period of about $2\frac{1}{2}$ minutes, and their amplitude, or half-range, on the N trace, frequently amounted to 50γ. They were practically continuous from 12^h to 17^h on the 7th.

An isolated disturbance involving a large change in V took place between 12^h and 24^h on the 26th.

Short period pulsations were observed on 26 days of the month. On an average they occurred between 10^h and 18^h, and seldom outside these hours.

* Plate at end of volume.

XVII.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **May, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1016	1018	1023	1024	1023	1012	1025	1016	*1002*	*988*	974	978	981	996	1001	1009	1019	1027	1047	1035	1035	1024	1016	1007	1011	1012
2	1011	1007	1021	1002	1002	1039	1015	1027	1007	991	980	956	969	981	986	1007	1000	1022	1055	1026	1021	1016	1015	1014	1009	1007
3	1009	1009	1007	1006	1007	1011	1000	995	993	975	976	972	975	974	981	1010	1027	1022	1030	1023	1019	1019	1030	1027	1021	1004
4	1021	1012	1006	1006	1013	997	1005	1009	1000	998	993	962	963	980	1005	1014	1016	1025	1027	1026	1011	1012	1015	1014	1016	1005
5	1016	1013	1013	1009	1015	1011	1006	999	995	971	984	979	985	990	992	1006	1015	1028	1021	1020	1019	1021	1024	1018	1011	1006
6	1011	1013	1012	1012	1013	1015	1012	1005	996	992	983	979	981	989	999	1016	1019	1026	1017	1021	1017	1015	1015	1014	1015	1007
7 c	1015	1014	1012	1013	1014	1016	1014	1012	1004	991	984	976	976	985	994	1010	1016	1021	1021	1023	1021	1017	1015	1015	1012	1007
8 c	1012	1013	1012	1012	1015	1017	1017	1016	1007	999	989	986	989	997	1001	1006	1009	1015	1017	1020	1020	1020	1020	1021	1021	1010
9	1021	1023	1024	1020	1019	1020	1016	1013	1008	1004	1000	995	994	1006	1001	1010	1011	1014	1021	1023	1024	1025	1024	1024	1024	1014
10	1024	1021	1016	1017	1019	1020	1023	1019	1011	997	995	991	995	1001	1007	1011	1015	1017	1024	1033	1030	1032	1024	1025	1023	1015
11 c	1023	1017	1015	1013	1016	1019	1016	1011	1009	997	990	986	991	990	998	1003	1009	1016	1024	1032	1026	1027	1027	1026	1024	1012
12	1024	1018	1023	1013	1002	999	986	1010	1012	1002	988	986	986	991	992	996	1005	1016	1030	1035	1021	1023	1020	1022	1022	1008
13	1022	1019	1017	1023	1025	1026	1024	1020	1012	1000	991	986	986	993	1007	1026	1015	1012	1028	1028	1026	1026	1021	1018	1017	1015
14	1017	1015	1013	1010	1013	1017	1021	1019	1014	997	985	981	986	998	1006	1006	1015	1024	1032	1039	1040	1040	1021	1025	1018	1014
15	1018	1018	1011	1017	1025	1023	1025	1022	1012	991	971	971	977	991	994	999	1005	1022	1041	1033	1025	1023	1025	1022	1007	1011
16	1007	1020	1010	1016	1016	1020	1026	1018	1009	996	982	981	986	980	985	1007	1021	1041	1032	1035	1031	1026	1032	1030	1016	1013
17	1016	1003	1014	1025	1015	1016	1001	982	968	966	965	986	962	980	990	1004	1013	1031	1056	1031	1027	1022	1021	1031	1018	1005
18	1018	1011	1006	1002	1008	1014	1015	1007	1006	992	‡	..	..	..	..	..	..	..	..	..	..	..	..	..	‡	..
19	‡	..	..	..	..	..	..	..	..	‡	988	987	983	990	1001	1007	1020	1043	1044	1037	1024	1026	1022	1021	1016	..
20	1016	1011	1007	1011	1030	1000	1005	1002	1002	992	991	987	985	982	1000	1012	1026	1036	1041	1045	1032	1022	1027	1023	1024	1012
21	1024	1019	1015	1017	1020	1019	1021	1012	1012	1004	990	978	989	988	995	1017	1018	1036	1039	1029	1022	1037	1021	1010	1008	1014
22	1008	1013	1012	1015	1014	1012	997	984	980	984	981	982	986	990	983	993	1007	1016	1023	1026	1032	1024	1019	1022	1012	1004
23	1012	1010	1011	1012	1012	1016	1015	1010	1004	999	993	987	989	986	992	1000	1009	1017	1034	1030	1018	1017	1015	1014	1012	1008
24	1012	1011	1011	1011	1011	1015	1016	1016	1010	999	992	995	990	992	1008	1019	1027	1035	1038	1038	1033	1041	1012	1017	1020	1015
25	1020	1015	1010	1012	1010	1013	1008	1000	1002	1001	996	1002	1007	997	987	1016	1020	1035	1050	1041	1034	1020	1011	1015	1012	1013
26	1012	1015	1011	1011	1012	1012	1009	1004	996	992	988	988	998	988	998	998	1006	1017	1030	1035	1030	1026	1022	1022	1021	1009
27	1021	1032	1019	1013	1005	1014	1009	986	991	986	983	983	989	987	994	1001	1031	1017	1012	1039	1042	1040	1021	1015	1007	1009
28 c	1007	1010	1006	1008	1008	1009	1006	997	991	985	984	982	981	985	988	987	997	1007	1017	1025	1026	1023	1021	1020	1018	1003
29 c	1018	1014	1016	1016	1015	1012	1010	1004	999	989	980	980	987	994	1001	1007	1011	1016	1024	1027	1027	1025	1022	1020	1019	1009
30	1019	1018	1017	1017	1017	1016	1014	1007	1002	999	999	999	1003	1011	1027	1024	1014	1027	1032	1020	1024	1030	1020	1017	1014	1015
31	1014	1018	1017	1019	1017	1019	1017	1013	1006	1004	998	996	999	1006	1006	1006	1025	1011	1030	1036	1032	1026	1022	1011	1011	1014
Mean†	1016	1015	1014	1014	1015	1015	1012	1008	1002	993	986	983	986	991	997	1008	1015	1022	1031	1030	1026	1025	1021	1019	1016	1010

XVIII.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **May, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											5000 γ (·05 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	78	75	81	75	62	70	62	51	*58*	*65*	72	89	100	119	125	120	115	110	121	98	77	16	51	46	35	80
2	35	13	35	24	46	51	57	75	62	64	77	89	110	115	115	111	100	104	104	77	87	87	83	81	83	76
3	83	84	81	80	72	69	74	62	57	51	60	72	89	99	102	106	95	99	99	94	95	92	80	86	75	82
4	75	80	78	73	77	80	81	71	61	55	64	78	95	104	110	116	111	97	94	86	91	93	88	85	83	85
5	83	94	98	91	78	72	68	67	64	67	82	93	109	110	110	109	104	103	97	93	91	91	90	77	85	89
6	85	85	84	84	79	77	72	69	66	70	74	81	98	110	106	104	94	93	84	88	92	92	91	88	88	86
7 c	88	86	83	83	79	76	69	61	56	56	67	83	96	103	104	103	90	82	83	86	89	89	90	91	88	83
8 c	88	87	85	83	80	74	68	62	59	59	67	85	108	115	110	100	93	89	89	90	89	88	89	89	90	85
9	90	96	89	90	77	76	71	65	65	68	78	97	113	124	114	108	105	99	95	94	91	92	94	89	88	91
10	88	85	83	83	86	81	70	62	63	68	74	84	100	110	111	107	103	100	99	97	93	89	82	80	87	87
11 c	87	87	84	82	80	82	81	75	72	73	79	81	94	103	103	100	95	93	94	98	92	94	88	89	78	88
12	78	87	84	76	93	98	89	88	68	67	71	79	94	103	106	102	104	101	99	98	89	88	88	89	89	89
13	89	85	83	87	83	78	66	62	55	50	61	84	109	124	122	124	107	97	101	92	93	91	92	88	88	88
14	88	86	90	93	82	78	76	69	67	63	65	78	100	115	117	113	111	104	100	99	67	65	82	88	87	87
15	87	79	81	91	78	74	71	61	56	52	57	73	94	116	119	116	113	110	99	93	86	89	93	78	73	86
16	73	62	83	75	71	69	62	55	57	62	75	83	100	116	119	121	121	125	110	83	83	77	71	75	73	85
17	73	91	102	61	63	59	59	63	71	72	79	86	98	101	93	110	115	119	99	102	94	91	81	83	77	86
18	77	76	75	81	79	70	62	60	57	57	‡	..	..	..	..	..	..	..	..	..	..	..	..	..	‡	..
19	‡	..	..	..	..	..	..	..	..	..	‡	87	106	112	113	106	107	115	98	103	102	100	67	67	67	..
20	67	62	83	79	54	56	78	62	60	62	62	74	88	101	104	100	103	104	103	94	90	93	83	63	83	81
21	83	70	73	77	73	66	56	52	55	58	68	79	97	106	106	115	101	92	99	88	83	70	72	74	79	80
22	79	95	77	57	64	53	54	66	74	78	78	93	98	104	103	103	98	90	90	94	96	89	87	77	88	83
23	88	82	81	76	76	70	67	66	67	68	75	84	100	104	109	100	96	95	95	87	86	88	89	88	87	85
24	87	85	81	76	74	66	63	57	52	62	71	87	96	98	104	104	98	99	95	95	87	59	81	91	78	82
25	78	57	76	76	70	63	56	61	66	68	78	88	108	113	110	114	106	104	93	92	88	80	78	78	77	83
26	77	89	78	72	72	67	63	63	62	66	80	96	111	116	114	102	94	90	91	92	88	91	89	84	93	86
27	93	104	78	109	106	86	78	73	88	87	99	99	108	113	113	112	123	126	107	109	109	104	91	88	86	100
28 c	86	84	84	80	73	65	59	56	54	56	66	75	91	102	107	102	94	89	89	89	88	87	87	88	89	81
29 c	89	85	81	78	73	64	61	57	54	56	72	89	98	107	109	108	104	99	94	91	88	88	89	88	88	84
30	88	85	85	81	77	74	74	67	61	63	72	89	102	106	112	106	102	103	102	92	94	84	81	78	68	86
31	68	78	84	81	77	71	63	56	55	55	65	84	100	111	116	116	121	102	106	100	95	94	68	74	82	85
Mean†	81	81	82	78	75	71	68	64	62	63	72	85	100	109	110	109	104	101	98	93	89	85	84	82	82	85

c **International quiet day.** † Mean of 29 days,—18th and 19th omitted. ‡ Clock stopped owing to light shutter having failed to act.

XIX.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **May, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	176	176	173	172	171	168	165	168	*165*	*162*	160	153	152	153	160	171	175	179	184	199	200	187	165	163	164	170
2	164	164	155	150	150	147	145	143	154	156	156	154	152	159	167	176	181	182	195	222	206	188	181	180	180	168
3	180	179	178	179	180	180	178	175	172	171	165	161	159	160	169	175	192	191	186	182	178	178	175	167	162	175
4	162	148	147	163	168	169	168	174	176	175	170	163	160	160	165	172	175	184	188	189	184	179	176	175	175	171
5	175	172	163	162	168	172	173	173	171	169	164	163	158	162	173	176	176	180	182	180	178	176	173	169	166	171
6	166	169	171	172	174	175	176	175	173	172	168	160	157	163	167	173	178	180	183	180	180	176	175	174	174	173
7 c	174	173	174	174	175	176	176	176	175	171	167	161	158	164	169	173	177	180	179	176	175	173	173	173	173	173
8 c	173	173	173	174	174	176	175	175	173	165	160	156	156	157	160	166	171	172	172	172	172	173	173	173	172	169
9	172	171	168	167	170	173	175	175	175	172	165	160	158	158	165	168	172	175	175	174	175	174	175	174	173	170
10	173	173	173	173	172	171	171	172	168	169	167	164	158	160	163	166	169	171	171	171	173	174	175	173	171	170
11 c	171	171	171	172	171	171	170	169	167	165	161	156	155	160	164	167	169	172	174	176	180	176	175	173	170	169
12	170	168	164	166	161	159	156	156	162	165	166	165	163	165	170	173	176	176	176	177	179	176	175	173	173	168
13	173	173	173	172	171	171	172	172	171	169	162	152	148	152	158	164	176	183	184	184	180	176	174	173	172	170
14	172	172	172	169	168	170	173	175	173	169	166	163	159	160	168	176	177	178	177	180	184	184	176	174	175	172
15	175	173	173	165	166	167	170	173	173	171	168	160	§	..	..	..	..	..	..	..	..	..	..	..	§	..
16	§	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	§	..
17	182	177	<151	<151	151	158	165	167	170	173	177	175	182	189	206	193	193	192	195	190	189	186	181	170	166	177‡
18	167	171	176	178	179	180	178	175	172	171	‖	..	..	..	..	..	..	..	..	..	..	..	..	..	‖	..
19	‖	..	..	..	..	..	..	..	..	..	‖	159	157	160	166	173	174	176	185	188	185	182	185	179	175	..
20	176	174	162	138	144	155	155	158	160	161	163	160	158	163	169	171	174	180	183	191	191	186	178	170	157	167
21	159	163	168	172	174	176	175	172	167	166	167	162	160	166	172	176	182	191	187	190	186	180	171	169	169	173
22	170	159	155	158	165	170	169	161	154	148	149	146	150	159	165	168	169	174	177	176	173	176	177	170	168	164
23	169	171	173	173	174	174	174	173	170	167	163	161	159	161	166	174	177	179	183	188	185	180	175	173	172	173
24	173	173	171	172	174	173	173	173	171	166	163	159	156	160	163	168	179	186	189	188	186	182	172	170	163	172
25	164	164	168	169	172	174	173	171	168	167	162	157	153	159	164	165	171	176	187	192	189	187	182	177	174	172
26	176	166	165	169	172	174	174	171	169	163	156	144	144	156	163	170	174	177	174	174	176	175	173	171	169	168
27	170	155	158	156	138	129	129	137	140	145	145	145	156	163	164	171	185	211	220	208	194	188	186	182	180	166
28 c	181	178	179	179	180	180	178	178	176	172	163	160	158	159	163	170	172	176	175	174	175	175	173	173	172	173
29 c	173	174	174	174	175	174	173	170	168	162	157	153	147	149	152	159	165	171	173	173	173	171	172	172	172	167
30	173	173	173	174	174	174	171	170	168	163	156	152	155	160	164	171	175	182	190	192	186	183	178	171	170	172
31	171	171	171	172	174	175	174	171	168	160	156	157	153	157	161	164	165	177	175	180	181	178	173	172	170	169
Mean †	171	169	168	168	169	169	169	169	167	165	161	157	155	159	165	170	175	180	182	184	182	179	175	172	171	170

c International quiet day. † Mean from 26 days only, 15th, 16th, 17th, 18th and 19th omitted. . ‡ Approximately.
§ Drier changed. Instrument drifting. ‖ Clock stopped owing to light shutter having failed to act.

XX.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **May, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
May	h m	h m	γ	° ′ ″	° ′	°		
6	11 29	11 48	16773	17 40 40		9·6	1	1
,,	10 54	11 15			69 37·8	9·6	2	2
						9·7	1	3
						9·7	1	4
						9·7	1	5
						9·7	0	6
						9·8	0	7
						9·8	0	8
						9·8	1	9
						9·8	0	10
11	12 23	12 36	16786	17 41 26				
,,	11 9	12 1			69 36·9	9·8	0	11
						9·8	1	12
						9·8	1	13
						9·8	1	14
						9·8	1	15
						9·8	1	16
						9·9	2	17
						9·9	..	18
						9·9	1	19
18	14 18	15 15	16794			9·9	2	20
,,	11 26	11 37		17 38 17				
,,	11 0	11 19			69 37·2	10·0	1	21
						10·0	1	22
						10 0·	1	23
						10·0	1	24
						10·0	1	25
						10·0	0	26
						10·1	2	27
						10·1	0	28
						10·1	0	29
						10·1	1	30
26	11 11	11 21	16781	17 40 48				
,,	10 33	11 0			69 36·6	10·1	1	31

* Mean of the Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

MAY, 1915.

The month was characterised by moderate activity. Four days, viz., 2nd, 17th, 20th and 27th have been assigned the character 2, but on none of these was there any large movement. Pulsations of short period occurred with less frequency than in most of the other months of the year, and their absence during the early morning hours was more than usually noticeable. "Bays" were noticed on the N trace, centering at $9^d\ 13^h\ 33^m$, $16^d\ 0^h\ 35^m$, $16^d\ 22^h\ 10^m$, and $17^d\ 1^h\ 41^m$. The first of these also showed on the W trace, which also showed an "inverted bay" at $14^d\ 20^h\ 26^m$.

XXI.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **June, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1011	1011	1011	1011	1012	1015	1016	1016	1011	1003	990	972	976	987	989	991	1001	1012	1022	1026	1025	1018	1015	1014	1013	1007
2	1013	1013	1014	1016	1016	1021	1019	1016	1015	1005	991	979	976	981	980	990	1009	1024	1028	1033	1027	1017	1014	1012	1012	1009
3 c	1012	1012	1012	1013	1016	1018	1017	1014	1007	995	982	975	972	980	986	997	1010	1024	1031	1029	1027	1024	1025	1025	1020	1009
4 c	1020	1017	1017	1017	1018	1020	1020	1016	1010	1002	997	992	991	995	1000	1008	1017	1024	1028	1028	1025	1021	1021	1019	1017	1013
5	1017	1016	1016	1013	1022	1024	1025	1022	1017	1012	997	989	990	995	1004	1012	1019	1030	1036	1034	1031	1028	1021	1018	1014	1016
6	1014	1012	1013	1016	1020	1020	1014	1007	1005	997	987	985	984	997	1008	1009	1029	1036	1032	1026	1028	1021	1018	1019	1019	1012
7	1019	1022	1022	1022	1026	1024	1019	1013	1010	1005	997	995	992	997	1004	1008	1017	1026	1028	1033	1041	1042	1032	1035	1035	1018
8	1035	1042	1037	1031	1030	1031	1011	991	1000	1000	993	985	985	985	992	972	1007	1020	1027	1037	1034	1030	1027	1027	1029	1014
9	1029	1030	1027	1016	1015	1021	1014	1008	998	996	994	990	979	980	985	1002	1011	1021	1024	1027	1024	1025	1021	1016	1016	1010
10 c	1016	1016	1015	1017	1018	1016	1018	1017	1010	996	986	982	985	992	1005	1009	1016	1018	1024	1027	1029	1028	1026	1023	1021	1012
11	1021	1018	1013	1013	1015	1017	1016	1014	1006	996	990	989	991	995	1007	1007	1008	1005	1017	1030	1031	1029	1027	1032	1023	1012
12	1023	1025	1025	1031	1035	1020	1024	1018	973	970	992	990	982	986	985	1006	1014	1018	1017	1036	1027	1023	1011	996	985	1009
13	985	1005	992	977	996	982	1021	1009	983	971	941	939	963	985	991	989	995	1025	1036	1044	1056	1025	1014	1020	1003	998
14	1003	1000	1021	990	1003	1022	1004	997	1000	994	980	970	979	989	983	992	1010	1025	1039	1035	1037	1020	1013	1010	1010	1005
15	1011	1010	1007	1007	1011	1017	1017	1012	1000	987	982	980	985	989	997	1004	1013	1021	1030	1031	1032	1028	1026	1025	1025	1010
16	1025	1014	1011	1010	1015	1021	1021	1020	1016	1003	983	973	977	994	1018	1026	1038	1022	1031	1038	1025	1020	1019	1018	1020	1014
17**	1020	1011	1021	994	955	947	1016	922	781	649	<682	807	897	1012	1100	1102	1257	1007	1107	979	943	949	950	975	952	960‡
18	952	964	937	920	981	969	955	937	937	922	921	938	951	950	954	961	978	973	973	981	984	989	984	979	976	958
19	976	975	974	973	971	969	973	976	971	968	962	954	951	954	966	975	985	990	1001	1000	1001	1003	997	991	985	977
20 c	985	981	981	976	985	987	989	986	980	970	962	953	956	960	971	985	997	1013	1020	1016	1016	1002	997	990	988	986
21	988	984	990	988	997	992	981	980	980	973	956	954	958	*970*	*982*	1016	1029	1026	1052	1031	1026	1013	1014	997	992	995
22	993	1004	1003	998	983	1003	976	981	982	982	962	957	952	953	978	998	999	1006	1028	1037	1017	1003	999	1012	999	992
23	999	1008	1009	1002	1000	986	972	983	993	982	967	963	957	954	963	983	990	999	1009	1013	1018	1003	998	996	993	989
24	993	993	994	998	1001	1001	1002	997	987	973	962	951	953	958	968	981	990	997	1006	1016	1014	1014	1024	1018	1015	992
25	1015	1018	1013	1007	1013	1025	1018	998	987	978	975	972	974	975	971	987	1007	1023	1024	1027	1013	1008	1002	1001	1001	1001
26	1001	998	997	999	1004	1004	999	989	980	980	969	973	973	974	987	997	999	1010	1020	1048	1038	1026	1011	1009	1010	1000
27	1011	1014	1004	1009	1007	1007	1001	996	987	977	966	963	970	982	996	1004	1007	1024	1024	1023	1013	1006	1003	1003	1003	1000
28	1003	1005	1005	1004	1013	1018	1011	995	988	975	968	962	974	967	989	1012	1019	1024	1024	1014	1017	1009	1011	1013	1019	1001
29	1019	1010	1004	1014	1009	1003	994	980	969	962	951	955	954	967	992	1010	1017	1008	1017	1025	1013	1013	1012	1019	1006	996
30 c	1006	1009	1010	1013	1016	1018	1009	1000	986	979	970	964	969	975	989	993	999	1005	1015	1014	1017	1012	1009	1008	1006	1000
Mean†	1007	1008	1006	1003	1009	1009	1005	1000	993	985	975	970	972	978	988	997	1008	1015	1023	1026	1024	1017	1013	1012	1009	1002

XXII.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **June, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											5000 γ (·05 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	82	83	82	82	81	78	74	71	69	65	63	68	85	99	101	101	103	94	90	88	88	86	85	83	83	83
2	83	84	87	91	98	94	91	89	79	68	67	77	87	98	102	103	102	99	95	93	88	86	84	83	83	89
3 c	83	83	83	84	82	78	72	66	59	56	63	73	88	98	104	107	106	104	100	93	89	89	89	87	88	85
4 c	88	88	88	87	86	80	72	62	58	59	72	88	99	106	109	107	104	96	91	92	90	89	89	91	91	87
5	91	89	85	81	78	72	69	65	61	60	§	..	..	..	..	..	..	..	..	..	..	..	..	..	§	..
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	§	..	..	..	..	..	..	..	..	..	..	..	§	104	106	103	96	90	88	94	101	108	100	99	99	..
8	99	100	94	85	75	66	60	65	83	83	83	94	101	109	114	106	110	106	98	97	95	92	92	94	94	92
9	93	88	85	86	80	71	65	64	61	64	72	87	95	103	102	108	103	98	93	91	89	87	87	87	85	86
10 c	85	88	85	84	73	71	64	62	59	61	70	82	97	102	105	98	94	91	91	89	88	88	88	88	88	84
11	88	86	83	80	76	66	58	107	54	63	80	98	109	112	112	103	97	95	96	102	101	93	94	99	93	90
12	93	77	80	86	72	68	68	54	50	72	87	97	105	121	130	124	120	119	103	101	90	75	61	36	−24	85
13	−24	8	2	23	54	61	44	39	39	42	60	82	92	114	122	110	100	96	98	90	62	79	77	58	66	66
14	66	73	60	60	79	56	49	46	45	46	56	68	82	93	95	98	99	102	101	78	82	86	86	83	82	75
15	82	80	80	78	77	64	60	54	47	48	55	61	81	93	104	110	112	109	99	95	91	87	87	85	77	81
16	77	77	75	69	62	61	55	47	50	55	66	82	93	112	126	136	143	122	108	104	91	85	84	82	80	86
17**	80	79	93	75	71	39	− 4	2	−89	−67	−14	54	104	169	175	158	269	213	71	88	79	83	80	13	28	75
18	28	21	− 6	36	35	24	23	17	17	23	39	64	92	103	108	112	108	93	87	82	76	72	73	74	72	59
19	72	72	68	62	57	52	50	47	45	44	48	60	73	86	91	90	91	90	87	86	83	80	77	74	72	70
20 c	72	71	67	66	55	45	40	39	39	39	50	68	88	92	96	99	99	99	99	91	77	82	72	68	61	71
21	61	61	66	58	46	44	46	45	45	46	49	56	81	*90*	*113*	*129*	131	114	125	115	112	99	68	60	51	77
22	51	51	55	54	54	47	27	48	60	48	62	84	101	111	117	114	107	100	90	89	87	86	82	90	93	77
23	93	70	48	49	50	49	62	64	62	61	65	76	89	93	95	94	96	88	88	86	86	83	82	80	77	75
24	77	73	72	71	66	59	52	48	45	47	60	81	91	95	99	99	98	92	90	88	82	83	91	78	77	77
25	77	77	72	67	77	67	66	60	71	69	74	78	94	104	116	112	109	106	97	89	83	78	76	75	72	83
26	72	71	68	68	63	58	50	47	47	51	63	72	83	95	105	105	102	100	99	91	86	70	66	63	41	74
27	40	57	62	74	71	70	67	58	52	54	61	71	87	95	101	101	93	87	84	82	80	80	79	78	79	75
28	79	79	79	78	76	50	44	47	44	43	57	69	89	99	107	107	101	95	90	86	87	78	82	88	84	77
29	84	65	64	71	70	52	54	49	51	54	60	69	89	107	112	119	109	93	92	95	89	87	84	76	74	79
30 c	74	68	74	74	70	65	55	53	45	44	59	69	85	101	113	112	107	98	92	87	87	85	83	83	82	79
Mean	72	71	68	70	69	61	56	56	53	54	63	76	91	102	108	108	106	100	96	92	87	84	81	79	74	79

c International quiet day. ** Day "proposed for reproduction" by the International Magnetic Commission (double star). *Vide* Plate at end of volume.
† Mean of 29 days—17th omitted. ‡ Approximate. § Light failed. || Mean of 26 days—5th, 6th, 7th and 17th omitted.

XXIII.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **June, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	171	173	174	174	174	173	173	174	171	165	159	160	160	163	167	169	171	171	172	175	175	174	172	171	171	170
2	172	172	172	171	171	169	169	169	171	170	168	162	158	159	161	163	168	176	182	183	180	176	173	172	171	170
3 C	172	172	172	173	173	173	173	174	174	173	168	162	154	154	158	161	165	171	173	175	175	173	169	169	169	169
4 C	170	170	170	171	173	173	173	173	174	170	165	163	163	168	168	169	170	174	175	177	177	175	172	170	170	171
5	172	172	172	173	175	176	175	174	171	165	160	158	159	160	165	168	168	175	177	176	176	176	173	172	172	170
6	174	174	174	174	175	176	177	176	171	167	163	159	160	164	166	169	171	176	177	174	174	173	173	173	171	171
7	172	170	169	171	172	174	174	174	171	165	161	160	159	163	167	170	174	173	172	171	168	166	168	169	168	169
8	169	167	167	168	169	170	172	164	161	160	154	151	150	154	164	178	177	177	178	176	175	175	172	171	169	167
9	170	171	171	171	166	166	165	168	170	168	166	162	162	162	165	170	173	176	177	173	173	172	170	170	170	169
10 C	171	171	171	168	169	171	171	171	172	171	162	155	159	161	159	166	171	174	171	169	170	171	170	169	168	168
11	169	169	170	171	172	174	175	174	171	166	161	154	152	157	161	169	180	183	179	173	175	177	175	171	172	170
12	173	173	174	173	175	176	173	175	176	166	159	160	161	166	173	184	196	208	217	215	211	202	191	166	127	180
13	127	121	112	112	119	121	142	158	162	171	167	164	164	168	173	184	190	191	188	188	192	183	176	172	165	161
14	165	156	143	143	138	148	159	162	168	167	166	166	168	168	169	173	177	180	184	189	187	181	176	176	176	167
15	175	175	175	173	175	173	174	177	179	176	168	163	163	163	163	165	169	175	178	180	178	175	173	172	169	172
16	168	168	170	171	171	172	172	171	168	165	163	157	159	159	163	171	181	201	208	201	194	‡	..	..	‡	..
17✻✻	‡	..	..	..	..	..	..	..	..	..	‡	144	228	276	377	358	373	334	234	222	234	219	202	141	87	..
18	85	88	67	54	129	163	173	183	189	185	187	182	180	177	179	187	191	195	197	194	194	193	190	188	187	167
19	185	185	187	188	188	189	187	186	188	178	180	173	170	177	181	181	188	188	187	188	190	189	188	185	184	184
20 C	182	178	175	176	177	179	178	179	181	179	180	172	167	168	171	174	182	189	194	195	198	193	189	185	178	181
21	176	170	165	168	168	171	176	175	176	173	172	168	168	167	168	169	175	194	197	197	194	182	179	178	177	176
22	175	169	169	170	161	141	148	142	140	144	159	165	166	167	174	178	189	192	197	202	195	192	185	174	148	170
23	147	147	151	159	166	170	170	166	167	161	162	167	168	170	170	177	182	185	186	185	183	182	179	178	179	171
24	178	177	177	176	177	176	176	178	178	176	172	166	161	162	159	161	167	172	173	172	174	175	171	172	172	172
25	171	170	170	169	165	160	161	168	163	166	164	162	166	176	182	184	191	187	183	182	181	180	178	177	177	173
26	177	176	176	176	177	177	177	176	175	172	164	159	153	157	164	166	168	175	178	183	187	184	182	177	171	173
27	170	170	174	172	173	175	176	178	176	175	171	167	163	165	170	176	180	183	183	185	185	180	177	175	175	175
28	174	173	173	173	170	172	173	169	167	167	164	152	150	159	160	161	170	175	176	178	176	177	176	173	166	169
29	166	150	148	146	146	155	163	172	171	166	161	153	151	159	168	174	184	191	185	182	181	177	175	173	168	167
30 C	167	164	166	171	173	174	172	172	171	168	165	163	165	166	169	176	177	176	177	180	180	179	177	175	173	172
Mean†	167	165	164	164	167	168	171	172	172	169	166	162	161	164	168	172	177	182	183	183	182	180	177	174	170	171

C International quiet day. ✻✻ Day "proposed for reproduction" by the International Magnetic Commission (double star). *Vide* Plate at end of volume.
† Mean of 28 days—16th and 17th omitted. ‡ Gas failed.

XXIV.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **June, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
June	h m	h m	γ	° ′ ″	° ′	°		
1	11 10	11 19	16750	17 36 0		10·1	0	1
,,	10 35	10 59			69 38·7	10·2	0	2
						10·2	0	3
						10·2	0	4
						10·2	0	5
						10·2	0	6
						10·3	1	7
						10·3	1	8
						10·3	0	9
9	13 0	13 13	16771	17 44 15		10·3	0	10
,,	12 26	12 49			69 37·6	10·3	1	11
						10·4	2	12
						10·4	2	13
						10·4	1	14
						10·4	0	15
						10·4	1	16
						10·4	2	17
						10·4	2	18
						10·4	0	19
15	11 4	11 15	16764	17 35 39		10·5	0	20
,,	10 36	10 54			69 38·4	10·5†	2	21
						10·7†	1	22
						10·8	1	23
						10·9	1	24
						10·9	2	25
						10·9	1	26
						10·9	1	27
						11·1	1	28
						11·1	1	29
22	11 14	11 32	16761	17 42 1				
,,	10 32	10 59			69 39·5	11·1	0	30

* Mean of Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.
† Gas supply improved on 21st.

JUNE, 1915.

A slight disturbance beginning at $7^d\ 20^h\ 8^m$ was ushered in by a sharply marked "sudden commencement," which, on the N trace, showed the preliminary depression very clearly. The range of this disturbance was small, but, during portions of it (10^h to 16^h on the 8th, and 3^h to 10^h on the 9th), it was highly oscillatory. From $12^d\ 7^h$ to $14^d\ 20^h$ was also a disturbed period.

The largest disturbance * of the year took place during this month. It began with a (doubtful) "sudden commencement" at $17^d\ 1^h\ 45^m$, and continued until $18^d\ 21^h$. Its absolute range exceeded 725 γ on the N; amounted to 627 γ on the W; while it exceeded 464 γ on V. The light spot went off the N and V sheets. The exact times of some of the principal movements were difficult to measure owing to their rapidity and the consequent faintness of the trace, but the largest (+N−W) took place at $17^d\ 17^h\ 40^m$.

Two other disturbances, both of small extent and short duration, showed sudden commencements, the times being $21^d\ 15^h\ 9^m$ and $24^d\ 21^h\ 28^m$. Otherwise the month was quiet, and showed no unusual feature.

* Plate at end of volume.

XXV.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **July, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	15,000 γ (·15 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1006	1005	1004	1007	1010	1011	1009	1001	994	986	979	972	977	985	995	1000	1009	1013	1029	1027	1018	1009	1009	1026	1034	1004
2	1034	1024	1019	995	966	999	1011	981	990	986	972	964	963	970	989	1018	1012	1045	1035	1017	1005	999	994	994	995	998
3	995	995	998	1001	1006	1009	1009	1002	996	985	974	953	944	969	984	995	997	1016	1023	1024	1026	1018	1003	999	997	997
4 c	998	998	1000	1004	1006	1004	995	988	981	981	989	986	979	981	991	994	994	998	1008	1013	1014	1012	1006	1006	1007	997
5	1007	1005	1005	1004	1007	1009	1007	1001	990	983	976	975	980	978	995	1005	1005	1012	1012	1014	1016	1023	1023	1019	1022	1002
6	1022	1017	1021	1031	1033	1028	1011	1018	1035	1015	998	989	975	966	981	987	997	1007	1016	1021	1022	1016	1016	1003	1005	1009
7	1005	1003	998	997	999	1002	1003	1000	997	994	984	977	984	986	991	994	1006	1008	1018	1025	1018	1015	1010	1010	1008	1001
8	1008	1014	1006	1006	1007	1007	1001	1006	1006	999	988	987	983	989	1001	997	1005	1017	1023	1028	1025	1027	1020	1021	1011	1007
9	1012	1010	1009	1018	1020	1000	997	999	1003	992	987	990	995	982	999	988	1005	1031	1045	1031	1021	1027	1012	1000	1000	1007
10	1000	1002	1003	1005	1006	1005	1000	995	988	981	967	965	982	986	987	1019	1009	1004	1004	1021	1027	1030	1036	1026	1012	1002
11	1012	1002	1001	1002	995	990	983	981	987	975	959	961	969	967	981	998	1002	1015	1042	1032	1019	1019	1021	993	991	996
12	991	1003	996	985	987	1014	999	975	976	937	946	942	948	957	991	991	990	1010	1009	1019	1015	1012	1008	1004	1004	988
13	1005	1005	1003	1004	1007	1008	1005	1000	990	977	963	955	961	973	987	1008	1007	1012	1018	1016	1019	1018	1019	1006	1001	999
14	1001	1004	1001	1005	1007	1008	1007	1001	993	978	962	943	937	951	974	988	1002	1004	1012	1023	1022	1017	1012	1010	1014	995
15 c	1014	1005	999	1002	1008	1012	1011	1002	988	972	961	963	967	978	992	998	1012	1023	1023	1022	1021	1015	1011	1007	1005	1000
16 c	1005	1007	1006	1008	1012	1013	1010	1003	993	985	974	963	967	973	981	989	1005	1016	1020	1020	1022	1011	1007	1009	1006	1000
17 c	1007	1006	1006	1008	1013	1016	1013	1007	993	984	974	972	971	976	992	1007	1015	1019	1017	1015	1017	1015	1015	1014	1014	1003
18	1014	1014	1015	1013	1013	1013	1013	1010	1003	986	974	967	967	974	987	998	1008	1020	1029	1027	1024	1020	1018	1016	1014	1005
19	1014	1014	1013	1013	1013	1016	1015	1005	989	978	973	973	989	1003	1004	1012	1018	1015	1020	1019	1015	1013	1009	1007	1008	1006
20	1008	1008	1008	1005	1008	1010	1010	1002	993	983	970	972	986	995	998	1003	1007	1013	1018	1023	1024	1023	1019	1015	1013	1004
21	1014	1016	1014	1014	1015	1020	1016	1012	1004	995	978	969	968	977	992	1007	1023	1028	1029	1030	1031	1024	1016	1018	1017	1009
22	1017	1019	1019	1019	1024	1027	1017	1009	998	991	983	979	984	984	989	1028	1020	1018	1021	1022	1032	1027	1016	1004	1009	1010
23	1009	1010	997	1006	1008	1007	1006	999	995	990	988	986	985	987	994	1010	1026	1024	1014	1019	1017	1020	1021	1020	1019	1006
24 c	1019	1014	1007	1009	1013	1014	1008	999	989	984	975	976	987	991	1004	1018	1024	1030	1025	1018	1020	1019	1019	1024	1024	1008
25	1024	1021	1024	1012	1015	1021	1014	1011	1005	1004	994	990	978	984	994	1012	1019	1026	1029	1030	1029	1031	1029	1026	1023	1013
26	1024	1024	1021	1026	1017	1015	1011	1005	999	990	983	966	985	1005	1010	1010	1012	1024	1050	1036	1022	1025	1025	1024	1015	1013
27	1015	1015	1010	1000	1008	1015	1010	1002	983	975	964	977	980	970	1003	1013	1029	1043	1041	1027	1025	1008	1005	1005	999	1005
28	999	1000	996	995	996	1002	1003	993	980	970	955	958	959	981	992	1006	1008	1013	1019	1025	1024	1019	1012	1012	1004	997
29	1004	1002	1003	1002	1003	1001	998	996	984	966	960	964	972	982	983	992	1001	1017	1036	1055	1058	1049	1015	1016	1014	1003
30	1014	1001	1003	1014	1016	1000	1000	1000	987	973	966	961	970	972	988	982	998	1010	1021	1030	1031	1027	1013	1022	1001	1000
31	1002	996	1002	1006	1009	1011	1010	1003	1001	996	985	979	976	976	985	1001	1003	1011	1029	1024	1019	1016	1015	1012	1012	1003
Mean	1010	1008	1007	1007	1008	1010	1007	1000	994	984	974	970	973	979	991	1000	1009	1017	1024	1024	1023	1019	1015	1012	1010	1003

XXVI.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **July, 1915.**

Hour. G.M.T.	0.	1	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	5000 γ (·05 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	82	78	75	70	66	59	56	53	44	47	60	73	91	103	108	108	101	92	93	93	91	90	91	97	81	80
2	81	46	65	70	88	83	55	77	75	50	52	61	75	86	91	103	107	94	98	93	99	84	76	76	75	78
3	74	70	69	69	68	61	52	52	53	54	69	76	91	92	101	96	99	96	96	91	87	72	75	75	69	76
4 c	69	65	64	67	69	64	60	56	52	53	60	71	80	90	92	92	91	90	89	85	81	80	78	76	74	74
5	74	69	69	73	70	69	60	51	44	42	51	66	87	96	106	103	100	93	87	84	85	90	90	85	80	77
6	80	74	70	71	69	64	60	76	79	66	80	86	104	108	112	111	96	91	86	83	82	79	78	80	76	83
7	75	73	70	68	64	62	53	53	52	56	73	85	99	102	97	95	90	84	83	83	81	84	81	81	85	77
8	85	68	62	68	63	63	68	59	49	51	59	80	95	103	105	102	96	90	90	95	94	89	89	73	49	78
9	49	72	45	55	47	44	46	46	49	58	74	85	103	105	112	105	114	102	96	87	81	68	44	62	74	73
10	74	73	72	68	63	60	55	47	50	53	62	78	102	112	110	112	106	99	90	89	83	89	90	75	57	79
11	57	57	58	58	59	30	37	44	36	36	47	63	85	100	102	100	96	91	79	81	81	79	65	62	76	67
12	76	59	51	75	72	57	46	41	49	46	64	72	91	101	104	99	96	95	84	80	79	80	79	78	75	74
13	74	71	68	66	63	60	51	44	42	42	47	77	94	112	121	121	103	89	87	79	79	73	59	67	68	74
14	68	63	66	67	66	58	49	51	47	47	54	63	81	99	111	111	106	90	79	78	77	78	76	74	74	73
15 c	74	67	64	67	62	53	47	43	41	43	53	68	86	99	100	99	98	90	84	82	73	75	73	73	71	71
16 c	71	71	67	65	59	51	45	42	45	46	58	73	84	94	103	109	107	99	89	87	80	78	77	74	68	74
17 c	67	66	66	63	63	56	48	45	45	45	49	57	77	94	106	104	100	93	85	79	78	77	78	76	73	72
18	73	70	68	67	66	61	44	38	34	38	50	66	89	109	111	103	94	88	82	79	78	79	79	77	78	73
19	78	73	68	70	62	51	46	34	40	37	46	63	82	98	105	98	98	89	88	84	81	81	80	78	77	72
20	77	78	73	67	63	53	41	34	28	32	47	62	80	97	98	101	95	88	87	85	84	84	81	80	76	71
21	76	74	67	63	60	52	40	35	37	44	61	77	92	95	94	88	78	78	85	91	90	85	79	81	80	72
22	80	79	77	68	66	60	36	40	45	51	64	77	93	101	102	115	98	85	87	87	89	71	56	73	72	75
23	71	72	64	65	50	50	44	42	45	51	58	64	77	97	97	97	94	87	74	77	81	82	82	72	74	71
24 c	74	65	59	55	55	48	44	46	52	55	66	87	103	105	97	87	82	80	79	81	86	83	79	78	77	73
25	77	71	70	67	67	49	45	44	44	47	56	73	81	88	90	98	93	84	71	79	86	89	77	73	73	72
26	73	71	76	46	43	52	48	41	39	48	65	86	105	115	117	109	97	89	96	84	77	87	87	70	71	76
27	71	71	83	71	45	44	37	39	52	49	70	76	95	100	114	101	97	98	91	72	73	76	75	73	77	74
28	77	71	66	70	67	52	45	36	33	40	52	69	91	108	111	107	93	79	70	74	77	76	76	72	72	71
29	72	66	65	60	58	48	40	37	34	40	52	67	89	109	104	107	108	105	101	100	58	45	72	73	56	71
30	56	47	43	55	59	66	72	59	59	62	76	88	110	114	111	100	94	87	80	79	84	82	72	54	60	75
31	59	61	62	61	59	55	48	44	44	43	49	62	81	90	95	96	87	82	80	76	78	76	72	69	75	68
Mean	72	68	66	65	62	56	49	47	46	47	59	73	90	101	104	102	97	90	86	84	82	79	76	74	72	74

c International quiet day.

XXVII.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **July, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	173	176	178	180	180	180	178	172	170	175	172	168	165	166	167	171	177	182	186	184	183	180	177	172	166	175
2	166	158	145	110	96	96	115	138	145	156	161	165	165	162	165	175	192	213	216	214	205	196	189	184	182	164
3	182	181	180	180	181	181	180	180	177	173	170	171	167	165	166	173	180	191	198	196	194	188	183	177	175	180
4 c	175	176	176	176	176	177	180	179	176	171	163	161	161	165	165	168	176	177	176	176	178	178	176	176	174	173
5	173	175	174	174	175	173	172	175	177	173	174	166	160	160	161	163	167	174	176	178	175	171	170	170	170	171
6	170	170	169	168	169	169	171	167	158	158	149	153	162	167	168	179	186	185	186	185	182	181	175	171	171	171
7	171	172	173	174	175	174	174	171	171	172	171	164	159	160	164	166	172	178	181	179	178	175	174	172	171	172
8	171	164	162	165	171	170	166	164	164	164	163	163	159	159	158	163	171	176	176	176	177	176	175	174	167	168
9	166	148	142	150	156	162	159	157	154	158	151	148	148	150	161	170	181	192	197	200	196	184	165	166	170	165
10	170	173	173	174	174	174	175	175	174	171	167	156	147	158	166	174	182	183	182	182	181	174	155	143	146	170
11	146	157	164	163	140	133	146	152	158	165	166	166	162	166	162	163	169	171	182	186	184	181	173	166	155	164
12	155	151	154	150	142	139	151	159	159	161	153	154	158	164	179	189	182	179	180	179	178	176	174	174	174	165
13	173	173	173	173	175	176	175	170	169	165	160	157	157	152	157	163	174	178	177	174	174	174	175	173	170	169
14	170	165	162	165	170	173	173	172	173	175	171	165	153	149	153	161	172	180	183	183	180	175	173	173	168	170
15 c	168	167	170	171	173	175	174	175	175	173	166	162	158	163	166	173	178	177	177	179	179	177	174	174	174	172
16 c	174	173	172	172	173	175	173	170	166	161	160	157	149	148	150	161	165	169	175	177	177	175	173	172	172	167
17 c	172	172	172	173	174	175	174	173	170	169	167	166	157	156	160	161	163	173	175	177	176	173	172	171	171	170
18	171	171	171	173	175	175	177	174	173	169	163	158	148	150	159	168	173	175	180	180	178	177	173	173	172	170
19	172	172	173	173	177	177	175	178	177	170	162	154	150	151	162	168	173	180	180	181	180	177	175	175	173	171
20	173	173	172	175	178	181	182	181	177	169	162	154	155	158	159	163	170	175	175	174	173	173	172	172	172	171
21	171	169	170	172	174	176	177	173	168	165	164	161	156	147	150	157	166	167	164	165	167	168	169	168	168	166
22	168	168	168	169	172	173	175	169	167	165	161	153	146	141	150	159	168	176	179	172	171	176	176	172	166	166
23	166	161	161	160	165	169	170	172	168	164	162	164	158	152	161	168	169	173	174	170	169	169	169	165	163	166
24 c	162	156	160	163	165	170	169	168	163	160	158	163	163	167	167	169	171	173	171	168	167	168	168	168	167	166
25	167	168	165	165	163	165	166	164	163	159	152	145	145	148	150	158	171	178	182	175	168	167	169	169	168	163
26	168	168	167	160	164	167	169	170	166	160	161	156	153	154	160	168	178	182	186	199	194	184	178	173	171	170
27	171	171	158	136	153	169	173	175	173	169	171	167	161	171	183	199	208	213	218	212	194	179	175	171	164	178
28	164	159	165	169	169	175	174	175	171	168	167	161	156	155	163	172	180	187	187	183	179	178	175	172	167	171
29	166	167	169	171	174	175	174	174	176	174	168	163	155	155	155	159	166	168	170	172	186	186	174	170	166	169
30	166	151	150	159	162	164	158	159	162	164	160	160	155	158	166	174	174	177	182	182	178	177	174	167	157	166
31	157	160	162	166	169	171	170	170	169	170	167	162	142	152	161	166	173	179	186	187	187	188	187	186	186	171
Mean †	169	167	166	165	166	168	169	169	168	167	163	160	156	157	162	169	175	180	182	182	180	177	173	171	168	169

c International quiet day.

† Mean of 30 days—31st omitted on account of instrument drifting.

XXVIII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **July, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
July	h m	h m	γ	° ′ ″	° ′	°		
1	11 13	11 27	16759	17 38 22		11·1	1	1
„	10 36	10 57			69 38·7	11·1	2	2
						11·1	1	3
						11·1	0	4
						11·2	0	5
						11·2	1	6
						11·3	0	7
8	11 14	11 25	16779	17 37 53		11·3	1	8
„	10 45	11 4			69 37·5	11·3	1	9
						11·4	1	10
						11·4	1	11
						11·5	1	12
						11·5	0	13
						11·5	0	14
15	12 29	12 44	16766	17 40 53		11·6	0	15
„	11 0	11 23			69 39·0	11·6	0	16
						11·7	0	17
						11·7	0	18
						11·8	0	19
						11·8	0	20
						11·9	0	21
						11·9	1	22
21	12 10	12 21	16763	17 41 0		11·9	1	23
„	11 20	11 33			69 38·5	11·9	0	24
						11·9	1	25
						11·9	1	26
						12·0	2	27
						12·0	0	28
						12·0	2	29
30	11 4	11 16	16748	17 40 57		12·0	1	30
„	10 32	10 53			69 38·8	12·1	1	31

* Mean of Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

JULY, 1915.

The magnetic character for the month was comparatively low, being 0·65 on the average. The only days reckoned as having a character 2 are the 2nd, 27th, and 29th, but in none of these was the disturbance of more than moderate range. The W trace for 27th from 2^h to 3^h shows the repetition of a slight disturbance occurring a few minutes earlier on the previous day. "Sudden commencements" were recorded at $1^d\ 22^h\ 12^m$ and $5^d\ 20^h\ 44^m$. Towards the end of the latter disturbance, which was slight, numerous short-period oscillations were shown on the horizontal traces, and were faintly marked on the vertical. Oscillations of this kind were comparatively infrequent during the month, but several cases were noticed of their occurrence in isolated groups during days that were otherwise quiet, *e.g.* on 8th, from 0^h to 1^h; on 15th and 16th, just before 20^h; on 16th, from 23^h to 24^h; on 17th, from 22^h to 23^h; on 18th, from 4^h to 5^h. In several cases these oscillations were associated with a bay-shaped portion of the curve, and, although generalisations are hazardous without an exhaustive census of cases, it would appear as if they occurred more frequently on the increasing half of the bay. Examples of this occurred on 23rd, immediately after 22^h, and on 24th, immediately after 0^h.

XXIX.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **August, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1012	1009	1006	1006	1007	1010	1006	994	980	977	966	973	981	976	983	1000	1005	1011	1026	1027	1021	1015	1016	1024	1022	1002
2	1022	1019	1005	1011	988	1018	989	985	988	956	939	945	940	965	981	991	1012	1019	1037	1029	1027	1018	1020	991	1008	995
3	1008	1002	987	983	1006	1011	1011	1003	992	972	960	958	958	966	994	1015	1013	1028	1021	1022	1022	1015	1030	1001	1002	999
4	1003	1005	1002	1003	1009	1009	1002	976	963	973	967	955	957	972	990	1009	1010	1002	1014	1013	1017	1013	1009	1007	1002	995
5 c	1002	1001	1002	1002	1003	1007	1004	998	990	979	966	965	971	969	974	988	1002	1004	1008	1015	1019	1017	1012	1010	1006	996
6	1006	1004	1003	1002	1003	1001	1001	997	986	972	954	951	959	977	991	1006	1014	1013	1010	1011	1029	1030	1013	1016	1007	998
7	1007	996	1019	1008	967	977	992	979	972	968	962	964	968	976	980	999	996	1008	1017	1021	1019	1007	1008	1023	1006	993
8	1007	1022	1007	999	999	1008	1009	999	984	973	966	965	966	969	980	997	1000	1004	1010	1013	1019	1019	1016	1017	1014	998
9	1014	1001	1003	1003	1004	1005	1008	1004	994	983	976	976	974	974	978	986	995	1003	1009	1015	1015	1013	1013	1012	1008	998
10	1008	1010	1004	1005	1023	1008	999	1001	993	983	968	964	963	967	976	979	996	1010	1010	1022	1024	1017	1015	1005	1006	998
11	1000	999	1003	995	999	1008	1004	989	984	975	958	951	954	968	983	997	1003	1014	1024	1022	1010	1014	1018	1014	1014	996
12	1014	1006	1008	1004	1004	1003	999	993	980	967	955	961	964	978	987	996	1000	1003	1006	1007	1014	1012	1014	1009	1007	995
13 c	1008	1010	1006	1007	1006	1007	1004	998	989	980	971	965	966	976	984	993	1000	1009	1013	1014	1014	1015	1014	1012	1010	998
14 c	1010	1009	1009	1010	1013	1013	1009	1009	1003	995	980	974	974	977	980	987	1004	1010	1020	1028	1022	1014	1010	1010	1012	1003
15 c	1012	1010	1010	1009	1009	1009	1007	1005	1000	994	978	965	965	969	979	990	1001	1007	1016	1019	1019	1018	1016	1014	1013	1001
16	1013	1012	1010	1010	1012	1015	1011	1004	997	994	985	976	973	974	981	995	1007	1014	1018	1028	1029	1030	1027	1028	1029	1006
17	1029	1031	1033	1031	1025	1016	1015	1026	1015	990	986	970	959	974	977	969	995	1005	1017	1021	1031	1028	1018	1015	1010	1007
18	1011	1015	1020	1011	1007	1017	1018	1010	1000	991	982	974	965	975	985	991	1010	1010	1021	1025	1025	1023	1014	1011	1012	1005
19	1012	1016	1018	1021	1024	1027	1026	1024	1007	986	975	975	966	981	985	995	1005	1009	1019	1015	1019	1010	1004	1004	1006	1005
20	1006	1015	1010	1004	1010	1009	1007	1002	991	980	968	968	981	985	996	1001	1010	1017	1013	1020	1017	1010	1011	1010	1006	1002
21	1006	1006	1007	1008	1007	1004	998	996	992	981	975	984	991	998	1011	1016	1008	1001	1007	1025	1025	1022	1025	1006	1016	1004
22	1016	1001	1006	1000	996	1010	1010	1006	1000	993	987	982	981	982	989	997	1010	1015	1019	1012	1013	1016	1015	1011	1006	1003
23	1006	1013	1006	1007	1010	1004	1001	996	988	979	975	968	970	980	987	1004	1008	1006	1015	1016	1017	1017	1013	1011	1012	1000
24 c	1012	1012	1015	1014	1011	1008	1011	1006	991	976	971	968	974	979	990	997	1002	1008	1013	1016	1020	1014	1011	1012	1013	1001
25	1014	1016	1017	1016	1016	1015	1013	1004	1001	991	983	981	986	992	998	1013	1007	1027	1023	1021	1025	1033	1018	991	991	1008
26	991	964	1017	1005	986	1022	1007	995	967	956	967	946	947	962	973	995	1021	1023	1018	1011	1008	1001	996	992	990	990
27	990	991	990	997	992	968	1006	997	981	955	943	947	962	965	971	974	1000	1006	1026	1022	1027	1011	1005	1007	1002	989
28	1002	997	987	1003	1005	986	989	986	978	972	970	964	952	969	981	986	1000	1015	1012	1015	1011	1012	1005	1004	1004	992
29	1004	1003	1007	1010	1006	1009	1010	998	979	946	947	961	963	964	1006	1001	1002	988	1000	1015	1018	1000	1002	998	1003	993
30	1003	1000	1002	997	1001	1000	1000	999	991	977	963	972	971	971	972	982	1007	996	1011	1013	1009	1010	1011	1006	1001	994
31	1001	1003	994	995	998	1003	1004	995	988	984	970	967	971	974	987	1006	1011	1012	1007	1011	1006	1004	1004	1006	1006	996
Mean	1008	1006	1007	1006	1005	1007	1005	999	989	977	968	966	967	974	985	995	1005	1010	1015	1018	1019	1015	1013	1009	1008	999

XXX.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **August, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											5000 γ (·05 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	75	72	69	66	63	55	43	38	50	48	66	80	105	113	107	103	96	85	76	79	80	81	83	73	53	75
2	53	45	46	65	95	89	80	73	75	59	56	73	86	103	106	97	91	84	85	60	59	79	80	52	53	75
3	53	56	54	65	41	38	32	34	35	40	50	71	84	87	95	98	88	80	71	85	84	80	93	79	64	67
4	64	64	75	64	54	43	38	42	54	47	55	58	76	93	94	96	91	75	75	74	75	71	73	70	70	68
5 c	70	66	64	61	54	44	40	29	33	39	54	65	81	93	96	93	82	75	72	75	78	76	75	73	70	66
6	70	76	69	64	59	58	53	47	43	43	48	70	97	107	105	98	91	86	86	84	90	81	73	88	48	74
7	48	32	27	72	− 2	21	18	11	12	29	46	70	87	96	93	95	82	79	78	82	80	71	70	73	58	57
8	58	49	34	43	59	49	49	48	42	42	48	58	75	86	91	93	86	79	77	75	76	72	71	71	69	64
9	68	49	59	58	57	53	47	39	37	41	49	60	80	94	101	100	89	75	69	65	68	68	68	64	64	65
10	64	67	69	55	32	23	53	53	37	28	46	63	76	91	101	90	85	80	65	68	72	70	61	46	53	62
11	53	50	50	51	45	45	43	50	50	45	54	70	90	101	107	105	95	90	84	76	71	75	74	64	69	69
12	69	66	65	69	64	54	50	43	41	43	56	74	87	101	100	93	84	77	73	72	74	75	74	70	64	70
13 c	64	69	71	68	58	53	51	53	49	47	54	65	80	90	98	96	90	85	78	70	71	73	70	64	64	69
14 c	64	63	63	63	61	53	52	43	41	42	47	55	62	81	92	95	95	90	80	75	77	73	69	69	63	67
15 c	63	63	63	63	60	57	54	50	42	43	53	70	86	100	101	97	90	85	85	79	75	74	74	70	68	71
16	68	64	63	61	58	57	50	46	43	47	58	70	87	97	101	96	90	86	82	84	84	81	79	75	70	72
17	70	67	66	63	57	61	77	65	50	55	64	76	85	103	100	84	78	72	68	68	76	63	74	70	66	71
18	66	61	53	35	47	48	39	37	39	41	53	70	84	96	95	90	86	75	74	75	73	67	68	68	68	64
19	68	69	70	64	64	45	37	30	30	43	64	76	82	90	93	89	84	74	75	74	79	69	61	65	63	66
20	63	63	58	60	58	52	44	39	41	41	47	61	82	95	98	90	85	80	80	79	69	74	64	63	63	66
21	63	63	61	60	57	50	45	39	40	47	58	79	96	104	100	95	86	77	80	86	81	77	55	64	58	69
22	58	54	55	54	64	42	32	30	34	42	55	67	80	92	92	85	79	78	77	71	71	72	76	58	73	64
23	73	52	47	52	48	47	43	39	37	53	70	81	99	107	103	90	79	69	69	69	70	69	69	69	68	67
24 c	68	65	65	55	53	50	50	49	46	48	58	68	85	95	92	84	72	63	63	65	67	69	69	69	70	65
25	70	71	72	72	62	58	57	63	61	58	70	84	93	94	93	86	70	69	67	68	57	68	35	18	2	66
26	2	32	7	53	85	40	47	17	26	37	52	65	71	79	84	76	69	74	62	51	57	40	59	64	49	53
27	49	48	59	51	58	76	58	37	34	33	46	74	85	97	105	86	87	77	72	61	46	59	61	65	69	64
28	69	74	83	68	65	65	70	45	39	45	54	74	80	86	87	81	74	74	64	69	62	65	69	69	66	68
29	66	67	65	55	52	56	55	56	58	57	83	92	104	101	113	115	80	83	77	50	53	46	66	56	54	71
30	54	58	57	58	58	56	49	42	42	50	59	70	86	97	97	98	99	72	72	61	67	68	60	59	63	66
31	63	68	83	76	58	56	54	53	50	46	55	67	80	94	95	84	79	74	62	58	63	65	64	64	63	67
Mean	61	60	59	60	56	51	49	43	42	44	56	70	85	96	98	93	85	78	74	71	71	70	69	65	61	67

c International quiet day.

XXXI.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **August, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											45,000 γ (·45 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	‡	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	‡	..
2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	‡	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	‡	..
4	156	163	161	158	166	171	174	175	172	175	176	172	170	169	175	178	184	194	196	196	195	195	192	190	191	178
5 c	166	168	170	171	172	175	175	176	176	170	166	164	163	166	173	179	182	184	185	183	180	182	182	182	182	175
6	167	165	165	167	169	171	174	176	175	171	163	160	159	162	169	172	179	181	180	180	176	177	177	175	139	171
7	132	118	91	65	86	121	153	169	171	168	168	162	156	156	165	171	178	180	178	176	176	178	178	176	177	154
8	172	154	159	160	163	168	170	171	176	176	172	167	159	160	163	168	173	176	176	174	174	174	174	171	171	169
9	167	172	172	172	174	174	173	174	175	174	174	168	163	163	164	167	174	176	178	177	177	178	176	176	176	173
10	172	172	172	165	159	164	164	165	169	168	167	162	156	156	163	168	172	173	177	175	176	177	178	179	172	169
11	168	162	161	164	164	167	169	173	176	176	171	160	156	156	161	172	181	188	191	192	192	184	178	175	176	173
12	174	175	176	175	176	179	180	182	182	178	170	161	158	162	170	179	186	188	188	184	182	179	174	173	174	176
13 c	170	170	170	169	171	174	173	174	174	174	171	167	165	162	*164*	169	171	172	171	171	170	168	168	168	168	170
14 c	167	167	167	167	169	169	169	168	167	161	155	157	155	154	158	160	165	170	173	176	175	175	174	172	171	166
15 c	169	167	168	168	169	169	169	170	167	160	153	150	144	147	154	161	166	169	168	168	168	168	167	167	168	164
16	167	167	167	168	168	170	171	172	171	166	159	157	155	150	155	164	168	168	167	166	166	165	166	166	166	165
17	165	166	165	165	167	169	161	154	154	154	157	153	151	153	167	181	183	183	181	176	172	172	170	170	169	166
18	168	166	157	160	165	168	168	168	168	161	160	155	152	148	152	162	166	172	173	171	173	173	173	171	170	165
19	168	167	166	164	162	162	165	164	164	162	160	155	156	163	166	169	170	175	174	172	170	175	176	174	172	167
20	171	170	170	168	170	171	173	173	174	168	163	157	149	150	159	163	174	180	179	181	183	182	179	178	176	170
21	175	175	174	174	174	176	178	176	175	173	169	162	153	148	156	164	169	174	173	172	174	177	177	176	170	170
22	168	172	172	172	167	165	167	168	165	163	158	154	156	159	164	169	172	173	173	173	173	173	173	175	171	168
23	170	166	169	170	171	172	173	175	174	170	165	162	158	159	166	174	178	175	173	173	174	174	174	174	173	170
24 c	172	172	172	172	173	173	174	175	178	177	170	167	165	169	176	184	187	186	182	177	177	175	174	173	173	175
25	172	173	173	172	173	175	175	173	171	168	168	168	168	168	172	180	185	187	188	184	183	177	172	161	102	173
26	101	35	82	106	103	121	144	158	165	172	176	175	172	171	179	193	209	214	214	209	197	184	169	161	149	160
27	148	146	161	167	171	164	167	175	177	174	174	169	169	171	175	187	190	196	199	194	188	179	177	171	166	175
28	165	162	156	149	156	153	150	156	164	162	162	163	166	174	175	178	185	190	197	195	190	182	179	177	177	171
29	175	176	174	174	176	175	177	178	177	177	171	168	168	180	191	209	229	221	213	211	193	187	174	148	166	184
30	165	172	174	176	177	178	179	182	183	179	175	168	166	174	185	190	195	206	203	199	191	185	180	177	177	182
31	176	173	169	163	173	178	179	182	181	179	173	170	169	174	180	187	189	191	192	192	187	184	182	180	178	179
Mean †	165	161	162	161	164	167	169	172	172	170	167	163	160	162	168	175	181	184	184	182	180	178	175	173	169	171

c International quiet day. † Mean of 28 days—1st, 2nd, and 3rd omitted. ‡ Instrument drifting rapidly (see below).

XXXII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **August, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
Aug.	h m	h m	γ	° ′ ″	° ′	°		
6	11 37	11 47	16744	17 41 42		12·1	1	1
						12·1	1	2
						12·2	1	3
						12·3	1	4
						12·4	0	5
						12·4	1	6
11	11 10	11 26	16737	17 38 8		12·4	2	7
,,	10 39	10 58			69 39·7	12·4	1	8
						12·4	0	9
						12·5	1	10
						12·5	0	11
						12·5	0	12
						12·6	0	13
17	11 51	12 6	16756	17 40 5		12·6	0	14
,,	11 6	11 42			69 39·5	12·7	0	15
						12·7	0	16
						12·8	1	17
						12·8	0	18
						12·8	0	19
						12·8	0	20
						12·9	0	21
24	11 18	11 30	16763	17 38 15		12·9	1	22
,,	10 39	10 59			69 39·0	12·9	0	23
						13·0	0	24
						13·0	1	25
						13·0	2	26
						13·0	1	27
						13·1	1	28
						13·1	1	29
31	11 1	11 13	16756	17 36 11		13·1	1	30
,,	10 32	10 49			69 39·4	13·1	1	31

* Mean of Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

AUGUST, 1915.

This was also a comparatively quiet month, the only disturbed days being the 7th and 26th. On the former, a "sudden commencement" showed at $17^h\ 3^m$ on the N and W traces. It was followed at $20^h\ 33^m$ by a similar but inverse movement, and on the following day similar phenomena occurred at $15^h\ 6^m$ and $20^h\ 19^m$. "Bays" on the W trace centering at $6^d\ 23^h\ 8^m$, $7^d\ 0^h\ 30^m$, $7^d\ 2^h\ 52^m$ are worthy of mention.

"A reference to the Base Value diagram for the year shows a large discontinuity in the Vertical Base value between 31st July and 1st August. This was produced at the time when the drying agent, in a vessel attached to the magnet case, was renewed. The discontinuity was much larger than is usual on such occasions, and for some days afterwards there was considerable instrumental drift. The curve readings for the first three days of August have therefore been omitted. The base value assigned for subsequent days changed somewhat rapidly at first, and owing to these values being taken as uniform throughout each day, there are considerable differences between the entries 24^h and 0^h. In the worst case, the error introduced thereby into the diurnal inequalities for the month would amount to 0·4γ."

XXXIII.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **September, 1915.**

15,000 γ (·15 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1006	1007	1001	1000	1001	1002	1002	996	987	980	971	972	978	981	987	991	992	998	1011	1011	1011	1009	1006	1006	1006	996
2	1006	1006	1007	1007	1006	1005	997	1003	993	977	963	960	968	974	974	986	991	1003	1015	1016	1012	1010	1015	1013	1008	996
3	1008	1010	1012	1006	1004	1002	1003	1002	991	980	971	971	978	986	996	1004	1007	1014	1013	1021	1005	1005	1008	1007	1007	1000
4	1007	1010	1009	1007	1004	1001	995	989	985	982	976	967	967	975	990	999	1001	1004	1006	1009	1011	1012	1012	1011	1012	997
5	1012	1011	1011	1012	1012	1011	1011	1011	999	984	971	962	966	978	988	991	997	1001	1005	1006	1009	1007	1009	1008	1009	999
6	1010	1007	1007	1006	1007	1007	1006	998	987	977	965	963	968	981	992	995	1002	1003	1003	1009	1014	1017	1013	1007	1007	998
7 c	1007	1009	1008	1008	1008	1006	1003	994	982	967	953	963	969	977	983	992	1001	1004	1007	1009	1010	1011	1010	1011	1010	996
8 c	1010	1009	1008	1009	1009	1007	1002	993	985	977	966	963	969	983	994	1001	1002	1004	1007	1012	1017	1016	1018	1019	1017	999
9	1017	1017	1014	1013	1013	1010	1005	998	992	983	971	972	982	993	1004	1005	1009	1008	1018	1024	1018	1018	1021	1020	1023	1005
10	1023	1022	1022	1019	1008	1004	1007	1002	996	992	987	980	979	977	981	992	1002	1019	1013	1012	1013	1007	1005	1007	1007	1003
11	1007	1008	1009	1009	1008	1005	1002	997	988	978	967	967	970	979	986	1003	1008	1009	1005	1012	1012	1009	1007	1008	1012	998
12	1012	1011	1012	1005	1007	1006	1003	1002	1000	991	977	969	972	978	987	992	996	1007	1014	1013	1017	1018	1013	1015	1013	1001
13	1013	1012	1013	1013	1016	1014	1014	1017	1007	994	982	976	971	980	980	979	973	1007	1002	1005	1008	1014	1012	1006	1006	1000
14	1006	1007	1005	1007	1008	1008	1008	1012	998	989	982	975	972	974	980	987	994	1004	1013	1015	1014	1012	1013	1013	1013	1000
15	1013	1009	1009	1000	1013	1017	1013	1011	1002	997	975	966	965	973	982	987	992	1002	1009	1016	1018	1015	1016	1017	1013	1001
16	1013	1017	1013	1008	1008	1012	1010	1005	996	985	977	976	974	967	986	974	983	993	997	997	1007	1009	1011	1012	1012	997
17	1012	1006	1007	989	1002	1015	1019	1011	1002	967	937	934	959	933	979	985	978	988	997	1000	999	998	993	993	999	987
18 c	999	998	995	993	993	993	992	988	984	979	977	977	973	978	984	991	994	994	1002	1007	1008	1008	1008	1007	1005	993
19 c	1005	1004	1004	1008	1006	1002	997	991	984	975	968	965	973	981	992	996	999	1001	1001	1007	1005	1005	1007	1008	1005	995
20 c	1005	1002	1002	1002	1001	1002	1002	997	990	978	969	964	964	973	986	996	999	1003	1005	1008	1011	1013	1009	1014	1012	996
21	1012	1008	1008	1009	1009	1007	1005	1002	1002	987	979	976	978	978	987	998	993	1002	1005	1005	1013	1014	1011	1011	1012	1000
22	1012	1011	1009	1011	1013	1017	1011	997	972	969	976	974	977	987	966	991	1046	983	992	989	989	997	992	989	1007	994
23	1007	1003	996	978	1002	1013	969	954	991	968	942	963	957	943	977	973	964	987	1020	1041	996	1002	1017	1007	1000	986
24	1000	994	987	972	998	1003	982	957	947	978	963	963	956	977	992	1015	995	992	1019	992	993	1002	1031	984	992	987
25	992	998	997	993	998	992	983	978	975	979	963	962	962	977	975	982	996	985	998	997	1020	1002	1003	1005	1003	988
26	1003	992	1003	1003	981	993	1008	988	987	970	963	958	957	963	977	991	984	1003	1019	992	1002	1008	1034	988	987	990
27	987	994	997	997	997	1003	970	948	962	967	966	953	951	937	967	968	980	1003	1003	1006	1005	1006	1003	1000	1007	983
28	1007	1006	1011	1015	1012	999	1002	980	962	944	940	936	943	943	972	965	999	1001	983	993	997	1002	992	967	974	981
29	974	987	999	957	1006	1005	998	987	977	979	960	937	936	954	967	969	1002	1000	998	1002	1003	1019	999	998	1007	985
30	1007	1004	1002	1012	1011	997	992	968	962	951	927	937	947	953	968	960	978	987	998	993	982	986	999	996	996	980
Mean	1006	1006	1006	1002	1005	1005	1000	993	986	977	966	963	966	971	983	989	995	1000	1006	1007	1007	1008	1010	1005	1006	994

XXXIV.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **September, 1915.**

⊕ 4000 γ (·04 C.G.S. unit) +

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1063	1061	1058	1061	1062	1059	1053	1044	1036	1034	1047	1068	1090	1094	1095	1087	1079	1071	1069	1067	1066	1063	1066	1064	1063	1065
2	1063	1063	1064	1064	1062	1058	1057	1053	1047	1047	1063	1075	1090	1100	1090	1082	1068	1063	1067	1068	1068	1069	1069	1064	1068	1067
	1068	1070	1064	1056	1054	1053	1052	1042	1046	1054	1068	1075	1088	1094	1090	1084	1078	1075	1073	1074	1074	1071	1071	1067	1064	1068
4	1064	1063	1063	1061	1058	1053	1048	1042	1041	1046	1057	1074	1092	1096	1096	1085	1072	1066	1068	1070	1070	1070	1069	1068	1068	1066
5	1068	1065	1064	1061	1058	1053	1047	1041	1039	1044	1059	1080	1104	1114	1106	1091	1080	1075	1069	1069	1069	1069	1068	1068	1064	1069
6	1064	1063	1061	1058	1057	1053	1048	1042	1041	1045	1054	1063	1075	1085	1091	1084	1077	1070	1071	1074	1075	1069	1053	1065	1060	1064
7 c	1060	1062	1058	1058	1055	1053	1050	1042	1037	1045	1065	1075	1087	1095	1089	1078	1069	1064	1067	1070	1069	1069	1067	1068	1065	1065
8 c	1065	1063	1061	1058	1057	1053	1047	1041	1037	1038	1054	1070	1086	1094	1094	1087	1075	1070	1074	1075	1074	1071	1067	1066	1063	1066
9	1063	1063	1062	1058	1058	1055	1052	1047	1043	1048	1062	1076	1090	1093	1091	1079	1075	1075	1083	1081	1079	1079	1075	1067	1067	1069
10	1067	1063	1051	1043	1047	1046	1046	1037	1048	1055	1061	1062	1077	1088	1087	1083	1079	1082	1076	1072	1068	1066	1065	1063	1063	1064
11	1063	1063	1062	1062	1062	1058	1047	1041	1037	1041	1055	1067	1084	1089	1090	1097	1090	1080	1074	1075	1073	1061	1063	1063	1063	1067
12	1063	1062	1055	1058	1058	1058	1054	1052	1045	1042	1048	1067	1086	1097	1100	1094	1085	1079	1076	1070	1062	1049	1048	1060	1062	1065
13	1061	1063	1060	1073	1058	1053	1052	1048	1046	1045	1053	1072	1090	1111	1112	1117	1104	1096	1070	1066	1068	1052	1051	1068	1072	1071
14	1072	1062	1061	1060	1061	1061	1062	1057	1046	1046	1048	1061	1079	1089	1089	1081	1075	1069	1067	1068	1068	1067	1057	1059	1055	1065
15	1055	1055	1052	1050	1069	1053	1054	1052	1047	1052	1058	1071	1090	1100	1100	1092	1075	1069	1067	1067	1067	1068	1068	1062	1052	1066
16	1052	1057	1047	1047	1052	1049	1048	1047	1046	1049	1057	1071	1090	1102	1118	1106	1076	1071	1076	1057	1051	1059	1060	1061	1040	1064
17	1040	1024	1019	1039	1047	1046	1049	1046	1047	1046	1067	1091	1107	1096	1089	1090	1070	1062	1061	1059	1059	1056	1053	1059	1066	1060
18 c	1066	1051	1052	1052	1054	1052	1048	1041	1039	1041	1056	1067	1077	1081	1079	1072	1067	1064	1064	1065	1068	1062	1063	1062	1062	1060
19 c	1062	1063	1062	1062	1059	1055	1051	1041	1038	1042	1056	1069	1080	1083	1078	1070	1064	1062	1056	1057	1058	1057	1059	1061	1058	1060
20 c	1058	1062	1061	1059	1057	1055	1050	1042	1040	1041	1052	1061	1072	1079	1078	1073	1067	1067	1068	1070	1068	1068	1068	1053	1049	1061
21	1049	1052	1057	1057	1057	1055	1051	1046	1042	1055	1066	1076	1081	1088	1084	1094	1079	1076	1073	1064	1071	1070	1066	1063	1063	1066
22	1063	1064	1062	1060	1056	1057	1046	1046	1052	1068	1078	1068	1070	1105	1099	1121	1082	1062	1079	1051	1040	1048	997	1057	997	1062
23	997	1034	1007	1049	1046	1052	1070	1107	1083	1074	1075	1084	1088	1081	1084	1082	1068	1063	1014	1053	1068	1057	1042	1052	1052	1061
24	1052	1052	1059	1079	1051	1063	1067	1077	1061	1057	1061	1074	1080	1085	1085	1053	1061	1047	1042	1053	1060	1057	1064	1041	1056	1062
25	1056	1054	1059	1059	1068	1069	1064	1072	1062	1063	1058	1069	1091	1090	1094	1085	1079	1057	1063	1053	1032	1053	1051	1048	1045	1064
26	1045	1065	1057	1052	1073	1068	1058	1045	1044	1046	1047	1074	1078	1086	1088	1088	1068	1038	1049	1053	1044	1019	1008	1014	1045	1054
27	1045	1056	1056	1060	1059	1056	1068	1089	1075	1057	1042	1055	1060	1073	1096	1093	1048	1067	1062	1057	1060	1056	1047	1057	1062	1063
28	1062	1078	1072	1048	1048	1041	1051	1060	1064	1058	1052	1070	1080	1083	1087	1068	1070	1070	1045	1040	1047	1002	1008	978	985	1052
29	985	1059	1009	1036	1046	1069	1055	1050	1039	1041	1051	1059	1073	1082	1087	1069	1062	1063	1059	1057	1046	1027	1047	1060	1069	1053
30	1069	1048	1054	1031	1047	1082	1089	1106	1094	1081	1067	1076	1089	1091	1091	1083	1070	1058	1051	1051	1044	1036	1021	1040	1041	1065
Mean	1055	1059	1054	1056	1057	1056	1054	1053	1049	1050	1058	1071	1084	1091	1092	1086	1074	1068	1064	1064	1062	1057	1057	1056	1055	1064

c International quiet day.

⊕ *Note.*—This constant is now 4000 γ instead of 5000 γ, as in the previous months.

XXXV.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **September, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	177	175	176	178	180	181	184	189	189	183	173	166	162	164	171	180	186	186	184	185	183	182	181	181	180	179
2	179	179	179	178	178	180	181	179	178	173	163	156	151	154	166	178	184	185	182	183	182	180	177	174	175	175
3	173	173	171	173	174	178	178	179	176	171	168	164	165	167	171	174	176	176	178	179	183	185	181	179	178	175
4	176	175	175	175	176	176	179	179	176	171	167	165	161	162	169	174	175	174	173	174	174	174	175	176	175	173
5	174	174	174	174	174	174	174	173	173	173	169	165	160	166	175	181	182	183	184	183	180	179	180	180	179	175
6	178	178	177	177	177	177	179	181	179	184	183	183	170	169	171	174	179	182	177	174	176	177	179	178	177	177
7 c	175	175	175	175	175	175	175	176	174	167	161	158	159	163	171	176	176	176	175	173	173	174	175	175	175	172
8 c	174	175	175	175	174	174	175	175	173	169	167	166	164	163	164	166	173	173	171	170	171	171	172	172	172	171
9	171	172	173	173	172	172	173	175	174	169	165	163	164	164	165	168	168	167	167	169	170	170	170	172	171	169
10	169	170	171	169	169	170	170	170	163	159	160	162	160	162	166	171	171	172	176	176	174	173	172	172	172	169
11	171	171	171	171	170	166	165	167	168	166	163	159	157	160	166	169	171	181	178	173	172	174	174	172	172	169
12	171	166	165	168	168	169	170	168	166	167	164	156	152	154	160	167	170	171	171	170	171	173	171	169	168	166
13	167	166	165	160	156	160	162	161	163	163	159	152	146	151	163	175	185	193	197	192	183	177	175	167	159	168
14	158	163	168	169	169	169	171	172	175	173	172	168	165	164	168	174	175	176	174	172	171	171	172	171	167	170
15	166	165	163	163	153	154	158	159	161	161	163	163	161	161	163	167	172	175	172	171	171	171	169	169	168	165
16	168	162	159	162	163	166	166	167	167	167	164	160	158	158	163	174	187	196	190	191	190	183	178	173	157	171
17	156	140	143	152	154	157	160	163	164	162	157	155	159	167	172	181	186	182	180	179	179	178	179	178	169	166
18 c	168	166	169	171	171	174	176	177	172	168	166	165	165	164	165	168	171	171	169	170	171	172	172	172	172	170
19 c	172	171	171	170	170	171	173	176	173	168	161	159	159	162	166	169	170	171	174	174	174	174	172	171	170	170
20 c	170	170	171	170	170	171	172	171	171	168	165	161	161	161	164	167	167	167	166	166	167	168	169	170	171	168
21	171	170	170	169	168	168	169	169	168	165	164	163	163	164	165	171	173	181	180	180	176	173	173	172	171	170
22	171	172	171	170	168	167	169	170	168	164	164	168	169	171	181	194	257	255	211	209	202	187	174	161	142	182
23	143	139	141	145	150	149	148	145	148	156	169	170	177	198	212	210	219	205	211	212	180	181	175	161	167	173
24	167	172	165	131	139	149	153	157	162	169	172	169	171	176	182	199	200	200	195	188	182	178	156	160	168	171
25	168	171	172	172	165	163	160	162	164	167	170	169	168	173	174	176	186	192	190	188	186	180	178	158	154	173
26	154	162	165	169	165	151	160	168	174	175	177	169	166	166	170	182	198	214	203	196	192	177	161	154	161	174
27	162	170	172	175	176	176	177	167	168	171	172	171	171	177	178	190	204	201	191	187	186	184	182	178	175	179
28	176	171	159	154	150	159	167	171	177	180	184	184	181	179	179	191	194	199	208	211	200	193	174	152	133	178
29	133	92	85	87	84	110	130	150	164	171	174	176	178	177	180	190	199	195	191	188	188	180	174	174	157	158
30	158	167	159	147	139	120	113	122	139	153	168	178	181	182	189	198	194	206	211	208	209	199	180	178	178	171
Mean	167	166	165	164	163	164	166	168	169	168	167	165	164	167	172	178	185	187	184	183	181	178	174	171	168	172

c International quiet day.

XXXVI.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **September, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day. (0–2).	Date.
Sept.	h m	h m	γ	° ′ ″	° ′	°		
7	10 34	10 49			69 39·3	13·1	0	1
8	10 20	10 34	16768	17 34 50		13·2	0	2
14	10 54	11 10	16754	17 35 17		13·2	0	3
,,	10 30	10 45			69 38·9	13·2	0	4
17	14 25	15 34	16780			13·2	0	5
18	10 8	11 6	16754			13·3	0	6
,,	11 23	12 28	16753			13·3	0	7
20	10 22	10 32		17 34 9		13·3	0	8
,,	10 40	10 49		17 34 34		13·3	0	9
,,	10 59	11 8		17 35 34		13·3	1	10
,,	11 15	11 24		17 36 17		13·4	0	11
,,	11 34	11 42		17 36 49		13·4	0	12
,,	11 48	11 57		17 37 11		13·4	1	13
,,	15 9	15 47			69 36·8	13·4	0	14
21	10 35	10 51			69 38·5	13·4	1	15
,,	10 57	11 12			69 38·2	13·4	1	16
,,	14 34	14 54		17 38 51†		13·4	1	17
,,	15 16	15 36		17 38 28†		13·5	0	18
,,	16 2	16 12		17 35 58†		13·5	0	19
22	10 24	10 34		17 35 8†		13·5	0	20
,,	10 49	10 58		17 35 48†		13·5	1	21
,,	11 4	11 13		17 35 16†		13·5	2	22
,,	11 36	12 40	16769†			13·5	2	23
23	11 38	11 51			69 39·8†	13·5	1	24
,,	12 15	12 37			69 39·6†	13·5	1	25
24	10 27	10 45			69 38·6†	13·5	1	26
,,	11 3	11 25			69 38·7†	13·5	1	27
,,	11 44	12 4			69 39·5†	13·5	2	28
25	9 54	11 2	16750†			13·5	1	29
,,	14 34	15 37	16778†			13·4	1	30

* Mean of Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.
† Observation made in West Hut.

SEPTEMBER, 1915.

This was the quietest month in the year, having an average magnetic character 0·6. The only disturbance of the month began on the 22nd at 16^h, and was fairly large. It showed no sudden commencement, and lasted until 23^h on 24th. In connection with it there occurred a remarkably clear case of repetition; two prominent portions of the disturbance, as shown on the N trace centering at $18^h\ 21^m$ and $22^h\ 15^m$ on the 23rd, are easily identified at $17^h\ 39^m$ and $21^h\ 38^m$ respectively on the 24th. A similar phenomenon shows itself on the vertical trace. Isolated groups of short-period oscillations occurring on quiet days were noticed on several occasions, notably during the hour centering at $15^d\ 24^h$ and between 22^h and 23^h on 20th.

XXXVII.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **October, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	996	997	995	993	997	1006	1010	996	967	957	948	947	958	966	975	990	996	1001	1006	1008	1001	1000	1000	997	998	988
2 c	998	1000	999	1001	1002	1003	1003	1001	997	987	979	972	968	977	981	989	997	1000	1003	1007	1007	1005	1004	1004	1003	995
3	1003	1003	1005	1006	1007	1007	1007	1006	1001	992	982	975	973	976	986	987	990	996	1006	1005	1006	1010	1017	1013	1007	998
4	1007	1010	1004	1004	1002	1001	999	999	1000	996	990	985	986	982	991	993	997	1002	1011	1012	1013	1011	1008	1012	1009	1001
5 c	1009	1010	1009	1007	1006	1006	1006	1005	1003	997	987	979	976	977	978	985	993	1002	1007	1009	1008	1009	1008	1011	1011	1000
6	1011	1010	1011	1007	1007	1008	1007	1007	1006	1001	991	985	983	983	985	994	998	1003	1008	1012	1011	1012	1016	1014	1006	1003
7	1005	1012	1005	1005	1006	1009	1003	1006	1004	997	988	981	979	985	991	990	1004	1010	1011	1014	1017	1014	1015	1012	1010	1003
8	1010	1012	1007	1008	1007	1007	1008	1007	1002	995	985	979	980	985	993	1002	1004	1005	1010	1012	1006	1003	1006	1008	1008	1002
9 c	1008	1008	1009	1007	1007	1007	1007	1006	1001	991	978	970	972	981	995	1000	1004	1005	1009	1011	1010	1011	1012	1011	1010	1001
10	1010	1006	1017	1026	1016	1015	1015	1014	1006	1000	985	991	989	993	1000	995	1007	1003	1000	1006	1007	1018	990	1006	1005	1005
11	1005	1007	1005	1003	1005	1008	996	996	993	988	971	958	955	962	983	985	993	1000	1001	1001	1000	1001	1010	1002	1002	993
12	1002	1003	1004	1006	1009	1009	1007	1007	1000	990	976	972	976	977	985	993	995	998	1003	1005	1005	1007	1020	1005	1007	998
13	1007	1007	1007	1006	1008	1011	1010	1008	1001	990	980	976	971	977	986	996	1001	1005	1009	1007	1009	1009	1011	1020	1021	1001
14	1021	1015	1012	1014	1017	1016	1018	1016	1015	1000	981	972	968	975	992	975	964	974	974	974	983	998	1017	1002	1002	995
15	1002	998	992	960	991	990	998	956	931	912	904	903	921	945	981	1000	1004	981	947	930	911	916	961	980	950	958
16	950	940	995	1001	1002	981	982	995	991	981	976	976	978	981	985	991	993	996	996	998	1000	997	1001	1016	990	988
17	990	995	997	996	994	1013	1010	1006	1002	991	975	966	967	972	980	985	987	990	996	1000	1001	1000	999	999	1005	992
18 c	1005	1007	997	994	1000	1000	1002	1002	1001	992	977	966	964	967	976	983	992	998	1001	1005	1005	1005	1006	1006	1001	994
19	1000	1001	1003	1004	1008	1014	1016	1003	993	991	979	963	960	950	959	979	987	983	979	962	952	970	984	984	981	984
20	981	985	989	989	993	968	970	1000	981	940	898	919	950	970	965	976	976	980	999	1015	997	998	1014	1012	1008	978
21	1008	1005	994	980	980	997	975	1000	985	974	945	966	969	967	975	982	986	995	988	998	999	1028	993	996	997	987
22	997	999	999	998	1000	999	1002	998	991	984	961	959	952	955	974	975	975	965	975	990	968	982	971	991	991	982
23	991	988	956	1001	998	1000	979	960	964	963	959	967	959	973	966	977	984	1009	994	973	983	991	989	1026	973	981
24	973	990	953	945	960	945	969	990	987	974	945	966	963	970	974	988	986	990	989	985	995	985	994	979	964	975
25	964	995	996	1010	978	973	944	940	946	936	943	906	922	945	941	951	953	971	999	959	975	979	969	982	967	962
26	966	1000	980	968	996	1004	993	988	979	971	964	954	953	956	965	985	977	984	988	987	989	998	1026	992	993	982
27	993	986	984	991	995	998	1001	1002	998	992	976	966	959	965	972	977	985	991	1008	1012	1002	1001	999	998	994	990
28	994	996	994	993	993	995	997	1000	998	992	980	975	978	981	985	990	991	996	992	985	986	986	989	992	995	990
29 c	995	998	998	998	1003	1004	999	999	1001	984	972	969	968	974	976	985	990	993	998	1003	1007	1008	1008	1006	1007	993
30	1006	999	1000	1002	1004	1009	1012	1012	1012	1004	995	993	983	985	991	1004	1003	993	1009	1008	1012	1013	1011	1015	1022	1003
31	1022	1005	994	993	998	1001	1003	1000	998	992	982	976	979	986	987	995	‡	..	..	..	..	..	..	..	‡	..
Mean †	997	999	997	997	1000	1000	998	998	992	982	969	965	966	972	980	987	990	994	997	996	996	999	1002	1003	998	991

XXXVIII.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **October, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											4000 γ (·04 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	1041	1044	1048	1054	1057	1056	1057	1067	1062	1068	1072	1079	1086	1087	1083	1080	1074	1068	1068	1067	1051	1056	1048	1068	1057	1065
2 c	1057	1060	1057	1057	1057	1055	1056	1051	1046	1041	1047	1060	1068	1078	1078	1074	1069	1064	1067	1067	1066	1066	1064	1063	1062	1061
3	1062	1060	1059	1057	1057	1057	1056	1052	1046	1044	1052	1062	1075	1083	1088	1082	1076	1070	1072	1066	1070	1068	1065	1030	1024	1062
4	1024	1026	1046	1048	1052	1051	1049	1051	1051	1049	1057	1067	1082	1082	1081	1079	1074	1070	1073	1070	1071	1066	1057	1067	1059	1061
5 c	1059	1062	1059	1058	1058	1056	1056	1051	1046	1042	1047	1057	1067	1076	1079	1078	1076	1073	1071	1068	1067	1063	1063	1063	1061	1062
6	1061	1056	1057	1056	1059	1058	1054	1052	1047	1043	1053	1066	1077	1082	1084	1082	1075	1071	1070	1071	1071	1065	1051	1052	1052	1063
7	1052	1052	1058	1060	1061	1054	1055	1052	1048	1048	1052	1059	1070	1088	1090	1081	1076	1069	1068	1068	1067	1069	1047	1037	1045	1062
8	1045	1047	1054	1056	1056	1056	1054	1053	1049	1046	1054	1067	1081	1088	1089	1080	1071	1065	1067	1068	1064	1059	1063	1062	1063	1063
9 c	1063	1062	1062	1062	1062	1061	1057	1053	1045	1040	1047	1066	1083	1089	1089	1089	1070	1064	1065	1065	1062	1064	1063	1062	1055	1064
10	1055	1052	1051	1034	1054	1058	1057	1055	1049	1045	1044	1069	1077	1088	1094	1083	1090	1089	1069	1063	1055	971	999	1041	1051	1056
11	1051	1055	1055	1055	1056	1055	1059	1065	1055	1047	1054	1068	1084	1089	1094	1088	1078	1068	1066	1062	1060	1052	1035	1041	1060	1062
12	1060	1062	1062	1067	1066	1056	1054	1051	1050	1048	1055	1066	1084	1092	1088	1083	1074	1069	1068	1067	1067	1063	1053	1051	1057	1065
13	1057	1057	1057	1057	1056	1056	1057	1054	1047	1045	1048	1063	1077	1085	1090	1085	1076	1069	1068	1068	1066	1064	1064	1061	1057	1064
14	1057	1056	1061	1059	1060	1059	1057	1056	1055	1049	1055	1075	1089	1103	1132	1138	1144	1082	1069	1045	1053	1041	1011	1052	1048	1069
15	1048	1061	1059	1062	1025	1053	1088	1079	1063	1049	1053	1064	1083	1086	1081	1092	1063	1036	1001	999	968	984	978	966	936	1041
16	936	1019	1015	1030	1041	1062	1057	1049	1040	1036	1037	1046	1059	1068	1074	1073	1067	1065	1066	1068	1064	1060	1036	1005	1049	1047
17	1049	1055	1050	1051	1059	1091	1045	1048	1042	1036	1040	1053	1066	1073	1075	1072	1064	1057	1060	1059	1060	1056	1056	1057	1057	1057
18 c	1056	1047	1052	1056	1058	1056	1056	1053	1046	1039	1040	1051	1062	1072	1076	1073	1068	1065	1064	1062	1061	1060	1060	1060	1056	1058
19	1056	1055	1056	1056	1056	1056	1052	1059	1074	1072	1062	1067	1096	1089	1090	1099	1072	1073	1065	1013	992	1030	1016	1061	1061	1059
20	1061	1052	1050	1052	1052	1068	1099	1061	1060	1047	1062	1083	1077	1083	1081	1063	1066	1058	1029	1045	1058	1058	1060	1043	1047	1061
21	1047	1014	1015	1030	1058	1072	1059	1063	1061	1056	1050	1060	1070	1074	1074	1073	1066	1058	1050	1054	1048	1033	1051	1057	1058	1054
22	1058	1062	1067	1059	1057	1059	1055	1056	1045	1041	1045	1067	1082	1099	1100	1086	1073	1051	1029	995	1002	996	1020	988	992	1048
23	992	983	1040	1087	1057	1060	1073	1117	1089	1079	1078	1092	1089	1107	1131	1102	1069	1061	976	1045	1061	1059	1054	1046	992	1064
24	992	963	972	1006	1088	1066	1074	1050	1047	1043	1038	1059	1067	1077	1076	1048	1024	1019	1028	1038	1042	1041	1038	1061	1047	1041
25	1047	991	1028	1003	1016	1072	1106	1068	1075	1072	1055	1073	1071	1085	1089	1076	1053	1036	1007	1029	1031	1018	1031	1030	1068	1049
26	1068	1051	1029	1080	1051	1073	1083	1063	1051	1043	1045	1069	1073	1080	1067	1062	1061	1059	1061	1031	1044	1051	1045	1033	1046	1057
27	1046	1052	1054	1056	1056	1059	1056	1053	1050	1040	1041	1055	1061	1071	1072	1072	1069	1059	1013	1017	1024	1035	1027	1038	1028	1049
28	1028	1045	1050	1052	1056	1056	1053	1052	1049	1046	1045	1055	1066	1072	1072	1067	1059	1059	1050	1045	1045	1031	1035	1029	1045	1051
29 c	1045	1065	1061	1056	1055	1055	1055	1060	1053	1048	1050	1067	1073	1079	1078	1072	1067	1066	1064	1060	1058	1058	1058	1056	1056	1061
30	1055	1054	1055	1055	1055	1055	1055	1056	1054	1054	1058	1069	1071	1076	1073	1080	1076	1071	1071	1071	1061	1061	1057	1054	1032	1062
31	1032	1036	1042	1050	1053	1054	1055	1054	1051	1050	1049	1061	1074	1083	1078	1081	‡	..	..	..	..	..	..	..	‡	..
Mean†	1044	1044	1048	1052	1055	1060	1061	1058	1053	1049	1051	1065	1076	1083	1086	1080	1071	1063	1053	1052	1050	1047	1044	1044	1044	1058

c International quiet day. † Mean of 30 days—31st omitted. ‡ Clock string broke.

XXXIX.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **October, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit)+																									
Day	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1	178	161	153	142	134	115	109	117	134	147	172	169	169	176	180	180	180	180	177	178	183	182	181	173	169	161
2 c	170	174	176	176	176	176	176	177	177	177	175	172	172	173	174	174	175	176	175	176	176	176	177	176	176	175
3	177	177	177	176	176	177	176	177	178	178	175	173	173	174	172	174	177	177	177	179	178	177	177	177	176	176
4	177	175	175	175	176	176	176	176	176	177	174	172	167	169	169	170	174	175	175	175	176	178	180	177	178	175
5 c	178	177	176	176	175	175	174	175	175	175	170	166	165	166	169	172	174	175	174	175	176	178	178	177	177	174
6	178	178	177	175	175	175	175	175	177	176	170	167	166	166	167	171	175	176	176	175	176	178	179	179	179	174
7	179	175	176	175	174	174	174	173	173	171	166	163	162	166	170	175	176	176	175	174	173	174	179	178	173	173
8	174	173	174	173	175	174	173	173	174	173	171	167	162	164	169	172	174	174	174	174	177	179	177	177	176	173
9 c	176	175	174	174	173	173	173	174	176	175	169	165	163	166	170	173	175	174	173	172	173	173	173	173	175	172
10	176	176	165	166	167	169	170	171	172	172	169	163	160	162	168	173	173	179	184	184	185	181	168	157	160	171
11	161	163	168	173	175	175	175	174	175	176	174	171	170	175	182	184	184	184	184	183	183	183	175	172	173	176
12	173	176	176	175	171	172	172	173	173	172	170	168	167	169	171	174	178	178	177	177	177	178	173	175	175	174
13	176	177	177	176	176	176	176	176	177	178	175	170	167	169	170	174	179	179	179	178	178	178	177	174	168	175
14	169	171	173	173	173	174	173	173	175	178	178	171	168	170	176	203	247	269	260	254	220	202	191	178	179	193
15	179	179	178	148	115	116	107	122	146	163	178	192	212	232	246	263	310	294	272	240	196	167	85	113	97	184
16	98	45	57	94	130	148	163	172	179	179	176	172	168	169	173	178	182	182	182	185	189	190	193	191	184	160
17	184	181	183	181	178	155	155	163	169	172	173	172	168	168	171	176	181	183	181	182	180	180	179	178	174	175
18 c	175	169	170	173	173	172	173	173	173	174	169	166	162	161	163	165	165	166	167	167	168	167	168	166	164	168
19	165	163	162	159	157	158	158	157	157	158	157	154	157	161	171	207	224	239	252	210	194	180	172	153	138	175
20	139	149	155	154	146	134	138	149	159	*156*	154	153	155	157	158	166	162	157	159	150	147	148	142	127	116	150
21	117	106	96	82	74	86	106	119	127	133	135	131	135	138	138	139	141	143	147	146	147	138	137	137	140	125
22	141	141	137	138	138	138	138	141	144	144	144	141	144	149	157	175	193	200	197	184	157	141	119	115	96	150
23	97	88	88	71	108	126	130	120	123	129	130	132	145	162	214	241	225	263	239	186	170	162	162	145	100	152
24	100	58	7	5	38	52	80	113	133	141	150	149	148	145	158	178	190	202	191	173	154	134	141	132	82	123
25	83	94	106	106	105	101	87	110	130	140	155	167	182	187	200	220	236	236	209	182	179	171	157	138	118	154
26	119	95	103	98	112	126	128	136	144	149	151	150	155	164	175	184	185	176	169	171	169	164	150	144	144	147
27	145	146	146	150	153	153	153	153	155	156	153	152	153	155	158	160	164	164	168	164	159	155	153	148	146	155
28	147	146	147	151	153	153	154	154	155	156	155	155	155	154	154	159	164	163	165	169	171	171	168	162	157	158
29 c	158	151	149	153	155	155	155	152	152	154	155	151	148	151	157	163	164	162	160	159	158	157	156	156	155	155
30	155	154	153	154	154	153	153	153	153	154	151	147	146	148	148	152	155	158	155	155	157	156	156	153	136	153
31	137	138	141	147	151	151	152	153	155	154	153	151	148	147	149	154	‡	..	..	..	..	..	..	..	‡	..
Mean †	155	150	148	147	150	150	152	156	160	163	163	161	162	166	172	180	186	189	186	179	174	170	164	160	153	164

c International quiet day. † Mean of 30 days—31st omitted. ‡ Clock string broke.

XL.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **October, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
Oct.	h m	h m	γ	° ′ ″	° ′	°		
8	10 36	10 47	16756	17 34 25		13·4	2	1
,,	11 31	12 2			69 38·6	13·4	0	2
						13·4	1	3
						13·4	1	4
						13·4	0	5
						13·4	0	6
						13·4	1	7
						13·4	0	8
						13·3	0	9
						13·3	2	10
						13·3	1	11
12	11 21	11 33	16764	17 37 46		13·3	1	12
,,	10 40	11 10			69 39·6	13·3	1	13
						13·2	2	14
						13·2	2	15
						13·2	2	16
						13·2	1	17
						13·2	0	18
						13·2	2	19
						13·2	2	20
						13·2	2	21
						13·2	2	22
20	11 9	11 24	16705	17 41 25		13·2	2	23
,,	10 30	10 53			69 43·8	13·2	2	24
						13·2	2	25
						13·2	2	26
						13·2	2	27
						13·2	1	28
						13·1	1	29
						13·1	1	30
						13·0	1	31

* Mean of Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

OCTOBER, 1915.

This was, on the whole, the least quiet month of the year, its average magnetic character being 1·26. The most disturbed portion of the month was from $23^d\ 12^h\ 50^m$, when a "sudden commencement" occurred, until $26^d\ 4^h$. The absolute range of the North and West components in this storm were 238 γ and 318 γ respectively, the range in V exceeded 364 γ, the spot of light going beyond the edge of the paper. The most prominent movements took place at $23^d\ 17^h\ 15^m$ and $23^d\ 18^h\ 7^m$ on W and V, and at $24^d\ 18^h\ 0^m$ on N. An interesting feature of this disturbance is the exceedingly strong resemblance, in the W trace, between the interval from $23^d\ 16^h$ to $24^d\ 10^h$, and the corresponding intervals 24 hours and 48 hours later; thereby constituting a "repetition" on a large scale, not merely as regards bays and other prominences on the trace, but also as regards oscillations of short period. This "repetition" is not shown on the N and V traces.

XLI.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **November, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit) +															
Day. 1	γ ‡	γ ..	γ ..	γ ..	γ ..	γ ..	γ ..	γ ..	γ ..	γ ‡	γ 968	γ 963	γ 947	γ 940	γ 961	γ 974	γ 961	γ 958	γ 963	γ 985	γ 961	γ 977	γ 989	γ 981	γ 978	γ ..
2	978	978	983	982	978	980	985	985	982	976	962	971	978	982	983	984	969	987	992	988	998	990	992	994	993	983
3 c	993	992	991	991	992	995	998	997	995	991	980	978	984	989	988	991	997	987	997	998	999	1001	1001	1002	1003	993
4 c	1003	998	997	997	1000	1001	998	998	997	995	988	985	984	987	991	994	998	1001	1007	1000	987	1001	1004	1002	1000	996
5	999	1000	998	1000	1002	1002	1001	999	996	988	981	977	977	981	985	1004	1012	1006	994	1004	985	1038	1010	974	903	994
6**	903	1031	1022	970	927	986	979	953	899	917	934	988	974	937	953	947	957	966	983	963	972	976	954	962	972	962
7	971	981	966	974	980	969	983	978	976	967	962	955	958	971	980	976	968	977	986	976	994	979	981	984	991	975
8	991	983	976	981	991	1000	1002	995	981	967	963	962	959	968	967	980	990	1016	976	980	986	995	1010	991	992	984
9	991	1000	996	996	994	1000	991	995	994	984	982	975	969	976	975	987	985	989	991	1001	992	988	994	991	1002	989
10	1002	994	995	997	999	1000	1013	1015	1005	978	984	981	978	966	968	965	978	986	992	999	998	999	1000	999	996	991
11	996	995	996	1000	1002	1003	1000	996	982	980	965	975	986	988	971	979	982	994	978	976	986	987	994	1000	997	988
12	997	994	993	997	998	1006	1004	990	1003	979	968	970	971	979	990	991	995	1002	1012	1006	1006	1014	1002	1003	1002	995
13	1001	1010	1001	999	1001	1004	1003	1003	1000	995	989	988	988	988	993	992	990	988	997	1004	1006	1005	1007	1004	1003	998
14 c	1003	1001	1002	1003	1004	1004	1004	1002	998	995	993	989	990	995	998	998	999	1004	1008	1009	1011	1011	1009	1007	1005	1002
15	1005	1005	1003	1003	1010	1010	1010	1012	1011	1005	998	995	994	997	998	999	999	999	1005	986	983	996	984	911	992	996
16	991	995	991	996	995	976	992	999	978	974	963	961	959	945	963	983	980	987	979	1006	997	965	1014	1013	981	983
17	981	982	983	998	1000	995	969	933	928	961	957	943	919	948	958	958	977	995	996	1004	1004	995	994	992	981	974
18	981	981	977	984	982	993	996	957	923	948	954	954	953	961	976	989	985	1006	992	1018	1016	997	1013	977	993	980
19	992	987	980	984	992	997	986	962	977	965	978	976	966	953	982	998	992	972	991	986	997	986	999	992	993	983
20	993	988	992	994	995	991	987	995	979	979	973	972	969	981	991	975	992	998	999	997	1005	1001	1022	1040	996	992
21	996	996	987	984	1001	1006	1007	996	991	986	976	976	963	981	983	987	1001	990	991	991	1018	1012	1001	1001	1003	993
22	1002	995	996	996	1002	1000	1001	994	991	985	966	961	982	974	986	986	994	983	997	1005	1018	998	1001	994	996	992
23	996	994	996	997	997	999	996	1000	996	994	991	986	984	987	982	988	993	996	1000	1000	1000	1007	1007	1001	1000	995
24	999	999	999	998	999	1000	1002	999	996	990	985	981	982	985	987	992	996	1003	1000	998	1001	1003	1005	1013	1001	996
25	1001	999	998	997	1002	1010	1016	1013	1004	995	985	984	984	984	990	994	1002	1009	1007	1001	1000	1001	1008	1009	1008	1000
26	1008	1011	1005	1005	1009	1015	1006	1009	1010	1005	1004	1000	997	997	999	1001	1006	1009	1003	1006	1009	1025	1013	1007	1005	1007
27	1004	1000	1000	1001	1004	1002	998	1001	1015	1009	998	997	1008	1007	1002	1001	1013	1012	1009	1015	1007	1038	1009	990	1029	1006
28	1029	1006	1007	998	1011	1014	998	989	988	985	978	978	985	996	999	1003	1008	1009	1012	1012	1012	1012	1010	1008	1005	1001
29 c	1005	1006	1003	1008	1009	1009	1008	1008	1006	1003	994	992	994	998	994	996	1003	1003	1000	999	1008	1008	1008	1007	1005	1003
30 c	1004	1003	1001	1003	1012	1010	1008	1008	1003	997	993	994	996	1000	1004	1004	1007	1008	1007	1010	1010	1012	1008	1006	1005	1005
Mean †	994	997	994	994	996	999	998	992	986	983	977	977	977	979	984	988	992	996	997	998	1000	1001	1002	996	995	992

XLII.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **November, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											4000 γ (·04 C.G.S. unit) +															
Day. 1	γ ‡	γ ..	γ ..	γ ..	γ ..	γ ..	γ ..	γ ..	γ ..	γ ‡	γ 1075	γ 1086	γ 1101	γ 1120	γ 1118	γ 1161	γ 1116	γ 1102	γ 1092	γ 1055	γ 1049	γ 1010	γ 997	γ 1028	γ 1040	γ ..
2	1040	1039	1044	1044	1043	1045	1044	1044	1045	1050	1053	1069	1066	1067	1068	1073	1069	1069	1063	1061	1023	1029	1051	1049	1050	1052
3 c	1050	1050	1049	1050	1050	1051	1050	1052	1053	1052	1054	1060	1065	1074	1074	1070	1076	1067	1047	1058	1057	1050	1043	1044	1044	1056
4 c	1044	1045	1043	1046	1044	1047	1049	1050	1049	1049	1055	1064	1066	1069	1067	1065	1062	1064	1066	1059	1054	1057	1055	1054	1052	1055
5	1052	1055	1056	1054	1054	1054	1051	1050	1050	1050	1055	1062	1071	1074	1071	1083	1082	1082	1092	1022	1045	1013	1032	1024	955	1054
6**	955	956	1028	1004	1006	1029	1061	1068	1090	1109	1059	1066	1103	1082	1109	1103	1121	1038	1013	1028	1033	1030	1045	1050	1050	1051
7	1050	1051	1055	1063	1059	1063	1055	1046	1042	1040	1054	1062	1063	1068	1075	1071	1065	1060	1054	1032	1017	1019	1031	1032	1044	1051
8	1043	1053	1065	1069	1049	1050	1053	1058	1049	1043	1048	1065	1072	1067	1065	1064	1057	1005	1048	1043	1047	1041	1053	1038	1048	1052
9	1048	1051	1054	1049	1054	1053	1057	1063	1061	1053	1059	1064	1069	1074	1060	1060	1065	1064	1059	1049	1034	1022	1027	1029	1053	1053
10	1053	1046	1053	1054	1054	1058	1060	1060	1054	1059	1071	1075	1075	1075	1083	1074	1075	1065	1060	1059	1054	1053	1044	1048	1050	1061
11	1050	1058	1059	1056	1054	1053	1054	1057	1061	1067	1059	1064	1069	1075	1074	1064	1067	1060	1048	1042	1043	1034	1017	1027	1044	1055
12	1044	1053	1059	1054	1055	1055	1050	1059	1062	1049	1050	1058	1065	1063	1069	1066	1065	1064	1068	1064	1059	1044	1043	1044	1054	1057
13	1054	1057	1042	1046	1052	1054	1054	1053	1053	1050	1053	1058	1064	1065	1070	1066	1065	1068	1065	1059	1054	1052	1053	1053	1054	1057
14 c	1054	1054	1054	1057	1057	1054	1054	1053	1053	1054	1054	1058	1061	1065	1070	1065	1065	1064	1061	1059	1059	1057	1055	1054	1055	1058
15	1055	1054	1053	1051	1048	1048	1051	1053	1054	1055	1060	1065	1070	1071	1070	1070	1068	1065	1066	1049	1044	1048	998	968	984	1050
16	984	1054	1050	1059	1058	1064	1092	1089	1065	1071	1080	1082	1091	1097	1091	1060	1064	1057	1043	995	979	1015	1022	1014	1028	1054
17	1028	1043	1059	1048	1017	1061	1101	1081	1073	1065	1070	1064	1087	1080	1082	1080	1059	1049	1031	1033	1046	1044	1046	1027	1016	1057
18	1016	1027	1041	1053	1048	1054	1049	1113	1131	1082	1045	1072	1076	1069	1071	1067	1041	1048	1037	1021	1023	997	995	1013	1049	1050
19	1048	1040	1048	1055	1050	1053	1060	1079	1074	1062	1058	1060	1066	1058	1055	1060	1063	1034	1048	1042	1026	1048	1064	1069	1032	1055
20	1032	1033	1050	1049	1053	1054	1079	1052	1048	1048	1057	1063	1067	1065	1065	1058	1021	1060	1058	1033	1046	1050	1026	1034	1021	1050
21	1021	1043	1041	1064	1042	1045	1053	1057	1051	1053	1052	1065	1061	1067	1064	1059	1021	1036	1037	1039	1037	1038	1039	1042	1053	1048
22	1053	1071	1052	1053	1052	1053	1053	1059	1062	1058	1060	1066	1077	1075	1066	1066	1032	1041	1043	1034	1028	1038	1042	1043	1044	1053
23	1044	1050	1054	1055	1056	1056	1055	1056	1052	1055	1057	1062	1054	1057	1056	1058	1057	1049	1052	1046	1042	1048	1048	1047	1050	1053
24	1050	1052	1052	1054	1055	1057	1053	1050	1048	1048	1056	1060	1065	1068	1065	1062	1059	1058	1050	1053	1053	1052	1048	1047	1053	1055
25	1053	1053	1053	1053	1058	1057	1057	1057	1057	1056	1060	1070	1071	1073	1073	1066	1063	1062	1063	1058	1051	1052	1048	1053	1051	1059
26	1051	1050	1053	1051	1059	1053	1055	1055	1055	1056	1059	1064	1064	1063	1063	1063	1061	1063	1057	1058	1055	1040	1047	1050	1052	1056
27	1051	1049	1058	1055	1050	1047	1052	1053	1057	1059	1068	1067	1070	1084	1073	1076	1075	1074	1065	1044	1056	1031	1041	1036	1024	1057
28	1024	1020	1016	1047	1073	1063	1052	1056	1057	1052	1062	1071	1073	1072	1065	1061	1057	1057	1057	1056	1055	1053	1052	1052	1052	1055
29 c	1052	1051	1052	1053	1052	1052	1052	1052	1052	1049	1053	1058	1064	1063	1062	1055	1056	1058	1057	1057	1054	1052	1054	1055	1052	1055
30 c	1052	1052	1051	1052	1049	1048	1051	1052	1053	1054	1058	1063	1066	1065	1063	1059	1058	1058	1057	1057	1055	1056	1053	1052	1051	1056
Mean †	1040	1045	1050	1052	1050	1053	1057	1060	1059	1057	1058	1065	1070	1071	1070	1067	1062	1057	1054	1045	1042	1040	1040	1040	1040	1054

c International quiet day. ** Day "proposed for reproduction" by the International Magnetic Commission (double star). *Vide* Plate at end of volume.
† Mean of 29 days—1st omitted. ‡ Clock string broke.

XLIII.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **November, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day. 1	γ ‡	γ ..	γ ..	γ ..	γ ..	γ ..	γ ..	γ ..	γ ..	γ ‡	γ 143	γ 142	γ 148	γ 158	γ 184	γ 219	γ 281	γ 265	γ 252	γ 266	γ 187	γ 191	γ 170	γ 170	γ 167	γ ..
2	168	168	165	163	163	165	164	163	163	160	158	155	156	157	161	168	173	170	167	179	193	190	183	181	179	168
3 c	180	180	178	178	176	176	174	172	172	174	173	173	174	176	178	180	179	183	184	180	179	182	183	182	179	178
4 c	180	179	178	176	174	173	175	174	174	173	168	169	172	172	173	174	173	173	174	178	187	183	177	176	177	175
5	177	174	173	173	173	173	172	172	173	171	169	169	169	170	172	171	172	173	179	231	243	223	141	119	47	174
6**	48	97	110	93	37	84	96	116	131	131	151	180	208	223	214	220	244	275	231	220	208	198	164	144	150	161
7	151	169	172	171	173	170	173	178	181	182	184	184	186	186	189	193	201	196	193	198	193	191	189	185	180	183
8	180	178	172	162	170	173	172	172	177	180	179	173	178	184	192	198	201	201	193	191	187	181	169	169	173	180
9	174	170	169	167	166	166	167	165	164	167	167	169	169	172	184	188	188	186	185	183	178	182	173	168	157	173
10	158	163	170	173	173	173	169	166	167	172	168	172	175	181	187	191	191	189	187	182	180	179	179	177	176	176
11	177	174	170	170	174	175	176	175	176	176	178	178	179	180	188	193	193	192	197	206	200	195	188	177	172	183
12	172	172	174	172	171	168	168	170	170	176	184	181	180	180	179	178	180	179	176	177	178	178	178	171	168	175
13	169	149	187	165	167	169	170	171	171	173	171	169	169	170	171	175	178	179	179	179	178	177	175	175	173	172
14 c	174	174	174	173	173	174	174	175	174	175	174	174	175	175	173	174	174	174	175	174	174	174	174	173	172	174
15	173	173	173	173	172	172	172	171	172	175	176	174	173	173	172	173	176	177	177	184	196	192	171	151	163	174
16	164	169	168	160	164	158	136	139	157	165	171	176	190	218	265	248	204	196	200	209	190	187	167	152	160	181
17	161	170	137	97	103	117	114	125	141	161	173	188	210	217	216	219	215	204	201	193	187	186	184	180	157	171
18	157	98	109	129	148	160	161	157	151	156	180	189	194	208	218	211	213	203	194	189	179	180	173	166	147	172
19	148	150	166	170	174	174	174	173	174	179	182	182	186	196	195	188	194	204	198	197	191	186	170	157	152	180
20	153	161	169	173	175	171	163	165	173	180	182	182	183	185	188	197	207	191	186	187	185	181	179	162	160	178
21	161	164	162	161	160	165	164	168	174	177	177	175	178	184	187	190	200	198	196	195	184	162	164	171	170	176
22	170	160	164	170	173	174	174	173	172	172	172	170	171	180	187	191	200	200	193	188	180	178	177	177	173	178
23	174	176	178	178	178	177	177	175	174	172	171	171	174	177	179	180	182	182	183	183	183	179	173	175	174	177
24	175	176	177	176	177	177	176	177	178	179	176	176	177	178	180	181	181	182	182	182	180	179	178	174	172	178
25	173	175	175	176	177	176	175	174	175	177	178	176	177	179	181	178	180	179	179	180	184	182	179	176	175	178
26	176	172	172	174	173	173	173	172	171	172	170	169	172	173	173	174	177	178	180	178	178	174	172	170	170	173
27	170	172	172	172	173	174	173	170	167	166	168	170	169	166	169	170	172	174	177	184	183	177	174	172	158	172
28	159	155	147	142	129	141	153	159	163	166	168	167	167	169	173	175	175	173	172	171	171	170	170	169	169	163
29 c	170	170	170	169	169	170	170	170	170	170	169	170	171	171	171	174	175	175	176	176	174	173	172	170	170	171
30 c	171	171	171	171	170	169	169	169	170	171	172	170	169	169	169	171	170	170	171	170	169	169	169	170	169	170
Mean †	164	164	166	163	162	165	165	166	168	171	173	174	178	182	186	187	189	188	186	188	186	182	174	169	164	175

c International quiet day. ** Day "proposed for reproduction" by the International Magnetic Commission (double star). *Vide* Plate at end of volume.
† Mean of 29 days—1st omitted. ‡ Clock string broke.

XLIV.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **November, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
Nov.	h m	h m	γ	° ′ ″	° ′	°		
4	11 28	11 38	16764	17 34 41		13·0	2	1
„	10 53	11 13			69 38·3	13·0	1	2
						13·0	0	3
						13·0	1	4
						13·0	2	5
						12·9	2	6
						12·9	1	7
						12·9	1	8
						12·8	1	9
						12·8	1	10
						12·7	1	11
						12·7	1	12
16	11 13	11 23	16753	17 38 38		12·6	1	13
„	10 47	11 3			69 39·2	12·5	0	14
						12·5	2	15
						12·5	2	16
						12·4	2	17
						12·4	2	18
						12·4	1	19
						12·3	1	20
						12·3	1	21
						12·2	1	22
						12·2	0	23
						12·2	0	24
						12·1	0	25
						12·0	1	26
24	12 10	12 24	16766	17 35 10		11·9	1	27
„	10 54	11 41			69 38·5	11·9	1	28
						11·9	0	29
						11·8	0	30

* Mean of Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

NOVEMBER, 1915.

The average magnetic character of the month was 1·0. The principal disturbance * showed a "sudden commencement" at $5^d\ 14^h\ 38^m$. Its range was N 328 γ; W 306 γ; V 266 γ. Oscillations of short period (4·5 minutes) were shown on the V trace during this storm, chiefly from $6^d\ 5^h\ 20^m$ to $6^d\ 7^h\ 20^m$, from $6^d\ 8^h$ to $6^d\ 10^h$, and from $6^d\ 12^h$ to $6^d\ 13^h$. Another disturbance from $15^d\ 18^h$ until the early hours of the 19th was of lesser magnitude.

* Plate at end of volume.

XLV.—READINGS OF THE NORTH COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (X.) **December, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											15,000 γ (·15 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 c	1005	1006	1007	1008	1010	1011	1010	1007	1003	1002	1002	1002	1003	1003	1005	1007	1009	1010	1011	1012	1011	1012	1011	1009	1008	1007
2	1007	1008	1008	1008	1009	1010	1011	1011	1010	1006	1004	1003	1005	1007	1011	1014	1013	1014	1015	1016	1016	1012	1007	996	1001	1009
3	1001	1005	1002	1004	1007	1020	1012	1012	1008	1001	997	997	1001	1002	1007	1010	1009	1011	1007	1012	1011	1012	1006	1003	1003	1007
4	1003	1005	1004	1006	1007	1009	1010	1008	1005	1002	1001	1001	1001	1005	1008	1007	1009	1012	1011	1014	1013	1013	1013	1012	1011	1008
5 c	1010	1010	1010	1011	1011	1011	1012	1010	1009	1005	1001	1001	1002	1006	1009	1011	1014	1015	1016	1018	1017	1017	1015	1013	1011	1011
6**	1011	1016	1010	1008	1020	1018	1022	1023	1023	1016	996	975	956	957	976	953	940	951	955	961	976	959	939	1025	976	986
7	975	978	976	959	950	983	988	989	974	980	978	975	971	967	979	986	988	989	990	990	991	1014	993	990	991	982
8	991	987	977	989	992	999	1003	1003	999	995	979	977	979	984	988	987	995	999	1000	1001	1001	1005	1004	1005	1003	994
9	1002	994	994	996	1000	1003	1004	1002	999	998	994	992	993	992	994	994	996	998	1006	1003	1006	994	997	1003	1003	998
10	1003	1005	1007	1008	1008	1009	1012	1012	1008	1003	1002	1002	1007	1010	1012	1010	1009	1011	1004	993	989	1009	1010	1005	1004	1006
11	1003	999	999	999	1002	1002	1002	1003	1000	999	996	997	997	1000	1002	987	987	1004	1008	999	997	1005	1000	993	1001	999
12	1001	988	990	985	993	998	1005	996	997	992	993	996	995	994	996	998	1002	1003	1006	1007	1007	1007	1006	1004	1003	998
13	1002	1003	1001	1002	1006	1007	1006	1004	1001	998	1001	1006	1007	1006	1006	1007	1007	1008	1007	1005	1007	1009	1007	1006	1005	1005
14	1005	1004	1006	1008	1009	1011	1013	1012	1005	1006	1006	1002	1001	1003	988	972	981	977	973	977	997	1001	1008	1011	996	999
15	995	997	998	1006	1009	1018	1020	1010	1004	1012	971	987	991	969	973	986	963	996	954	958	970	971	995	991	992	989
16	992	986	987	990	993	989	1004	1004	996	976	983	988	983	974	974	980	984	1001	1002	1004	1003	1002	1001	1000	1013	992
17	1012	1005	1004	996	995	999	1004	1003	1002	999	989	987	1007	1007	1014	1019	1022	999	999	1004	1007	999	999	1000	1000	1003
18 c	1000	1000	1001	1002	1005	1007	1004	1006	1005	1004	1002	998	992	994	998	1003	1005	1007	1009	1009	1008	1005	1005	1005	1006	1003
19	1005	1004	1003	1003	1008	1007	1009	1010	1007	1004	1003	1001	1001	998	998	999	1003	1011	988	994	1000	1002	1002	1017	999	1003
20	999	1002	1004	1006	1002	1001	1001	1002	1000	1002	1000	1000	1000	1002	1004	1007	1008	1008	1010	1007	1003	1002	1001	1002	1004	1003
21 c	1003	1003	1003	1005	1007	1010	1011	1015	1012	1004	1003	1003	1002	1003	1003	1003	1004	1007	1010	1011	1010	1010	1008	1004	1005	1006
22 c	1005	1003	1003	1007	1010	1012	1013	1012	1007	1004	1003	1002	996	1001	1007	1005	1006	1009	1009	1010	1009	1008	1007	1006	1002	1006
23	1001	995	1003	1006	1009	1012	1005	1003	1012	1005	1001	1001	997	996	999	992	992	1005	998	1000	988	1006	999	1001	998	1001
24	998	996	1006	999	1003	1007	1009	1004	1005	1004	1003	1002	1003	1005	1005	1006	1005	998	1002	1003	1012	1011	1003	1002	1009	1004
25	1008	1002	1000	1000	1006	1008	1012	1005	990	1003	1008	999	1001	996	999	990	996	997	996	1002	996	1002	1020	1005	996	1001
26	996	1005	1009	1015	1016	1024	1000	996	995	994	996	995	974	951	976	997	996	998	999	1002	1000	1003	1002	1000	1001	998
27	1000	1001	995	1000	996	998	997	997	998	1002	1002	988	984	994	989	978	996	1000	1003	1004	1007	1008	999	994	991	997
28	991	995	995	996	999	1003	1003	1003	1001	999	991	988	989	992	996	998	998	1007	1005	1006	1002	1006	1005	1005	1006	999
29	1005	1005	997	998	1002	1004	1006	1005	1001	998	994	989	990	996	996	996	1002	1003	1003	1007	1006	1008	999	998	997	1000
30	997	1003	1002	1001	1001	1005	1007	1002	999	998	994	995	991	998	1002	996	992	998	999	1004	1002	1003	1003	1000	1001	1000
31	1000	997	997	998	1001	1001	1004	1004	1001	998	994	986	988	995	1001	998	1002	1002	1007	1006	1006	1010	1023	1012	1005	1001
Mean	1001	1000	1000	1001	1003	1006	1007	1006	1002	1000	996	995	994	994	997	997	998	1002	1000	1001	1002	1004	1003	1004	1001	1001

XLVI.—READINGS OF THE WEST COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (−Y.) **December, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
											4000 γ (·04 C.G.S. unit) +															
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 c	1051	1053	1053	1054	1055	1055	1055	1054	1052	1056	1059	1063	1069	1069	1064	1062	1060	1060	1059	1058	1057	1056	1055	1055	1054	1058
2	1054	1055	1055	1055	1054	1054	1054	1054	1053	1057	1059	1063	1070	1068	1065	1062	1064	1062	1060	1060	1059	1057	1051	1047	1047	1058
3	1047	1040	1046	1047	1042	1052	1049	1052	1052	1052	1059	1068	1069	1069	1068	1062	1060	1062	1057	1057	1057	1054	1051	1035	1047	1054
4	1047	1048	1051	1053	1054	1055	1052	1052	1051	1052	1059	1063	1068	1068	1064	1062	1060	1058	1057	1057	1055	1053	1053	1053	1054	1056
5 c	1054	1056	1057	1057	1057	1057	1057	1054	1052	1053	1057	1062	1068	1069	1067	1062	1060	1059	1057	1057	1054	1053	1053	1053	1055	1058
6**	1055	1055	1058	1059	1054	1052	1055	1054	1056	1055	1059	1059	1081	1102	1117	1138	1095	1070	1025	994	986	982	984	976	1024	1050
7	1023	1041	1047	1062	1071	1060	1058	1057	1051	1048	1050	1056	1061	1062	1062	1062	1059	1053	1047	1053	1043	1019	1030	1033	1035	1051
8	1035	1041	1062	1058	1051	1051	1051	1050	1047	1046	1051	1055	1067	1068	1067	1065	1061	1057	1055	1051	1048	1039	1039	1040	1045	1053
9	1045	1046	1046	1050	1051	1051	1051	1051	1050	1051	1055	1053	1057	1062	1065	1062	1062	1060	1054	1052	1013	1030	1046	1050	1051	1051
10	1051	1054	1053	1054	1055	1057	1057	1056	1053	1050	1056	1059	1062	1066	1064	1061	1062	1064	1063	1053	1052	1056	1056	1053	1054	1057
11	1054	1048	1051	1051	1051	1051	1051	1050	1048	1051	1056	1062	1066	1068	1068	1061	1057	1055	1046	1051	1045	1046	1035	1035	1026	1052
12	1026	1009	1027	1020	1024	1024	1041	1051	1056	1051	1056	1060	1061	1062	1058	1056	1056	1056	1056	1054	1051	1051	1051	1051	1052	1047
13	1052	1052	1051	1050	1050	1051	1051	1051	1055	1059	1062	1064	1067	1068	1067	1062	1062	1061	1054	1057	1055	1054	1053	1050	1057	
14	1050	1050	1050	1050	1051	1056	1056	1052	1053	1061	1070	1072	1073	1080	1077	1079	1080	1056	1049	1046	1048	1047	1030	1030	1045	1057
15	1044	1055	1051	1052	1060	1055	1063	1062	1061	1062	1077	1065	1077	1071	1071	1078	1061	1018	1023	1005	1005	1007	1032	1039	1043	1050
16	1043	1055	1059	1052	1061	1056	1065	1058	1055	1049	1054	1054	1063	1060	1059	1053	1057	1054	1055	1051	1050	1049	1050	1047	1053	1055
17	1053	1048	1045	1047	1050	1050	1050	1050	1050	1049	1049	1050	1055	1050	1059	1060	1045	1050	1050	1040	1045	1045	1050	1049	1050	1049
18 c	1050	1050	1052	1053	1055	1054	1054	1053	1050	1047	1047	1049	1056	1061	1060	1059	1059	1057	1055	1055	1054	1050	1050	1049	1049	1053
19	1049	1051	1054	1056	1056	1056	1056	1052	1051	1055	1061	1059	1064	1069	1067	1060	1056	1059	1045	1049	1050	1047	1042	1030	1041	1054
20	1041	1052	1055	1056	1054	1051	1052	1050	1049	1050	1053	1055	1061	1067	1066	1060	1056	1055	1054	1053	1044	1048	1050	1058	1047	1054
21 c	1047	1049	1050	1054	1056	1056	1056	1055	1056	1055	1060	1061	1067	1066	1060	1056	1056	1055	1055	1055	1053	1051	1051	1053	1050	1056
22 c	1049	1046	1054	1056	1054	1054	1054	1051	1051	1054	1057	1063	1059	1059	1058	1056	1056	1056	1055	1055	1052	1051	1047	1038	1033	1053
23	1033	1043	1053	1049	1052	1055	1060	1070	1078	1070	1056	1054	1058	1060	1061	1066	1055	1065	1060	1055	1043	1029	1048	1046	1045	1055
24	1045	1040	1044	1044	1050	1050	1047	1052	1053	1054	1055	1060	1061	1060	1059	1059	1063	1061	1059	1058	1041	1047	1049	1045	1043	1052
25	1043	1047	1032	1044	1049	1054	1054	1053	1065	1060	1065	1054	1060	1065	1056	1051	1054	1054	1064	1051	1044	1050	1059	1056	1030	1053
26	1030	1028	1030	1029	1029	1043	1054	1073	1059	1055	1060	1056	1067	1066	1066	1054	1055	1054	1052	1052	1049	1048	1047	1043	1039	1050
27	1039	1027	1035	1044	1045	1046	1049	1051	1052	1054	1064	1056	1057	1065	1068	1058	1058	1055	1054	1051	1049	1046	1006	1023	1038	1048
28	1038	1048	1044	1043	1043	1044	1049	1049	1049	1049	1051	1054	1056	1058	1055	1054	1054	1056	1055	1054	1044	1042	1049	1049	1048	1050
29	1048	1065	1032	1038	1043	1048	1049	1049	1049	1051	1054	1054	1060	1066	1063	1060	1064	1062	1059	1054	1054	1053	1044	1038	1043	1052
30	1043	1045	1043	1043	1039	1046	1046	1049	1049	1049	1054	1065	1065	1071	1069	1065	1066	1066	1060	1054	1053	1049	1048	1046	1048	1054
31	1048	1051	1044	1038	1041	1046	1048	1046	1046	1046	1052	1055	1060	1064	1061	1059	1057	1054	1052	1053	1050	1044	1040	1039	1044	1050
Mean	1045	1047	1048	1049	1050	1051	1053	1054	1053	1053	1057	1059	1064	1066	1066	1063	1060	1057	1053	1050	1045	1044	1044	1042	1045	1053

c International quiet day. ** Day "proposed for reproduction" by the International Magnetic Commission (double star). *Vide* Plate at end of volume.

XLVII.—READINGS OF THE VERTICAL COMPONENT OF TERRESTRIAL MAGNETIC FORCE FOR EACH HOUR OF GREENWICH MEAN TIME.

Eskdalemuir. (Z.) **December, 1915.**

Hour. G.M.T.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	Mean.
	45,000 γ (·45 C.G.S. unit) +																									
Day.	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
1 c	170	163	163	162	162	162	162	163	163	163	160	159	158	158	160	161	162	162	163	162	163	162	163	162	161	162
2	162	162	162	162	162	161	161	160	161	160	159	159	156	158	160	158	159	160	160	160	160	162	164	167	161	161
3	162	164	164	163	162	156	156	157	159	160	160	159	160	162	164	163	162	162	163	162	163	163	164	167	165	162
4	166	165	162	162	161	161	160	161	162	162	162	162	162	162	161	160	161	162	162	162	161	161	161	161	161	162
5 c	162	161	161	160	159	158	158	159	159	160	161	161	161	161	161	161	160	160	159	158	159	159	159	159	158	160
6**	159	159	156	157	155	156	155	154	154	154	156	159	163	174	198	232	235	231	‡	?330	270	230	197	117	135	..
7	136	159	166	160	151	158	165	164	170	172	171	170	170	174	174	175	176	177	176	176	176	174	170	168	166	168
8	167	165	158	152	159	164	164	166	166	166	167	167	166	169	171	174	174	173	171	170	170	170	168	167	163	167
9	164	166	168	169	168	167	167	167	166	164	164	166	164	163	166	171	?170	169	167	167	170	165	165	163	162	166
10	164	163	162	162	160	159	159	157	159	158	154	153	151	151	156	158	160	160	162	171	180	172	156	163	162	160
11	164	163	163	164	162	162	161	161	161	161	162	160	160	161	162	167	169	167	168	167	171	169	168	167	162	164
12	163	163	166	168	163	163	160	158	157	159	161	161	162	162	163	164	165	165	164	163	163	162	162	162	162	162
13	164	164	164	164	163	162	162	163	163	161	161	162	162	162	164	163	163	163	164	166	164	164	164	163	163	163
14	165	165	164	163	162	160	160	160	161	159	156	157	157	157	164	171	174	181	190	194	183	176	170	160	157	167
15	158	156	160	160	156	150	148	150	154	160	160	162	160	163	169	172	194	199	207	204	196	173	158	162	157	168
16	158	150	154	157	156	156	158	158	162	165	166	166	167	171	174	179	177	173	170	168	167	166	166	165	159	165
17	160	154	154	157	158	160	161	162	163	165	167	167	166	170	170	170	171	168	167	167	163	163	162	161	161	164
18 c	162	163	162	162	161	160	160	161	162	162	164	165	163	163	163	163	162	162	162	162	162	162	162	162	162	162
19	163	162	161	159	158	159	157	159	160	161	162	165	162	161	162	163	164	164	169	171	167	167	167	162	161	163
20	162	161	160	159	160	160	160	160	161	161	162	160	157	158	161	162	162	161	160	160	163	163	162	162	160	161
21 c	160	160	158	158	158	157	156	156	156	159	160	158	157	159	163	162	162	160	158	158	158	158	158	158	157	159
22 c	158	160	158	157	157	157	155	156	157	157	158	157	159	162	160	158	158	157	156	156	156	156	157	158	158	158
23	158	159	155	155	154	152	151	148	145	147	150	152	152	153	157	161	162	160	161	162	168	171	163	159	159	156
24	159	160	158	156	154	153	152	151	152	152	156	155	155	156	156	155	156	157	157	156	158	154	154	155	154	155
25	154	150	152	152	151	150	149	149	147	147	149	153	153	154	155	159	161	161	161	163	164	160	149	143	151	154
26	151	150	147	141	137	130	130	128	135	142	148	152	154	162	161	163	159	159	158	157	157	156	155	155	154	150
27	154	155	154	151	152	151	152	151	149	147	147	151	152	153	155	156	157	157	155	155	154	153	155	151	153	153
28	153	154	155	155	154	153	152	151	151	151	154	154	153	153	155	154	155	154	154	153	154	154	151	151	150	153
29	150	141	144	149	149	149	149	150	150	150	150	151	152	152	153	151	151	153	153	153	153	152	155	155	154	151
30	154	151	150	148	148	148	147	147	147	149	150	151	153	154	153	152	152	153	155	154	154	153	152	151	150	151
31	150	148	145	147	148	147	147	147	147	148	151	150	*152*	*154*	157	155	155	153	152	151	152	151	147	145	145	150
Mean †	159	158	158	157	156	156	156	156	157	157	158	159	158	160	162	162	164	164	164	164	164	164	162	160	159	158	160

c International quiet day. ** Day "proposed for reproduction" by the International Magnetic Commission (double star). *Vide* Plate at end of volume.
† Mean of 29 days—6th and 9th omitted. ‡ Light spot thrown off sheet by strong natural disturbance.

XLVIII.—AUXILIARY OBSERVATIONS IN ABSOLUTE MEASURE; DAILY VALUES OF TEMPERATURE IN THE EAST ROOM OF THE MAGNET HOUSE; MAGNETIC NOTES FOR THE MONTH.

Eskdalemuir. **December, 1915.**

Date.	Time, G.M.T. From	Time, G.M.T. To	Horizontal Force.	Declination.	Dip.	Temperature in Magnet House.*	Magnetic Character of day (0–2).	Date.
Dec.	h m	h m	γ	° ′ ″	° ′	°		
1	11 2	11 14	16783	17 33 47		11·8	0	1
,,	10 31	10 51			69 36·3	11·7	0	2
						11·6	1	3
						11·6	0	4
						11·6	0	5
						11·5	2	6
						11·5	1	7
7	11 3	11 14	16746	17 33 40		11·4	1	8
,,	10 30	10 52			69 39·2	11·4	1	9
						11·3	1	10
						11·2	1	11
						11·2	1	12
						11·2	0	13
						11·1	1	14
						11·1	2	15
15	10 49	11 0	16779	17 34 59		11·0	1	16
,,	10 23	10 38			69 38·2	11·0	1	17
						11·0	0	18
						11·0	1	19
						11·0	0	20
						11·0	0	21
						10·9	0	22
21	11 50	11 59	16783	17 33 54		10·9	1	23
,,	11 22	11 38			69 36·9	10·9	1	24
						10·8	1	25
						10·7	1	26
						10·7	1	27
						10·7	0	28
						10·7	1	29
29	11 0	11 12	16771	17 32 5		10·7	1	30
,,	10 37	10 51			69 37·8	10·6	1	31

* Mean of Corrected Readings of the Thermometers in the N, W, and V Magnetograph Boxes.

DECEMBER, 1915.

This was a comparatively quiet month. A large disturbance * began about noon on 6th, and lasted for about 12 hours. The principal movement was at first on the Vertical, the light spot being off the sheet from $18^h\ 5^m$ until $18^h\ 40^m$, during which time the range of disturbance must have exceeded 267 γ. The other chief movement was a rapid change, at first (+N, −W), centering at $22^h\ 45^m$ on N and at $22^h\ 28^m$ on W. With the exception of a slight disturbance on 15th, the remainder of the month was quiet.

* Plate at end of volume.

XLIX.-LI.—DIURNAL INEQUALITIES OF THE GEOGRAPHICAL COMPONENTS OF MAGNETIC FORCE.

(Not corrected for the effect of the North Force on the West Magnetograph, or *vice versa*, or for the effect of the Horizontal Force on the V.F. Balance.

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.* **1915.**

△X (or △N). XLIX.—NORTH COMPONENT (all days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 18, 19, June 17, October 31, Nov. 1).

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.	0·8	0·2	0·4	4·3	5·8	x 7·5	6·5	3·6	1·6	− 1·8	− 6·4	n̄ 7·3	− 5·5	− 3·6	− 2·8	− 3·9	− 3·6	− 1·2	1·8	1·0	4·5	0·5	− 0·9	− 1·9
F.	2·9	2·3	1·4	2·9	6·1	6·5	x 7·0	3·2	0·4	− 7·7	− 11·8	n̄ 12·8	− 9·0	− 5·0	− 2·3	− 2·3	− 3·6	0·5	1·8	5·5	4·0	3·4	2·3	4·3
M.	7·0	7·8	5·6	7·5	7·6	7·1	6·1	1·7	− 10·4	− 22·2	n̄ 27·0	− 24·8	− 22·2	− 13·3	− 2·9	1·2	5·1	5·4	9·7	10·5	10·1	x 12·1	8·8	9·2
A.	7·4	4·8	3·7	4·8	6·2	7·6	5·7	2·2	− 7·9	− 19·5	− 28·1	n̄ 30·7	− 27·0	− 18·3	− 4·8	2·9	12·0	14·6	x 14·8	12·3	10·7	8·0	9·5	9·9
M.	5·0	3·7	3·6	4·5	4·9	2·2	− 2·3	− 8·3	− 17·4	− 23·7	n̄ 27·0	− 24·4	− 19·5	− 12·9	− 2·5	4·4	12·3	x 20·7	20·1	16·3	14·7	10·6	9·2	5·9
J.	6·9	5·0	2·4	7·4	8·1	4·0	− 1·9	− 8·8	− 17·0	− 26·8	n̄ 31·3	− 29·5	− 23·8	− 14·5	− 4·8	5·7	13·2	20·5	x 23·7	21·1	14·6	10·8	9·1	5·9
J.	5·7	4·0	4·3	5·3	7·2	3·8	− 2·7	− 8·8	− 19·1	− 28·5	n̄ 32·6	− 29·5	− 23·7	− 11·3	− 2·5	6·0	14·8	21·0	x 21·6	19·9	16·8	12·0	9·2	7·6
A.	7·5	8·0	6·8	5·9	7·9	6·7	0·4	− 9·6	− 21·4	− 30·6	n̄ 33·1	− 31·9	− 24·4	− 13·9	− 3·4	6·3	10·9	16·9	19·6	x 20·5	16·8	14·4	10·4	9·1
S.	11·5	11·4	7·8	10·9	10·8	5·9	− 1·9	− 8·2	− 16·9	− 28·3	n̄ 31·0	− 28·3	− 23·2	− 11·7	− 5·7	0·9	6·0	11·7	13·1	13·1	14·2	x 15·4	10·7	11·0
O.	9·2	7·0	7·1	9·4	9·7	7·8	7·0	1·4	− 8·5	− 21·6	n̄ 25·4	− 24·7	− 19·0	− 11·2	− 4·1	− 0·4	3·1	6·3	5·5	4·5	7·8	10·5	x 11·9	6·9
N.	5·7	3·2	3·1	5·0	8·0	6·7	1·1	− 5·0	− 8·9	− 14·1	− 14·2	n̄ 14·7	− 12·3	− 7·7	− 4·1	0·2	4·1	4·7	5·9	8·2	9·3	x 9·7	3·5	2·7
D.	− 0·1	− 0·4	0·3	2·4	6·0	x 6·7	5·2	2·0	− 0·2	− 4·1	− 5·8	− 6·7	n̄ 6·8	− 3·3	− 3·9	− 2·8	0·9	− 0·6	0·6	1·5	3·3	2·1	3·0	0·6
Y.	5·8	4·7	3·9	5·8	7·4	6·0	2·5	− 2·9	− 10·5	− 19·1	n̄ 22·8	− 22·1	− 18·0	− 10·6	− 3·6	1·5	6·3	10·0	x 11·5	11·2	10·6	9·1	7·3	5·2
W.	2·3	1·3	1·3	3·6	6·5	x 6·9	4·9	1·0	− 1·8	− 6·9	− 9·5	n̄ 10·4	− 8·4	− 4·9	− 3·3	− 2·2	− 0·5	0·8	2·5	4·0	5·3	4·0	2·0	1·1
Eq.	8·8	7·7	6·1	8·1	8·6	7·1	4·3	− 0·8	− 10·9	− 22·9	n̄ 27·9	− 27·1	− 22·8	− 13·6	− 4·4	1·2	6·6	9·5	10·8	10·1	10·7	x 11·5	10·2	9·1
S.	6·3	5·2	4·3	5·7	7·0	4·2	− 1·6	− 8·9	− 18·7	− 27·4	n̄ 31·0	− 28·8	− 22·9	− 13·1	− 3·3	5·6	12·8	19·8	x 21·2	19·4	15·7	11·9	9·5	7·0

—△Y (or △W). L.—WEST COMPONENT (all days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 18, 19, June 5, 6, 7, 17, October 31, Nov. 1).

	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.	− 4·5	− 5·7	− 3·6	− 3·9	− 2·3	− 1·5	− 0·4	− 1·0	− 0·2	3·0	6·4	10·0	x 13·0	9·5	5·9	7·2	4·2	2·5	− 2·2	− 4·0	− 5·8	− 8·8	n̄ 10·6	− 7·1
F.	− 7·4	− 6·7	− 7·0	− 5·6	− 6·6	− 4·5	− 4·2	− 2·8	1·1	4·7	10·6	15·8	x 17·0	16·0	11·3	7·8	1·2	− 1·3	− 1·6	− 2·9	n̄ 10·5	n̄ 10·5	− 5·2	− 8·1
M.	− 6·2	− 5·5	− 6·6	− 5·8	− 7·2	− 7·0	− 6·6	− 13·9	n̄ 16·2	− 9·0	1·8	15·5	25·5	x 26·4	24·8	17·5	8·0	2·9	− 0·6	− 2·9	− 5·2	− 12·3	− 9·5	− 8·1
A.	− 8·4	− 7·9	− 7·9	− 8·8	− 11·2	− 12·4	− 15·2	− 17·6	n̄ 20·3	− 15·1	− 4·8	12·4	26·1	x 30·6	29·0	23·6	18·1	10·1	3·0	− 1·5	− 3·2	− 4·7	− 5·7	− 8·0
M.	− 4·4	− 3·5	− 6·6	− 10·0	− 13·9	− 17·2	− 21·2	n̄ 22·9	− 21·7	− 13·2	− 0·6	14·9	24·0	x 24·9	23·4	18·7	15·3	12·3	7·5	4·0	− 0·9	− 1·7	− 3·6	− 3·1
J.	− 7·2	− 10·3	− 8·4	− 10·0	− 17·3	− 22·3	− 23·2	n̄ 26·0	− 25·0	− 15·9	− 3·2	11·4	21·9	28·3	x 28·4	26·0	19·9	15·9	11·8	7·1	4·2	1·5	− 1·4	− 6·1
J.	− 6·0	− 8·2	− 8·8	− 11·8	− 18·1	− 25·1	− 27·3	n̄ 27·7	− 26·6	− 15·2	− 1·5	16·0	26·7	x 30·0	28·4	23·2	16·2	12·0	9·7	7·7	5·4	2·3	0·4	− 1·1
A.	− 7·1	− 7·7	− 7·0	− 10·9	− 15·7	− 18·4	− 23·9	n̄ 24·8	− 22·6	− 11·3	3·2	17·9	28·6	x 30·9	25·9	18·0	11·2	7·2	4·3	4·2	3·2	2·1	− 1·6	− 5·1
S.	− 5·3	− 9·6	− 8·2	− 7·3	− 7·5	− 9·3	− 10·6	n̄ 15·0	− 13·7	− 5·8	7·0	20·5	27·9	x 28·4	22·1	10·3	4·3	1·0	0·1	− 1·2	− 6·0	− 6·3	− 7·4	− 8·0
O.	− 14·0	− 10·0	− 5·6	− 3·0	2·1	3·5	0·4	− 4·8	− 9·4	− 6·7	7·2	17·6	25·5	x 27·7	22·5	13·5	5·0	− 4·7	− 6·3	− 7·5	− 11·2	n̄ 14·3	− 13·8	− 13·5
N.	− 8·9	− 4·3	− 2·4	− 4·1	− 1·3	3·0	5·4	4·8	2·6	3·7	10·5	15·8	x 16·2	16·0	12·7	7·4	2·2	− 0·4	− 9·2	− 12·0	− 14·3	− 14·1	n̄ 14·9	− 14·1
D.	− 6·4	− 5·2	− 4·1	− 2·9	− 1·8	− 0·1	0·5	0·2	0·2	4·3	5·7	11·0	x 13·4	12·5	10·3	7·3	3·9	0·3	− 3·3	− 7·7	− 9·3	− 9·5	n̄ 10·7	− 8·1
Y.	− 7·1	− 7·0	− 6·3	− 7·0	− 8·4	− 9·3	− 10·5	n̄ 12·6	n̄ 12·6	− 6·4	3·5	14·9	22·1	x 23·4	20·4	15·0	9·1	4·8	1·1	− 1·4	− 4·5	− 6·3	− 7·0	− 7·1
W.	− 6·8	− 5·5	− 4·3	− 4·1	− 3·0	− 0·8	0·3	0·3	0·9	3·9	8·3	13·1	x 14·9	13·5	10·1	7·4	2·9	0·3	− 4·1	− 6·7	− 10·0	n̄ 10·7	− 10·3	− 9·1
Eq.	− 8·5	− 8·2	− 7·0	− 6·2	− 5·9	− 6·3	− 8·0	− 12·8	n̄ 14·9	− 9·1	2·8	16·5	26·3	x 28·3	24·6	16·2	8·8	2·3	− 0·9	− 3·2	− 6·4	− 9·4	− 9·1	− 9·1
S.	− 6·2	− 7·4	− 7·7	− 10·7	− 16·2	− 20·8	− 23·9	n̄ 25·3	− 23·9	− 13·9	− 0·6	15·1	25·3	x 28·5	26·5	21·5	15·6	11·8	8·3	5·7	3·0	1·1	− 1·6	− 4·2

△Z (or △V). LI.—VERTICAL COMPONENT (all days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 15, 16, 17, 18, 19, June 16, 17, July 31, Aug. 1, 2, 3, Oct. 31, Nov. 1, Dec. 6, 9).

	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.	− 0·9	− 1·5	− 2·5	− 3·3	− 3·7	− 3·7	− 3·6	− 3·5	n̄ 3·8	− 2·9	− 2·7	− 3·0	− 1·6	2·0	3·6	3·8	x 4·7	4·4	4·5	4·4	3·0	2·3	2·4	1·5
F.	− 4·2	− 4·9	n̄ 5·2	− 4·5	− 3·5	− 3·2	− 4·0	− 4·1	− 5·0	− 4·5	− 4·5	− 2·6	− 1·0	0·6	3·4	6·4	x 10·1	9·9	9·1	7·4	6·4	3·2	− 1·6	− 3·1
M.	− 6·6	− 5·7	− 6·0	n̄ 6·8	− 6·1	− 4·9	− 2·5	− 0·2	0·2	− 1·8	− 4·6	− 6·4	− 5·3	− 1·7	3·0	8·6	9·7	x 13·6	11·4	9·2	5·6	2·4	− 0·6	− 4·1
A.	− 5·1	− 4·6	− 3·3	− 3·3	− 3·3	− 3·2	− 3·2	− 4·7	− 5·4	− 6·4	− 9·5	n̄ 13·3	− 11·6	− 5·5	0·9	7·0	12·9	x 17·8	17·3	14·2	9·4	5·0	1·0	− 2·0
M.	− 1·2	− 2·3	− 2·3	− 1·6	− 0·9	− 1·5	− 1·7	− 2·8	− 5·3	− 8·8	− 13·0	n̄ 14·7	− 10·7	− 5·3	0·1	5·1	10·1	12·3	x 14·2	12·4	9·1	5·2	2·7	0·9
J.	− 4·7	− 6·2	− 6·4	− 3·6	− 1·9	0·1	1·1	0·9	− 1·9	− 5·0	− 8·7	n̄ 9·8	− 7·1	− 3·9	0·6	5·5	9·6	x 10·6	x 10·6	10·0	7·3	4·2	1·4	− 2·1
J.	− 2·6	− 3·1	− 4·0	− 3·0	− 1·4	− 0·2	0·1	− 1·3	− 2·8	− 6·1	− 9·2	n̄ 13·0	− 12·0	− 7·5	− 0·7	5·9	10·9	x 13·2	12·8	10·9	8·0	4·2	1·7	− 0·6
A.	− 7·6	− 7·0	− 7·6	− 5·5	− 2·5	− 0·1	1·8	2·3	− 0·2	− 3·6	− 7·8	n̄ 10·7	− 9·2	− 3·2	3·9	9·5	x 12·2	12·1	10·3	7·8	5·7	3·2	0·3	− 1·4
S.	− 5·6	− 6·3	− 7·3	n̄ 8·1	− 7·2	− 5·2	− 3·5	− 2·6	− 3·1	− 4·0	− 6·1	− 7·4	− 4·9	0·0	6·9	13·3	x 15·2	12·6	11·3	8·8	6·2	2·2	− 1·2	− 4·2
O.	− 15·4	− 16·6	n̄ 17·6	− 15·4	− 14·6	− 13·1	− 9·0	− 4·2	− 1·7	− 1·3	− 2·9	− 2·1	1·4	7·6	15·9	22·2	x 24·9	22·1	15·6	10·7	6·5	0·8	− 3·2	− 10·3
N.	− 10·9	− 9·4	− 12·0	n̄ 12·7	− 9·8	− 10·3	− 9·1	− 6·7	− 4·2	− 2·0	− 0·6	2·9	7·0	11·0	12·4	x 14·0	13·6	11·2	13·2	11·5	7·9	− 0·4	− 5·8	− 10·0
D.	− 1·6	− 1·9	− 2·5	− 3·4	− 4·0	n̄ 4·2	− 4·1	− 3·1	− 2·3	− 1·4	− 1·0	− 1·2	0·3	2·0	2·9	4·1	4·1	4·7	x 4·8	x 4·8	3·0	0·8	0·1	− 1·0
Y.	− 5·5	− 5·8	− 6·4	− 5·9	− 4·9	− 4·1	− 3·1	− 2·5	− 2·9	− 4·0	− 5·9	n̄ 6·8	− 4·6	− 0·3	4·4	8·8	11·5	x 12·0	11·3	9·3	6·5	2·7	− 0·2	− 3·6
W.	− 4·4	− 4·4	− 5·5	n̄ 6·0	− 5·3	− 5·3	− 5·2	− 4·4	− 3·8	− 2·7	− 2·2	− 1·0	1·2	3·9	5·6	7·1	x 8·1	7·5	7·9	7·0	5·1	1·5	− 1·2	− 3·5
Eq.	− 8·2	− 8·3	n̄ 8·6	− 8·4	− 7·8	− 6·6	− 4·5	− 2·9	− 2·5	− 3·4	− 5·8	− 7·3	− 5·1	0·1	6·7	12·8	15·7	x 16·5	13·9	10·7	6·9	2·6	− 1·0	− 5·5
S.	− 4·0	− 4·7	− 5·1	− 3·4	− 1·7	− 0·4	0·3	− 0·2	− 2·5	− 5·9	− 9·7	n̄ 12·0	− 9·7	− 4·9	0·9	6·5	10·7	x 12·0	x 12·0	10·3	7·5	4·2	1·5	− 1·7

x and *n* mark respectively the mean maximum and minimum hourly values in each month or season. The − over the *n* denotes that the value to which the letter is prefixed is to be taken with the minus sign.

LII.–LIV.—DIURNAL INEQUALITIES OF THE MAGNETIC COMPONENTS, DECLINATION (D.), INCLINATION (I.), AND HORIZONTAL FORCE (H).

(Corrected for the effect of the North Force on the West Magnetograph and *vice versa*, and also for the effect of the Horizontal Force on the V.F. Balance.)

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.* **1915.**

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
△D	LII.—DECLINATION (measured positive towards the West) (all days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 18, 19, June 17, Oct. 31, Nov. 1).*																							
J.	−0′93	−1′13	−0′72	−1′03	−0′82	−0′76	−0′47	−0′42	−0′13	0′70	1′65	2′40	x 2′87	2′08	1′32	1′64	1′04	0′57	−0′55	−0′84	−1′40	−1′76	n̄ 2′00	−1′30
F.	−1′62	−1′44	−1′45	−1′28	−1′67	−1′28	−1′25	−0′74	0′19	1′39	2′80	3′87	x 3′88	3′43	2′35	1′65	0′45	−0′28	−0′42	−0′90	n̄ 2′30	−2′26	−1′15	−1′97
M.	−1′65	−1′54	−1′63	−1′59	−1′87	−1′80	−1′67	−2′81	−2′51	−0′38	2′03	4′56	x 6′35	5′98	5′02	3′33	1′24	0′24	−0′73	−1′21	−1′63	n̄ 3′14	−2′40	−2′18
A.	−2′09	−1′84	−1′76	−2′02	−2′56	−2′88	−3′32	n̄ 3′57	−3′48	−1′73	0′80	4′31	6′78	x 7′11	5′95	4′42	2′78	1′06	−0′33	−1′05	−1′28	−1′41	−1′71	−2′24
M.	−1′16	−0′90	−1′52	−2′23	−3′00	−3′50	n̄ 3′99	−3′95	−3′15	−1′10	1′55	4′43	x 5′89	5′65	4′72	3′38	2′23	1′12	0′21	−0′23	−1′08	−0′98	−1′27	−1′13
J.	−1′83	−2′32	−1′79	−2′40	−3′88	n̄ 4′60	−4′40	−4′52	−3′81	−1′45	1′31	4′05	5′75	x 6′41	5′84	4′73	3′06	1′82	0′84	0′08	−0′09	−0′37	−0′84	−1′58
J.	−1′52	−1′85	−1′97	−2′62	−3′98	−5′13	n̄ 5′16	−4′85	−4′00	−1′21	1′73	4′96	x 6′67	6′56	5′70	4′15	2′24	1′03	0′56	0′27	0′00	−0′30	−0′50	−0′76
A.	−1′84	−2′00	−1′79	−2′48	−3′55	−4′00	n̄ 4′67	−4′24	−3′08	−0′31	2′67	5′46	x 7′08	6′89	5′25	3′11	1′51	0′36	−0′37	−0′44	−0′43	−0′49	−0′96	−1′69
S.	−1′73	n̄ 2′57	−2′07	−2′10	−2′14	−2′18	−1′94	−2′42	−1′62	0′62	3′29	5′75	x 6′87	6′25	4′66	1′94	0′46	−0′52	−0′78	−1′03	−2′05	−2′17	−2′09	−2′41
O.	−3′30	−2′39	−1′54	−1′15	−0′20	0′21	−0′36	−1′02	−1′31	0′02	2′98	4′96	x 6′14	6′10	4′64	2′65	0′77	−1′30	−1′57	−1′74	−2′67	n̄ 3′44	−3′43	−3′10
N.	−2′08	−1′03	−0′67	−1′10	−0′75	0′17	0′98	1′25	1′06	1′59	2′92	x 3′98	3′93	3′60	2′73	1′42	0′17	−0′37	−2′16	−2′85	n̄ 3′37	−3′34	−3′12	−2′96
D.	−1′25	−1′00	−0′82	−0′71	−0′72	−0′42	−0′22	−0′08	0′05	1′08	1′48	2′56	x 3′02	2′64	2′25	1′59	0′70	0′09	−0′68	−1′60	−2′03	−1′98	n̄ 2′27	−1′67
Y.	−1′75	−1′67	−1′48	−1′73	−2′09	−2′18	−2′21	n̄ 2′28	−1′82	−0′06	2′10	4′27	x 5′44	5′22	4′20	2′83	1′39	0′32	−0′50	−0′96	−1′53	−1′80	−1′81	−1′91
W.	−1′47	−1′15	−0′91	−1′03	−0′99	−0′57	−0′24	0′00	0′29	1′19	2′21	3′20	x 3′42	2′93	2′16	1′58	0′59	0′00	−0′95	−1′55	−2′27	n̄ 2′33	−2′13	−1′97
Sq.	−2′19	−2′09	−1′75	−1′71	−1′69	−1′66	−1′82	−2′45	−2′23	−0′37	2′27	4′90	x 6′53	6′36	5′07	3′09	1′31	−0′13	−0′85	−1′26	−1′91	n̄ 2′54	−2′41	−2′48
S.	−1′59	−1′77	−1′78	−2′44	−3′60	−4′31	n̄ 4′56	−4′39	−3′51	−1′02	1′81	4′72	6′35	x 6′38	5′38	3′84	2′26	1′08	0′31	−0′08	−0′40	−0′53	−0′89	−1′29
△I.	LIII.—INCLINATION (all days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 18, 19, June 17, Oct. 31, Nov. 1).†																							
J.	0′02	0′07	−0′02	−0′28	−0′42	n̄ 0′54	−0′50	−0′30	−0′19	−0′02	0′21	0′19	0′05	0′08	0′15	0′20	0′26	0′14	0′05	0′13	−0′09	0′21	x 0′34	0′28
F.	−0′13	−0′13	−0′08	−0′18	−0′34	−0′40	n̄ 0′46	−0′25	−0′18	0′28	0′42	0′43	0′20	0′00	0′00	0′15	x 0′45	0′24	0′14	−0′11	0′12	0′08	−0′08	−0′19
M.	−0′48	−0′53	−0′38	−0′53	−0′49	−0′43	−0′32	0′18	1′01	1′56	x 1′58	1′11	0′76	0′26	−0′25	−0′23	−0′25	−0′07	−0′33	−0′38	−0′40	−0′46	−0′38	n̄ 0′56
A.	−0′43	−0′26	−0′16	−0′21	−0′25	−0′31	−0′13	0′11	0′79	1′40	x 1′66	1′38	0′90	0′40	−0′27	−0′50	n̄ 0′82	−0′70	−0′58	−0′41	−0′39	−0′29	−0′47	−0′47
M.	−0′26	−0′22	−0′15	−0′12	−0′05	0′18	0′54	0′93	1′43	x 1′57	1′42	0′89	0′49	0′18	−0′32	−0′54	−0′85	n̄ 1′27	−1′09	−0′82	−0′70	−0′51	−0′45	−0′28
J.	−0′41	−0′26	−0′14	−0′35	−0′21	0′20	0′62	1′12	1′55	x 1′92	1′85	1′41	0′90	0′25	−0′27	−0′76	−1′01	−1′37	n̄ 1′50	−1′25	−0′84	−0′61	−0′52	−0′32
J.	−0′30	−0′16	−0′19	−0′17	−0′12	0′27	0′73	1′10	1′70	x 1′98	1′88	1′23	0′67	−0′09	−0′45	−0′71	−1′01	n̄ 1′26	−1′16	−0′99	−0′71	−0′56	−0′43	
A.	−0′52	−0′52	−0′48	−0′29	−0′24	−0′05	0′51	1′18	1′82	x 2′09	1′85	1′40	0′74	0′17	−0′22	−0′54	−0′63	−0′92	−1′08	n̄ 1′20	−1′00	−0′88	−0 62	−0′58
S.	−0′76	−0′69	−0′51	−0′75	−0′71	−0′32	0′25	0′77	1′28	x 1′82	1′68	1′20	0′79	0′17	0′08	0′06	−0′10	−0′45	−0′56	−0′59	−0′63	n̄ 0′80	−0′56	−0′68
O.	−0′68	−0′65	−0′78	−0′92	n̄ 1′02	−0′89	−0′68	−0′09	0′69	x 1′49	1′40	1′16	0′73	0′34	0′19	0′30	0′32	0′24	0′17	0′13	−0′11	−0′36	−0′56	−0′41
N.	−0′45	−0′35	−0′45	−0′55	−0′73	n̄ 0′74	−0′41	0′06	0′41	x 0′77	0′68	0′69	0′63	0′44	0′31	0′18	0′03	−0′01	0′14	0′01	−0′11	−0′35	−0′06	−0′15
D.	0′10	0′08	0′01	−0′18	−0′44	n̄ 0′53	−0′44	−0′21	−0′05	0′14	x 0′23	0′18	0′17	0′00	0′11	0′13	−0′04	0′15	0′15	0′18	0′05	0′08	0′03	0′11
Y.	−0′36	−0′30	−0′28	−0′38	−0′42	−0′30	−0′02	0′38	0′86	x 1′25	1′24	0′94	0′58	0′18	−0′08	−0′19	−0′30	−0′44	n̄ 0′48	−0′46	−0′42	−0′38	−0′32	−0′31
W.	−0′12	−0′08	−0′13	−0′30	−0′48	n̄ 0′55	−0′45	−0′18	0′00	0′29	x 0′38	0′37	0′26	0′13	0′14	0′16	0′18	0′13	0′12	0′05	−0′01	0′00	0′06	0′01
Sq.	−0′59	−0′53	−0′46	−0′60	n̄ 0′62	−0′49	−0′22	0′24	0′94	1′57	x 1′58	1′21	0′79	0′29	−0′06	−0′09	−0′21	−0′24	−0′32	−0′31	−0′38	−0′48	−0′49	−0′53
S.	−0′37	−0′29	−0′24	−0′23	−0′16	0′15	0′60	1′08	1′63	x 1′89	1′75	1′23	0′70	0′13	−0′32	−0′64	−0′88	−1′21	n̄ 1′23	−1′10	−0′88	−0′68	−0′54	−0′40
△H.	LIV.—HORIZONTAL FORCE (all days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 18, 19, June 5‡, 6,‡ 7,‡ 17, Oct. 31, Nov. 1).																							
J.	γ −0·7	γ −1·6	γ −0·7	γ 2·9	γ 4·8	γ x 6·7	γ 6·1	γ 3·1	γ 1·4	γ − 0·8	γ n̄ 4·1	γ − 3·9	γ − 1·3	γ −0·5	γ −0·9	γ − 1·5	γ − 2·2	γ − 0·4	γ 1·0	γ − 0·2	γ 2·5	γ − 2·2	γ n̄ 4·1	γ − 3·6
F.	0·5	0·2	−0·8	1·0	3·8	4·8	x 5·4	2·2	0·8	− 5·9	n̄ 8·0	− 7·4	− 3·3	0·2	1·3	0·2	− 3·0	0·1	1·2	4·3	0·5	0·1	0·6	1·4
M.	4·8	5·7	3·4	5·3	5·1	4·6	3·8	− 2·7	−14·9	−23·9	n̄ 25·2	−18·9	−13·3	− 4·6	4·9	6·6	7·3	6·1	9·1	x 9·1	8·0	7·8	5·4	6·6
A.	4·5	2·1	1·1	1·9	2·5	3·4	0·8	− 3·4	−13·8	−23·2	n̄ 28·2	−25·5	−17·7	− 8·0	4·3	10·1	x 17·0	x 17·0	15·0	11·3	9·2	6·2	7·3	5·9
M.	3·4	2·5	1·4	1·2	0·4	− 3·2	− 8·7	−14·9	−23·2	n̄ 26·7	−25·9	−18·7	−11·2	− 4·7	4·8	10·0	16·4	x 23·5	21·4	16·8	13·8	9·5	7·7	4·4
J.	4·3	1·6	−0·3	4·0	2·4	− 3·0	− 8·9	−16·4	−23·9	− 30·4	n̄ 30·8	−24·6	−16·0	− 5·1	4·2	13·4	18·7	24·4	x 26·2	22·3	15·2	10·7	8·2	3·7
J.	3·5	1·3	1·4	1·4	1·3	− 4·1	−10·9	−16·9	−26·4	n̄ 31·8	− 31·5	−23·2	−14·4	− 1·5	6·4	12·8	19·1	x 23·7	23·6	21·3	17·7	12·1	8·9	6·1
A.	5·0	5·2	4·4	2·3	2·7	0·7	− 7·0	−16·8	−27·3	n̄ 32·6	− 30·6	−24·9	−14·5	− 3·7	4·8	11·5	13·9	18·3	20·0	x 20·8	17·0	14·4	9·4	7·1
S.	9·3	8·0	4·9	8·2	8·0	2·8	− 5·0	−12·5	−20·3	n̄ 28·7	− 27·4	−20·7	−13·6	− 2·5	1·3	4·0	7·1	11·4	12·5	12·1	11·7	x 12·7	8·0	8·7
O.	4·5	3·6	5·1	8·0	x 9·9	8·5	6·8	− 0·2	−11·0	n̄ 22·7	− 22·1	−18·2	−10·3	− 2·2	3·0	3·7	4·5	4·6	3·3	2·0	4·0	5·7	7·1	2·2
N.	2·7	1·8	2·3	3·5	7·2	x 7·3	2·7	− 3·3	− 7·7	n̄ 12·3	− 10·3	− 9·2	− 6·8	− 2·5	0·0	2·4	4·5	4·3	2·8	4·1	4·5	5·0	− 1·2	− 1·8
D.	− 2·0	− 2·0	− 1·0	1·4	5·1	x 6·3	5·1	2·0	− 0·1	− 2·6	n̄ 3·8	− 3·1	− 2·4	0·7	− 0·6	− 0·4	2·1	− 0·5	− 0·4	− 0·9	0·3	− 0·9	− 0·4	− 2·0
Y.	3·3	2·4	1·8	3·4	4·4	2·9	− 0·8	− 6·6	−13·9	−20·1	n̄ 20·7	−16·5	−10·4	− 2·9	2·8	6·1	8·8	11·0	x 11·3	10·2	8·7	6·8	4·7	3·2
W.	0·1	− 0·4	− 0·1	2·2	5·2	x 6·3	4·8	1·0	− 1·4	− 5·4	n̄ 6·5	− 5·9	− 3·4	− 0·5	− 0·1	0·2	0·4	0·9	1·2	1·8	2·0	0·5	− 1·3	1·5
Sq.	5·8	4·8	3·6	5·8	6·4	4·8	1·6	− 4·7	−15·0	−24·6	n̄ 25·7	−20·8	−13·7	− 4·3	3·4	6·1	9·0	9·8	x 10·0	8·6	8·2	8·1	7·0	5·8
S.	4·1	2·6	1·7	2·2	1·7	− 2·4	− 8·9	−16·2	−25·2	n̄ 30·4	− 29·7	− 22·8	−14·1	− 3·8	5·0	11·9	17·0	22·5	x 22·8	20·3	15·9	11·7	8·6	5·3

x and n̄ mark respectively the mean maximum and minimum hourly values in each month or season.

* June 5, 6, and 7 have also been omitted from the West Component Inequalities from which the Declination has been computed.

† In addition the following days have been omitted:—June 5, 6, 7, from the West Inequality; and May 15, 16, 17, June 16, July 31, Aug. 1, 2, 3, Dec. 6 and 9 from the Vertical Inequality, from which the Inclination Inequality has been computed.

‡ June 5, 6, and 7 have been omitted from the West Component, but retained in the North Component Inequalities, from which the Horizontal Force Inequalities have been computed.

LV.–LVII.—INTERNATIONAL QUIET DAYS—DIURNAL INEQUALITIES OF THE GEOGRAPHICAL COMPONENTS OF MAGNETIC FORCE.

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.* **1915.**

LV.—NORTH COMPONENT.

△X (or △N).

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.*	0·3	0·2	− 0·2	0·6	3·2	5·3	x 5·7	4·5	1·1	− 5·5	− 10·4	n̄ 10·6	− 5·7	0·4	1·0	0·1	1·5	2·3	1·9	2·3	1·1	1·5	− 0·2	− 0·6
F.	3·0	2·9	3·0	4·3	5·2	x 5·3	4·6	3·3	0·8	− 4·8	− 8·9	n̄ 10·6	− 6·3	− 4·8	− 5·1	− 4·6	− 2·9	− 0·6	2·5	2·6	2·1	2·8	2·8	3·5
M.	5·7	7·4	6·9	8·0	8·3	8·2	7·7	4·2	− 7·9	− 17·8	n̄ 24·4	− 23·9	− 19·0	− 13·1	− 5·0	0·9	2·8	3·1	5·8	7·3	8·4	9·2	x 9·7	7·4
A.	6·6	6·5	5·4	6·7	5·8	6·1	7·4	3·9	− 4·8	− 15·5	− 23·6	n̄ 25·3	− 21·7	− 15·9	− 7·0	1·3	8·0	7·7	x 10·6	7·3	8·0	8·3	8·2	6·7
M.	7·1	5·6	5·6	6·7	7·5	5·4	0·6	− 5·6	− 15·5	− 22·5	n̄ 26·0	− 23·4	− 18·2	− 12·1	− 6·1	− 0·4	6·0	11·5	x 16·1	14·5	12·8	11·2	10·5	8·7
J.	4·3	4·2	4·3	7·6	8·7	7·4	3·3	− 4·8	− 15·1	− 24·3	n̄ 30·6	− 29·3	− 23·6	− 13·9	− 5·8	3·5	12·4	x 19·1	18·2	18·1	12·6	10·7	7·9	5·2
J.	5·6	3·1	5·6	9·6	10·9	6·4	− 1·3	− 12·4	− 20·1	− 26·8	n̄ 29·5	− 27·4	− 21·9	− 9·9	− 0·8	7·9	15·0	x 16·3	15·2	x 16·3	11·8	8·9	9·2	8·3
A.	9·4	9·3	9·2	9·1	9·4	7·5	3·7	− 5·0	− 14·9	− 26·6	n̄ 32·5	− 30·0	− 26·1	− 18·7	− 9·2	1·5	7·2	13·5	17·9	x 18·2	14·9	11·8	10·7	9·8
S.	10·8	9·6	10·0	9·2	7·6	4·7	− 2·1	− 9·9	− 19·9	− 28·7	n̄ 29·1	− 26·1	− 17·5	− 8·3	− 1·1	2·5	4·5	7·6	11·6	13·0	13·2	12·8	x 14·0	11·8
O.	9·6	7·3	6·1	8·2	8·4	7·7	6·8	4·6	− 5·9	− 17·7	− 25·2	n̄ 27·0	− 21·5	− 15·6	− 8·6	− 1·9	2·3	6·2	9·5	9·7	x 9·8	9·6	9·5	8·2
N.	1·3	0·0	1·5	4·4	4·7	4·0	3·4	0·5	− 3·2	− 9·9	n̄ 12·0	− 10·1	− 5·9	− 4·8	− 3·3	0·8	0·6	3·6	3·0	2·7	x 6·2	5·5	4·2	2·9
D.	− 1·6	− 1·3	0·5	2·4	3·9	3·7	3·6	0·7	− 2·8	− 4·5	− 5·5	n̄ 7·8	− 5·5	− 2·6	− 1·2	0·5	2·4	3·8	x 4·7	3·6	2·9	1·7	− 0·2	− 1·3
Y.	5·2	4·6	4·8	6·4	7·0	6·0	3·6	− 1·3	− 9·0	− 17·0	n̄ 21·5	− 20·9	− 16·1	− 9·9	− 4·3	1·0	5·0	7·8	x 9·7	9·6	8·6	7·8	7·2	5·9
W.	0·8	0·4	1·2	2·9	4·3	x 4·6	4·3	2·2	− 1·0	− 6·2	− 9·2	n̄ 9·7	− 5·9	− 2·9	− 2·2	− 0·8	0·4	2·3	3·0	2·8	3·1	2·9	1·7	1·2
Eq.	8·2	7·7	7·1	8·0	7·5	6·7	4·9	0·7	− 9·6	− 19·9	n̄ 25·6	n̄ 25·6	− 19·9	− 13·2	− 5·4	0·7	4·4	6·1	9·4	9·3	9·8	10·0	x 10·3	8·5
S.	6·6	5·5	6·2	8·3	9·1	6·7	1·6	− 7·0	− 16·4	− 25·0	n̄ 29·7	− 27·5	− 22·4	− 13·7	− 5·5	3·1	10·2	15·1	x 16·8	x 16·8	13·0	10·6	9·6	8·6

LVI.—WEST COMPONENT.

−△Y (or △W).

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.*	− 2·9	− 2·2	− 2·9	− 2·2	− 1·6	− 2·6	− 2·9	− 2·9	− 2·0	− 2·0	2·4	6·7	x 10·3	9·3	6·0	3·3	2·3	1·9	− 0·8	− 2·1	− 2·5	− 2·8	n̄ 5·8	− 4·2
F.	− 2·8	− 2·7	− 2·6	− 2·3	− 2·4	− 2·9	− 4·0	− 3·1	− 1·8	1·1	5·8	7·5	x 8·2	7·7	4·0	2·1	2·0	1·3	− 0·2	− 1·3	− 2·0	n̄ 4·1	− 3·4	n̄ 4·1
M.	0·4	0·1	− 3·4	− 6·3	− 6·3	− 5·8	− 9·1	− 15·2	n̄ 18·4	− 13·1	− 1·4	7·7	x 22·1	21·6	17·1	10·8	4·2	2·3	1·6	0·7	− 1·9	− 2·8	− 2·7	− 2·2
A.	0·5	− 0·7	− 3·3	− 4·8	− 8·4	− 11·2	− 14·3	− 18·9	n̄ 20·1	− 15·8	− 7·0	6·8	18·5	x 22·5	18·5	13·8	9·6	4·0	1·5	0·9	1·5	2·6	2·2	1·6
M.	1·0	− 1·3	− 3·5	− 7·6	− 12·4	− 17·0	− 22·3	n̄ 25·5	− 24·4	− 14·2	− 1·7	13·1	21·7	x 22·4	18·4	11·1	6·3	5·8	6·8	5·2	5·3	4·7	5·2	2·8
J.	− 0·8	− 1·0	− 1·5	− 7·4	− 12·8	− 20·1	− 24·4	− 28·8	n̄ 29·1	− 18·2	− 5·0	10·3	18·7	x 24·2	23·3	20·7	16·2	13·1	8·9	4·6	4·9	2·5	1·6	0·1
J.	− 5·2	− 8·1	− 8·7	− 10·6	− 17·9	− 23·5	n̄ 26·0	− 25·5	− 24·1	− 15·4	− 1·5	13·3	23·6	x 26·7	25·3	22·6	17·3	12·1	9·6	6·3	5·3	3·6	1·9	− 0·9
A.	− 2·0	− 2·0	− 5·3	− 10·1	− 16·0	− 18·0	− 22·7	n̄ 25·3	− 23·8	− 14·4	− 3·1	11·1	24·0	x 28·0	25·1	17·9	11·6	7·6	4·7	5·5	4·8	3·2	0·7	− 1·3
S.	− 3·4	− 4·7	− 5·6	− 6·9	− 9·6	− 13·8	− 21·5	n̄ 24·6	− 21·3	− 6·0	6·0	18·1	x 24·2	21·5	14·0	6·5	3·7	4·2	5·9	6·0	4·1	3·6	1·0	− 1·5
O.	− 1·3	− 2·4	− 2·8	− 2·7	− 4·2	− 4·9	− 7·4	− 13·9	n̄ 19·1	− 15·0	− 1·1	9·2	17·3	x 18·5	15·6	8·3	4·6	4·3	2·4	0·8	0·1	− 0·6	− 1·5	− 4·4
N.	− 5·3	n̄ 6·0	− 4·2	− 5·4	− 5·4	− 4·6	− 4·0	− 3·9	− 4·3	− 1·1	4·7	8·5	x 11·3	x 11·3	6·8	7·4	6·2	1·6	2·0	− 0·3	− 1·7	− 4·1	− 4·3	− 5·3
D.	− 5·6	− 3·1	− 1·5	− 0·8	− 0·9	− 0·8	− 2·5	− 3·6	− 2·8	0·3	4·0	8·3	x 9·4	6·5	3·7	3·0	2·3	1·2	1·1	− 0·8	− 2·6	− 3·5	− 5·0	n̄ 6·3
Y.	− 2·3	− 2·8	− 3·8	− 5·6	− 8·1	− 10·4	− 13·4	n̄ 15·9	n̄ 15·9	− 9·5	0·2	10·0	17·4	x 18·3	14·8	10·6	7·2	4·9	3·6	2·1	1·3	0·2	− 0·8	− 2·1
W.	− 4·2	− 3·5	− 2·8	− 2·7	− 2·6	− 2·7	− 3·4	− 3·4	− 2·7	− 0·4	4·2	7·7	x 9·8	8·7	5·1	4·0	3·2	1·5	0·5	− 1·1	− 2·2	− 3·6	− 4·6	n̄ 5·0
Eq.	− 1·0	− 1·9	− 3·8	− 5·2	− 7·1	− 8·9	− 13·1	− 18·1	n̄ 19·7	− 12·5	− 0·9	10·5	20·5	x 21·0	16·3	9·9	5·5	3·7	2·9	2·1	0·9	0·7	− 0·3	− 1·6
S.	− 1·7	− 3·1	− 4·7	− 8·9	− 14·8	− 19·7	− 23·8	n̄ 26·3	− 25·4	− 15·5	− 2·8	11·9	22·0	x 25·3	23·0	18·1	12·9	9·6	7·5	5·4	5·1	3·5	2·4	0·2

LVII.—VERTICAL COMPONENT.

△Z (or △V).

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.*	0·9	0·7	0·9	0·1	− 0·9	− 1·4	− 1·8	− 2·4	− 2·2	− 0·9	− 1·7	n̄ 3·1	− 1·2	1·2	1·2	1·2	x 1·7	1·1	0·9	1·3	1·0	1·2	1·2	1·0
F.	− 0·2	− 0·3	− 0·5	− 0·2	− 0·6	− 1·0	− 1·7	n̄ 2·7	− 2·4	− 2·0	− 1·7	− 0·7	− 0·3	− 0·4	0·6	2·1	2·1	x 2·8	2·0	1·6	1·7	1·1	0·4	0·0
M.	0·9	− 0·8	− 0·6	− 0·1	− 0·5	− 1·0	− 0·2	0·7	0·3	− 0·8	− 4·4	n̄ 6·5	− 6·3	− 2·4	1·4	3·7	x 3·9	3·4	2·6	1·9	1·9	1·6	0·6	1·1
A.	2·3	2·2	2·0	1·5	1·1	1·4	0·6	− 0·3	− 0·7	− 2·4	− 6·2	n̄ 11·5	n̄ 11·5	− 8·4	− 4·0	− 0·7	2·9	6·0	x 6·2	5·7	4·1	3·8	3·0	2·5
M.	2·6	3·1	3·6	4·1	4·6	3·7	3·0	1·3	− 3·4	− 8·7	− 13·0	n̄ 15·3	− 12·2	− 8·2	− 2·7	1·2	4·7	5·2	4·9	x 5·8	4·9	4·0	3·9	3·0
J.	− 1·5	− 1·7	− 0·6	0·6	1·7	1·1	1·5	2·2	0·0	− 4·2	− 9·2	n̄ 10·5	− 8·7	− 7·1	− 2·8	1·0	4·9	6·1	7·3	x 8·2	6·4	3·6	1·9	− 0·1
J.	− 0·1	1·0	1·9	3·1	5·2	4·8	3·7	0·6	− 2·6	− 6·7	− 7·7	n̄ 12·0	− 9·9	− 8·1	− 3·4	0·8	3·9	4·9	x 5·4	5·3	4·1	2·4	2·0	1·3
A.	0·5	1·0	0·8	2·1	3·1	3·0	3·4	3·1	− 1·1	− 6·6	− 8·8	n̄ 11·5	− 10·5	− 5·2	0·2	3·7	x 5·5	5·0	4·0	2·9	2·3	1·6	0·8	0·7
S.	1·5	2·3	2·3	2·1	3·1	4·3	x 5·1	2·7	− 1·9	− 6·0	− 8·2	n̄ 8·4	− 7·4	− 4·0	− 0·8	1·4	1·6	1·0	0·6	1·2	1·8	2·0	1·9	1·9
O.	− 0·7	− 0·8	0·7	0·7	0·6	0·7	0·8	1·3	1·8	− 1·6	− 5·1	n̄ 7·0	− 5·5	− 2·2	0·7	1·9	2·0	1·3	1·4	1·9	2·0	x 2·2	1·5	1·4
N.	0·4	− 0·1	− 0·9	− 1·8	− 1·7	− 1·7	− 2·0	− 1·9	− 1·3	n̄ 2·6	− 2·5	− 1·5	− 1·0	− 0·7	1·1	0·8	1·7	2·7	2·4	x 3·5	3·1	2·0	1·3	0·5
D.	0·0	− 0·9	− 1·4	− 1·6	− 2·1	n̄ 2·6	− 1·6	− 1·1	− 0·2	0·4	− 0·1	− 0·4	0·8	x 1·7	1·4	1·4	0·9	0·4	0·2	0·7	0·6	1·2	1·3	0·8
Y.	0·5	0·5	0·7	0·9	1·1	0·9	0·9	0·3	− 1·1	− 3·5	− 5·7	n̄ 7·4	− 6·1	− 3·7	− 0·6	1·5	3·0	3·3	3·2	x 3·3	2·8	2·2	1·7	1·2
W.	0·3	− 0·2	− 0·5	− 0·9	− 1·3	− 1·6	− 1·8	n̄ 2·0	− 1·5	− 1·3	− 1·5	− 1·4	− 0·4	0·4	1·1	1·4	1·6	x 1·8	1·4	x 1·8	1·6	1·4	1·0	0·6
Eq.	1·0	0·7	1·1	1·0	1·1	1·3	1·6	1·1	− 0·1	− 2·7	− 5·9	n̄ 8·4	− 7·7	− 4·3	− 0·7	1·6	2·6	x 2·9	2·7	2·7	2·4	2·4	1·8	1·7
S.	0·4	0·8	1·4	2·5	3·6	3·1	2·9	1·8	− 1·8	− 6·5	− 9·7	n̄ 12·3	− 10·3	− 7·2	− 2·2	1·7	4·7	5·3	5·4	x 5·5	4·4	2·9	2·1	1·2

x and n̄ mark respectively the mean maximum and minimum hourly values in each month or season.

* Inequalities for 4 days only (Jan. 3, 18, 19, and 31).

LVIII.–LX.—INTERNATIONAL QUIET DAYS—DIURNAL INEQUALITIES.

(Corrected for the effect of the North Force on the West Magnetograph and *vice versa*, and also for the effect of the Horizontal Force on the V.F. Balance.)

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.* **1915.**

LVIII.—DECLINATION (measured positive towards the West).

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
	△D.																							
J.	−0′58	−0′44	−0′55	−0′47	−0′50	−0′83	−0′92	−0′85	−0′45	−0′04	1′10	2′00	x 2′37	1′79	1′10	0′63	0′35	0′23	−0′27	−0′55	−0′55	−0′64	n̄ 1′12	−0′78
F.	−0′73	−0′71	−0′69	−0′72	−0′79	−0′89	n̄ 1·06	−0′81	−0′40	0′51	1·68	x 2·12	1·99	1·80	1·10	0·70	0′57	0′29	−0′19	−0′41	−0′52	−0′97	−0′84	−1·02
M.	−0·28	−0′44	−1·09	−1·72	−1·75	−1·64	−2·25	n̄ 3·22	−3·11	−1·45	1·25	3·00	5·48	x 5·02	3·65	2·06	0·64	0·25	−0·05	−0·31	−0·90	−1·12	−1·13	−0·88
A.	−0·32	−0·54	−0·97	−1·36	−2·00	−2·56	−3·25	n̄ 3·93	−3·61	−2·13	0·10	2·91	4·95	x 5·38	4·05	2·60	1·38	0·31	−0·37	−0·28	−0·20	−0·02	−0·08	−0·10
M.	−0·24	−0·60	−1·03	−1·90	−2·88	−3·64	−4·39	n̄ 4·62	−3·80	−1·37	1·27	4·00	x 5·36	5·11	3·97	2·19	0·86	0·41	0·33	0·12	0·24	0·23	0·36	0·01
J.	−0·41	−0·46	−0·56	−1·90	−3·04	−4·37	−4·95	n̄ 5·32	−4·73	−2·04	0·92	3·82	5·10	x 5·58	4·91	3·81	2·39	1·38	0·60	−0·22	0·18	−0·18	−0·18	−0·30
J.	−1·36	−1·76	−2·05	−2·67	−4·16	n̄ 4·99	n̄ 4·99	−4·20	−3·46	−1·35	1·54	4·28	x 5·96	5·82	4·97	3·91	2·45	1·34	0·93	0·23	0·30	0·15	−0·19	−0·70
A.	−0·97	−0·97	−1·60	−2·54	−3·70	−3·98	n̄ 4·65	−4·63	−3·71	−1·17	1·41	4·01	6·30	x 6·61	5·47	3·39	1·82	0·64	−0·19	−0·06	0·02	−0·11	−0·52	−0·87
S.	−1·33	−1·51	−1·71	−1·91	−2·33	−2·98	−4·06	n̄ 4·18	−2·92	0·61	2·96	5·13	x 5·80	4·70	2·80	1·12	0·43	0·35	0·44	0·37	−0·01	−0·08	−0·68	−1·03
O.	−0·84	−0·91	−0·93	−1·03	−1·34	−1·43	−1·85	−2·99	n̄ 3·37	−1·84	1·34	3·46	x 4·71	4·56	3·57	1·74	0·75	0·46	−0·11	−0·45	−0·59	−0·71	−0·88	−1·36
N.	−1·12	−1·16	−0·91	−1·32	n̄ 1·34	−1·15	−1·00	−0·78	−0·64	0·40	1·66	2·28	x 2·56	2·49	1·54	1·40	1·17	0·08	0·20	−0·21	−0·71	−1·14	−1·10	−1·22
D.	−1·00	−0·54	−0·32	−0·30	−0·42	−0·38	−0·71	−0·75	−0·37	0·34	1·12	2·10	x 2·17	1·42	0·81	0·56	0·30	0·00	−0·08	−0·39	−0·68	−0·78	−0·96	n̄ 1·15
Y.	−0·76	−0·84	−1·03	−1·49	−2·02	−2·40	−2·84	n̄ 3·02	−2·55	−0·81	1·36	3·26	x 4·39	4·19	3·16	2·01	1·09	0·48	0·10	−0·18	−0·28	−0·45	−0·61	−0·78
W.	−0·86	−0·71	−0·62	−0·70	−0·76	−0·82	−0·92	−0·80	−0·46	0·30	1·39	2·11	x 2·27	1·87	1·13	0·82	0·60	0·15	−0·09	−0·39	−0·61	−0·88	−1·01	n̄ 1·04
Eq.	−0·69	−0·85	−1·17	−1·50	−1·85	−2·15	−2·85	n̄ 3·58	−3·25	−1·20	1·41	3·62	x 5·23	4·92	3·52	1·88	0·80	0·34	−0·02	−0·17	−0·42	−0·48	−0·69	−0·84
S.	−0·74	−0·95	−1·31	−2·25	−3·44	−4·24	n̄ 4·74	−4·69	−3·93	−1·48	1·28	4·03	5·68	x 5·78	4·83	3·33	1·88	0·94	0·42	0·02	0·18	0·02	−0·13	−0·46

LIX.—INCLINATION.

	△I.																							
J.	0′06	0′05	0′10	0′01	−0′20	−0′32	n̄ 0′35	−0′29	−0′09	0′37	x 0′58	0′46	0′12	−0′19	−0′16	−0′04	−0′10	−0′16	−0′09	−0′07	0′00	−0′01	0′16	0′15
F.	−0·14	−0·14	−0·15	−0·23	n̄ 0·30	n̄ 0·30	−0·25	−0·21	−0·07	0·23	0·40	x 0·50	0·23	0·14	0·26	0·30	0·20	0·08	−0·11	−0·10	−0·05	−0·06	−0·10	−0·14
M.	−0·35	−0·50	−0·39	−0·39	−0·41	−0·43	−0·31	0·06	0·89	1·39	x 1·49	1·21	0·61	0·33	0·00	−0·19	−0·17	−0·16	−0·34	−0·44	−0·45	−0·49	n̄ 0·55	−0·40
A.	−0·37	−0·35	−0·23	−0·30	−0·17	−0·12	−0·16	0·14	0·71	1·26	x 1·51	1·19	0·72	0·35	−0·03	−0·38	n̄ 0·64	−0·43	−0·55	−0·34	−0·44	−0·49	−0·49	−0·40
M.	−0·42	−0·25	−0·20	−0·17	−0·11	0·10	0·50	0·92	1·42	x 1·52	1·38	0·85	0·41	0·11	−0·06	−0·17	−0·40	−0·72	n̄ 1·05	−0·89	−0·80	−0·72	−0·68	−0·54
J.	−0·30	−0·29	−0·26	−0·32	−0·25	−0·03	0·33	0·96	1·57	1·82	x 1·83	1·40	0·91	0·21	−0·18	−0·63	−1·01	n̄ 1·34	−1·16	−1·05	−0·75	−0·64	−0·50	−0·34
J.	−0·25	0·00	−0·13	−0·32	−0·20	0·19	0·71	1·33	1·72	x 1·87	1·73	1·18	0·67	−0·12	−0·56	−0·96	n̄ 1·22	−1·17	−1·04	−1·04	−0·76	−0·58	−0·58	−0·48
A.	−0·54	−0·53	−0·46	−0·32	−0·20	−0·04	0·32	0·92	1·41	1·83	x 1·92	1·40	0·91	0·49	0·08	−0·37	−0·56	−0·90	−1·14	n̄ 1·20	−0·99	−0·78	−0·68	−0·58
S.	−0·58	−0·46	−0·47	−0·40	−0·22	0·09	0·70	1·20	1·66	x 1·81	1·53	1·09	0·44	−0·01	−0·24	−0·26	−0·33	−0·54	−0·84	n̄ 0·92	−0·88	−0·84	−0·87	−0·67
O.	−0·61	−0·44	−0·32	−0·45	−0·44	−0·37	−0·26	0·02	0·81	1·40	x 1·51	1·36	0·88	0·56	0·25	0·00	−0·19	−0·45	n̄ 0·62	−0·59	−0·58	−0·55	−0·54	−0·40
N.	0·04	0·12	−0·03	−0·22	−0·23	−0·20	−0·18	0·00	0·26	0·59	x 0·61	0·43	0·12	0·06	0·10	−0·18	−0·12	−0·20	−0·17	−0·08	n̄ 0·28	−0·22	−0·15	−0·07
D.	0·22	0·12	−0·04	−0·18	n̄ 0·29	−0·28	−0·22	0·00	0·23	0·29	0·27	x 0·32	0·18	0·07	0·04	−0·06	−0·18	−0·25	−0·32	−0·19	−0·12	−0·01	0·15	0·23
Y.	−0·27	−0·22	−0·21	−0·27	−0·25	−0·14	0·07	0·42	0·88	1·20	x 1·23	0·95	0·52	0·17	−0·04	−0·25	−0·39	−0·52	n̄ 0·62	−0·58	−0·51	−0·45	−0·40	−0·30
W.	0·04	0·04	−0·03	−0·15	−0·25	n̄ 0·28	−0·25	−0·12	0·08	0·37	x 0·46	0·43	0·16	0·02	0·06	0·00	−0·05	−0·13	−0·17	−0·11	−0·11	−0·07	0·01	0·04
Eq.	−0·48	−0·43	−0·35	−0·38	−0·31	−0·21	−0·01	0·35	1·02	1·46	x 1·51	1·41	0·66	0·31	−0·01	−0·21	−0·33	−0·40	−0·59	−0·57	−0·59	−0·59	n̄ 0·61	−0·47
S.	−0·38	−0·27	−0·26	−0·28	−0·19	0·06	0·46	1·03	1·53	x 1·76	1·71	1·21	0·73	0·17	−0·18	−0·53	−0·80	−1·03	n̄ 1·10	−1·04	−0·82	−0·68	−0·61	−0·48

LX.—HORIZONTAL FORCE.

	△H.																							
J.	γ −0·6	γ −0·5	γ −1·1	γ −0·1	γ 2·6	γ 4·3	γ x 4·5	γ 3·4	γ 0·5	γ − 5·9	γ n̄ 9·2	γ − 8·0	γ − 2·3	γ 3·3	γ 2·8	γ 1·1	γ 2·1	γ 2·8	γ 1·6	γ 1·5	γ 0·3	γ 0·6	γ − 1·9	γ − 1·8
F.	2·0	1·9	2·1	3·4	x 4·2	4·1	3·1	2·2	0·2	− 4·2	− 6·7	n̄ 7·8	− 3·5	− 2·2	− 3·6	− 3·7	− 2·2	− 0·2	2·3	2·0	1·3	1·4	1·7	2·1
M.	5·5	7·1	5·5	5·7	6·0	6·0	4·6	− 0·6	− 13·2	− 21·0	n̄ 23·7	− 20·4	− 11·3	− 5·8	0·5	4·2	4·0	3·7	6·1	7·2	7·4	7·9	x 8·4	6·4
A.	6·4	6·0	4·1	4·9	2·9	2·3	2·6	− 2·1	− 10·8	− 19·7	n̄ 24·7	− 22·0	− 15·0	− 8·3	− 1·0	5·5	x 10·6	8·6	10·5	7·2	8·1	8·7	8·5	6·9
M.	7·1	4·9	4·3	4·0	3·4	− 0·1	− 6·3	− 13·1	− 22·3	n̄ 25·8	− 25·4	− 18·3	− 10·6	− 4·7	− 0·1	3·0	7·7	12·7	x 17·4	15·5	13·8	12·1	11·6	9·2
J.	3·9	3·7	3·7	5·0	4·4	0·9	− 4·4	− 13·5	− 23·4	− 28·7	n̄ 30·7	− 24·7	− 16·7	− 5·8	1·6	9·7	16·8	x 22·2	20·0	18·6	13·5	10·9	8·1	5·0
J.	3·7	0·4	2·6	5·9	4·9	− 1·1	− 9·2	− 19·6	− 26·6	n̄ 30·3	− 28·6	− 22·1	− 13·7	− 1·2	7·0	14·5	x 19·6	19·3	17·4	17·5	12·9	9·6	9·3	7·6
A.	8·3	8·2	7·1	5·6	4·1	1·6	− 3·5	− 12·6	− 21·5	− 29·8	n̄ 31·9	− 25·2	− 17·5	− 9·3	− 1·1	6·9	10·4	15·2	18·5	x 19·0	15·7	12·2	10·4	9·0
S.	9·3	7·7	7·9	6·7	4·4	0·2	− 8·6	− 17·0	− 25·5	n̄ 29·2	− 26·0	− 19·4	− 9·3	− 1·3	3·3	4·4	5·5	8·5	12·8	x 14·2	13·8	13·3	13·6	10·8
O.	8·8	6·2	5·0	7·0	6·8	5·9	4·2	0·2	− 11·5	− 21·5	n̄ 24·4	− 22·9	− 15·2	− 9·3	− 3·4	0·7	3·6	7·2	x 9·8	9·5	9·3	9·0	8·6	6·4
N.	− 0·4	− 1·9	0·1	2·6	2·9	2·4	2·0	− 0·7	− 4·4	− 9·8	n̄ 10·0	− 7·0	− 2·2	− 1·2	− 1·1	3·0	2·4	4·0	3·4	2·5	x 5·4	4·0	2·7	1·2
D.	− 3·2	− 2·2	0·0	2·1	3·5	3·2	2·7	− 0·4	− 3·5	− 4·2	− 4·0	n̄ 4·9	− 2·4	− 0·5	0·0	1·4	3·0	3·9	x 4·8	3·2	2·0	0·5	− 1·8	− 3·2
Y.	4·2	3·5	3·4	4·4	4·2	2·5	− 0·7	− 6·2	− 13·5	− 19·1	n̄ 20·4	− 16·9	− 10·0	− 3·8	0·4	4·2	7·0	9·0	x 10·4	9·8	8·6	7·5	6·6	5·0
W.	− 0·6	− 0·6	0·3	2·0	3·3	x 3·5	3·1	1·1	− 1·8	− 6·0	n̄ 7·5	− 6·9	− 2·6	− 0·1	− 0·5	0·5	1·4	2·6	3·0	2·3	2·3	1·6	0·2	− 0·4
Eq.	7·5	6·7	5·6	6·1	5·0	3·6	0·7	− 4·9	− 15·2	− 22·8	n̄ 24·7	− 21·2	− 12·7	− 6·2	− 0·2	3·7	5·9	7·0	x 9·8	9·5	9·7	9·7	x 9·8	7·6
S.	5·8	4·3	4·4	5·1	4·2	0·3	− 5·8	− 14·7	− 23·4	− 28·6	n̄ 29·1	− 22·6	− 14·6	− 5·2	1·9	8·5	13·6	17·3	x 18·3	17·6	13·9	11·2	9·8	7·7

x and n̄ mark respectively the mean maximum and minimum hourly values in each month or season.

LXI.–LXII.—INTERNATIONAL QUIET DAYS—DIURNAL INEQUALITIES OF DECLINATION AND HORIZONTAL FORCE.

Kew. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.* **1915.**

LXI.—DECLINATION (measured positive towards the West).

△D.

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
J.	−0·17	−0·33	−0·42	−0·39	−0·42	−0·74	−0·93	−0·90	−0·57	0·05	1·24	2·27	*x* 2·28	1·35	0·57	0·58	0·43	0·20	−0·24	−0·69	−0·76	−0·81	$\overline{n}$ 1·09	−0·60
F.	−0·38	−0·53	−0·61	−0·57	−0·60	−0·66	$\overline{n}$ 1·04	−0·81	−0·55	0·57	1·54	*x* 2·14	2·08	1·55	0·81	0·45	0·62	0·22	−0·22	−0·49	−0·77	−1·03	−0·96	−0·74
M.	−0·41	−0·93	−1·25	−1·61	−1·67	−1·61	−2·36	$\overline{n}$ 3·58	−3·32	−1·18	1·82	4·40	*x* 5·40	4·66	3·36	1·82	0·62	0·23	−0·07	−0·59	−0·91	−0·91	−1·13	−0·73
A.	0·00	−0·54	−0·79	−1·07	−1·54	−2·12	−3·01	$\overline{n}$ 3·85	−3·66	−2·14	0·23	3·21	5·05	*x* 5·08	3·64	2·05	1·09	0·16	−0·54	−0·43	−0·39	−0·10	−0·22	0·01
M.	−0·27	−0·82	−1·06	−1·53	−2·54	−3·22	−4·23	$\overline{n}$ 4·56	−3·53	−0·97	1·80	4·21	*x* 5·30	4·91	3·25	2·02	0·73	0·26	0·08	−0·03	−0·04	0·06	0·05	0·16
J.	−0·10	−0·32	−0·47	−1·58	−2·51	−3·61	−4·62	$\overline{n}$ 5·23	−4·74	−2·18	0·91	4·10	4·89	*x* 5·42	4·64	3·19	1·84	1·07	0·37	−0·14	−0·13	−0·22	−0·44	−0·15
J.	−1·02	−1·76	−1·95	−2·23	−3·70	−4·42	$\overline{n}$ 4·87	−4·08	−3·18	−0·71	2·33	4·92	*x* 5·55	5·43	4·48	3·22	1·87	0·94	0·54	−0·15	−0·05	−0·12	−0·38	−0·73
A.	−1·01	−1·18	−1·78	−2·22	−3·11	−3·51	−4·61	$\overline{n}$ 4·68	−3·50	−0·90	1·73	4·67	6·17	*x* 6·36	5·20	3·00	1·49	0·31	−0·13	−0·32	−0·16	−0·36	−0·67	−0·89
S.	−0·89	−1·43	−1·65	−1·83	−2·01	−2·61	−3·88	$\overline{n}$ 4·20	−2·72	0·66	2·98	5·30	*x* 5·44	4·24	2·52	0·78	0·32	0·45	0·49	0·19	0·33	−0·31	−0·57	−1·01
O.	−0·76	−0·63	−0·82	−0·91	−0·94	−1·09	−1·92	−3·05	$\overline{n}$ 3·42	−1·99	1·52	3·63	*x* 4·32	4·29	2·64	1·69	0·70	0·43	0·02	−0·37	−0·66	−0·73	−0·80	−1·21
N.	−1·12	$\overline{n}$ 1·26	−1·03	−1·13	−0·95	−0·83	−0·94	−0·96	−0·74	0·20	1·65	2·17	*x* 2·31	2·20	1·54	1·00	0·76	0·37	0·25	−0·07	−0·73	−0·78	−0·86	−0·98
D.	−0·85	−0·76	−0·74	−0·63	−0·53	−0·36	$\overline{n}$ 0·88	−0·79	−0·57	0·42	1·10	1·93	*x* 2·06	1·34	0·69	0·69	0·42	0·26	0·13	−0·33	−0·30	−0·58	−0·81	−0·87
Y.	−0·58	−0·87	−1·05	−1·31	−1·71	−2·07	−2·77	$\overline{n}$ 3·06	−2·54	−0·68	1·57	3·58	*x* 4·24	3·90	2·78	1·71	0·91	0·41	0·06	−0·28	−0·44	−0·49	−0·66	−0·65
W.	−0·63	−0·72	−0·70	−0·68	−0·62	−0·65	$\overline{n}$ 0·95	−0·86	−0·61	0·31	1·38	2·13	*x* 2·18	1·61	0·90	0·68	0·56	0·26	−0·02	−0·40	−0·64	−0·80	−0·93	−0·80
Eq.	−0·52	−0·88	−1·13	−1·36	−1·54	−1·86	−2·79	$\overline{n}$ 3·67	−3·28	−1·16	1·64	4·13	*x* 5·05	4·57	3·04	1·59	0·68	0·32	−0·03	−0·30	−0·57	−0·51	−0·68	−0·74
S.	−0·60	−1·02	−1·31	−1·89	−2·96	−3·69	−4·58	$\overline{n}$ 4·64	−3·74	−1·19	1·69	4·48	5·48	*x* 5·53	4·39	2·86	1·48	0·65	0·22	−0·16	−0·09	−0·16	−0·36	−0·40

LXII.—HORIZONTAL FORCE.

△H.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
J.	γ −2·6	γ −3·5	γ −2·9	γ −2·9	γ −0·9	γ 2·1	γ 2·9	γ 2·9	γ −0·4	γ −5·1	γ $\overline{n}$ 6·8	γ −4·6	γ 0·0	γ *x* 4·1	γ 3·6	γ 1·5	γ 2·3	γ 3·4	γ 2·5	γ 3·2	γ 2·7	γ 0·9	γ −1·0	γ −1·0
F.	0·6	−1·0	−1·4	0·9	1·3	2·3	2·1	1·2	1·2	−3·2	$\overline{n}$ 6·3	−5·7	−2·9	0·2	0·0	−2·2	−1·0	0·4	2·5	2·6	2·0	2·3	*x* 2·9	1·5
M.	4·3	5·1	3·1	3·3	2·4	4·6	2·6	−2·6	−11·2	−19·9	$\overline{n}$ 20·4	−14·6	−8·1	−2·3	1·3	3·4	3·8	3·5	6·0	7·0	7·4	7·7	*x* 8·7	5·4
A.	3·2	2·6	−0·5	1·5	0·2	1·0	2·7	−0·4	−7·1	−15·5	$\overline{n}$ 16·9	−13·4	−7·9	−2·7	0·5	5·6	5·7	5·6	*x* 6·9	5·9	6·1	6·6	6·0	4·5
M.	4·0	1·0	0·5	0·8	1·0	−1·3	−4·3	−10·9	−15·4	$\overline{n}$ 17·4	−15·7	−9·2	−4·6	−1·0	−0·2	2·0	4·2	8·5	*x* 11·6	10·8	10·2	9·0	8·8	7·0
J.	4·1	1·7	2·0	4·2	4·5	2·8	−2·8	−12·9	−20·2	−22·6	$\overline{n}$ 23·3	−18·9	−15·0	−5·3	1·2	6·9	13·1	*x* 16·6	15·2	14·5	11·7	9·5	8·1	5·4
J.	5·1	−1·0	1·2	2·9	2·1	−1·4	−7·7	−16·3	−22·0	$\overline{n}$ 24·8	−23·7	−16·3	−10·3	−1·8	7·2	11·4	14·8	*x* 15·9	13·4	15·3	11·5	9·0	8·5	7·2
A.	7·5	4·1	4·0	3·3	2·7	0·6	−4·6	−14·3	−20·4	−22·3	$\overline{n}$ 23·4	−18·1	−12·0	−8·5	−2·0	5·7	9·6	12·0	14·6	*x* 16·6	15·1	10·0	10·3	9·0
S.	6·5	2·9	3·1	2·1	0·4	−4·5	−9·8	−15·4	−20·4	$\overline{n}$ 22·4	−20·6	−13·1	−5·4	2·1	5·6	3·4	4·6	9·0	12·6	12·7	12·1	12·1	*x* 12·9	9·5
O.	6·4	2·7	2·0	3·0	4·3	5·2	4·8	1·4	−8·8	−17·8	$\overline{n}$ 20·8	−16·8	−11·3	−7·8	−4·6	−0·4	2·7	7·0	9·0	*x* 9·6	9·1	8·2	8·1	4·9
N.	−1·0	−3·8	−2·1	−0·5	1·0	0·8	1·7	0·8	−3·1	−7·6	$\overline{n}$ 10·0	−6·0	−2·4	−0·3	−0·4	1·6	3·7	4·5	3·4	3·6	*x* 7·0	4·9	3·0	1·0
D.	−4·1	$\overline{n}$ 4·6	−3·0	−1·6	0·5	3·0	4·1	1·0	−2·9	−4·3	−3·7	−2·6	−1·7	0·5	0·7	1·2	3·2	*x* 5·2	*x* 5·2	4·3	2·4	1·4	−1·7	−2·2
Y.	2·8	0·5	0·5	1·4	1·6	1·3	−0·7	−5·5	−10·9	−15·2	$\overline{n}$ 16·0	−11·6	−6·8	−1·9	1·1	3·3	5·6	7·6	8·6	*x* 8·8	8·1	6·8	6·2	4·4
W.	−1·8	−3·2	−2·4	−1·0	0·5	2·0	2·7	1·5	−1·3	−5·1	$\overline{n}$ 6·7	−4·7	−1·8	1·1	1·0	0·5	2·0	3·4	3·4	3·4	*x* 3·5	2·4	0·8	−0·2
Eq.	5·1	3·3	1·9	2·5	1·8	1·6	0·1	−4·3	−11·9	−18·9	$\overline{n}$ 19·7	−14·5	−8·2	−2·7	0·7	3·0	4·2	6·3	8·6	8·8	8·7	8·6	*x* 8·9	6·1
S.	5·2	1·5	1·9	2·8	2·6	0·2	−4·9	−13·6	−19·5	$\overline{n}$ 21·8	−21·5	−15·6	−10·5	−4·1	1·6	6·5	10·4	13·3	13·7	*x* 14·3	12·1	9·4	8·9	7·1

x and $\overline{n}$ mark respectively the mean maximum and minimum hourly values in each month or season.

LXIII.—RANGE OF THE MEAN DIURNAL INEQUALITIES OF MAGNETIC FORCE AND NON-CYCLIC CHANGE (24^h–0^h) FOR THE MONTHS, YEAR, AND SEASONS OF 1915, AT TWO OBSERVATORIES.

ESKDALEMUIR.

All days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 18, 19, June 17, Oct. 31, Nov. 1 for X, —Y, and Z, and, in addition, June 5, 6, 7 for —Y, and May 15, 16, 17, June 16, July 31, Aug. 1, 2, 3, Dec. 6, and 9 for Z.

International Quiet Days.

KEW.

International Quiet Days.

Refer to Table.	XLIX.		L.		LI.		LII.	LIII.	LIV.	LV.		LVI.		LVII.		LVIII.	LIX.	LX.	LXI.		LXII.	
	X.		—Y.		Z.		D.	I.	H.	X.		—Y.		Z.		D.	I.	H.	D.		H.	
	Range.	24 − 0.	Range.	24 − 0.	Range.	24 − 0.	Range.	Range.	Range.	Range.	24 − 0.	Range.	24 − 0.	Range.	24 − 0.	Range.	Range.	Range.	Range.	24 − 0.	Range.	24 − 0.
	γ	γ	γ	γ	γ	γ	′	′	γ	γ	γ	γ	γ	γ	γ	′	′	γ	′	′	γ	γ
J.	14·9	0·6	23·5	1·4	8·4	0·0	4·87	0·88	10·9	16·2	3·5	16·1	0·3	4·7	−0·6	3·49	0·92	13·7	3·37	−0·18	10·9	1·7
F.	19·8	0·3	27·6	0·3	15·3	−0·3	6·17	0·91	13·3	15·9	2·6	12·3	−2·4	5·4	−1·0	3·18	0·81	12·0	3·18	−0·40	9·2	1·2
M.	39·1	0·5	42·6	0·2	20·4	−0·2	9·49	2·14	34·3	34·1	2·2	40·5	1·8	10·5	−1·2	8·24	2·03	32·1	8·98	0·02	29·1	2·7
A.	45·5	0·1	51·0	−0·4	31·2	0·0	10·68	2·48	45·2	35·9	2·4	42·6	−0·8	17·8	−1·2	9·30	2·14	35·2	8·93	−0·36	23·8	1·6
M.	47·7	−0·1	47·7	0·5	28·9	−0·8	9·88	2·85	50·2	42·1	3·8	47·9	−1·0	21·1	−2·6	9·99	2·56	43·2	9·86	−0·66	29·0	3·7
J.	55·0	2·1	54·4	1·8	20·4	3·2	11·01	3·41	57·0	49·6	2·6	53·3	1·6	18·7	−0·8	10·90	3·17	52·9	10·65	0·18	39·9	2·9
J.	54·2	0·0	57·7	0·0	26·2	−0·3	11·83	3·24	55·5	45·8	2·6	52·7	1·6	17·4	1·4	10·95	3·09	49·9	10·42	0·14	40·7	4·4
A.	53·6	−0·4	55·7	−0·4	22·9	4·1	11·76	3·29	53·4	50·7	2·0	53·3	1·2	17·1	3·6	11·26	3·12	50·9	11·04	0·08	40·0	2·0
S.	46·4	−0·4	43·4	−0·7	23·3	0·6	9·45	2·62	41·5	43·1	4·6	48·8	−2·8	13·4	0·2	9·98	2·73	43·4	9·64	−0·50	35·3	3·2
O.	37·3	1·0	42·0	−0·2	42·5	−2·1	9·58	2·51	32·6	36·7	3·4	37·6	2·0	9·2	−2·0	8·07	2·13	34·2	7·74	−0·24	30·4	4·4
N.	24·4	1·3	31·1	0·5	26·7	−0·7	7·35	1·52	19·6	18·2	2·0	17·2	0·4	6·1	−1·6	3·91	0·89	15·4	3·57	−0·06	17·0	2·2
D.	13·4	0·5	24·1	−0·1	9·0	−0·8	5·30	0·76	10·1	12·5	1·8	15·7	−2·0	4·3	−3·2	3·32	0·60	9·7	2·94	−0·60	9·8	0·8
Y.	34·3	..	36·1	..	18·8	..	7·72	1·73	32·0	31·2	..	34·3	..	10·7	..	7·42	1·85	30·8	7·30	..	24·8	..
W.	17·3	..	25·6	..	14·1	..	5·76	0·94	12·8	14·3	..	14·8	..	3·8	..	3·31	0·74	11·0	3·13	..	10·2	..
Eq.	39·4	..	43·2	..	25·1	..	9·08	2·20	35·7	35·9	..	40·7	..	11·3	..	8·81	2·12	34·5	8·72	..	28·6	..
S.	52·2	..	53·9	..	24·1	..	10·93	3·12	53·2	46·5	..	51·6	..	17·9	..	10·53	2·85	47·5	10·17	..	36·1	..

LXIV.—HARMONIC COMPONENTS OF THE DIURNAL INEQUALITY OF THE GEOGRAPHICAL COMPONENTS OF TERRESTRIAL MAGNETIC FORCE.

The formula used is, $\triangle = a_1 \cos 15t^\circ + b_1 \sin 15t^\circ + a_2 \cos 30t^\circ + b_2 \sin 30t^\circ + \ldots = c_1 \sin (15t^\circ + a_1) + c_2 \sin (30t^\circ + a_2) + \ldots$
where t is time measured in hours from midnight G.M.T.

Eskdalemuir. (Eskdalemuir is 13 minutes, in time, West of Greenwich.) **1915.**

Month and Year.	North Component. ΔX. (or ΔN.) All days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 18, 19, June 17, Oct. 31, Nov. 1. Corrected for Effect of West Component on North Magnetograph.								West Component. −ΔY. (or ΔW.) All days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 18, 19, June 5, 6, 7, 17, Oct. 31, Nov. 1. Corrected for Effect of North Component on West Magnetograph.								Vertical Component. ΔZ. (or ΔV.) All days except Jan. 1, 2, 3, 4, 9, 10, 11, 27, May 15, 16, 17, 18, 19, June 16, 17, July 31, Aug. 1, 2, 3, Oct. 31, Nov. 1, Dec. 6, 9. Corrected for Effect of Horizontal Components on Vertical Magnetograph.							
	a_1.	b_1.	a_2.	b_2.	c_1.	α_1.	c_2.	α_2.	a_1.	b_1.	a_2.	b_2.	c_1.	α_1.	c_2.	α_2.	a_1.	b_1.	a_2.	b_2.	c_1.	α_1.	c_2.	α_2.
	γ	γ	γ	γ	γ	°	γ	°	γ	γ	γ	γ	γ	°	γ	°	γ	γ	γ	γ	γ	°	γ	°
J.	2·54	2·75	− 3·25	− 1·29	3·74	42·7	3·50	248·3	− 7·81	− 1·67	0·50	2·69	7·98	257·9	2·74	10·6	1·03	− 4·32	− 0·30	0·12	4·43	166·5	0·32	291·6
F.	5·62	1·67	− 3·89	− 1·01	5·86	73·5	4·02	255·4	− 10·44	− 2·96	3·26	2·99	10·84	254·2	4·43	47·5	0·19	− 6·72	− 3·16	− 0·47	6·57	178·3	3·19	261·5
M.	14·51	− 1·58	− 8·30	0·38	14·59	96·2	8·30	272·6	− 9·81	− 9·13	2·43	9·86	13·40	227·1	10·13	13·9	− 0·29	− 6·95	− 4·41	− 2·40	6·95	182·4	5·02	241·5
A.	14·88	− 3·29	− 11·15	− 1·00	15·24	102·5	11·20	264·9	− 8·70	− 15·14	1·70	11·12	17·45	209·9	11·26	8·7	3·86	− 8·32	− 6·93	− 2·15	9·18	155·1	7·25	252·8
M.	14·66	− 8·31	− 9·93	0·82	16·84	119·5	9·96	274·7	− 5·94	− 16·33	4·03	9·51	17·38	200·0	10·31	23·0	5·55	− 6·31	− 6·13	− 1·48	8·40	138·6	6·31	256·4
J.	16·80	− 8·39	− 12·05	− 0·28	18·82	116·5	12·05	268·6	− 5·82	− 20·86	2·60	9·65	21·65	195·6	9·97	15·1	2·04	− 5·35	− 5·60	− 2·62	5·72	159·1	6·18	244·9
J.	16·79	− 9·26	− 13·45	1·42	19·19	118·9	13·53	276·0	− 5·47	− 21·04	5·85	9·75	21·71	194·6	11·35	31·0	4·17	− 5·62	− 0·37	− 2·40	6·99	143·4	6·81	249·3
A.	18·73	− 7·80	− 11·34	1·75	20·29	112·6	11·47	278·8	− 7·04	− 17·03	6·49	8·98	18·40	202·5	11·09	35·8	0·69	− 6·02	− 6·56	− 2·37	6·08	173·5	6·97	250·1
S.	18·79	− 4·21	− 7·79	2·45	19·25	102·6	8·17	287·4	− 10·54	− 9·19	5·12	7·32	13·99	228·9	8·93	34·9	− 0·25	− 8·85	− 4·81	− 0·82	9·06	181·6	4·88	260·3
O.	13·72	0·17	− 7·43	1·24	13·71	89·3	7·53	279·4	− 13·53	− 3·21	0·63	8·86	13·90	256·7	8·94	4·1	− 6·41	− 15·77	− 4·93	− 1·34	17·03	202·1	5·11	254·8
N.	9·19	− 1·68	− 5·28	0·43	9·35	100·4	5·30	274·7	− 12·78	1·58	0·56	4·87	12·87	277·1	4·91	6·5	− 5·48	− 12·05	− 2·31	− 0·19	13·23	204·5	3·02	230·0
D.	3·13	1·64	− 3·00	− 1·08	3·53	62·4	3·18	250·2	− 9·16	− 0·88	0·61	3·73	9·20	264·5	3·78	9·2	− 0·14	− 4·19	− 0·56	− 0·08	4·18	181·8	0·56	261·8
Y.	12·45	− 3·19	− 8·07	0·32	12·85	104·4	8·08	272·3	− 8·92	− 9·67	2·82	7·44	13·16	222·7	7·96	20·8	0·41	− 7·54	− 4·34	− 1·35	7·55	176·9	4·55	252·7

LXIV(A).—PHASE-ANGLES OF THE SAME COMPONENTS REFERRED TO LOCAL MEAN TIME AND TO LOCAL APPARENT TIME.

ϕ=Longitude of Observatory=3°·2 : ϵ=Mean Value of Equation of Time.

Month and Year.	ϵ=equation of time.	North Component.				West Component.				Vertical Component.			
		Local Mean Time.		Local Apparent Time.		Local Mean Time.		Local Apparent Time.		Local Mean Time.		Local Apparent Time.	
		$\alpha_1+\phi$.	$\alpha_2+2\phi$.	$\alpha_1+\phi-\epsilon$.	$\alpha_2+2\phi-2\epsilon$.	$\alpha_1+\phi$.	$\alpha_2+2\phi$.	$\alpha_1+\phi-\epsilon$.	$\alpha_2+2\phi-2\epsilon$.	$\alpha_1+\phi$.	$\alpha_2+2\phi$.	$\alpha_1+\phi-\epsilon$.	$\alpha_2+2\phi-2\epsilon$.
	°	°	°	°	°	°	°	°	°	°	°	°	°
J.	−2·5	45·9	254·7	48·4	259·7	261·1	17·0	263·6	22·0	169·7	298·0	172·2	303·0
F.	−3·6	76·7	261·8	80·3	269·0	257·4	53·9	261·0	61·1	181·5	267·9	185·1	275·1
M.	−2·1	99·4	279·0	101·5	283·2	230·3	20·3	232·4	24·5	185·6	247·9	187·7	252·1
A.	+0·1	105·7	271·3	105·6	271·1	213·1	15·1	213·0	14·9	158·3	259·2	158·2	259·0
M.	+1·0	122·7	281·1	121·7	279·1	203·2	29·4	202·2	27·4	141·8	203·8	140·8	201·8
J.	−0·1	119·7	275·0	119·8	275·2	198·8	21·5	198·9	21·7	162·3	251·3	162·4	251·5
J.	−1·5	122·1	282·4	123·6	285·4	197·8	37·4	199·3	40·4	140·6	255·7	148·1	258·7
A.	−1·0	115·8	285·2	116·8	287·2	205·7	42·2	206·7	44·2	176·7	256·5	177·7	258·5
S.	+1·4	105·8	293·8	104·4	291·0	232·1	41·3	230·7	38·5	184·8	266·7	183·4	263·9
O.	+3·6	92·5	285·8	88·9	278·6	259·9	10·5	256·3	3·2	205·3	261·2	201·7	254·0
N.	+3·8	103·6	281·1	99·8	273·5	280·3	12·9	276·5	5·3	207·7	236·4	203·9	228·8
D.	+1·0	65·6	256·6	64·6	254·6	267·7	15·6	266·7	13·6	185·0	268·2	184·0	266·2
Y.	0·0	98·0	275·7	98·0	275·6	234·0	26·4	233·9	26·4	175·4	261·1	175·4	261·1

LXVII.—MEAN MONTHLY AND ANNUAL VALUES OF TERRESTRIAL MAGNETIC ELEMENTS AT METEOROLOGICAL OFFICE OBSERVATORIES.

1915.	KEW (quiet days D and H, absolute observations I, see p. 72).				ESKDALEMUIR (all days except those noted in monthly tables).				VALENCIA (2 absolute observations per month).			
	North.	West.	Vertical.	Total.	North.	West.	Vertical.	Total.	North.	West.	Vertical.	Total.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
January	17813	4899	43396	47164	16007	5099	45187	48210	16795	6167	44584	48040
February	17811	4896	43377	47146	16003	5095	45186	48205	16777	6152	44547	47998
March	17811	4893	43389	47157	16002	5090	45174	48194	16763	6149	44530	47976
April	17812	4882	43384	47151	16007	5086	45169	48190	16792	6129	44567	48019
May	17815	4882	43345	47117	16010	5085	45170	48192	16784	6133	..	..
June	17808	4876	43359	47127	16002	5079	45171	48191	16779	6125	44531	47980
July	17805	4870	43343	47110	16003	5074	45169	48189	16777	6127	44460	47914
August	17805	4868	43365	47130	15999	5067	45171	48188	16788	6114	44470	47925
September	17801	4860	43388	47149	15994	5064	45172	48184	16783	6126	44478	47932
October	17806	4859	43373	47137	15991	5058	45164	48178	16783	6106	44473	47925
November	17803	4851	43410	47169	15992	5054	45175	48188	16791	6121	44535	47987
December	17808	4850	43377	47140	16001	5053	45160	48177	16805	6116	44535	47991
Year 1915	17808	4874	43376	47141	16001	5075	45172	48191	16785	6130	44519*	47972*
Year 1914	17818	4929	43406	47179	16003	5124	45188	48211	16794	6181	44585	48042
Year 1910	17781	5117	43546	47313	15976	5311	45343	48368	16732	6337	44771	48215
Year 1905	17743	5272	43742	47496	..	..	..	..	16640	6447	44893	48313
Year 1900	17634	5350	43831	47548	..	..	..	..	..	..	..	..

1915.	Declination (West).	Inclination (North).	Horizontal Force.	Declination (West).	Inclination (North).	Horizontal Force.	Declination (West).	Inclination (North).	Horizontal Force.
	° ′	° ′	γ	° ′	° ′	γ	° ′	° ′	γ
January	15 22·6	66 56·4	18474	17 40·2	69 36·3	16800	20 9·7	68 8·0	17892
February	15 22·1	66 56·0	18472	17 39·5	69 36·4	16795	20 8·3	68 8·6	17870
March	15 21·7	66 56·4	18471	17 38·8	69 36·6	16792	20 8·7	68 9·0	17855
April	15 19·6	66 56·4	18469	17 37·7	69 36·2	16795	20 3·2	68 8·6	17876
May	15 19·4	66 55·1	18472	17 37·3	69 36·0	16798	20 4·4	..	17869
June	15 18·7	66 56·1	18463	17 36·6	69 36·7	16789	20 3·3	68 8·6	17862
July	15 17·8	66 55·9	18459	17 35·6	69 36·7	16788	20 3·6	68 6·8	17861
August	15 17·5	66 56·6	18458	17 34·4	69 37·1	16782	20 0·6	68 6·7	17866
September	15 16·3	66 57·6	18453	17 34·0	69 37·8	16773	20 3·2	68 6·9	17866
October	15 15·9	66 56·9	18457	17 33·1	69 37·7	16772	19 59·5	68 7·2	17860
November	15 14·5	66 58·3	18452	17 32·4	69 37·9	16771	20 1·8	68 8·1	17872
December	15 14·1	66 57·0	18457	17 31·6	69 37·0	16779	19 59·9	68 7·3	17884
Year 1915	15 18·4	66 56·6	18463	17 35·9	69 36·9	16786	20 3·8	68 7·9*	17869
Year 1914	15 27·8	66 55·8	18488	17 45·3	69 36·1	16804	20 12·3	68 7·8	17895
Year 1910	16 3·2	66 58·7	18503	18 23·3	69 37·8	16836	20 44·6	68 13·0	17892
Year 1905	16 32·9	67 3·8	18510	..	..	..	21 10·4	68 19·2	17848
Year 1900	16 52·7	67 11·8	18428	..	..	..	..	..	..

* 11 months.

LXVIII.—MEAN VALUES, FOR THE YEARS SPECIFIED, OF THE MAGNETIC ELEMENTS AT OBSERVATORIES WHOSE PUBLICATIONS ARE RECEIVED AT KEW OBSERVATORY.

Place.	Latitude.	Longitude.	1915. Declination.	1915. Inclination.	1915. Horizontal Force.	1915. Vertical Force.	1914. Declination.	1914. Inclination.	1914. Horizontal Force.	1914. Vertical Force.	1913. Declination.	1913. Inclination.	1913. Horizontal Force.	1913. Vertical Force.
	N.			N.	γ	γ		N.	γ	γ		N.	γ	γ
Sitka (Alaska)	° ′ 57 3	° ′ 135 20 W.	° ′ 30 23·3 E.	° ′ 74 27·0	15586	56011	° ′ 30 22·9 E.	° ′ 74 26·6	15605	56055	° ′ 30 22·0 E.	° ′ 74 27·7	15606	56128
Rude Skov	55 51	12 27 E.	8 44·3 W.	68 50·6	17257	44591	8 53·6 W.	68 48·2	17293	44592	9 3·5 W.	68 46·6	17319	44597
Kasan	55 50	48 51 E.	..	..	..	..	8 21·3 E.	69 22·1	17891	47517	8 10·9 E.	69 18·2	17959	47535
Eskdalemuir	55 19	3 12 W.	17 35·9 W.	69 36·9	16786	45172	17 45·3 W.	69 36·1	16804	45188	17 54·9 W.	69 37·3	16822	45282
Stonyhurst	53 51	2 28 W.	16 37·3 W.	68 41·4	17342	44457	16 46·8 W.	68 39·6	17352	44416	16 55·4 W.	68 41·2	17374	44532
Potsdam	52 23	13 4 E.	..	..	..	..	8 26·6 W.	66 22·9	18760	42900	8 36·4 W.	66 21·4	18783	42904
Seddin	52 17	13 1 E.	..	..	..	..	8 27·9 W.	66 19·9	18798	42885	8 37·7 W.	66 18·4	18821	42889
De Bilt (Utrecht)	52 5	5 11 E.	12 12·5 W.	66 48·0	18481	43117	12 22·6 W.	66 46·5	18512	43140	12 32·1 W.	66 46·4	18519	43151
Valencia	51 56	10 15 W.	20 3·8 W.	68 7·9§	17869	44519§	20 12·3 W.	68 7·8	17895	44585	20 19·6 W.	68 9·2	17892	44628
Kew	51 28	0 19 W.	15 18·4 W.	66 56·6	18463	43376	15 27·8 W.	66 55·8	18488	43406	15 37·0 W.	66 55·8	18505	43449
Greenwich	51 28	0 0	14 56·5 W.	66 51·8	18508	43316	15 6·3 W.	66 51·2 (66 49·4)	18518	43317 (43254)	15 15·2 W.	66 50·5	18534	43330
Cracow	50 4	19 58 E.	..	..	..	..	..	..	..	..	5 3·3 W.	64 18·4	..	..
Val Joyeux (near Paris)	48 49	2 1 E.	13 40·5 W.	64 38·1	19715	41587	13 49·8 W.	64 37·7	19733	41609	13 59·2 W.	64 38·9	19744	41673
Pola	44 52	13 51 E.	..	..	..	..	..	..	..	..	7 58·1 W.	60 3·6	22200	38544
Agincourt (Toronto)	43 47	79 16 W.	6 28·5 W.	74 42·9	16028	58644	6 23·9 W.	74 41·5	16086	58765	6 18·4 W.	74 40·8	16131	58884
Karsani (near Tiflis)	41 43	44 48 E.	..	..	..	..	..	..	..	..	3 9·1 E.	56 51·1	25217	38612
Tortosa	40 49	0 30 E.	12 46·0 W.	57 47·1	23277	36941	12 51·6 W.	57 47·5	23295	36981	13 0·7 W.	57 49·3	23288	37011
Coimbra	40 12	8 25 W.	15 57·5 W.	58 34·7	23053	37734	16 4·7 W.	58 36·4	23057	37782	16 12·1 W.	58 38·6	23046	37820
Cheltenham, U.S.	38 44	76 50 W.	6 4·0 W.	70 47·0	19412	55692	5 59·8 W.	70 44·0	19510	55815	5 54·6 W.	70 41·1	19599	55917
San Fernando	36 28	6 12 W.	..	..	..	..	..	..	..	..	14 51·7 W.	54 26·6	24939	34890
Tucson (Arizona)	32 15	110 50 W.	13 42·6 E.	59 25·0	27115	45879	13 39·9 E.	59 23·1	27188	45946	13 37·0 E.	59 21·8	27247	46006
Dehra Dún	30 19	78 3 E.	2 15·5 E.	44 30·6	33083	32522	2 18·8 E.	44 22·9	33134 (33165)	32427 (32458)	2 22·2 E.	44 16·4	33191	32359
Helwân	29 52	31 21 E.	..	..	..	..	..	..	..	..	2 17·0 W.	40 47·6	30031	25916
Barrackpore	22 46	88 22 E.	..	..	..	..	0 32·2 E.	30 58·9	37403	22459	0 38·0 E.	30 54·8	37388	22387
Hong Kong	22 18	114 10 E.	0 11·7 W.	30 52·2	37167	22217	0 8·5 W.	30 53·5	37192	22251	0 6·2 W.	30 53·7	37172	22242
Honolulu (Hawaii)	21 19	158 4 W.	9 41·6 E.	39 29·6	28998	23898	9 39·6 E.	39 30·4	29045	23949	9 37·3 E.	39 32·6	29075	24005
Toungoo	18 56	96 27 E.	0 3·1 W.	23 7·2	39005	16653	0 2·6 E.	23 6·1	38965 (38983)	16621 (16628)	0 7·8 E.	23 5·0	38963	16605
Alibag (Bombay)	18 39	72 52 E.	0 40·7 E.	24 21·0	36870	16688	0 44·2 E.	24 12·6	36882	16583	0 47·5 E.	24 4·1	36880	16472
Vieques (Porto Rico)	18 9	65 26 W.	3 10·2 W.	50 45·5	28271	34612	3 0·4 W.	50 33·9	28401	34533	2 49·6 W.	50 21·2	28522	34421
Kodai-Kanal	10 14	77 28 E.	1 22·3 W.	4 17·0	37614	2817	1 17·1 W.	4 11·2	37604 (37571)	2753 (2750)	1 11·2 W.	4 5·5	37553	2686
	S.			S.				S.				S.		
Batavia	6 11	106 49 E.	..	..	..	..	..	..	..	..	0 46·4 E.	31 24·4	36690	22401
Tananarivo	18 55	47 32 E.	..	..	..	..	8 25·2 W.	53 37·9	22484	30532	8 31·4 W.	53 39·0	22492	30563
Mauritius	20 6	57 33 E.	9 41·1 W.	53 0·2	23226	30833	9 34·7 W.	53 7·6	23256	31004	9 30·0 W.	53 17·9	23282	31234
Pilar (Argentine)	31 40	63 53 W.	..	..	..	..	8 40·4 E.	25 41·5	25597	12315	8 49·0 E.	25 43·7	25635	12353
Christchurch, N.Z.	43 32	172 37 E.	..	..	..	..	16 44·8 E.	67 59·8	22413	55465	16 42·0 E.	67 58·2	22448	55478

* Values for 1914 from first four and last four months only of year.
† The most recent values for these stations are extracted from a table in *Terrestrial Magnetism*, vol. xx., 1915, p. 131.
‡ When a change of instruments, constants, or methods causing discontinuity is known to have occurred, two values are given. That in brackets refers to the conditions before the change, and so is comparable with the results of earlier years. The unbracketed value refers to the conditions after the change.
§ 11 months. May missing.

ADDITIONAL VALUES FOR EARLIER YEARS.

			1912. Declination.	1912. Inclination.	1912. Horizontal Force.	1912. Vertical Force.	1911. Declination.	1911. Inclination.	1911. Horizontal Force.	1911. Vertical Force.	1910. Declination.	1910. Inclination.	1910. Horizontal Force.	1910. Vertical Force.
	N.			N.	γ	γ		N.	γ	γ		N.	γ	γ
Kasan	° ′ 55 50	° ′ 48 51 E.	° ′ 8 9·1 E.	° ′ 69 17·3	18017	47651	° ′ ..	° ′ ..	..	..	° ′ ..	° ′ ..	..	..
Wilhelmshaven	53 32	8 9 E.	..	..	..	..	11 28·2 W.	67 30·7	18110	43747	11 37·0 W.	67 30·5	18124	43773
Uccle	50 48	4 21 E.	..	..	..	..	13 13·9 W.	66 0·1	19025	42734	13 22·2 W.	..	19028	..
Falmouth	50 9	5 5 W.	17 24·2 W.	66 26·6	18799	43118	17 33·0 W.	66 28·2	18898	43172	17 41·6 W.	66 29·0	18802	43208
Prague	50 5	14 25 E.	7 50·3 W.	..	..	..	7 59·3 W.	..	..	..	8 9·6 W.	..	..	..
Munich	48 9	11 37 E.	..	..	..	..	..	..	..	..	9 31·5 W.	63 8·4	20639	40751
O'Gyalla (Pesth)	47 53	18 12 E.	6 17·5 W.	..	21064	..	6 25·6 W.	..	21067	..	6 34·5 W.	..	21076	..
Pola	44 52	13 51 E.	8 8·5 W.	60 3·6	22199	38544	8 17·5 W.	60 3·6	22190	38526	8 28·0 W.	60 4·7	22194	38562
Perpignan	42 42	2 53 E.	..	..	..	..	..	..	..	..	12 44·8 W.	..	..	..
Capodimonte	40 52	14 15 E.	..	..	..	..	..	56 11·7	..	..	..	56 11·9	..	..
Tokio	35 41	139 45 E.	5 3·4 W.	48 53·7	29996	34379	5 0·6 W.	49 5·0	30025	34640	4 58·2 W.	49 7·3	30007	34668
Lu-kia-pang	31 19	121 2 E.	..	..	..	..	3 3·5 W.	45 33·9	33244	33906	3 2·1 W.	45 34·4	33236	33907
Antipolo	14 39	121 10 E.	..	..	..	..	0 39·8 E.	16 17·2	38244	11174	..	..	..	..
	S.			S.				S.				S.		
Batavia	6 11	106 49 E.	0 47·3 E.	31 19·4	36683	22324	0 47·7 E.	31 16·4	36664	22269	0 48·7 E.	31 12·0	36660	22202
Rio de Janeiro	22 55	43 11 W.	..	..	..	..	..	..	..	..	9 40·0 W.	..	..	..
Laurie Island (South Orkneys)	60 45	42 32 W.	4 46·5 E.	54 26·0	25343	35442	4 49·3 E.	54 26·7	25388	35520	..	..	..	..

LXXV.—DIURNAL INEQUALITIES OF POTENTIAL GRADIENT IN THE OPEN, IN VOLTS PER METRE.

Kew. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.* 1915.

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	24 – 0	No. of Days Used.	Mean Values.
	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.		v/m.
J.	–89	–118	– 96	$\overline{n}$ 133	–127	–124	– 59	– 7	20	53	x 99	90	86	66	58	65	50	52	63	32	58	67	– 25	–80	+36	..	499
F.	–85	–116	$\overline{n}$ 128	– 75	– 97	– 88	14	100	179	x 195	184	46	–71	–74	–110	–73	–26	63	96	96	43	16	– 19	–70	..	..	418
M.	– 2	– 29	– 36	– 51	$\overline{n}$ 89	– 46	3	57	74	45	– 27	–76	–38	–42	– 29	–74	–46	48	77	x 91	82	36	51	21	–13	..	438
A.	18	– 65	– 88	– 98	$\overline{n}$ 107	– 80	–44	29	54	31	– 23	–54	–79	–92	– 89	–74	–14	74	130	120	x 166	122	106	57	+21	..	369
M.	–47	– 68	– 69	– 103	$\overline{n}$ 107	– 74	–51	1	19	37	16	–25	– 9	3	47	24	63	x 100	87	90	60	29	11	–33	+23	..	314
J.	–96	– 88	– 88	– 78	– 70	– 37	–21	28	65	67	67	34	– 3	– 5	18	51	66	x 86	62	52	15	12	– 40	$\overline{n}$ 97	+35	..	332
J.	6	– 18	– 34	– 33	– 20	2	18	35	40	14	– 15	–23	–26	–27	– 32	$\overline{n}$ 40	–28	2	18	27	42	x 47	32	13	–24	..	154
A.	–25	– 32	– 39	– 51	– 30	– 24	6	39	54	38	6	–24	$\overline{n}$ 53	–44	– 46	–35	–27	13	37	56	63	x 83	34	2	–10	..	204
S.	–44	– 45	$\overline{n}$ 55	– 53	– 42	– 16	3	52	x 86	59	4	–35	–40	–19	– 10	– 7	24	55	81	50	22	3	– 22	–51	+16	..	239
O.	–36	– 67	– 82	– 86	$\overline{n}$ 108	– 99	–54	5	17	– 21	– 51	–30	2	0	48	38	67	123	x 161	96	90	33	– 2	–44	+23	..	344
N.	–22	– 65	– 87	$\overline{n}$ 105	–104	– 91	–56	13	58	11	– 36	–62	–50	–45	– 48	–11	35	110	112	131	x 133	104	49	24	–19	..	497
D.	–15	– 51	– 93	– 80	$\overline{n}$ 106	– 77	–55	– 20	5	– 43	– 50	–55	–47	–52	– 14	13	71	x 147	143	130	117	64	55	9	..	..	442
Y.	–36	– 63	– 75	– 79	$\overline{n}$ 84	– 63	–25	28	56	41	15	–18	–27	–28	– 17	–10	19	73	x 89	81	74	51	19	–21	..	..	354
W.	–53	– 87	–101	– 98	$\overline{n}$ 108	– 95	–39	21	65	55	49	5	–21	–26	– 29	– 1	33	93	x 103	97	88	63	15	–29	..	..	464
Eq.	–16	– 51	– 65	– 72	$\overline{n}$ 87	– 60	–23	36	58	29	– 24	–49	–39	–38	– 20	–29	7	75	x 112	89	90	49	34	– 4	..	..	347
S.	–41	– 51	– 58	$\overline{n}$ 66	– 57	– 33	–12	26	45	39	19	–10	–23	–18	– 3	0	18	50	51	x 56	45	43	9	–29	..	..	251

LXXVI.—DIURNAL INEQUALITIES OF POTENTIAL GRADIENT IN THE OPEN, IN VOLTS PER METRE.

Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons (0,a Days only).

Eskdalemuir. 1915.

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	24 – 0	No. of Days Used.	Mean Values.
	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.		v/m.
J.	– 40	– 52	– 73	– 80	$\overline{n}$ 112	– 97	– 71	– 58	–52	–40	– 55	– 22	24	–17	–16	– 8	46	66	133	x 165	122	154	95	41	– 39	12	286
F.	$\overline{n}$ 72	– 70	– 53	– 8	27	60	80	x 101	47	73	45	40	19	–16	–61	–24	– 65	– 4	– 3	– 14	2	– 37	–26	– 37	–198	5	321
M.	12	10	– 26	– 30	– 24	– 13	14	52	21	– 7	– 34	– 47	–47	$\overline{n}$ 54	–47	–27	– 26	– 8	28	32	x 72	66	44	34	18	12	225
A.	95	90	69	66	23	46	25	– 51	$\overline{n}$ 78	–69	– 74	– 77	–64	–48	–54	–68	– 51	– 56	– 16	2	52	x 108	61	62	70	11	256
M.	– 13	– 1	1	– 19	– 19	3	– 1	– 19	–14	– 1	– 14	$\overline{n}$ 36	–33	–33	–23	–19	2	14	29	51	x 59	37	26	13	– 36	13	162
J.	– 17	– 17	– 18	– 1	10	– 26	– 30	$\overline{n}$ 33	–12	3	6	– 2	– 7	– 9	–12	–19	– 6	20	29	x 41	38	22	20	13	– 27	12	164
J.	73	x 125	84	48	58	50	41	– 27	–74	–85	– 95	$\overline{n}$ 98	–95	–88	–74	–69	– 54	– 40	– 4	20	62	101	69	72	–132	7	206
A.	39	46	22	– 12	13	35	36	– 8	– 8	–31	– 40	– 53	–53	$\overline{n}$ 57	–51	–33	– 17	– 25	– 10	3	26	x 75	x 75	29	26	11	179
S.	53	18	33	26	8	33	45	42	–40	–89	–101	$\overline{n}$ 111	–98	–85	–80	–98	– 65	– 13	71	103	98	x 111	63	73	– 46	16	255
O.	6	– 9	– 46	– 59	– 51	– 42	3	2	–15	–50	– 89	– 76	$\overline{n}$ 98	–84	–59	–24	41	91	106	118	x 134	82	72	56	– 70	14	280
N.	– 45	–105	$\overline{n}$ 168	–135	–132	–164	–136	–129	–95	–76	– 42	– 57	–44	–12	–19	82	175	176	234	x 363	279	69	3	– 30	– 9	9	491
D.	–122	–145	–121	– 15	24	0	– 27	– 11	–47	16	38	57	47	89	88	99	x 120	111	– 9	– 22	– 13	9	–27	$\overline{n}$ 150	+ 95	3	373
Y.	– 3	– 9	– 25	– 18	– 15	– 10	– 2	– 12	–30	–30	– 38	– 40	$\overline{n}$ 42	–34	–34	–17	8	28	49	72	x 78	66	40	15	..	..	266
W.	– 70	– 93	$\overline{n}$ 104	– 59	– 48	– 50	– 38	– 24	–37	– 7	– 3	5	– 1	11	– 2	37	69	87	89	x 123	97	49	11	– 44	..	..	368
Eq.	41	27	7	1	– 11	6	22	11	–28	–54	– 74	$\overline{n}$ 78	–77	–68	–60	–54	– 25	4	47	64	89	x 92	60	56	..	..	254
S.	20	38	22	4	15	15	11	– 22	–27	–28	– 36	$\overline{n}$ 47	$\overline{n}$ 47	$\overline{n}$ 47	–40	–35	– 19	– 8	11	28	46	x 59	48	32	..	..	178

LXXVII.—DIURNAL INEQUALITIES OF POTENTIAL GRADIENT IN THE OPEN, IN VOLTS PER METRE.

Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons (1,a and 2,a Days only).

Eskdalemuir. 1915.

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.	24 – 0	No. of Days Used.	Mean Values.
	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.	v/m.		v/m.
J.	$\overline{n}$ 198	– 37	– 46	– 56	– 37	– 46	– 41	–126	– 39	–34	8	51	56	23	14	4	– 22	– 24	26	x 173	111	116	83	43	+ 60	1	144
F.	13	– 70	– 136	$\overline{n}$ 181	–123	– 79	2	178	164	30	– 90	–68	–98	– 99	–93	–19	84	–175	90	171	x 311	289	– 23	– 83	+ 15	1	260
M.	57	27	14	21	– 27	$\overline{n}$ 106	– 9	25	– 43	–97	– 51	–54	–84	– 66	32	–19	– 24	– 40	87	81	x 111	– 2	103	67	– 98	3	199
A.	– 40	– 62	–102	$\overline{n}$ 134	– 87	– 6	–81	– 35	– 63	2	– 93	–83	–50	– 82	–32	–49	8	65	227	x 315	248	93	5	31	– 5	3	260
M.	56	8	16	– 10	– 2	10	54	– 3	– 19	–31	$\overline{n}$ 58	–41	–27	– 36	–20	–20	– 26	7	23	18	5	5	36	x 59	– 5	5	172
J.	x 60	39	10	– 20	$\overline{n}$ 59	– 48	–16	– 25	– 43	–24	18	39	10	4	– 6	7	3	– 6	2	2	– 31	2	34	54	– 83	3	97
J.	44	65	68	98	66	x 122	74	40	31	–22	– 74	–49	–52	– 81	–72	–79	$\overline{n}$ 87	– 64	– 38	– 33	8	54	– 8	– 4	+134	6	189
A.	– 62	–14	$\overline{n}$ 113	29	10	– 10	49	111	74	42	x 121	2	–27	– 21	–24	–16	– 1	– 2	– 8	19	65	– 28	– 79	– 64	– 20	4	140
S.	61	76	17	3	– 9	$\overline{n}$ 91	–20	– 90	– 22	–33	– 27	–71	–20	– 46	–30	–51	57	10	– 26	55	23	33	92	x 111	+202	3	184
O.	70	38	– 29	35	21	32	– 32	16	– 10	10	– 44	–88	–80	$\overline{n}$ 114	–50	5	55	x 108	71	34	–106	4	19	27	– 50	4	140
N.	– 18	6	– 16	5	5	– 29	–15	– 22	$\overline{n}$ 128	–92	– 71	–39	–31	– 52	–43	5	80	x 196	136	11	126	10	– 2	– 24	+ 13	3	223
D.	98	–61	– 57	– 61	–116	– 93	–80	– 74	– 27	–30	– 34	–72	–49	– 36	–13	43	118	175	154	x 237	104	22	$\overline{n}$ 215	58	–329	1	193
Y.	12	1	– 31	– 28	– 30	– 30	– 9	– 1	– 10	–23	– 33	–39	–38	$\overline{n}$ 50	–28	–16	20	20	62	x 90	81	50	4	23	..	..	185
W.	– 27	–40	– 64	$\overline{n}$ 73	– 68	– 62	–33	– 11	– 7	–32	– 46	–32	–31	– 41	–34	8	65	43	102	148	x 163	109	– 39	– 1	..	..	205
Eq.	37	20	– 25	– 20	– 25	– 43	–35	– 21	– 35	–29	– 54	–74	–58	$\overline{n}$ 77	–20	–29	24	36	90	x 121	69	32	55	59	..	..	198
S.	25	25	– 5	10	4	16	x 40	31	11	– 9	2	–12	–24	$\overline{n}$ 33	–31	–27	– 28	– 19	– 5	2	12	8	– 4	11	..	..	151

NOTES ON THE METEOROLOGICAL SUMMARIES.

In these Meteorological Tables the normal diurnal variation for the month of each element is shown, together with the departure of the 1915 values from the normal. The 1915 values themselves can be read off by re-adding these differences. The values so found are averages for the months ; the individual readings from which the averages are derived are available for reference at the Meteorological Office. For the years 1874 to 1886 and 1900 to 1913 such hourly readings were published *in extenso.* For the years 1869 to 1880 and 1887 to 1899 five-day means were printed.

For the observatories at Richmond, Cahirciveen, and Aberdeen the normals for Barometric Pressure, Air-Temperature, and Rainfall refer to the forty-five years, 1871–1915; those for Wind Speed and Sunshine to the thirty-five years, 1881–1915; and those for Relative Humidity to the years 1886–1915. In the case of Eskdalemuir, the normals are all for the five years, 1911–1915. For Falmouth only Rainfall and Sunshine are now tabulated. The normal diurnal variation of the other elements at Falmouth for periods ending in 1910 is given in previous volumes.

The tabulated values of pressure, temperature, and relative humidity refer to the exact hour by Greenwich time. The values of mean wind speed and of rainfall refer to the 60 minutes centered at an exact hour G.M.T. The duration of sunshine is given as a decimal fraction of the 60 minutes centered at an exact hour by Local Apparent Time. The difference between Local and Greenwich Time can be ascertained from the table on page 7.

In the tables for pressure, temperature, and relative humidity, values at 0 h and 24 h are both given. The small difference between these is due to the fact that the readings at the midnights with which a month opens and closes are in general different. In estimating the mean of all the readings for the month these first and last readings are given half-weight.

Particulars of the methods of tabulation and of the instruments are published in the Introduction to Part IV., Section 1, of the *Year Book for* 1913 and in the *Annual Reports of the Meteorological Office for the Years* 1867 *and* 1869. The barographs and the thermographs with dry and wet bulbs are photographic ; the speed of the wind is recorded by cup-anemometers, except at Eskdalemuir, where a tube-anemometer is used for the hourly tabulations ; the raingauges in use are of Beckley's pattern ; the duration of bright sunshine is measured by the Campbell-Stokes sunshine-recorder.

The values in the tables have been expressed throughout in units based upon

the C.G.S. system ; the following table shows the actual units employed for the different elements :—

Element.	Unit.	Corresponding Units used previously or in other Countries.
a. Barometric Pressure.	Millibars.	Inches or Millimetres of Mercury.
b. Temperature of the Air.	Degrees Absolute.	Degrees Fahrenheit or Centigrade.
c. Relative Humidity.	Percentages (100=Saturation).	Percentages (100=Saturation).
d. Velocity of the Wind.	Metres per Second.	Miles or Kilometres per hour.
e. Rainfall.	Millimetres.	Inches or Millimetres.
f. Sunshine.	Hours.	Hours.

Tables for the conversion from one set of units to the other were given with the notes for 1913. They will be found in the *Computer's Handbook.*

(*a*) The barometer readings are obtained from the hourly tabulations of photographic records from similar apparatus at all the observatories. Due allowance is made for the variation of gravity with latitude. The pressures refer to station-level. Tables for "reduction" of pressure to sea-level are printed in the Introduction to Part IV., Section 1, of the *Year Book for* 1913.

The barographs at Kew * and Aberdeen have remained unchanged throughout the whole period. The site of Valencia Observatory was changed from Valencia Island to Cahirciveen, County Kerry, on March 23rd, 1892, the change in the height of the cistern of the barometer being from 7·0 m. to 13·7 m. The site of the observatory at Falmouth was changed in May 1885, the change in the height of the cistern of the barometer being from 64·3 m. to 55·8 m. Account has been taken of these changes of position in calculating the pressure averages for the period 1871–1915, and the values given correspond with the present positions.

(*b*) *Temperature of the Air.*—Temperature is expressed in degrees absolute on the Kelvin Scale. The value of a degree is the same as on the centigrade scale, but the zero is taken to be the absolute zero of temperature, 273° C. below the normal freezing-point of water. The practice of indicating "degrees absolute" by "*a*" instead of by °A has been adopted recently. Thus the temperature of the freezing-point of water is written 273*a*. Conversion from the centigrade to the absolute scale is a simple addition or subtraction. Tables for converting from Fahrenheit to the absolute scale are given in the *Computer's Handbook.*

The temperatures shown for all four observatories have been derived from the tabulation of photographic records from similar mercurial thermometers. At Eskdalemuir the thermometer screen is a large hut with louvred walls. At the other observatories the screen is on the north wall of the observatory building. At Kew Observatory, Richmond, the height of the thermometers above ground is 3·0 m., and the bottom of the screen is open. At Aberdeen the observatory is in the Tower of the University, and the screen is at a considerable height, 12·5 m. above ground. At Valencia Observatory, Cahirciveen, the height of the thermo-

* Owing to structural alterations at Kew Observatory, the working standard barometer used for the control of the barograph readings was moved on May 26th, 1913, to an adjacent building, where it remained until December 16th, 1913. It may be noted that the ultimate standard barometers have not been moved since they were set up in 1855 and 1860 respectively.

meters is 1·2 m.; in computing the normal values for the station no allowance has been made for the change in site in 1892.

It should be noted that the diurnal range of temperature, as determined by thermometers exposed in a north wall screen, is appreciably less than the range in a Stevenson screen in the open.

Before 1915 the tabulated values were taken directly from the curves, and were not corrected for the difference between the curve readings and the observations of the control-thermometers. The differences were always small, and it is not supposed that appreciable errors in the normal values have been introduced on this account. From 1915 methods have been adopted which eliminate this source of error.

(*c*) Relative Humidity is obtained from the tabulation of the photographic records of temperature combined with those of the wet-bulb thermometer. The thermometers are similar at all the observatories; they have cylindrical bulbs about 4 inches long. The values of the humidity are calculated by the use of the Meteorological Office tables, which are based upon Glaisher's factors.

The means for Richmond, Eskdalemuir, and Cahirciveen are obtained from the hourly values of humidity for each day; the means for Aberdeen are calculated from the mean hourly values for the month of the dry- and wet-bulb temperatures.

Mention should be made here of a difficulty inherent in the psychrometric method of determining the relative humidity of the air. The depression of the wet-bulb reading depends, not only on the amount of vapour present in the air, but also on the strength of the wind blowing past the thermometers. The tables in use for computing the humidity take no account of the wind, and the results are, therefore, open to criticism. There is, however, reason to believe that they are rather nearer to the truth than alternative figures computed by other psychrometric formulæ would be.

(*d*) *Wind.*—The speed of the wind is obtained from the records of similar Robinson anemographs at Richmond, Cahirciveen, Falmouth, and Aberdeen, but at Eskdalemuir the records are made by a Dines Pressure-tube instrument.

The records from instruments of the two types, exposed at the same place, give approximately the same values for the mean speed.

More serious than any imperfections in the anemometers themselves is the difficulty in determining the relation between the wind which crosses the Observatory at a particular height and the general flow of air in the neighbourhood. In the extreme case of the anemometer at Falmouth, the recorded speed is probably only half of what would be measured at the same height above ground in open country. The anemometer at Cahirciveen is on a tower at the NE corner of the main building, so that the exposure is less free for winds between SE and SW than for other directions.

The normal daily variation of wind-speed at moderate heights shows * a maximum in the middle of the day and a minimum at night. The ratio of the

* *Cf.* G. I. Taylor, "Phenomena connected with Turbulence in the Lower Atmosphere," *Proc. Roy. Soc.*, A., 1917, vol. xciv., p. 137.

daily range to the mean speed is greatest at inland stations. The following values of this ratio are derived from the normals for the whole year :—

Cahirciveen . . .	·28	Aberdeen . . .	·34
Eskdalemuir . . .	·47	Richmond . . .	·57

(*e*) *Rainfall.*—The tables give the mean values of the hourly measurements for each month, *e.g.* the value entered to noon is the mean of the amounts which fall between the hours of 11 h 30 m, and 12 h 30 m during the month.

For the purpose of this table the rainfall day is to be regarded as beginning at 0 h 30 m.

There is reason to believe that the figures given for the rainfall at Cahirciveen in 1915 are too high by nearly 5 per cent.*

(*f*) *Sunshine.*—The duration of bright sunshine is obtained by the Campbell-Stokes sunshine-recorder and is therefore measured by the burning or scorching of a blue card by the focussed sunlight. The method of expressing the results is similar to that adopted for rainfall. The values are given in hours and are obtained by dividing the totals for each month by the number of days in the month.

Normals.—The normals now published include a "lustrum" of 5 years beyond the periods taken previously. The new normals for the older observatories cover 45 years in the case of barometric pressure, temperature, and rainfall, shorter periods for the other elements; they merit fuller discussion than could be given in this place. In this connection the following remarks written for an earlier volume are reproduced :—

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* The Beckley gauge at Cahirciveen stands on ground sloping generally downwards towards the WNW, at an inclination of about 1 in 20. The collecting funnel has a somewhat blunt edge, and the area taken from the centre of this edge is 102·3 square inches. Direct experiments made in 1916 and 1917 have shown that the records of this gauge exceed by 7·5 per cent. the true depth of rain caught by the funnel. This is also verified by a consideration of the dimensions of the funnel, float chamber, and float. As far as can be traced, the records of the instrument have always been subject to this systematic error from the date of its inception, but for reasons set out below it seems probable that the published rainfall figures for the years previous to 1915 closely represent the actual rain falling on the ground around the gauge.

The instrument is placed in an open field and in close proximity to two standard 8-inch gauges, the whole being inclosed by a light iron fence; two Stevenson thermometer screens are placed in the same enclosure. The general exposure of the instrument may be classed as good.

The yearly totals for the three gauges for a period of five years are given below :—

Year.	Beckley.	8-in. (No. 1).	8-in. (No. 2).	Mean of Nos. 1 and 2.
1912	1443 mm.	1410 mm.	1454 mm.	1432 mm.
1913	1602 ,,	1585 ,,	1618 ,,	1602 ,,
1914	1755 ,,	1714 ,,	1728 ,,	1721 ,,
1915	1593 ,,	1515 ,,	1525 ,,	1520 ,,
1916	1429 ,,	1367 ,,	1368 ,,	1368 ,,

Consideration of these figures shows that in spite of the systematic error referred to above the total rain recorded by the Beckley gauge previous to 1915 does not greatly exceed the mean of that recorded by the two 8-inch gauges. This has not been fully explained, but is probably due to slight differences in the exposure of the Beckley gauge, and to its different size and shape. It may be inferred that the published hourly falls previous to 1915 fairly represent the rainfall in the enclosure as it would be recorded by a standard 8-inch gauge. In the case of the years 1915 and 1916 the difference becomes appreciable, and the same thing is noticeable in 1917, but it seems certain that in the case of the 1915 figures the hourly falls are 4¾ per cent. too high, where the standard measurement is taken to be a standard 8-inch gauge.

In the case of *a*, *b*, *e*, each normal hourly value is the mean of about 1200 readings, the exact number depending, of course, upon the month. Within what limits such a series is sufficient to determine a normal value is a question which deserves investigation. It is not unusual for the mean value of the pressure for an indivudual month to differ by 15 or 20 millibars from the normal value, so that the inclusion of an extra year may affect the normal value by as much as 0·5 millibar, and the selection of a different 40-years' period may lead to differences equally great or indeed greater. Thus, if we take the period 1854–1893, the mean value of the pressure in London for the month of January is less by 1·7 millibars than its value for the period 1871–1910. Clearly, therefore, a period of 40 years is not sufficient to determine within 1 millibar the normal monthly value of atmospheric pressure.

Again, with reference to temperature, a month may have a mean temperature as much as 5 a below the normal. Thus the 40-years' mean is uncertain to at least 0·1 a, and probably to a considerably greater extent.

For rainfall a single instance will suffice to illustrate the degree of uncertainty. The total fall for the month of June at Kew for the 30 years, 1871–1900, was less than double the amount for the 10 years 1901–1910, the amounts being 1501 mm. and 807 mm. respectively; while it was three times the amount for the 10 years 1861–1870, 492 mm. Thus the 40 years' average for 1861–1900 would be 50 mm., while that for the 40 years 1871–1910 would be 58 mm. It follows that the 40 years' normal for rainfall for an individual month may vary by between 10 per cent. and 20 per cent. of its value.

Accuracy of Means.—The computation of mean hourly values for the tables has been carried to one decimal place beyond the last figure given by the individual readings. On account of unknown zero errors of the thermometers and barometers, and various defects of the anemometers, rain gauges, and sunshine recorders, this refinement, regarded as determining the values for particular hours, is not justified, but the inclusion of the additional figures facilitates the study of diurnal variation.

Possible Systematic Errors.—The mean values as shown in the tables are known to be subject to certain small systematic errors incidental to the methods of recording and tabulating the various elements. The allowances which should be made to eliminate such errors as far as possible are under investigation, no such allowances have been made in the present volume.

One source of error was brought to light owing to the publication by Mr M. M'Callum Fairgrieve of a paper * entitled "A possible Two-hourly Period in the Diurnal Variation of the Barometer." The time-marks on the photographic barograms occur at intervals of two hours, alternate readings being taken at a time mark and halfway between two time-marks. Owing to the difficulty in making the readings in the two categories quite consistent, a small systematic error equivalent to an apparent oscillation of pressure with a period of two hours affects the results. Similar small effects of the method of tabulation can be traced in the tables of temperature and humidity.

The errors are comparable with ·005 mb. for pressure and ·02 a for temperature.

* *Journal of the Scottish Meteorological Society*, 1913, p. 158.

It may be mentioned here that from January 1st, 1918, time-marks on the instruments in question have been made half-an-hour before each even hour instead of at the hour, so that the systematic error cannot recur.

Harmonic Analysis.—The systematic analysis of the records of pressure and temperature of the seven observatories of the Meteorological Office by means of the beautiful harmonic analyser invented by W. Thomson (Lord Kelvin) was a notable enterprise of the period 1871–1882. The results for each month of these years are published in *Harmonic Analysis of Hourly Observations of Air Temperature and Pressure at British Observatories: Official Publication, No.* 93. This volume contains also the harmonic components for the average diurnal variation in the several months for the same period.* Corresponding data for longer periods have not been published by the Office. The annual mean diurnal variation of pressure at the observatories has been analysed, however, for these *Notes* for the last few years. The results for 1915 are set out below :—

Observatory and Period.	Amplitude in Millibars.			Phase, Greenwich Mean Time.									Phase, Local Mean Time.		
				24-Hour Term.			12-Hour Term.			8-Hour Term.					
	P_1	P_2	P_3	A_1	Max.	Min.	A_2	Max.	Min.	A_3	Max.	Min.	A_1	A_2	A_3
				°	h m	h m	°	h m	h m	°	h m	h m	°	°	°
Aberdeen, 1915 .	·098	·248	·042	105·7	22 57	10 57	141·5	10 13	4 13	9·8	1 47	5 47	107·8	145·7	16·1
„ Normal 1871–1915 .	·116	·249	·028	157·8	19 30	7 30	143·6	10 13	4 13	349·5	2 13	6 13	159·9	147·8	355·8
Eskdalemuir, 1915 .	·212	·257	·023	77·7	0 49	12 49	142·9	10 12	4 12	152·2	6 37	2 37	80·9	149·3	161·8
„ [Normal] 1911–1915	·083	·257	·023	75·1	1 0	13 0	141·9	10 15	4 15	15·0	1 40	5 40	78·3	148·3	24·6
Richmond (Kew Obs.) 1915 .	·217	·340	·027	35·0	3 40	15 40	148·1	10 5	4 5	2·2	1 56	5 56	35·3	148·7	3·1
„ Normal 1871–1915	·138	·351	·030	28·1	4 8	16 8	149·5	10 1	4 1	1·6	1 58	5 58	28·4	150·1	2·6
Cahirciveen (Valencia Obs.), 1915	·235	·311	·017	166·6	18 50	6 50	129·9	10 49	4 40	321·5	2 51	6 51	176·9	150·5	352·4
„ Normal 1871–1915 .	·151	·307	·034	177·8	18 9	6 9	130·9	10 36	4 36	331·9	2 37	6 37	188·1	151·5	2·8

The notation is explained by two alternative formulæ for the inequality in question.

$$P_1 \sin (15t+A_1)^\circ + P_2 \sin (30t+A_2)^\circ + P_3 \sin (45t+A_3)^\circ + \ldots$$

and $$P_1 \cos 15(t-T_1)^\circ + P_2 \cos 30(t-T_2)^\circ + P_3 \cos 45(t-T_3)^\circ + \ldots$$

Here t is the time elapsed in hours since midnight and T_1, T_2, T_3 are the times of maxima of the three harmonic terms. The times of the corresponding minima differ from those of the maxima by twelve, six, and four hours respectively. While it has been convenient to record all the times to minutes this degree of accuracy can hardly be claimed.

It is of importance to note that whilst the 12-hour term is known to be fairly consistent throughout the year, the other terms are subject to very large changes from month to month.

* The results have been discussed recently by Dr. C. Chree, *Q. J. R. Met. Soc.*, xliv., 1918, p. 99.

Additional Information.

For a general account of the weather of the year, reference should be made to the Annual Summary of the *Monthly Weather Report.* Daily readings at Richmond, Cahirciveen, and Eskdalemuir are published in the *Geophysical Journal,* corresponding data for Aberdeen in *Daily Readings at Meteorological Stations of the First and Second Orders.* A summary of the monthly values at each of the four observatories is to be found in the Annual Supplement to the last-named publication.

Climatic diagrams based on the average hourly values up to 1910 are given for Aberdeen, Cahirciveen, Falmouth, and Richmond in *The Weather Map.*

Graphs of diurnal variation of temperature at the same observatories for the period 1871 to 1895 are given in *Temperature Tables for the British Islands.* The corresponding pressure-graphs are reproduced in a paper by R. H. Curtis.*

* *Q. J. R. Met. Soc.*, xxvi., 1900, p. 1.

NOTES ON THE MANAGEMENT AND MANIPULATION OF THE MAGNETIC AND ELECTRICAL INSTRUMENTS AT KEW OBSERVATORY, RICHMOND, AND ON THE CORRESPONDING TABLES. By Dr. C. CHREE, Sc.D., LL.D., F.R.S., Superintendent.

Terrestrial Magnetism.—A complete scale value determination of the horizontal force magnetograph was made on January 18, and supplementary determinations of the time of vibration of the magnet were made on April 20, July 5, and September 7. The scale value remained throughout the year

$$1 \text{ mm} = 6{\cdot}1\gamma.$$

The scale value of the declination magnetograph continued to be, as in previous years,

$$1 \text{ mm} = 0'{\cdot}87.$$

The base values of the curves were determined by observations taken usually once a week with the Jones unifilar magnetometer, using collimator magnet K.C.I. and declination magnet K.O. 90, and the Barrow inclinometer No. 33, with $3\frac{1}{2}$-inch needles.

In the absolute observations of horizontal force use was made, as in recent years, of three deflection distances, 22·5, 30, and 40 cms., and values were calculated for the two constants P and Q of the deflection formula from all the observations of the year combined. The values thus obtained of late years have been as follows:—

Year.	P.	Q.	Mean Value at 22·5, 30, and 40 cms. of $\log_{10}(1+Pr^{-2}+Qr^{-4})$
1910	+0·882	—1354	$\bar{1}$·99939
1911	+0·832	—1377	$\bar{1}$·99934
1912	+0·749	—1286	$\bar{1}$·99937
1913	+1·504	—1528	$\bar{1}$·99959
1914	+1·226	—1343	$\bar{1}$·99958
1915	+0·778	—1245	$\bar{1}$·99942

As the data from which P and Q have to be calculated do not become fully available until after the end of the year, the values from the previous year's data are employed in the actual reductions. When the values of P and Q for the current year become available, a correction is applied to the values that have been calculated for the horizontal force. The correction required to allow for the difference between the values obtained for P and Q in 1915 and those obtained in 1914 was $-3{\cdot}4\gamma$. Another correction had to be applied to allow for change in the moment of inertia of the collimator magnet since its last determination in 1910. The new value found in 1915 was based on 24 observations, made in equal numbers with the same two inertia bars D (by Dover) and E (by Elliott Brothers) which had been employed in 1910. As a precaution against possible change in the inertia bars, their weights were redetermined at the National Physical Laboratory. The moment of inertia of the collimator magnet was found to have

diminished, values calculated for the horizontal force based on the old value requiring the correction $-5{\cdot}1\gamma$. The old value was employed in the preliminary calculations up to the end of 1915, so that combining the two corrections a final correction of $-8{\cdot}5\gamma$ was necessary. It was decided to apply -8γ to the values worked out for the first six months of the year, and -9γ to the values worked out for the last six months.

The re-determination of the moment of inertia had fortunately been concluded prior to an elaborate comparison made of the standard unifilar and dip circle with a unifilar and dip inductor belonging to the Carnegie Institution of Washington. The observations with the latter instruments were made by Mr. E. Kidson, a very experienced field observer of the Carnegie Institution, who took two series of observations at Kew—one in August, the other in October. A number of simultaneous observations were made with the Kew instruments, declination and horizontal force observations being taken by Mr. B. Francis and inclination observations by the Superintendent. During the simultaneous observations one observer occupied the old and the other the new magnetic hut, and the positions of the observers were interchanged. The observations seemed very consistent, and the results will doubtless be published in due time by the Carnegie Institution. They tended to confirm the view that there is no sensible difference between the values of the magnetic elements in the two huts.

Particulars of the magnetic "character" of individual days on the international scale "0," "1," and "2" ("0" representing quiet, "1" moderately, and "2" more highly disturbed days) were contributed quarterly, as in recent years, to Prof. van Everdingen at De Bilt, for inclusion in the international lists. Full details will be found in the *Geophysical Journal*. The accompanying table shows the number of days in each month to which the "characters" "0," "1," and "2" were assigned. It also gives for each month the mean of the "character" figures, treated as if ordinary arithmetical quantities. As there is a wide range of disturbance in days to which character "1" is allotted, and a still wider range in the case of character "2," these monthly means should be regarded as giving only a general indication of the disturbance prevailing.

1915.	Number of Days having Magnetic "Character."			Mean of "Character" Figures.
	"0."	"1."	"2."	
January	17	12	2	0·52
February	14	10	4	0·64
March	11	15	5	0·81
April	15	10	5	0·67
May	11	17	3	0·74
June	16	8	6	0·67
July	15	13	3	0·61
August	10	17	4	0·81
September	16	8	6	0·67
October	8	12	11	1·10
November	9	13	8	0·97
December	13	15	3	0·68
Year (totals and means)	155	150	60	0·74

The mean "character" number is in every month larger than the corresponding number for 1914, when the mean number for the whole year was only 0·49. Also, more than twice as many days were assigned character "2" in 1915, as compared with 1914. It cannot be claimed that the system of "character" numbers is one that lends itself to the maintenance of a uniform standard, but the tendency is rather to an underestimate of the difference between different years. 1915 was, in fact, much the most disturbed year there has been for some time, the months of October and November being especially conspicuous in that respect. These months, however, while containing a number of considerably disturbed days—including October 14 to 16, 19, 23, and November 1, 5, 6, and 16–18—did not present any single case of outstanding disturbance. The only magnetic storm of the year in any way outstanding occurred on June 17, and was of comparatively short duration.

The declination and horizontal force curves were tabulated on the five quiet days a month selected under international auspices at De Bilt, particulars of which are given in the accompanying table :—

List of Magnetic Quiet Days for 1915, *as issued by the International Commission of Terrestrial Magnetism.*

January	2,	3,	18,	19,	31	July	4,	15,	16,	17,	24
February	7,	11,	14,	16,	17	August	5,	13,	14,	15,	24
March	2,	3,	14,	15,	28	September	7,	8,	18,	19,	20
April	10,	11,	12,	13,	28	October	2,	5,	9,	18,	29
May	7,	8,	11,	28,	29	November	3,	4,	14,	29,	30
June	3,	4,	10,	20,	30	December	1,	5,	18,	21,	22

A temperature correction has been applied as usual to the horizontal force curves, viz. $3{\cdot}1\gamma$ per 1° C. The curves were smoothed in the way customary at the Observatory, allowance being made, so far as possible, for irregularities clearly due to artificial electric currents. The non-cyclic changes in the 24 hours were eliminated in the usual way, *i.e.* they were assumed to come in at a uniform rate throughout the day.

Tables LXI. and LXII. give the diurnal inequalities of declination and horizontal force, after elimination of the non-cyclic change, for each month of the year, for the year as a whole, and three seasons—Winter, Equinox, and Summer,—defined as in previous years. Table LXIII. gives under the heading "range" the algebraic difference of the extreme hourly values, and under the heading "24–0" the mean algebraic excess of the element at 24 hours over that at 0 hours. The units employed throughout are $1'$ in declination and 1γ (or 1×10^{-5} C.G.S.) in horizontal force. In the case of declination a minus sign denotes that the magnet is to the *east* of its mean position for the day.

The disturbance in the vertical force curves due to artificial electric currents is such that diurnal inequalities have not been found for that element since 1902. The curves are used in connection with the verification of dip circles, or on special occasions such as Mr. Kidson's comparison of instruments. They also show fairly accurately the larger movements during magnetic storms.

The dip observations are normally taken in the afternoon, at a time when the departure from the mean value for the day is naturally small, and allowance is made for this departure by reference to inequality data for the years 1890 to 1900. Values have been obtained for the vertical force by combining these corrected values of dip with the corresponding horizontal force data derived from the curves. The mean monthly values thus obtained appear in Table LXVII., along with mean monthly values of declination and horizontal force derived from the curves of the international quiet days. The table also contains mean monthly values for the total force and the north and west components deduced from the values obtained for the other elements. Mean annual values are given also for earlier years, so as to bring out the nature of the secular change. The rapid fall of westerly declination characteristic of recent years continues. The fall in horizontal force commented on last year has continued at an accelerated rate, while the reduction in vertical force is somewhat less than in the previous year. In consequence, the inclination has increased. In view of the fact that the inclination, it is supposed, has been diminishing continuously in London during the last 200 years, this seems a result worth recording.

Table LXVIII. gives a list of values of the magnetic elements at the observatories whose publications are received at Kew, including the latest year available up to 1915. Owing to the War, the sources of recent information have been more restricted than usual.

Atmospheric Electricity.—The instruments in use throughout the year have been the Kelvin and Benndorff electographs giving a continuous record of the potential, the Kelvin portable electrometers Nos. 80 and 81, a Wilson universal electrometer, and two specimens of the Ebert Aspiration apparatus. The Kelvin electrograph was moved on May 25, to the low building once used for testing thermometers. The results from the Wilson and Ebert forms of apparatus appear in the *Geophysical Journal.*

The Kelvin portable electrometer is used to assist in converting the readings from the electrograms into true potential gradient in the open. The apparatus for the absolute observations consists essentially of a long horizontal insulated rod carrying a lighted fuse at the end, the rod being connected to the terminal of the portable electrometer. Readings are taken with the fuse at 1 metre and at 2 metres above the ground, the grass on which is kept short. The site is in the observatory garden.

If no change occurred in the discharging tube of the water-dropper, which is the instrument in regular use, or in its environment, a constant ratio should naturally persist between the potential where the jet breaks into drops—*i.e.* the potential the electrograph is intended to record—and the corresponding potential obtained with the portable electrometer. But the assumption of a constant ratio cannot be safely made, at least at Kew Observatory. The discharge tube is long, and a slight shift in the position of the discharging nozzle is a possibility not to be neglected. In view of the various possibilities, the practice is to take observations with the portable electrometer on all convenient days shortly after 10 h., and the factor, determined from the observations of each month, given in the *Geophysical Journal.*

Table LXXV., p. 62, gives the diurnal inequalities of the potential gradient for individual months, three seasons, and the year. The seasons include the same months as in previous years. The inequalities and the mean monthly and annual values are based on the curves of "quiet" days selected from those entirely free of negative potential. Other objects in the selection of quiet days are freedom from large irregular movements, absence of indications of inferior insulation in the electrograph, and the avoidance, so far as possible, of large non-cyclic changes. The quiet days numbered 10 in each month. To obtain this number, however, in February and December it was necessary to take as "days" several periods of 24 consecutive hours which did not commence at midnight. Non-cyclic corrections were applied in these cases separately to each group of "days" which began at the same hour.

The non-cyclic changes in the Table represent means from all the selected quiet days of the month, February and December being omitted for the reason indicated above. As in the other tables, the maximum and minimum values are distinguished by the letters x and n. The range thus deduced is much less than the mean of the individual daily ranges. The mean value, and the inequality derived from any single month, are largely dependent on the choice of days, and so ultimately on the weather that happens to prevail. Fully representative data can only be obtained by combining the results of a number of years. Several examples of this fact appear in the Table. In the average year the mean values for June and July are nearly the same; but in 1915 the June mean value is fully twice that for July, the former being the highest and the latter the lowest value recorded since 1898. The March and November mean values in 1915 were also unusually large.

NOTES ON THE MAGNETIC OBSERVATIONS MADE AT THE VALENCIA OBSERVATORY, CAHIRCIVEEN, 1915.

Absolute observations of declination, horizontal force (H.), and inclination, were taken in general twice a month with the Dover Unifilar No. 139 and the Dover Dip Circle No. 118 at approximately the same hours of the day on each occasion.

The mean times (G.M.T.) of observation were 10 h 28 m for the declination, 11 h 44 m for the horizontal force, and 14 h 31 m for the inclination.

These times differ by some minutes from those adopted previously.* It is estimated, however, that no correction need be made on this account to the mean horizontal force or to the mean dip. The correction to be applied to the mean declination of previous years to allow for the change of 20 minutes in the time of observation is about $+0'{\cdot}5$. The mean declination in 1914, published in *Hourly Readings*, 1914, was 20° 12′·3, and refers to the time 10 h 10 m. The mean declination for the same year at the time 10 h 18 m was probably about 20° 12′·8. The mean for 1915 being 20° 3′·8, the secular change would be estimated on this basis, at $-9'{\cdot}0$ in place of the $-8'{\cdot}5$, which would be derived directly from Table LXVII.

The collimator magnet in regular use, No. 139 A, was sent away for repair in November, and a spare magnet supplied from Kew, No. 140 A, was used for the November and December observations. A correction was applied to all observations of H. taken with No. 140 A in order to reduce them to the standard of the magnet in regular use, No. 139 A.

As in former years, the deflections of the mirror-magnet were taken at two distances of the collimator-magnet only. Owing to an accident a discontinuity in the value of the distribution-factor occurred in the month of May, and it was found necessary to make separate determinations of its value for the periods January to April and May to November, using in each case all the available observations. A constant value was adopted for use during the former period, and a uniformly changing one during the latter.

In former years no allowance was made for the effect of the chronometer rate in the determination of the value of H. The chronometer showed during

* The mean times of observation for the years 1912 to 1914 are shown in the following table :—

Year.	Declination.	Horizontal Force.	Inclination.
	h. m.	h. m.	h. m.
1912	10 11	11 47	13 50
1913	10 2	11 43	13 44
1914	10 10	11 54	14 9

1915 a fairly steady rate, losing $7\frac{1}{2}$ seconds per day, and there is no reason to suppose that its rate was very different from this in 1914. All observations of H. made since the beginning of 1915 have been corrected for chronometer rate. The discontinuity thus introduced in the value of H. amounts to $1\frac{1}{2}\gamma$, which must be subtracted from the 1914 means before comparison can be made with those of 1915.

Particulars of the individual observations will be found in the monthly numbers of the *Geophysical Journal*; the observation of declination on May 27 was taken at an unusual time of day, and has been omitted in the preparation of the means. The values of the distribution-factor determined as stated above were also used in the preparation of the figures published in the *Geophysical Journal.* Table LXVII. gives the observed mean monthly and annual values of declination, horizontal force, and inclination, and corresponding calculated values for the total force, and the north, west, and vertical components.

NOTES ON THE MANAGEMENT AND MANIPULATION OF THE MAGNETIC AND ELECTRICAL INSTRUMENTS AT ESKDALEMUIR OBSERVATORY, 1915.

Terrestrial Magnetism.—The magnetographs at Eskdalemuir are arranged so as to record the three geographical components of terrestrial magnetic force: *i.e.* the northerly component N (or + X); the westerly component W (or — Y), and the vertically downward component V (or + Z).

As in the previous year, the north and west magnetographs employed were the Adie bifilar instruments, while the vertical magnetograph was the instrument lent by Professor Watson. The constants of these instruments are given in the subjoined table :—

	North.	West.	Vertical
Time scale : 1 hour=	15·6 mm.	15·6 mm.	15·6 mm.
Time marking	Every two hours ; end of mark at exact hour.		
Error of time mark	Not more than ±1 min.		
Period of vibration	13·9 secs.	11 secs.	7·4 secs.
*Logarithmic decrement	·3445	·5715	..
Apparent N force due to unit W force	—·005	..	..
Apparent W force due to unit N force	..	negligible.	..
Apparent vertical force due to unit horizontal force in azimuth of magnet	..	..	—·007
Change in azimuth of magnet for 1 mm. on paper	·00032 radian.	·000326 radian.	·0003 radian.
Twist of bifilar suspension	35°	90° ±5°	..
Ratio of the length of the bifilar suspension to the mean breadth	51	66	..
Temperature coefficient per 1 *a*.	—9γ	—2γ	+26γ
Direction to which the marked pole points	West.	North.	..
Azimuth of magnet	269° 41·5′	0° 1·8′	346°

The scale values were determined fortnightly in the manner described in the 1913 *Notes*. The values actually used in the tabulations were obtained from smoothed curves and are given in the following table :—

Month.	North Instrument. γ per mm.	West Instrument. γ per mm.	Vertical Instrument. γ per mm.
January	1st 8·78 2nd–31st 4·99	1st–4th 8·72–5·36 5th–31st 5·36 †	3·90
February	4·99	5·37	3·91
March	4·99	5·37	3·92
April	5·00	5·37	3·94
May	5·00	5·36	1d 0h–15d 12h 3·94 15d 12h–31d 24h 3·72
June	5·00	5·36	3·77
July	5·00	5·36	1d 0h–31d 12h 3·85 31d 12h–31d 24h 4·11
August	5·00	5·36	4·11
September	5·00	5·36	4·16
October	4·98	5·36	4·07
November	4·98	5·36	4·00
December	4·98	5·36	3·87

* Log. dec. $=\log_e a_n - \log_e a_{n+1}$; where a_n, a_{n+1} are the amplitudes of two consecutive swings on the same side of the zero position.

† West Instrument. *January.*—1st, 0 h–19 h, 8·72 γ, 19 h–24 h, 6·68 γ ; 2nd, 0 h–9 h, 6·68 γ, 9 h–24 h, 6·82 γ ; 3rd, 0 h–24 h, 6·82 γ ; 4th, 0 h–9 h, 6·82 γ, 9 h–24 h, 5·36 γ.

In accordance with the recommendation of the International Magnetic Commission, the scale values for the north and west instruments were changed at the beginning of the year so as to make them as nearly as possible 5 γ per mm. After a rough adjustment had been made, a fine adjustment was made in the following manner :—

From observations of the changes in the equilibrium position of the magnets and in the scale values due to small alterations in the torsion and in the distance between the wires, the coefficients in the following equations were obtained :—

$$\delta p = 17{\cdot}5\delta T + 3\delta D.$$
$$\delta A = 26{\cdot}7\delta T - 11{\cdot}3\delta D.$$

where

δp=increase in scale value in parts per thousand.
δA=change in azimuth of magnet in scale divisions.
δT=change in azimuth of torsion head, in degrees.
δD=increase in distance between bifilar wires at top, measured in arbitrary units.

It was deduced that

$$\delta D = \delta p/10 - \delta A/15.$$
$$\delta T = \delta p/25 + \delta A/93.$$

From these equations the final adjustments necessary to effect any small change in scale value were determined.

In the case of the west instrument, the pulley at the bottom of the suspension was reduced in diameter to about two-thirds of its former amount, and the steel suspension wires, which had become rusty, were replaced by fine tungsten wire. It was found that with the given dimensions, a torsion of 90° brought the scale value down to about 5·4 γ per mm., and at this it was fixed.

The method of observing the effect of a west magnetic force on the north magnetograph (and *vice versa*) is detailed in the *Notes* for 1913, p. 70. Between January 1 and 4, 1915, an improvement was effected by correcting the azimuths so that the apparent N force due to unit W force was —0·005, and the reciprocal effect on the west instrument was negligible. (The values for the previous year were —0·009 and +0·007 respectively.) Consequently, if n' and w' be the north and west uncorrected inequalities, and n, w, the corrected inequalities, then for 1915,

$$n = n' + 0{\cdot}005w'$$
$$w = w'.$$

The apparent downward force indicated by the Watson vertical instrument, when unit horizontal force in the magnetic meridian is applied to it, was calculated in the same manner as in previous years (see *Notes*, 1913, p. 76). The values for the different months of the year were found to be as follows :—January, ·012 ; February, ·013 ; March, ·014 ; April, ·014 ; May, ·012 ; June, ·009 ; July, ·009 ; August, —·001 ; September, ·000 ; October, ·001 ; November, ·003 ; December, ·005. The comparatively large change between July and August is possibly due to the use of a control magnet after August 13, 1915.

The inequalities of declination, horizontal force, and dip, were computed from the inequalities of the geographical components by the usual formulæ :—

$$\delta D = (180 \times 60/\pi) \cos D(-\delta N \sin D + \delta W \cos D),$$
$$\delta H = \delta N \cos D + \delta W \sin D,$$
$$\delta I = (180 \times 60/\pi) \cos I(-\delta H \sin I + \delta V \cos I),$$

where δD, δI, are expressed in minutes of arc. The inequalities in D, H, and I, have been corrected for the effect of the north component on the west magnetograph, and *vice versa*, and also for the effect of the horizontal force on the vertical magnetograph, but the corresponding corrections have not been applied to N, W, and V, themselves.

The Fourier coefficients, printed in Table LXIV., have been obtained by means of the formulæ published in the *Greenwich Magnetical and Meteorological Observations*, 1908. They have been corrected in the same manner as the inequalities for H, D, and I, referred to above.

Absolute magnetic observations were made weekly, as a rule, in the eastern magnetic hut. The declination and horizontal force were determined on pier No. 5 by the Elliot magnetometer, No. 60. During the year the brasswork of this instrument was found to produce a field between 1 γ and 10 γ at its centre. Determinations of dip were made with the Schulze inductor, No. 103, placed on pier No. 6.

In the reduction of the absolute observations of H, the following values of $\log\left(1+\frac{P}{25^2}+\frac{Q}{25^4}\right)$ were employed. These values were, for a given month, obtained by taking the mean from all observations over seven months, including the given month as fourth of the seven.

Month, 1915.	$\log_{10}\left(1+\frac{P}{25^2}+\frac{Q}{25^4}\right)$.	Month, 1915.	$\log_{10}\left(1+\frac{P}{25^2}+\frac{Q}{25^4}\right)$.
January	·00586	July	·00594
February	·00586	August	·00582
March	·00594	September	·00585
April	·00597	October	·00576
May	·00601	November	·00569
June	·00602	December	·00579

The base values employed during the year were obtained from smoothed curves drawn through points given by observation. These curves, as well as each point so given, are shown in Plate I. The only detail which calls for special mention relates to the discontinuities in the vertical base value curve. These were due either to the calcium chloride drier being renewed or to some alteration made in the position of the control magnet.

A recent examination of the thermograph record, obtained in the room in which the magnetographs are installed in the Underground Magnet House, shows that the double amplitude of the diurnal change averages 0°·07 C.

In September 1915, simultaneous observations were taken by Mr E. Kidson, of the Carnegie Institution, Washington, and by the observatory staff, for the

purpose of comparing standards. Incidentally, the comparison afforded a measure of the difference between the fields in the two magnet houses in which the observations were made, and then repeated after exchanging stations. The magnet houses stand on a line almost exactly east-west, and their centres are 45·7 metres apart. There are six pillars—three in each house—numbered 1 to 6, in order from west to east. The results were as follows :—

Declination	Pier 5=Pier 2—0′·8.

This depends on the value 3° 36′ 18″ assigned to the angle subtended at the observatory fixed mark by the distance between piers 2 and 5.

Inclination	Pier 6=Pier 3.
Horizontal force	Pier 5=Pier 2—3 γ.

The magnetograms for the days which have been "double starred" in the international scheme, viz., March 21, April 8, June 17, November 6, and December 6 are reproduced in Plates V, VI, and VII. Details supplementary to the information given in the Monthly Notes will be found on p. 90.

Observations of Atmospheric Potential Gradient.—The arrangements for continuous registration of atmospheric potential gradient were on the same lines as detailed in previous Reports. An insulated water jet, projecting 30 cm. from the main northern wall of the observatory building, near its north-eastern corner, is connected to a Dolazalek electrometer, the deflections of which are recorded photographically. In order to determine the potential gradient, and otherwise to check the working of the arrangement, there are associated observations made periodically on the potential gradient in the open, the scale value of the electrometer, and the quality of the insulation. A factor is obtained which reduces the deflections on the photographic trace to volts per metre.

During 1915, several changes were made in the form or position of the water-jet, and in consequence the value of the reduction-factor varied throughout the year. For the first three months its value was 5·5 ; for the second three months it averaged 5·8, while for the latter half of the year its average value was 6·5. The scale value of the electrometer remained constant throughout the year, the observations (excluding one doubtful observation) ranging between 13·24 and 13·66, with an average of 13·44 volts per millimetre on the photographic trace. No systematic observations were taken with a view to obtaining a numerical measure of the leakage of the whole apparatus, but frequent tests were relied upon to detect any defect in the insulation.

The classification of days according to electrical character continued on the same lines as in the previous year. The characters are given in the *Geophysical Journal.*

A. CRICHTON MITCHELL,
Superintendent.

REVIEW OF RESULTS OF MAGNETIC OBSERVATIONS MADE AT ESKDALEMUIR, DURING 1915.

1. The following account summarises the principal results of the magnetic observations made during 1915. A comparison is made with the corresponding results for the years 1911–1914, except in the case of the vertical force results, which, not having been tabulated for 1912 and 1913, are limited to the years 1911 and 1914.

2. The Eskdalemuir magnetographs are arranged so as to give measurements directly of the north (N), west (W), and vertical (V) components of terrestrial magnetic force. They are installed in an underground building in which the daily temperature range averages 0·07 *a.*, while the annual temperature range is about 4 *a.*

The hourly readings of the curves are obtained by estimating the height, above the base line, of an ordinate equivalent to the average ordinate for an hour centering at the hour for which the reading is required. This is the *only* smoothing process applied in the reduction of the curve readings.

Base values are obtained from absolute observations, made weekly, of declination, horizontal force, and inclination. Scale values are determined twice monthly.

The diurnal inequalities of declination, horizontal force, and inclination, are deduced from those of the three geographical components.

3. *Declination and its Secular Change.*—The mean declination for 1915 was 17° 35′·9. The manner in which this element has changed in value since 1909 is shown in the following table :—

Year.	Mean Declination.
1909	18° 30′·1 W.
1910	18 23·3 W.
1911	18 12·4 W.
1912	18 3·9 W.
1913	17 54·9 W.
1914	17 45·3 W.
1915	17 35·9 W.

During the period tabulated the mean rate of decrease of declination has been 9′·0′ *per annum.* This period included a year (1913) of minimum sunspot activity, but the rates for the individual years show no sunspot influence.

4. *Horizontal Force and its Secular Change.*—The mean value of the horizontal force during 1915 was 0·16786 C.G.S. units. Since 1909 it has changed as shown below.

Year.	Horizontal Force.
1909	0·16835
1910	0·16836
1911	0·16846
1912	0·16846
1913	0·16822
1914	0·16804
1915	0·16786

The mean annual value thus reached a maximum during 1911 and 1912, and has been decreasing since at an accelerated rate.

5. *Inclination and its Secular Change.*—The mean value of the inclination during 1915 was 69° 36′·9 N. The values since 1909 were as follows :—

Year.	Inclination.
1909	69° 38′·9 N.
1910	69 37·8 N.
1911	69 37·1 N.
1912	69 37·2 N.
1913	69 37·3 N.
1914	69 36·8 N.
1915	69 36·9 N.

Thus the whole change † has only amounted to 2′.

6. *Geographical Components and their Secular Change.*—The mean values for N, W, and V, since 1909 are shown in the following table :—

Year.	N.	W.	V.
1909	..	..	·45385
1910	·15976*	·05311*	·45343
1911	·16003	·05264	·45344
1912	·16015	·05224	·45345
1913	·16006	·05174	·45282
1914	·16003	·05124	·45188
1915	·16000	·05075	·45173

The north component has, therefore, remained practically stationary; the west component has been falling at a rate of about 50 γ per annum during the last five years; while the vertical component has changed irregularly, but on the whole † has diminished by about 35 γ per annum.

During 1915 there were no changes of an unusual kind in the components.

* Deduced from 2 to 5 absolute observations per month.

† Absolute observations of inclination were made with dip needles up to 1913, since that date with the Schulze inductor. The magnitude of the discontinuities so introduced in I. and in V. cannot be stated exactly; it might account for the whole of the difference shown above between the inclination in 1913 and in 1914 (vide *Hourly Values*, 1914, p. 72).

The two in which secular change is most marked, viz. declination and the west component, moved together consistently at rates very nearly the same as in the previous year.

7. *Magnetic Character of* 1915 *compared with Previous Years.*—In accordance with the international scheme, a figure, 0, 1, or 2, has been assigned as the magnetic "character" of each day. The results for the quinquennium 1911–1915 are given in the following table, which shows, for each month of the five years, the number of days to which has been assigned one or other of the three character figures. Owing to imperfection in the records or to other causes, there have been omitted 2 days in October 1911; 2 in October and 2 in December 1912; 1 in April, 2 in August, and 2 in December 1913; and 1 day in May 1915.

Month.	1911.			1912.			1913.			1914.			1915.		
	0.	1.	2.	0.	1.	2.	0.	1.	2.	0.	1.	2.	0.	1.	2.
January	5	24	2	14	16	1	17	9	5	22	7	2	10	19	2
February	6	20	2	10	18	1	15	11	2	17	10	1	5	15	8
March	11	15	5	12	17	2	20	7	4	13	13	5	9	12	10
April	7	13	10	9	19	2	13	10	6	15	13	2	11	10	9
May	5	16	10	10	18	3	15	12	4	19	10	2	8	18	4
June	13	13	4	6	22	2	15	11	4	16	9	5	12	12	6
July	8	15	8	7	21	3	17	12	2	11	12	8	14	14	3
August	13	12	6	12	17	2	18	8	3	5	16	10	14	15	2
September	12	13	5	13	14	3	12	11	7	10	17	3	15	12	3
October	11	16	2	12	14	3	15	9	7	8	19	4	6	11	14
November	12	16	2	12	16	2	23	5	2	10	14	6	7	16	7
December	12	16	3	14	13	2	20	8	1	12	16	3	10	19	2
Sum	115	189	59	131	205	26	200	113	47	158	156	51	121	173	70

The foregoing table shows that 1913 had the largest number, 200, of "0" days, while 1912 had the smallest number, 26, of "2" days. The average magnetic character of a year may be represented by $\frac{a+2b}{n}$, where a is the number of "1" days, b the number of "2" days, while n is the number of days considered. Regarded in this way, the average character for each of the five years is as follows:—

1911	0·85
1912	0·69
1913	0·58
1914	0·71
1915	0·87

This points quite definitely to a minimum of disturbance during 1913. It may be mentioned that during November of that year there occurred a period—somewhat rare for Eskdalemuir—of 18 consecutive days of character "0."

The year 1915 resembled 1911 in its average magnetic character, and also in having about the same number of quiet days, but 1915 had a larger number of "2" days. The most disturbed months were February, March, and October, while the quietest was September. The months of August and September were

markedly below the others in magnetic character, and also below the corresponding months in the previous four years.

The assignment of magnetic character figures is necessarily a matter of personal estimate, and is, perhaps, the most trying duty which has to be performed by those in charge of magnetic observatories, but in spite of the fact that, during the five years now reviewed, it was done by at least three different persons, the general result seems to accord well with results obtained in independent ways. In this connection it may be stated that the ratio of average magnetic character assigned at Eskdalemuir to that assigned at Kew has been 1·42, 1·55, 1·41, 1·44, and 1·17 in the years 1911 to 1915 respectively. It should be mentioned, however, that the averages derived from the international characters show a minimum of disturbance in 1912.

8. *Diurnal Inequalities.*—These are obtained in two sets at Eskdalemuir, viz., for international "quiet" days and for "all" days.* The quiet day inequalities of declination, horizontal force, and inclination, were not published for 1911, and consequently, in dealing with these elements, the results will represent those of "all" days.

Diurnal inequalities of terrestrial magnetic elements may be tabulated and discussed according to a very large variety of methods, but as the present account makes no pretensions to being exhaustive, it will be limited to the principal points which are usually considered.

TABLE I.—*Mean Values of Diurnal Inequalities*, 1911–1915.

Hour, G.M.T.	N.		W.		V.		H.	D.	I.
	a.	*q.*	*a.*	*q.*	*a.*	*q.*	*a.*	*a.*	*a.*
	γ	γ	γ	γ	γ	γ	γ	′	′
1	4·7	3·8	— 5·1	— 1·9	— 4·2	0·3	2·9	—1·35	—0·30
2	3·6	3·8	— 4·5	— 2·0	— 4·9	0·4	2·0	—1·10	—0·24
3	3·6	3·6	— 4·7	— 2·8	— 5·1	0·6	2·0	—1·14	—0·25
4	4·8	4·8	— 5·6	— 4·1	— 4·5	0·8	2·8	—1·39	—0·31
5	5·5	5·6	— 6·9	— 6·5	— 3·6	1·0	3·1	—1·69	—0·31
6	5·1	5·0	— 8·1	— 8·7	— 3·2	0·9	2·3	—1·88	—0·25
7	2·7	3·1	— 9·9	—11·1	— 2·4	0·9	— 0·5	—2·09	—0·04
8	— 2·1	— 1·1	—11·6	—13·6	— 1·9	0·5	— 5·5	—2·12	0·33
9	— 8·8	— 7·5	—11·3	—13·8	— 2·6	—1·1	—11·9	—1·66	0·76
10	—16·1	—14·7	— 5·8	— 8·3	— 3·9	—3·4	—17·1	—0·13	1·12
11	—19·5	—18·9	3·2	0·2	— 5·6	—5·5	—17·6	1·83	1·11
12	—18·6	—18·1	13·1	9·9	— 6·4	—7·0	—13·6	3·70	0·82
13	—14·2	—13·6	19·2	16·0	— 4·4	—6·0	— 7·6	4·61	0·46
14	— 8·4	— 7·8	19·7	16·4	— 0·6	—3·3	— 1·9	4·35	0·15
15	— 3·0	— 2·9	16·1	12·7	3·6	—0·1	2·2	3·33	—0·06
16	2·1	1·2	11·3	8·5	7·5	1·3	4·2	2·14	—0·11
17	4·6	4·7	6·9	5·5	9·7	3·3	6·5	1·05	—0·24
18	7·9	7·0	3·6	3·5	10·2	3·4	8·6	0·22	—0·39
19	9·3	8·4	1·3	2·7	9·4	3·1	9·2	—0·32	—0·45
20	9·5	8·3	— 1·2	1·5	7·7	2·9	8·6	—0·82	—0·44
21	8·5	7·4	— 3·8	0·3	5·4	2·5	7·0	—1·27	—0·37
22	7·7	6·6	— 4·9	— 0·8	2·6	1·8	5·8	—1·44	—0·35
23	6·7	5·8	— 5·6	— 1·5	— 0·1	1·2	4·6	—1·50	—0·33
24	5·8	5·1	— 5·5	— 2·1	— 2·8	0·7	3·7	—1·44	—0·32

* Inequalities for selected disturbed days in 1915 have been computed and are given below, pp. 94, 95.

The first aspect in which these inequalities may be presented is that of their mean annual values for the period 1911–1915. These are given in Table I., *a* and *q* representing respectively "all" days and "quiet" days. In the case of V and I, the means are based on the years 1911, 1914, 1915. The non-cyclic change has been eliminated. Declination is reckoned positive towards the west.

The figures in the foregoing table are very similar to those obtained for other stations. Attention may be called to the differences between "all" day and "quiet" day figures for V. That these are large may be ascribed in part to the exclusion of the magnetically quiet years 1912 and 1913. The figures relating to the geographical components give the following results on comparing quiet days with all days, mean departure being defined as the arithmetic mean of the hourly values of the inequality taken irrespective of signs.

TABLE II.—*Range and Mean Departure in Diurnal Inequality.*

	N.		W.		V.	
	All Days.	Quiet Days.	All Days.	Quiet Days.	All Days.	Quiet Days.
	γ	γ	γ	γ	γ	γ
Range	29·0	27·3	31·3	30·2	16·6	10·4
Mean departure . .	7·62	7·03	7·87	6·43	4·68	2·17

TABLE III.—*Diurnal Inequalities*, 1913, 1915. (*All days.*)

Hour, G.M.T.	N.		W.		H.		D.	
	1913.	1915.	1913.	1915.	1913.	1915.	1913.	1915.
	γ	γ	γ	γ	γ	γ	′	′
1	4·4	5·8	— 3·6	— 7·1	3·1	3·4	—0·96	—1·75
2	3·2	4·7	— 3·0	— 7·1	2·2	2·4	—0·78	—1·67
3	3·5	3·9	— 3·9	— 6·3	2·1	1·8	—0·97	—1·48
4	4·3	5·8	— 4·7	— 7·0	2·6	3·5	—1·17	—1·73
5	5·3	7·4	— 6·5	— 8·4	3·0	4·5	—1·57	—2·10
6	4·9	6·0	— 8·7	— 9·3	2·0	2·9	—1·98	—2·18
7	2·7	2·5	—10·4	—10·5	— 0·7	— 0·8	—2·19	—2·21
8	— 1·4	— 2·9	—12·2	—12·6	— 5·1	— 6·6	—2·32	—2·28
9	— 7·5	—10·5	—12·0	—12·6	—10·9	—13·8	—1·91	—1·82
10	—14·4	—19·1	— 5·5	— 6·4	—15·4	—20·1	—0·24	—0·07
11	—17·9	—22·8	3·7	3·5	—15·9	—20·6	1·76	2·10
12	—17·5	—22·1	13·3	14·9	—12·6	—16·5	3·62	4·27
13	—12·7	—18·0	19·0	22·2	— 6·3	—10·4	4·46	5·43
14	— 7·6	—10·6	19·0	23·4	— 1·4	— 2·8	4·17	5·22
15	— 2·5	— 3·6	14·5	20·4	2·1	2·8	2·98	4·20
16	1·1	1·5	9·6	15·0	4·0	5·3	1·82	2·89
17	4·0	6·3	5·6	9·1	5·5	8·8	0·86	1·38
18	6·5	10·0	3·0	4·8	7·1	11·1	0·22	0·32
19	7·9	11·5	0·4	1·1	7·7	11·3	—0·38	—0·50
20	7·9	11·2	— 1·3	— 1·4	7·1	10·3	—0·71	—0·97
21	7·4	10·6	— 3·4	— 4·5	6·0	8·7	—1·09	—1·53
22	6·8	9·1	— 4·5	— 6·4	5·1	6·8	—1·27	—1·80
23	6·1	7·2	— 4·7	— 7·0	4·3	4·8	—1·27	—1·81
24	5·5	5·9	— 3·9	— 7·9	4·0	3·3	—1·07	—1·92

Table III. shows the difference between a magnetically quiet year and a year

which is slightly disturbed. A comparison by graphical methods would show that in the two inequalities of the north component the morning minimum is slightly retarded in the more disturbed year, but that the other turning values take place at nearly the same time. In the west component, there is a retardation in the principal maximum during the disturbed year, but during the forenoon hours the values are very nearly the same.

TABLE IV.—*Range and Mean Departure.* (*All days.*)

Year.	N.		W.		V.		D.		H.		I.	
	Range.	Mean Dep.	Range.	Mean Dep.	Range.	Mean Dep.	Range.	Mean Dep.	Range.	Mean Dep.	Range.	Mean Dep.
	γ	γ	γ	γ	γ	γ	′	′	γ	γ	′	′
1911 . .	31·2	7·9	29·3	7·4	17·6	5·1	6·34	1·73	28·2	6·5	1·57	0·39
1912 . .	26·2	6·8	29·3	7·4	..	..	6·34	1·59	23·8	5·6	..	..
1913 . .	25·8	7·2	31·2	7·4	..	..	6·78	1·66	23·6	5·6	..	..
1914 . .	27·6	7·2	30·9	7·8	14·4	3·5	6·63	1·72	26·6	6·1	1·46	0·35
1915 . .	34·3	9·1	36·0	9·5	18·8	5·6	7·71	2·15	31·9	7·6	1·72	0·40

Table IV. gives the range and mean departure of the diurnal inequality for each element during the five years. The different columns of this table agree in showing the effects of the more disturbed year 1915, but they are rather inconclusive as regards the quietest of the five years.

Taking next for consideration the annual variation of the diurnal inequality, Plate V. represents the diurnal variation in N and W for each month of the year, "all" days and "quiet" days being shown separately. The curves are drawn from the mean values taken over the five years 1911–1915. It is inevitable that for such a short period, irregularities should show themselves on the curves, and that this is the case may be proved by a glance at those for some of the winter months, when the changes are slow. It is for this reason that the V curves have not been drawn, as they cover only three years. Nevertheless, the diagrams show clearly the change in the type of inequality during the course of the year, particularly the partial suppression, during the summer months, of the morning minimum in N. Owing to the fact that the period represented was the quietest part of an eleven years' cycle, the curves for "all" days differ comparatively little from those for "quiet" days.

The values of the amplitudes and epochs in the representation of diurnal inequalities by means of harmonic series are given in the *Hourly Values* for the different months of each year, and for each year. In order to have a comprehensive view of these quantities, Table V. has been drawn up. It compares for each month and for the year the values * of c_1, c_2, α_1, α_2, in the Fourier series for N, W, and V, first as the mean for the years 1911–15, and secondly for 1915 alone. In the case of V, the means are for the three years 1911, 1914, 1915. In effect, therefore, the table contrasts the data of a more disturbed year with the mean data of a series of less disturbed years.

* The phase angles refer to midnight G.M.T.

TABLE V.—*Harmonic Analysis of Diurnal Inequalities.* (*All days.*)

Month.	North Component.								West Component.								Vertical Component.							
	c_1.		c_2.		a_1.		a_2.		c_1.		c_2.		a_1.		a_2.		c_1.		c_2.		a_1.		a_2.	
	Mean.	1915.	Mean.	1915.	Mean.	1915.	Mean.	1915.	Mean.	1915.	Mean.	1915.	Mean.	1915.	Mean.	1915.	Mean.	1915.	Mean.	1915.	Mean.	1915.	Mean.	1915.
	γ	γ	γ	γ	°	°	°	°	γ	γ	γ	γ	°	°	°	°	γ	γ	γ	γ	°	°	°	°
January .	3·1	3·7	3·0	3·5	31·6	42·7	247·8	248·3	7·3	8·0	3·2	2·7	259·4	257·9	20·5	10·6	5·3	4·4	1·3	0·3	170·1	166·5	276·8	291·6
February .	4·9	5·9	3·8	4·0	65·1	73·5	246·1	255·4	8·8	10·8	4·7	4·4	255·5	254·2	26·7	47·5	7·5	6·6	3·4	3·2	168·9	178·3	266·9	261·5
March .	10·4	14·6	6·8	8·3	91·5	96·2	262·6	272·6	10·2	13·4	8·3	10·1	232·0	227·1	15·7	13·9	7·6	6·9	4·2	5·0	174·9	182·4	251·9	241·5
April . .	14·3	15·2	9·1	11·2	103·4	102·5	266·2	264·9	13·5	17·5	10·0	11·2	211·0	209·9	14·4	8·7	8·4	9·2	5·9	7·2	160·8	155·1	249·9	252·8
May . .	15·8	16·8	8·5	10·0	115·8	119·5	276·5	274·7	15·2	17·4	9·0	10·3	199·9	200·0	31·9	23·0	7·5	8·4	6·1	6·3	142·9	138·6	252·7	256·4
June . .	16·5	18·8	9·0	12·0	117·7	113·9	279·0	270·2	18·8	21·6	9·0	10·0	194·7	195·6	23·0	15·1	5·5	5·7	5·5	6·2	139·3	159·1	244·6	244·9
July . .	16·1	19·2	9·5	13·5	115·1	118·9	275·8	276·0	17·9	21·7	9·7	11·3	195·8	194·6	27·1	31·0	6·1	7·0	5·6	6·8	153·9	143·4	250·5	249·3
August .	17·0	20·3	8·9	11·5	113·6	112·6	286·4	278·8	14·9	18·4	10·0	11·1	209·8	202·5	39·3	35·8	5·7	6·1	6·4	7·0	165·8	173·5	258·1	250·1
September .	15·8	19·3	7·5	8·2	102·5	102·6	289·0	287·4	11·6	14·0	8·4	8·9	224·8	228·9	40·6	34·9	5·6	9·1	4·3	4·9	171·3	181·6	265·3	260·3
October . .	11·8	13·7	6·5	7·5	87·2	89·3	275·3	279·4	8·8	13·9	7·0	8·9	240·8	256·7	15·8	4·1	10·1	17·0	3·2	5·1	190·2	202·1	253·8	254·8
November .	6·7	9·3	4·6	5·3	82·9	100·4	262·0	274·7	8·1	12·9	4·4	4·9	263·6	277·1	13·7	6·5	7·8	13·2	2·2	3·0	194·1	204·5	263·7	230·0
December .	2·2	3·5	2·5	3·2	57·4	62·4	251·3	250·2	6·9	9·2	3·4	3·8	265·7	264·5	13·0	9·2	3·9	4·2	0·9	0·6	178·4	181·8	254·3	261·8
Arith. means	11·2	13·4	6·6	8·2	90·3	94·5	268·2	269·4	11·8	14·9	7·3	8·1	229·4	230·8	23·5	20·0	6·8	8·2	4·2	4·6	167·6	172·2	257·4	254·6

For the north component, the amplitudes of both waves, diurnal and semi-diurnal, for 1915 were greater than that of the five years' mean. If anything, the relative increase was greater for the semi-diurnal wave. The epochs for 1915 and the mean differed in an irregular manner, but apparently the diurnal wave was on the whole earlier in 1915. Apparently, also, this acceleration of the epoch was more pronounced in the winter months. The epoch of the semi-diurnal wave in 1915 was nearly that of the mean, but it also showed a tendency to be earlier in the winter months.

For the west component, the 1915 amplitudes were also greater, except in the case of two months, where the effect may be of an accidental character. As for the epochs in 1915, that of the diurnal wave was earlier, that of the semi-diurnal wave later, by a small amount. The differences were, however, irregular during the year, both in sign and amount.

For the vertical component, the amplitudes of both waves were, in 1915, lower in the first quarter and higher during the remainder of the year, but, except in October and November, the differences were small and of slight significance. For both waves the epochs in 1915 differed irregularly from those of the mean.

9. *Absolute Daily Range.*—The daily maximum and minimum values of each component have been published in the *Geophysical Journal* since 1911, along with their mean values for each month. Taking these latter values, we can construct Table VI. Table VII. gives the same data arranged as percentages of the annual means.

TABLE VI.—*Mean Diurnal Absolute Range* (*All Days*), 1911–1915.

Unit = 1γ.

	North Component.						West Component.						Vertical Component.					
	1911.	1912.	1913.	1914.	1915.	Mean.	1911.	1912.	1913.	1914.	1915.	Mean.	1911.	1912.	1913.	1914.	1915.	Mean.
January .	78	33	40	29	41	44·2	75	34	42	33	45	45·8	39	10	..	22	20	..
February .	98	32	45	33	55	52·6	89	43	44	42	61	55·8	51	13	..	17	30	..
March .	93	43	50	54	79	63·8	81	53	59	63	76	66·4	50	20	..	24	45	..
April .	99	61	62	70	82	74·8	83	57	54	67	83	68·8	49	25	..	44	46	..
May .	87	67	57	62	75	69·6	72	53	57	56	73	62·2	56	25	..	28	38	..
June .	68	62	61	68	114	74·6	66	58	62	69	105	72·0	34	22	..	35	40	..
July .	83	56	58	77	84	71·6	69	60	56	71	78	66·8	37	..	..	30	40	..
August .	73	68	56	84	82	72·6	63	65	58	71	85	68·4	37	31	..	33	50	..
September	70	71	58	74	84	71·4	61	60	56	69	85	66·2	27	26	20	33	44	..
October .	63	54	57	69	96	67·8	64	51	64	61	104	68·8	31	22	21	30	73	..
November	47	43	36	56	98	56·0	48	41	36	55	91	54·2	20	..	13	24	57	..
December	39	34	28	40	59	40·0	43	42	33	44	61	44·6	22	..	13	15	27	..
Mean .	75	52	51	60	79	63·3	68	51	52	58	79	61·7	38	..	..	28	43	..

TABLE VII.—*Mean Diurnal Absolute Range* (*All Days*), 1911–1915. *Expressed for each Month as a Percentage of the Mean for the Particular Year.*

Month.	North Component.						West Component.						Vertical Component.					
	1911.	1912.	1913.	1914.	1915.	Mean.	1911.	1912.	1913.	1914.	1915.	Mean.	1911.	1912.	1913.	1914.	1915.	Mean.
January .	104	63	78	48	52	69	110	67	81	57	57	74	103	..	..	79	47	76
February .	131	62	88	55	70	81	131	84	84	72	77	90	134	..	..	61	70	88
March .	124	83	98	90	100	99	119	104	114	108	96	108	132	..	..	85	105	107
April .	132	117	122	117	104	118	122	112	104	115	105	112	129	..	..	157	107	131
May .	116	129	112	103	94	111	106	104	110	96	92	102	147	..	..	100	88	112
June .	91	119	120	113	144	117	97	114	120	119	133	117	89	..	..	125	93	102
July .	111	107	114	128	106	113	101	118	108	122	99	110	97	..	..	107	93	99
August .	97	131	110	140	104	116	92	128	112	122	109	113	97	..	..	118	116	110
September	93	137	114	123	106	115	90	118	108	119	109	109	71	..	..	118	102	97
October .	84	104	112	115	122	107	94	100	123	105	132	111	81	..	..	107	170	119
November	63	83	71	93	124	87	71	80	69	95	115	86	53	..	..	85	133	90
December	52	65	55	67	75	63	63	82	63	76	77	75	58	..	..	54	63	58

These tables exhibit the usual results, *e.g.* the low range during the winter months from November to February, and the increased range at the spring equinox. But for the present purpose—the comparison of 1915 with the previous years—the marked diminution in daily range during the magnetically quiet years 1912 and 1913, and the well-marked increase in the more disturbed year 1915, are noticeable. Not only so, but the tables also show that the average departure from the mean is much less during the quieter years. There is also some indication of a summer depression in the values, but it appears to occur in May, and not, as in the declination ranges at Kew, in June.

In connection with absolute range, the question of the diurnal incidence of turning values of each component may be considered. The data are collected in Table VIII., which shows for each hour of the day the number of cases of

occurrence of maxima and minima for each component. In order to bring out certain prominent features, a separation has been effected between "0," "1," and "2" days. The materials for this table are the data published in the *Geophysical Journal* for 1911–1915, omitting the records for the vertical component during 1912 and 1913. In order to make the results comparable, each horizontal row shows the manner in which 1000 days of the particular character would be distributed.

For the sake of brevity, that particular hour during or about which a turning value occurs most frequently will be referred to as the principal hour, and where there is another hour during or about which there is a noticeable, though less high frequency, it will be referred to as the secondary hour. Hours will be referred to by the time of their ending, reckoned by Greenwich Mean Time.

TABLE VIII.—*Hours of Occurrence of Maxima and Minima: Distribution for* 1000 *Days.*

	Character.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.
North maximum.	0	51	16	7	8	16	33	44	23	6	10	3	..	3	6	11	8	21	52	146	143	117	92	86	99
	1	53	27	9	14	13	37	33	19	7	4	1	..	1	9	12	25	41	55	90	117	126	123	113	75
	2	62	8	12	16	21	21	16	16	..	..	4	4	..	..	21	21	77	120	107	140	110	90	74	70
North minimum.	0	16	13	4	7	..	1	1	..	4	39	249	366	175	46	13	12	9	5	7	7	3	9	3	8
	1	18	7	10	6	1	1	1	4	16	68	172	286	149	57	38	27	30	23	16	17	13	12	10	17
	2	16	29	20	4	12	16	..	25	33	69	143	163	127	90	56	32	29	20	8	25	16	20	29	25
West maximum.	0	4	8	4	7	1	..	1	..	..	..	8	34	208	459	181	51	15	7	1	4	..	..	3	3
	1	14	18	12	13	7	6	7	7	2	4	7	44	172	328	208	51	27	16	16	7	5	7	10	11
	2	20	20	20	16	32	36	24	4	8	..	12	40	93	202	177	151	32	47	12	8	..	8	16	28
West minimum.	0	82	18	14	4	12	23	62	143	224	132	45	3	..	..	..	..	3	4	9	23	37	44	53	64
	1	83	33	29	28	16	28	63	103	141	47	1	..	..	..	1	1	13	27	37	40	68	86	60	97
	2	112	64	40	32	28	24	32	44	40	8	..	..	..	..	8	4	20	48	72	84	80	92	76	92
Vertical maximum.	0	66	2	7	5	5	24	34	41	12	10	7	2	7	17	20	49	127	124	122	110	83	61	22	41
	1	17	4	..	2	4	6	6	8	2	..	2	..	..	8	32	76	171	163	179	129	107	51	25	11
	2	..	..	..	..	5	..	..	..	..	..	..	..	..	11	33	76	136	266	212	114	86	44	16	..
Vertical minimum.	0	67	21	21	10	5	10	15	13	36	61	36	223	356	77	10	5	..	..	..	..	..	3	5	26
	1	124	72	80	65	50	25	19	34	27	27	50	150	158	29	6	..	..	..	..	..	..	2	19	65
	2	123	75	112	118	43	43	48	5	59	..	11	38	75	5	..	..	..	..	..	..	5	27	32	182

Taking the north component maximum, the table shows that the principal hour is 19 h on "0" days, 21 h on "1" days, and 20 h on "2" days. Each class of day shows a secondary hour; on "0" days at 7 h, on "1" days at 6 h, and on "2" days at 5 h or 6 h. A greater concentration of frequency during the post-meridiem hours is noticed on "2" days.

In the north component minimum the principal hour, 12 h, is the same for all three classes of day, and there are indications of a secondary hour about midnight. The chief difference among the three classes is that as we pass from "0" to "1" and to "2" days, there is a diminishing concentration of frequency about the principal hour. Taking (as Dr. Chree has done in discussing the Antarctic results *) 3 hours including the principal hour, it will be seen that the percentage frequency during these hours is 79, 60, and 43, for "0," "1," and "2" days respectively.

* *National Antarctic Expedition*, 1901–1904, Magnetic Observations, p. 138.

For the west component maximum, the principal hour is the same for all three classes, viz. 14 h. In the case of " 1 " days there is some indication of the existence of a secondary hour about 2 h. Similarly with " 2 " days there would appear to be a secondary hour in the early morning, but its incidence is not sharply marked. As in the north component, we have a greater concentration of frequency on " 0 " days, the percentages being 85, 70, and 47 respectively, for " 0," " 1," and " 2 " days.

The west component minimum data yield the first of two instances of a somewhat exceptional result. The principal hour for " 0 " days is 9 h, with a secondary at 1 h ; the principal hour for " 1 " days is also 9 h, with a secondary at midnight. But in the case of " 2 " days, the principal hour is at 1 h, with a somewhat doubtfully indicated secondary at 8 h. As in the previous cases, there is an increasingly wider distribution of frequency as we pass from quiet to disturbed days.

The vertical component maximum figures show that the principal hours are 17 h, 19 h, and 18 h, on " 0 " days, " 1 " days, and " 2 " days respectively, but that while there is a fairly prominent secondary hour at 8 h on " 0 " days, and a doubtful one at the same hour on " 1 " days, there is no secondary hour at all for " 2 " days. Or, to put the matter in another way, 21 per cent. of the maxima during a year occur before noon on " 0 " days, 5 per cent. on " 1 " days, and 0·5 per cent. on " 2 " days. Here it may be remarked that the entry 5, in the table under 5 h on " 2 " days, is due to a single day. It happened to be a day of great disturbance, when, so to speak, anything within the range of terrestrial magnetic possibility might take place. This suppression of all maxima on the vertical component before 12 h on " 2 " days is so very marked during the three years which furnish the data that it may be said to be a characteristic of " 2 " days. It may be added that the time of the occurrence of the maximum of the vertical component is peculiar in this respect, that while increased disturbance in other components is marked by a wider distribution of frequency, the vertical component maximum shows an increasing concentration of frequency. The percentages of concentration for " 0," " 1," and " 2 " days are 37, 51, and 61 respectively.

Lastly, the vertical component minimum shows a similar interchange between principal and secondary hours. On " 0 " and " 1 " days there is a principal hour at 13 h and a secondary at 1 h. But on " 2 " days the principal hour is at 24 h and the secondary at 13 h. There is also diminished concentration of frequency as disturbance increases, the percentages for " 0," " 1," and " 2 " days being 66, 36, and 38 respectively.

The data in Table VIII. are represented graphically in Plate VI., to which reference can be made.

The foregoing results take no cognisance of the manner in which the frequencies are distributed throughout the year. When considered from this point of view, a number of interesting results are reached, but their mere statement would take up more space than can be allotted here, and the present is hardly a suitable opportunity for their theoretical discussion. It is intended to deal with them in detail elsewhere.

TABLE IX.—*Principal Magnetic Storms.*

Date.	Time of "sudden commencement" if observed.	Maximum. North Component. Value.	Time.	West Component. Value.	Time.	Vertical Component. Value.	Time.	Minimum. North Component. Value.	Time.	West Component. Value.	Time.	Vertical Component. Value.	Time.
1915.	d. h. m.		h. m.		h. m.		h. m.		h. m.		h. m.		h. m.
25th January		1116	20 48	134	10 3	218	17 3	931	16 57	38	20 42	155	3 17
8th February		1025	18 38 / 0 49 (9th)	147	13 53	232	18 35	956	10 55	46	2 35 on 9th	156	23 48
19th ,,		1038	0 4 (20th)	156	22 50	254	17 17	916	23 1	13	23 57	160	23 15
20th ,,		1066	21 32	145	13 56	196	15 22	964	11 7	15	0 0	149	2 47
21st ,,		1047	18 9	129	11 22	202	15 32	967	12 15	41	18 0	178	11 21
22nd ,,		1063	23 17	127	13 11	207	21 1	955	22 20	0	21 31	170	23 58
23rd ,,		1036	17 3	130	15 7	234	17 45	955	16 37	21	17 42	164	2 42
24th ,,		1054	19 15	125	12 3	215	17 9 / 18 52	948	10 32	42	20 47	163	3 31
7th March	6 15 23	1056	22 58	126	6 43	209	21 36	967	22 40	— 22	23 30	143	24 0
8th ,,		1029	22 4	144	15 4	224	16 40	928	10 48	4	0 0	113	2 27
9th ,,		1026	3 40	127	12 18	190	21 32	927	11 35	40	21 32	138	5 12
21st ,,		1095	20 24	142	16 4	275	18 7	945	21 14	— 8	21 51	127	21 0
22nd ,,		1060	16 33	137	0 43	218	16 35	932	0 48	39	18 43	108	1 3
8th April	7 19 46	1152	19 49 on 7th	166	14 50	188	20 48 on 7th	936	12 22	23	0 54	119	0 52
26th ,,	26 3 58	1077	16 8	184	16 8	310	18 15	925	10 9	42	9 23	144	8 7
27th May		1077	20 32	152	17 10	226	17 55	974	17 54	62	6 26	125	5 35
12th June		1046	18 52	140	13 42	218	17 59	946	8 46	— 36	23 51	120	24 0
13th ,,		1081	19 59	131	13 33	196	19 52	920	10 18	— 23	0 12	107	2 0
17th ,,	16 13 1	> 1426	approx. 16 15	388	16 19	> 486	approx. 16 25	< 575	approx. 9 35	— 319	7 51	?*	?*
18th ,,		1003	3 22	119	14 9	198	17 30	822	2 34	— 40	2 24	18	2 33
2nd July	1 2 34	1060	0 29	117	3 42	217	18 7	950	4 3	31	1 6	92	4 2
27th ,,		1060	18 9	127	13 52	220	17 38	951	9 34	24	7 1	129	3 5
17th August		1060	20 6	123	13 33	184	16 42	940	10 20	38	7 50	150	10 5 / 12 29
22nd ,,		1035	16 18	95	13 51	175	23 0	973	11 45	24	6 50	153	11 0
23rd ,,		1021	18 4	110	13 34	178	15 55 / 16 42	961	10 9	25	7 51	157	11 55
14th October	14 13 48	1036	21 52	1170	15 55	282	18 24	932	16 7	972	21 43	167	11 36
15th ,,		1073	15 43	1109	14 57	> 337	16 15	828	21 25	918	23 57	9	21 39
16th ,,		1041	22 43	1081	13 30	196	22 8	906	1 19	921	0 1	34	0 50
19th ,,		1041	19 23	1120	13 37	266	?18 8	930	20 14	922	19 18	137	24 0
20th ,,		1048	22 25	1115	5 54	169	14 47	866	9 53	993	18 17	116	24 0
23rd ,,		1093	23 11	1166	13 54	> 353	17 12	900	13 52	850	18 10	59	2 46
24th ,,		1152	17 59	1131	4 9	213	17 56	901	5 29	923	17 57	— 14	2 40
25th ,,		1065	18 0	1125	5 52	248	16 43	880	11 9	962	18 14	71	0 10
1st November		?	?	?1202	?15 18	305	15 34	?	?	? 947	?19 28	?	?†
5th ,,	5 14 37	1134	21 21	1103	18 12	267	20 55	852	24 0	921	24 0	38	23 54
6th ,,		1141	1 17	1170	8 17	309	16 50	817	11 25	865	1 8	9	0 8
16th ,,		1097	19 18	1123	12 53 / 14 18	298	14 25	928	13 53	861	22 26 on 15th	132	6 26
17th ,,		1025	23 43	1113	5 41	220	15 0	885	11 45	990	23 30	83	3 9
18th ,,		1057	19 47	1161	7 18	222	13 45	902	7 56	979	1 7	81	0 54

* Gas failed.

† Clock stopped.

Notes.—Constants to be added to tabuluted Values.

North component	15,000 γ.
West ,, ...	5,000 γ (before September). 4,000 γ (after September).
Vertical ,, ...	45,000 γ.

Principal Magnetic Storms during 1915.

Table IX. gives details regarding the principal magnetic disturbances recorded at Eskdalemuir during 1915. Some of these have been referred to in the Magnetic Notes for the individual months.

The maximum and minimum values of each component, with the time of their occurrence, are given in the case of each disturbance. Where a disturbance has lasted over more than one day the maximum and minimum for each day have been given. Where the disturbance has been ushered in by a "sudden commencement," the time of occurrence of this phenomenon, given to the nearest minute, is also stated.

In a few cases maximum and minimum values are given in the form of limits, ">486, <575." In these cases the photographic trace has gone beyond the edge of the sheet, and the value given is the extreme value actually recorded. Query marks indicate cases in which, from one cause or another, there has been failure of trace.

Magnetograms for five storms are reproduced in Plates II., III., and IV.

ADDENDUM.

Diurnal Inequalities for Disturbed Days, 1915.

The inequalities for disturbed days were computed after the matter for this volume was in the printers' hands. The tables are, therefore, reproduced below on p. 94 instead of in their logical sequence. The numbers correspond with those of the tables for the quiet days.

The list of selected disturbed days for 1915 as issued by the International Commission in December 1917 is as follows:—January 1,* 5, 25, 26, 27; February 8, 19, 20, 23, 24; March 7, 8, 20, 21, 22; April 7, 8, 15, 22, 26; May 1, 2, 16,* 17, 27; June 12, 13, 17,* 18, 22; July 2, 6, 9, 11, 27; August 2,* 7, 26, 27, 29; September 22, 23, 24, 28, 29; October 15, 19, 23, 24, 25; November 1,* 5, 6, 16, 17; December 6, 7, 15, 16, 26.

On account of imperfections in the records for the days marked with a *, the following were substituted for them:—January 6, May 20, June 21, August 17, and November 18.

The computed inequalities are given in Tables LVA., LVIA., and LVIIA.; the ranges of these inequalities in Table LXIIIA., and the corresponding Fourier coefficients in Table LXIVB. The seasonal inequalities are also represented graphically in Plates VI. and VII.

The number of disturbed days being so small, general statements concerning the results must be given with reserve. The contrast in type between the curves for quiet days and all days is most marked in the case of Vertical Force. On the average on quiet days the Vertical Force falls off from sunrise to noon and recovers its maximum value about sunset. On the other hand, on disturbed days there is a steady increase from early morning to the evening and a rapid decrease during

the night. The vector diagrams in Plate VIII. bear a general resemblance to those for Kew Observatory, Richmond.*

In connection with the N, V diagram, the rule suggested by Mr. R. B. Sangster † that during the early afternoon the curve presents a close approach to a straight line which is nearly perpendicular to the earth's axis may be mentioned. In the disturbed days N, V, diagram for Eskdalemuir, the line from 12 h to 18 h makes an angle of 96° with the polar axis. The inclination of the corresponding part in the quiet day diagram is about 76°.

In connection with the ranges in the several inequalities, shown in Table LXIIIA., two outstanding details may be noted. The first is the relatively low range in W during disturbed days in May, which was lower than the range of the quiet day inequality for that month. The peculiarity is due to the high values of the component during the early hours of May 27. These values occurring at a time when the component is usually at the minimum would themselves be sufficient to alter the mean value of the inequality by about 10 γ at 3 h and by lesser amounts at the neighbouring hours. As, on the other hand, there was no correspondingly high maximum contributed by that day, the net result is to lower the inequality range for the month. The large range in V on disturbed days in October is also noteworthy. It is fully seventeen times the quiet day range.

In Table LXIVB. the coefficients of the first four terms of the Fourier expression for each diurnal inequality for each season are given. In Table LXIV., p. 59 above, the corresponding data for all days are given for the several months, but the analysis is only taken to the second term. It is proposed to give four terms for 1916 and subsequent years.

Several points may be noted with regard to the amplitudes and epochs of the different oscillations into which the disturbed-day-inequalities have been analysed. The diurnal wave in N and W is greatest in summer, but that in V in greatest for the equinoctial months. The semi-diurnal wave in N is greatest in summer, but in W and V at the equinoxes. As for epochs, there is a difference of more than three hours between the summer and winter diurnal waves in N, the former being the earlier. The opposite is the case in W, where the epochs differ by nearly $4\frac{1}{2}$ hours.

* C. Chree, *Studies in Terrestrial Magnetism*, pp. 46, 61.
† *Proc. Roy. Soc.*, A., 1910, lxxxiii., p. 428.

LVA.–LVIIA.—SELECTED DISTURBED DAYS—DIURNAL INEQUALITIES OF THE GEOGRAPHICAL COMPONENTS OF MAGNETIC FORCE.

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.* 1915.

LVA.—NORTH COMPONENT.

△X (or △N).

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	Noon.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.	2·9	3·2	2·3	12·2	12·6	12·9	9·4	− 0·7	− 4·0	− 7·2	$\bar{n}$ 15·3	− 14·8	− 6·1	− 6·8	− 0·3	− 6·5	−13·4	− 6·3	− 1·0	− 2·5	x 16·6	8·1	2·7	1·8
F.	1·4	3·8	4·2	0·2	6·3	7·1	7·3	2·3	2·0	− 13·4	$\bar{n}$ 23·0	− 18·4	− 7·5	− 1·3	1·9	3·3	− 8·2	− 1·4	− 0·6	1·8	11·9	x 12·3	− 2·3	10·3
M.	1·8	11·5	9·1	11·0	7·0	1·9	3·5	2·2	− 15·6	− 26·2	$\bar{n}$ 29·3	− 26·3	− 27·6	− 12·4	1·5	0·4	13·0	6·3	15·1	x 18·6	10·2	11·5	7·1	6·0
A.	8·6	11·5	8·4	10·9	11·2	13·6	10·1	5·6	− 7·5	− 27·0	− 36·1	$\bar{n}$ 36·7	− 34·0	− 24·7	− 0·9	2·7	x 21·8	16·2	13·1	15·0	8·5	− 1·4	3·7	7·5
M.	4·0	6·7	5·0	5·1	6·4	1·3	− 7·0	− 15·5	− 24·8	− 30·8	− 31·3	$\bar{n}$ 32·0	− 23·9	− 14·8	− 2·3	9·0	17·9	x 33·6	26·7	23·0	16·5	11·8	9·8	5·7
J.	7·3	0·1	− 6·6	8·9	3·6	1·7	− 4·9	− 19·0	− 26·5	$\bar{n}$ 35·8	− 34·7	− 29·2	− 21·8	− 12·7	3·2	12·1	18·6	30·1	x 34·6	30·6	19·1	12·8	9·1	− 0·8
J.	1·0	0·3	− 1·7	− 5·6	− 2·7	− 5·8	− 11·2	− 6·9	− 17·0	− 28·7	− 27·7	− 26·6	$\bar{n}$ 31·1	− 10·6	0·5	9·5	29·6	x 38·1	28·8	22·4	18·7	15·4	5·7	5·5
A.	1·6	17·8	14·9	0·0	3·3	11·0	4·1	− 12·1	− 31·8	− 33·7	$\bar{n}$ 37·0	− 34·7	− 26·3	− 13·0	− 6·7	8·6	11·9	21·6	24·1	x 26·7	15·6	12·1	13·4	8·7
S.	11·7	12·0	− 1·6	18·2	19·5	4·7	− 12·6	− 17·6	− 19·6	− 30·9	− 32·3	$\bar{n}$ 32·9	− 25·8	− 11·6	− 3·6	15·2	6·7	16·7	17·9	10·2	19·2	x 21·2	4·1	11·3
O.	13·9	0·3	5·1	8·9	7·1	4·7	− 5·9	− 10·7	− 19·0	− 27·4	$\bar{n}$ 31·6	− 26·8	− 14·4	− 6·0	9·6	14·2	19·0	14·6	− 4·4	− 2·2	3·6	15·6	x 27·1	4·7
N.	16·9	13·5	9·1	0·9	10·3	7·5	− 11·5	$\bar{n}$ 34·7	− 21·7	− 21·3	− 14·3	− 22·3	− 24·0	− 11·2	− 1·8	4·4	14·4	11·4	x 21·8	17·8	17·4	20·4	7·2	− 10·2
D.	7·4	7·0	6·6	8·5	17·3	x 17·7	15·2	9·2	6·4	− 4·5	− 5·3	− 14·3	$\bar{n}$ 25·8	− 13·8	− 9·0	− 15·3	− 2·5	− 9·5	− 6·6	− 1·6	0·2	− 3·7	11·5	4·9
Y.	6·5	7·3	4·6	6·6	8·5	6·5	− 0·3	− 8·2	− 14·9	− 23·9	$\bar{n}$ 26·5	− 26·2	− 22·3	− 11·6	− 0·7	4·8	10·7	x 14·3	14·1	13·3	13·1	11·3	8·3	4·6
W.	7·1	6·9	5·5	5·5	x 11·6	11·3	5·1	− 6·0	− 4·3	− 11·6	− 14·5	$\bar{n}$ 17·4	− 15·9	− 8·3	− 2·3	− 3·5	− 2·4	− 1·5	3·4	3·9	11·5	9·3	4·8	1·7
Eq.	9·0	8·8	5·2	12·2	11·2	6·2	− 1·2	− 5·1	− 15·4	− 27·8	$\bar{n}$ 32·3	− 30·7	− 25·4	− 13·7	1·7	8·1	x 15·1	13·4	10·4	10·4	10·4	11·7	10·5	7·4
S.	3·5	6·2	2·9	2·1	2·6	2·0	− 4·8	− 13·4	− 25·0	− 32·2	$\bar{n}$ 32·7	− 30·6	− 25·7	− 12·8	− 1·3	9·8	19·5	x 30·8	28·5	25·7	17·5	13·0	9·5	4·8

LVIA.—WEST COMPONENT.

−△Y (or △W).

	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.	− 4·8	− 5·8	− 7·3	− 9·0	− 6·3	− 5·3	1·0	1·5	6·8	12·6	13·3	15·2	x 16·7	8·9	5·0	12·1	− 3·8	1·8	− 8·9	− 10·8	$\bar{n}$ 11·7	− 7·5	− 9·8	− 3·9
F.	− 18·4	− 11·8	− 15·1	− 10·7	− 10·2	− 9·0	− 6·1	− 5·3	1·3	6·2	15·8	25·7	x 29·5	28·8	24·0	24·1	0·7	− 3·2	0·2	− 2·7	− 19·2	− 20·0	− 2·3	$\bar{n}$ 22·3
M.	− 8·1	− 3·7	− 8·3	− 2·2	− 1·0	− 2·0	7·3	− 7·9	− 11·7	1·0	8·2	22·2	27·7	31·1	x 36·1	29·6	16·0	2·0	− 13·3	− 14·3	− 20·3	$\bar{n}$ 38·8	− 25·0	− 24·8
A.	− 10·9	− 12·1	− 11·9	− 10·3	− 14·1	− 14·7	− 18·4	− 15·8	$\bar{n}$ 21·0	− 16·2	− 4·4	12·9	30·5	38·3	x 42·1	33·7	36·1	22·0	5·4	− 8·4	− 17·6	− 19·8	− 12·0	− 13·4
M.	− 13·9	− 7·2	− 13·6	− 17·1	$\bar{n}$ 19·1	− 16·8	− 19·0	− 16·1	− 14·1	− 6·4	3·1	16·3	25·2	25·2	25·7	26·1	x 27·4	21·4	10·5	5·7	− 7·7	− 8·2	− 14·0	− 13·5
J.	− 24·6	− 29·2	− 17·6	− 17·2	− 21·0	− 28·6	$\bar{n}$ 30·0	− 28·8	− 25·2	− 12·4	4·4	21·6	34·7	x 44·5	43·9	38·9	29·7	25·5	19·9	9·5	5·9	− 4·5	− 13·5	− 26·0
J.	− 7·5	− 7·6	− 7·1	− 10·9	− 19·8	$\bar{n}$ 26·1	− 17·1	− 15·6	− 22·3	− 9·9	− 0·6	17·3	24·3	x 30·4	27·9	25·5	18·4	12·9	·5·7	5·4	− 0·9	− 10·9	− 8·2	− 3·5
A.	− 8·5	− 13·4	0·1	− 9·2	− 8·9	− 9·2	− 23·5	$\bar{n}$ 25·2	− 19·5	− 4·0	12·7	23·1	31·4	x 34·7	26·4	13·9	11·2	5·1	− 4·4	− 4·9	− 12·0	− 2·3	− 3·3	− 10·2
S.	− 0·6	− 16·2	− 3·6	− 8·6	− 1·6	− 0·2	10·0	1·8	1·6	5·4	13·0	20·2	29·2	x 30·4	20·6	10·6	3·0	− 10·2	− 7·2	− 5·8	− 19·8	$\bar{n}$ 26·4	− 20·4	− 26·2
O.	$\bar{n}$ 43·0	− 22·4	− 10·3	− 4·5	8·8	26·3	22·5	17·8	11·4	5·9	20·0	30·4	38·3	x 43·1	33·4	6·5	− 4·5	− 33·8	− 24·2	− 29·9	− 22·1	− 24·8	− 18·1	− 26·9
N.	− 20·5	− 1·2	− 4·9	− 12·5	2·8	20·7	29·6	30·7	23·7	9·6	16·5	x 32·4	26·6	30·5	23·8	18·1	− 1·1	− 13·2	− 37·1	− 32·3	− 38·2	− 30·5	− 33·4	$\bar{n}$ 40·0
D.	− 4·4	− 2·2	− 0·4	3·8	2·1	7·9	9·7	5·3	2·7	8·9	6·9	18·7	21·1	23·9	x 25·9	14·3	− 1·3	− 10·6	− 20·0	− 24·4	$\bar{n}$ 30·0	− 22·4	− 23·4	− 12·2
Y.	− 13·8	− 11·1	− 8·3	− 9·0	− 7·4	− 4·8	− 2·8	− 4·8	− 5·5	0·1	9·1	21·3	27·9	x 30·8	27·9	21·1	11·0	1·6	− 6·1	− 9·4	− 16·1	− 18·0	− 15·3	$\bar{n}$ 18·6
W.	− 12·0	− 5·2	− 6·9	− 7·1	− 2·9	3·6	8·6	8·0	8·6	9·3	13·1	23·0	x 23·5	23·0	19·7	17·2	− 1·4	− 6·3	− 16·5	− 17·6	$\bar{n}$ 24·8	− 20·1	− 17·2	− 19·6
Eq.	− 15·6	− 13·6	− 8·5	− 6·4	− 2·0	2·4	5·4	− 1·0	− 4·9	− 1·0	9·2	21·4	31·4	x 35·7	33·1	20·1	12·7	− 5·0	− 9·8	− 14·6	− 19·9	$\bar{n}$ 27·4	− 18·9	− 22·8
S.	− 13·6	− 14·3	− 9·5	− 13·6	− 17·2	− 20·2	$\bar{n}$ 22·4	− 21·4	− 20·3	− 8·2	4·9	19·6	28·9	x 33·7	31·0	26·1	21·7	16·2	7·9	3·9	− 3·7	− 6·5	− 9·7	− 13·3

LVIIA.—VERTICAL COMPONENT.

△Z (or △V).

	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
J.	− 4·5	− 5·5	− 8·7	$\bar{n}$ 10·5	− 9·9	− 7·7	− 7·7	− 5·7	− 5·5	− 4·5	− 3·1	− 2·5	− 0·1	6·3	8·3	8·1	11·9	11·3	11·5	x 12·3	6·3	0·7	0·3	− 1·1
F.	− 14·7	− 16·7	$\bar{n}$ 17·6	− 15·7	− 11·1	− 6·6	− 6·0	− 5·1	− 7·1	− 8·8	− 9·1	− 5·9	− 3·0	− 0·8	3·5	7·8	25·8	28·3	x 28·9	24·2	18·5	8·9	− 6·4	− 11·6
M.	$\bar{n}$ 21·0	− 20·4	− 20·8	− 17·2	− 16·0	− 14·2	− 10·8	− 6·1	− 1·7	− 2·3	− 4·7	− 4·3	− 0·1	2·7	8·3	21·3	13·7	x 40·5	36·2	24·8	7·4	1·8	− 4·2	− 12·8
A.	$\bar{n}$ 16·2	− 15·8	− 12·4	− 10·3	− 10·1	− 9·4	− 8·6	− 10·1	− 10·3	− 11·9	− 13·2	− 14·8	− 11·5	− 4·3	4·6	15·4	24·2	x 35·5	34·5	28·6	19·2	9·9	− 3·1	− 9·9
M.	− 2·5	− 11·7	− 17·9	$\bar{n}$ 20·4	− 19·6	− 19·0	− 16·0	− 12·7	− 10·9	− 9·9	− 12·5	− 9·8	− 4·2	3·8	7·2	12·5	19·9	26·7	x 33·5	27·6	18·8	10·2	5·2	1·7
J.	− 20·3	− 27·7	$\bar{n}$ 30·3	− 15·8	− 12·4	− 5·0	− 1·3	0·1	− 1·3	− 0·8	− 2·4	− 3·0	− 2·3	1·5	7·9	15·2	22·4	x 25·0	24·5	21·9	14·5	7·8	− 1·4	− 16·8
J.	− 5·3	− 10·7	− 21·1	$\bar{n}$ 23·9	− 21·1	− 14·3	− 9·5	− 9·9	− 6·5	− 8·3	− 8·3	− 8·6	− 5·2	− 0·8	8·4	18·2	25·6	x 30·4	29·8	22·4	14·2	5·2	1·3	− 2·1
A.	$\bar{n}$ 29·9	− 24·4	− 24·4	− 20·1	− 11·6	− 2·1	3·4	4·5	3·9	3·2	− 1·5	− 4·6	− 2·5	5·8	17·8	26·5	x 26·6	23·9	19·2	10·4	4·3	− 3·0	− 12·3	− 13·0
S.	− 25·3	− 30·1	$\bar{n}$ 36·7	− 35·7	− 26·9	− 20·1	− 14·7	− 9·3	− 4·9	− 0·1	0·9	2·9	8·1	14·8	25·0	x 42·2	39·4	32·0	30·6	19·6	13·2	0·2	− 8·6	− 16·6
O.	− 49·6	− 57·1	$\bar{n}$ 66·7	− 59·2	− 52·4	− 49·9	− 37·2	− 23·0	− 13·9	− 5·3	0·2	11·0	20·3	41·4	66·2	82·1	x 92·7	79·2	45·5	26·7	11·6	− 7·0	− 13·5	− 42·0
N.	− 34·4	− 36·2	− 44·8	$\bar{n}$ 49·8	− 36·0	− 38·2	− 31·9	− 22·7	− 16·1	− 3·7	8·3	22·5	35·9	x 46·0	43·2	39·4	40·4	31·6	39·4	32·7	26·5	− 2·1	− 15·3	− 34·9
D.	− 12·5	− 10·8	− 11·3	− 16·6	$\bar{n}$ 17·6	− 16·5	− 17·0	− 12·9	− 9·3	− 7·8	− 6·3	− 5·4	0·6	6·9	15·8	19·8	19·3	37·8	x 38·3	24·5	11·0	0·3	− 15·6	− 14·9
Y.	− 19·7	− 22·2	$\bar{n}$ 26·1	− 24·6	− 20·4	− 16·9	− 13·1	− 9·4	− 7·0	− 5·0	− 4·3	− 1·9	3·0	10·3	18·0	25·7	30·2	x 33·5	31·0	23·0	13·8	2·7	− 6·2	− 14·5
W.	− 16·5	− 17·3	− 20·6	$\bar{n}$ 23·2	− 18·7	− 17·3	− 15·6	− 11·6	− 9·5	− 6·2	− 2·6	2·2	8·3	14·6	17·7	18·8	24·4	27·2	x 29·5	23·4	15·6	2·0	− 9·3	− 15·6
Eq.	− 28·0	− 30·8	$\bar{n}$ 34·1	− 30·6	− 26·3	− 23·4	− 17·8	− 12·2	− 7·7	− 4·9	− 4·2	− 1·3	4·2	13·7	26·0	40·3	42·5	x 46·8	36·7	24·9	12·9	1·2	− 7·4	− 20·3
S.	− 14·5	− 18·6	$\bar{n}$ 23·4	− 20·1	− 16·2	− 10·1	− 5·9	− 4·5	− 3·7	− 4·0	− 6·2	− 6·5	− 3·6	2·6	10·3	18·1	23·6	26·5	x 26·8	20·6	13·0	5·0	− 1·8	− 7·5

x and $\bar{n}$ mark respectively the mean maximum and minimum hourly values in each month or season.

LXIIIA.—RANGES OF THE MEAN DIURNAL INEQUALITIES OF MAGNETIC FORCE ON SELECTED DISTURBED DAYS.

Eskdalemuir. 1915.

Component.	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Mean.	Y.	W.	Eq.	S.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ	γ
North . . . X	32	36	48	59	66	70	69	64	54	59	57	43	55	41	29	47	63
West . . . Y	28	52	75	63	47	75	57	60	57	86	72	56	61	49	48	63	56
Vertical . . . Z	23	47	61	52	54	55	54	57	79	159	96	56	66	60	53	81	50

LXIVB.—HARMONIC COMPONENTS OF THE DIURNAL INEQUALITIES OF THE GEOGRAPHICAL COMPONENTS OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. *Selected Disturbed Days.* 1915.

(The notation is that of Table LXIV. Eskdalemuir Observatory is 13 minutes of time West of Greenwich.)

NORTH COMPONENT △X (or △N).

Corrected for the effect of the West Component on the North Magnetograph.

Season.	a_1.	b_1.	a_2.	b_2.	a_3.	b_3.	a_4.	b_4.	c_1.	α_1.	c_2.	α_2.	c_3.	α_3.	c_4.	α_4.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	°	γ	°	γ	°	γ	°
Y.	14·7	− 5·6	− 9·8	2·7	1·7	− 1·4	− 0·3	− 0·1	15·7	111	10·1	286	2·2	130	0·3	258
W.	9·9	1·7	− 4·9	0·1	0·4	− 2·7	− 1·2	− 0·2	10·1	81	4·9	271	2·8	172	1·2	261
Eq.	16·5	− 4·9	− 10·8	3·9	3·9	− 1·7	− 0·8	− 1·1	17·2	107	11·5	290	4·3	114	1·3	214
S.	17·7	− 13·5	− 13·6	1·6	0·8	0·1	1·2	1·1	22·3	127	13·7	277	0·8	80	1·6	46

WEST COMPONENT −△Y (or △W).

Corrected for the effect of the North Component on the West Magnetograph.

	a_1.	b_1.	a_2.	b_2.	a_3.	b_3.	a_4.	b_4.	c_1.	α_1.	c_2.	α_2.	c_3.	α_3.	c_4.	α_4.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	°	γ	°	γ	°	γ	°
Y.	− 17·6	− 6·5	2·0	9·4	− 0·3	− 3·1	0·3	1·4	18·8	250	9·6	12	3·1	185	1·4	11
W.	− 19·2	3·2	2·2	6·7	1·8	− 2·0	− 0·2	1·5	19·4	279	7·0	18	2·7	138	1·5	353
Eq.	− 20·9	− 3·2	− 0·1	11·6	0·3	− 5·2	0·5	2·3	21·1	261	11·6	0	5·2	176	2·3	13
S.	− 12·9	− 19·3	2·7	1·5	− 3·0	− 2·0	0·4	0·4	23·2	214	3·1	61	3·6	236	0·6	49

VERTICAL COMPONENT △Z (or △V).

Corrected for the effect of the Horizontal Components on the Vertical Magnetograph.

	a_1.	b_1.	a_2.	b_2.	a_3.	b_3.	a_4.	b_4.	c_1.	α_1.	c_2.	α_2.	c_3.	α_3.	c_4.	α_4.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	°	γ	°	γ	°	γ	°
Y.	− 7·1	− 23·7	− 7·8	− 3·5	0·7	1·4	0·1	0·3	24·7	197	8·6	246	1·6	28	0·4	20
W.	− 6·8	− 22·2	− 5·4	− 2·0	− 2·1	0·8	− 0·6	2·1	23·2	197	5·7	249	2·3	290	2·2	345
Eq.	− 11·3	− 31·0	− 10·6	− 3·0	2·3	2·5	0·3	− 1·4	33·0	200	11·0	254	3·4	43	1·5	167
S.	− 3·3	− 17·9	− 7·6	− 5·4	2·0	0·9	0·6	0·3	18·2	190	9·3	235	2·2	65	0·7	65

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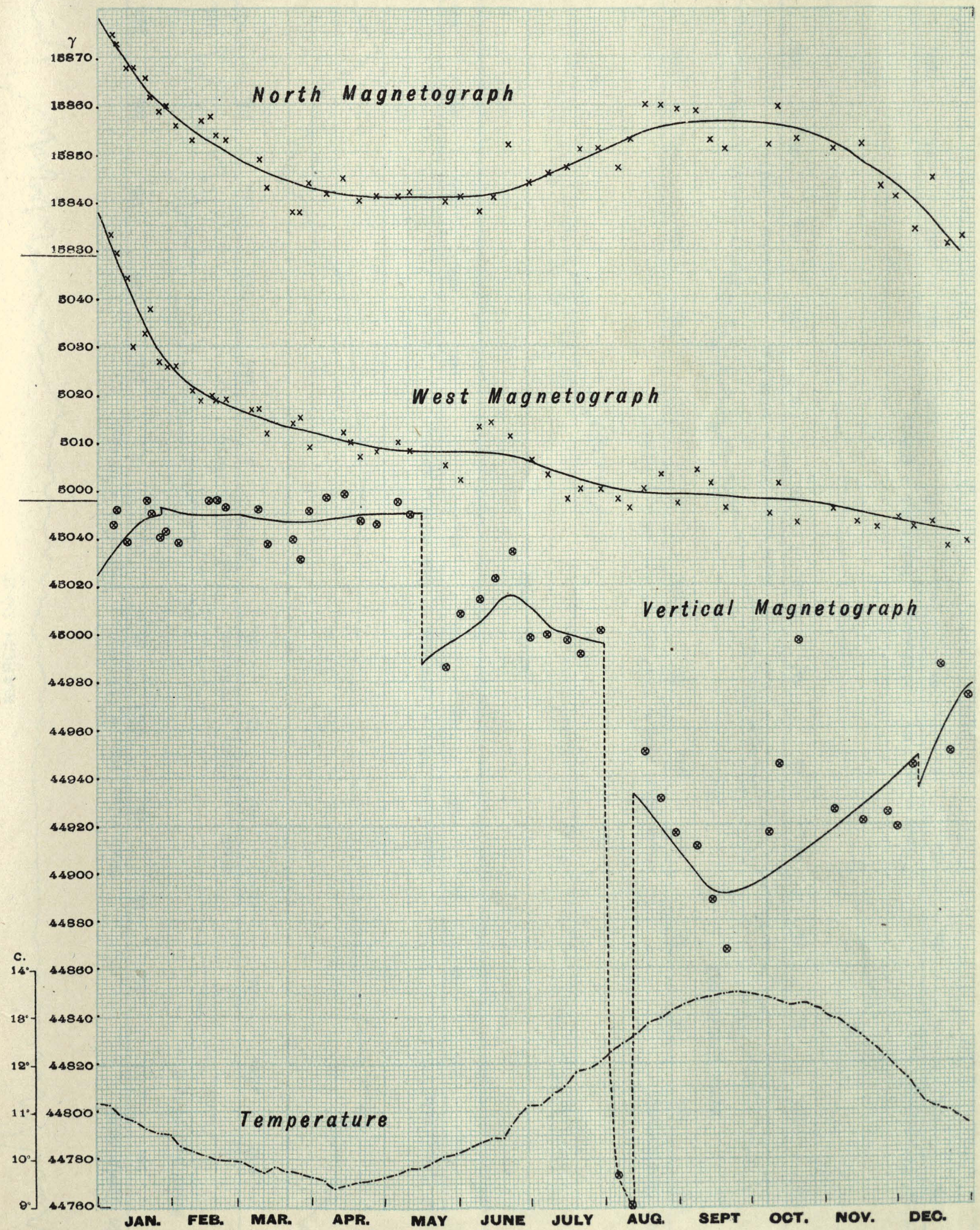
Plate 1.

Eskdalemuir Magnetographs Base Values, 1915.



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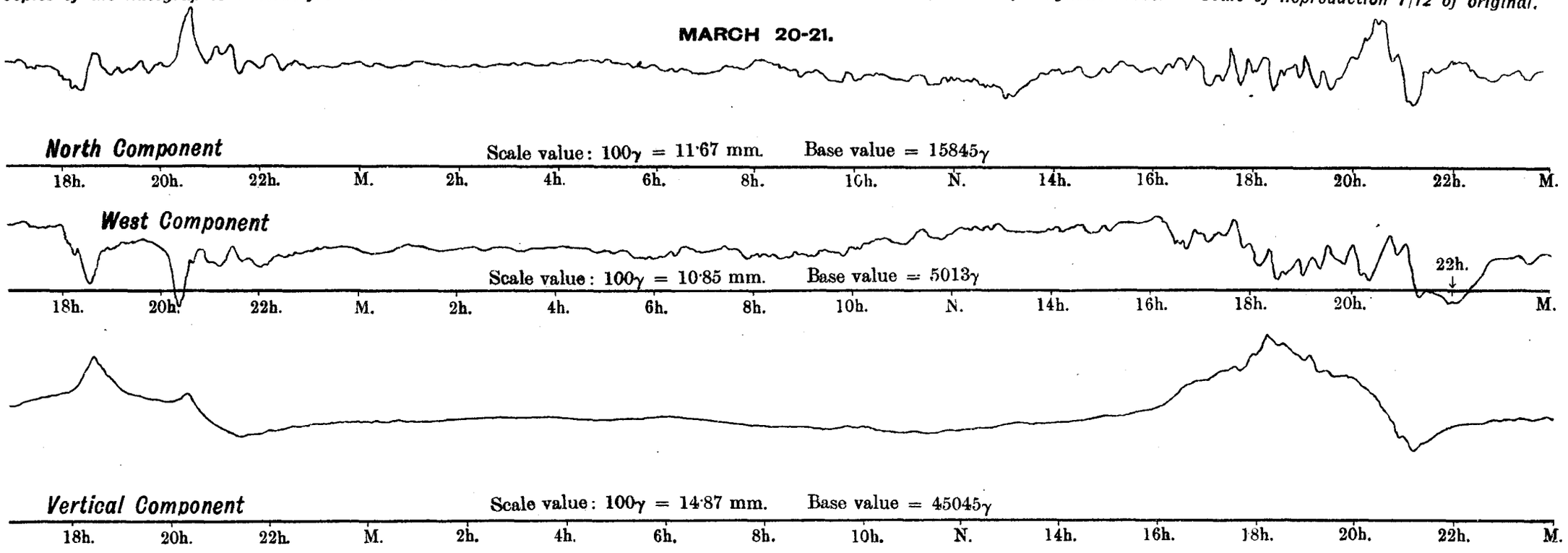

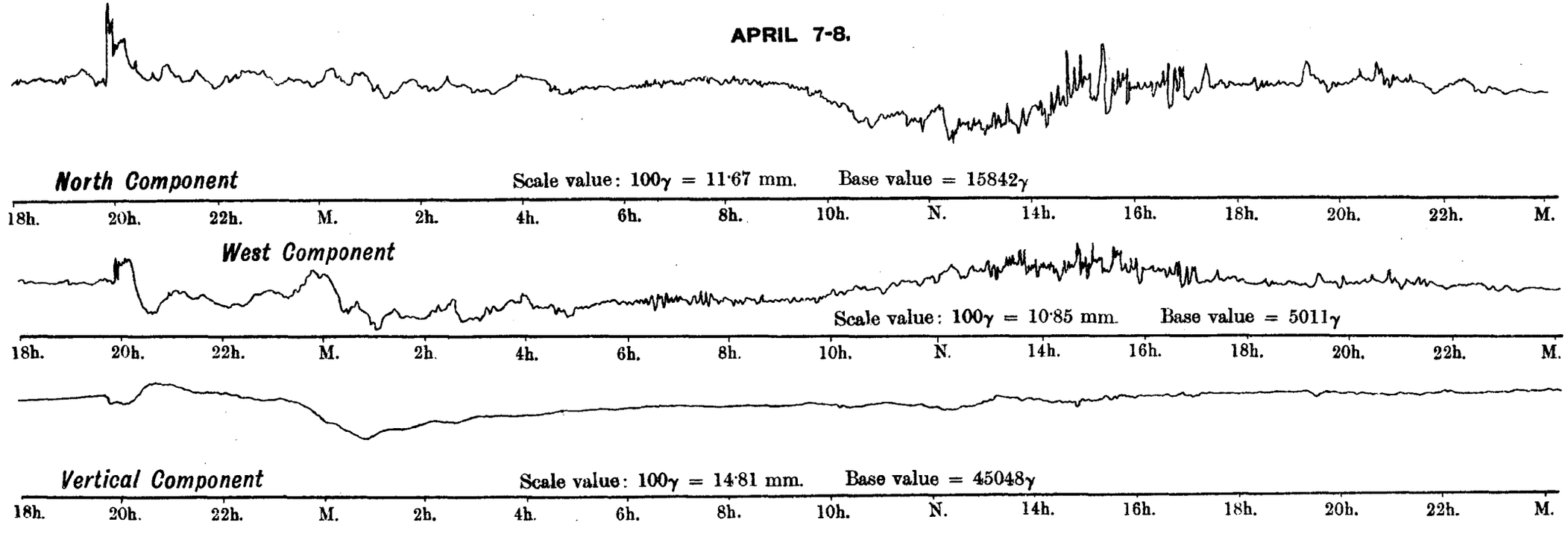

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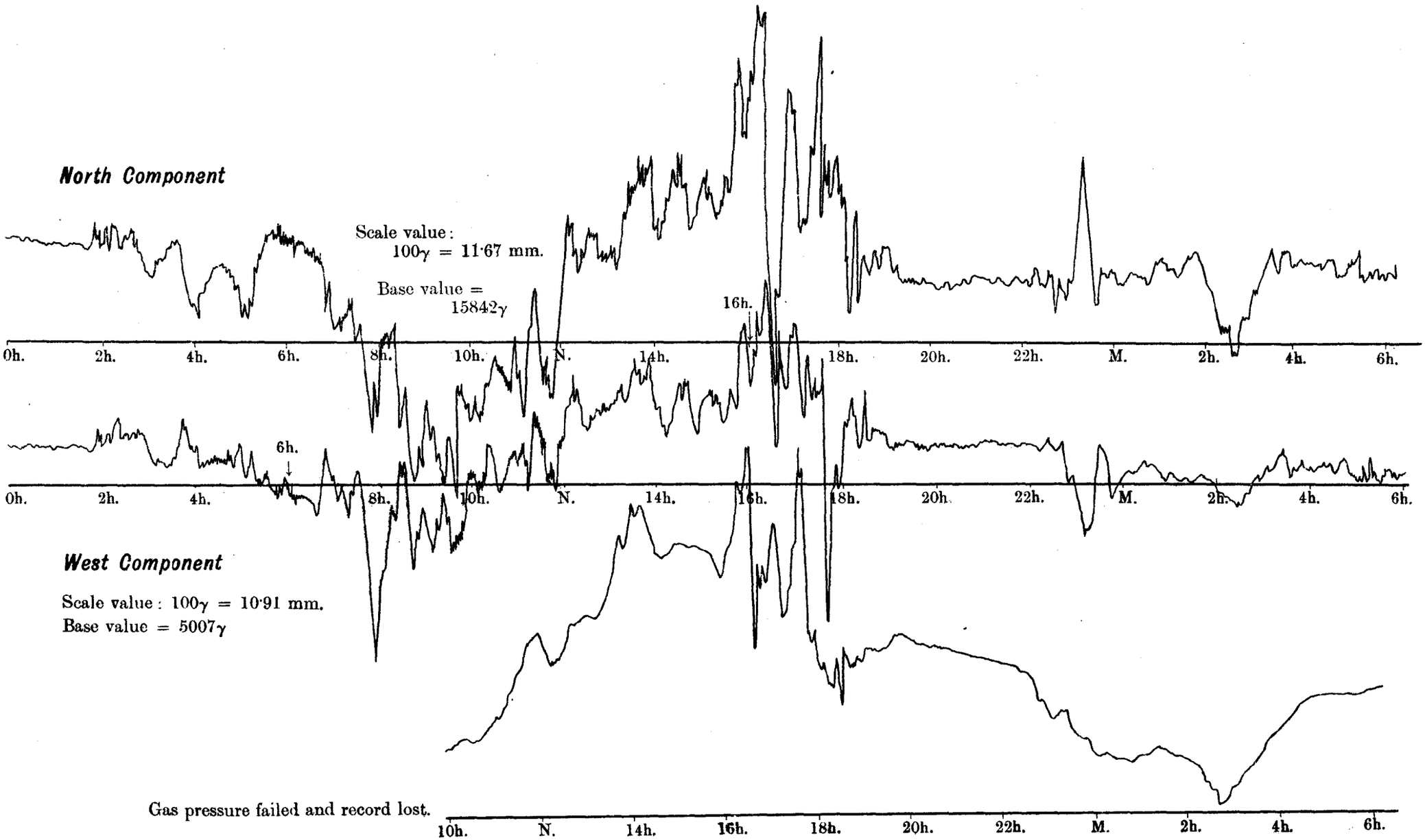

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Plate IV.

MAGNETOGRAMS FOR DISTURBED DAYS: ESKDALEMUIR. 1915.

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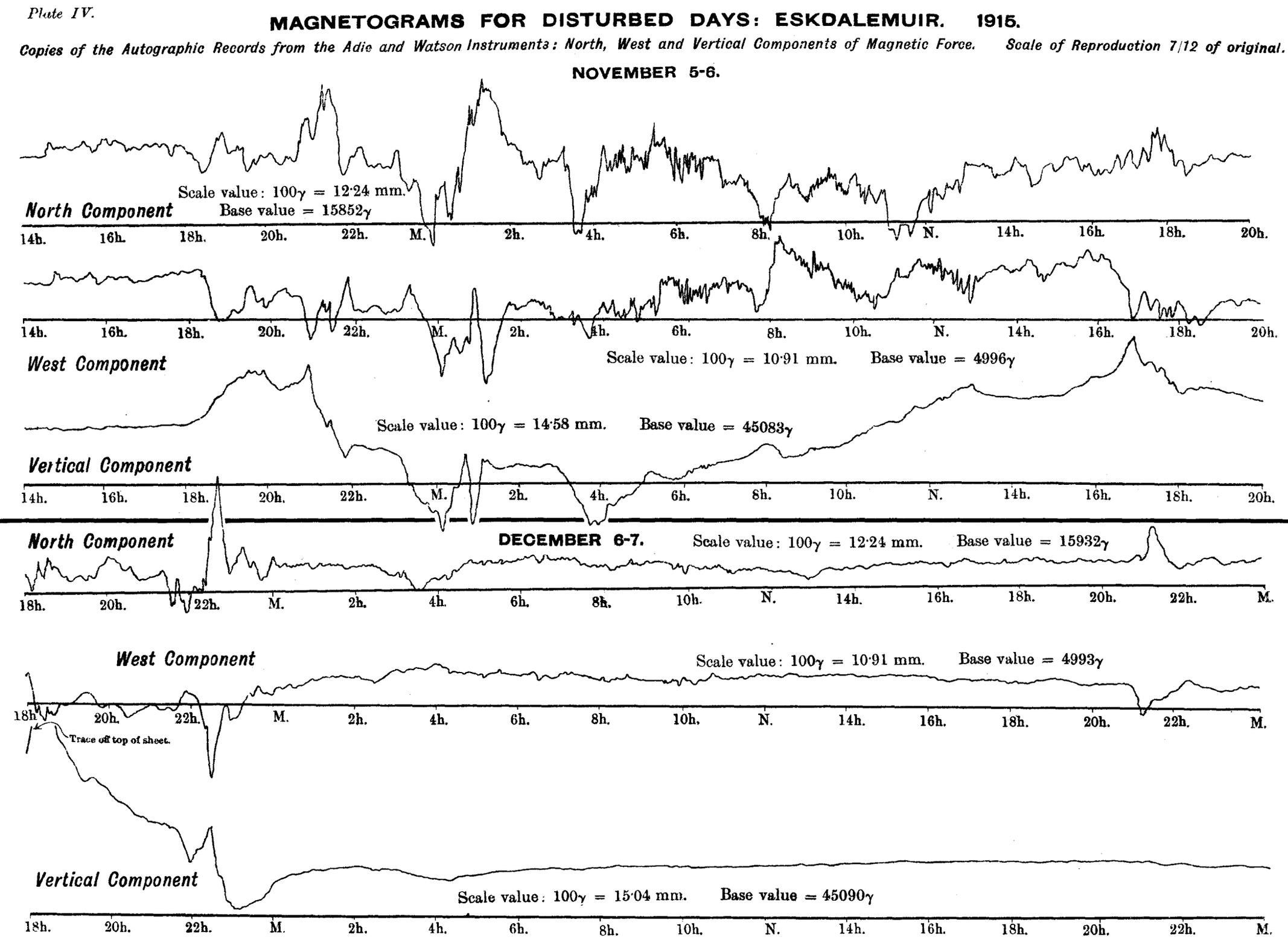

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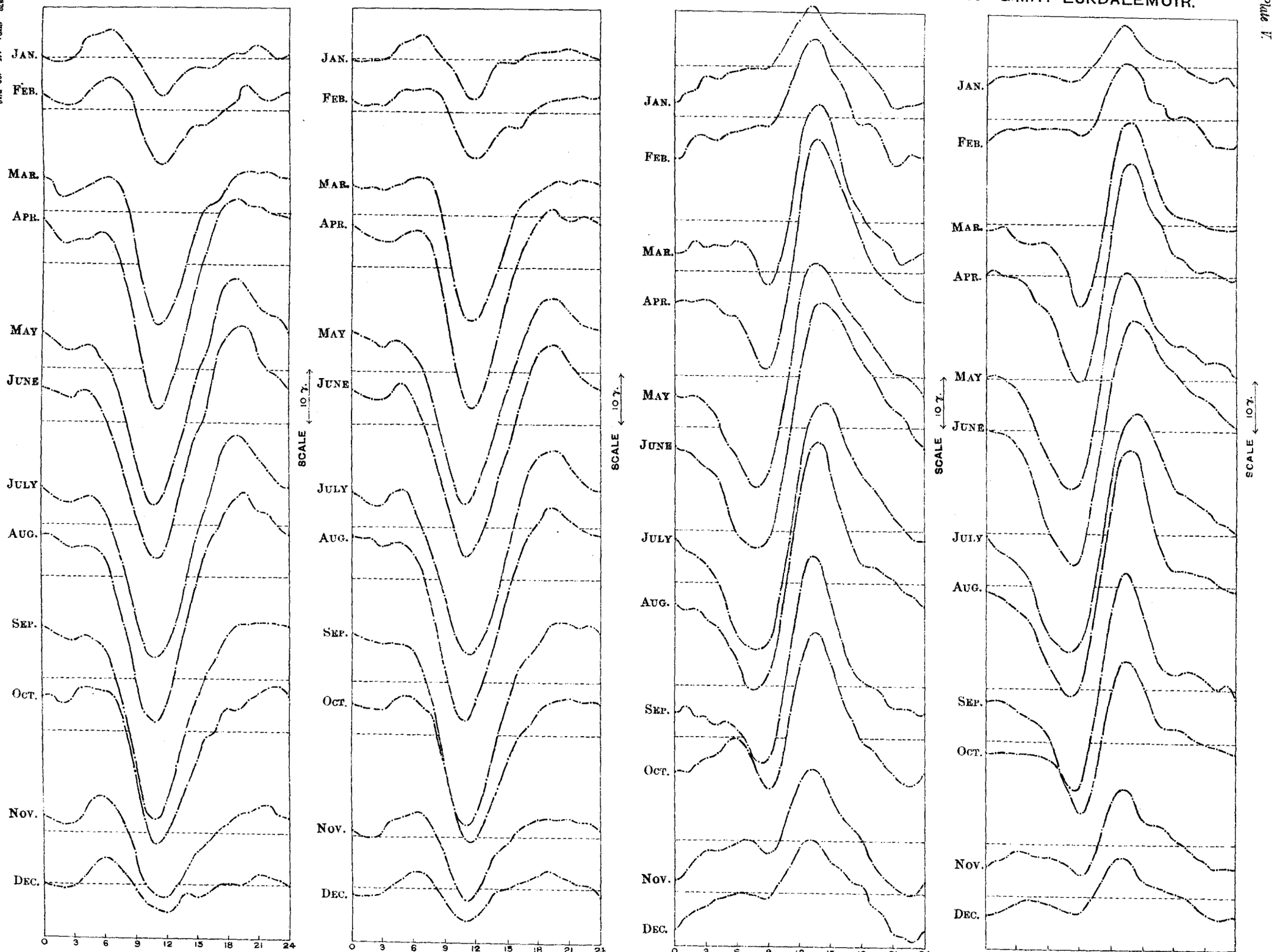

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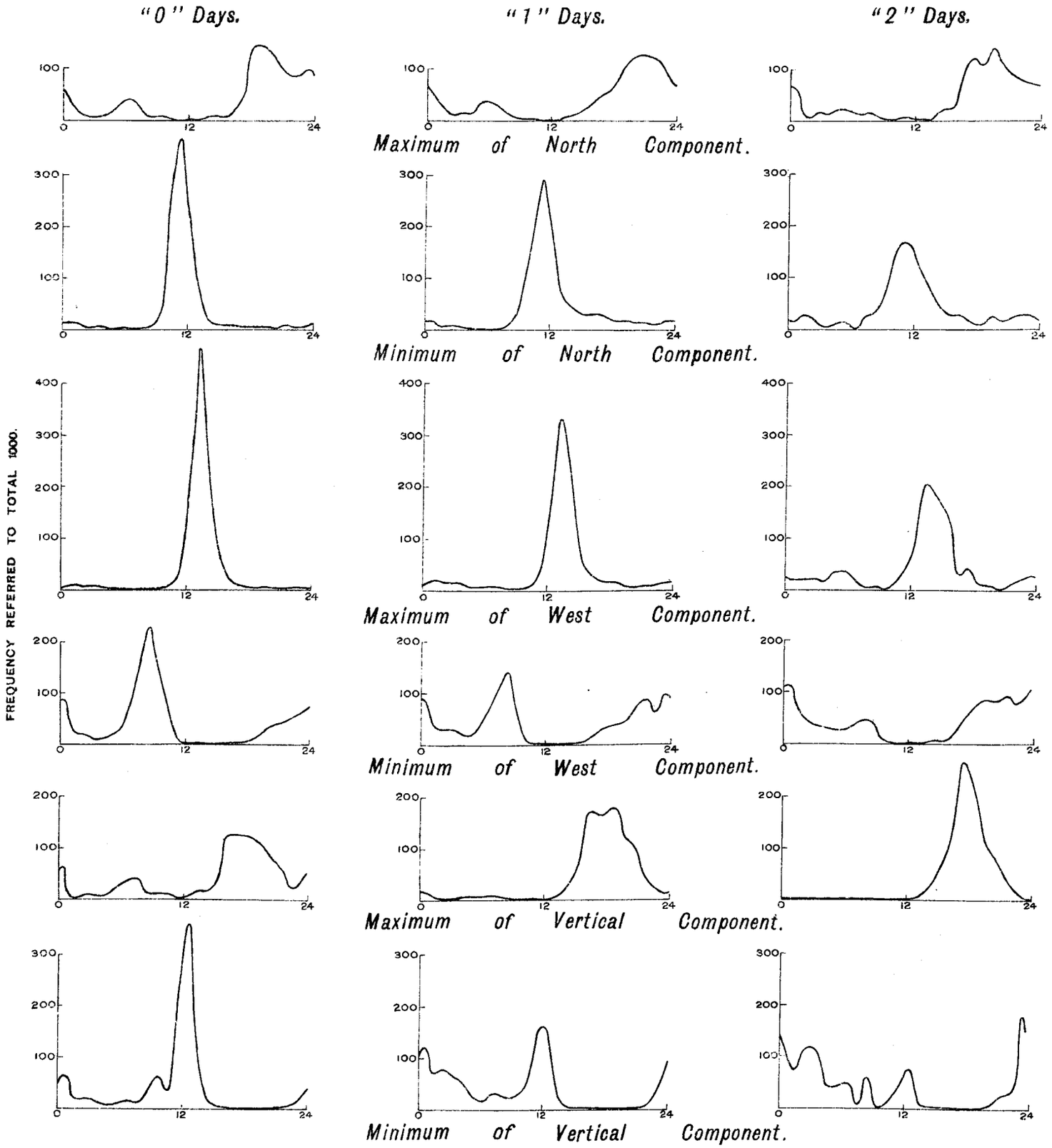
FREQUENCY OF VARIOUS HOURS OF OCCURENCE OF THE MAXIMA AND MINIMA OF THE COMPONENTS OF MAGNETIC FORCE, ESKDALEMUIR 1911-1915.



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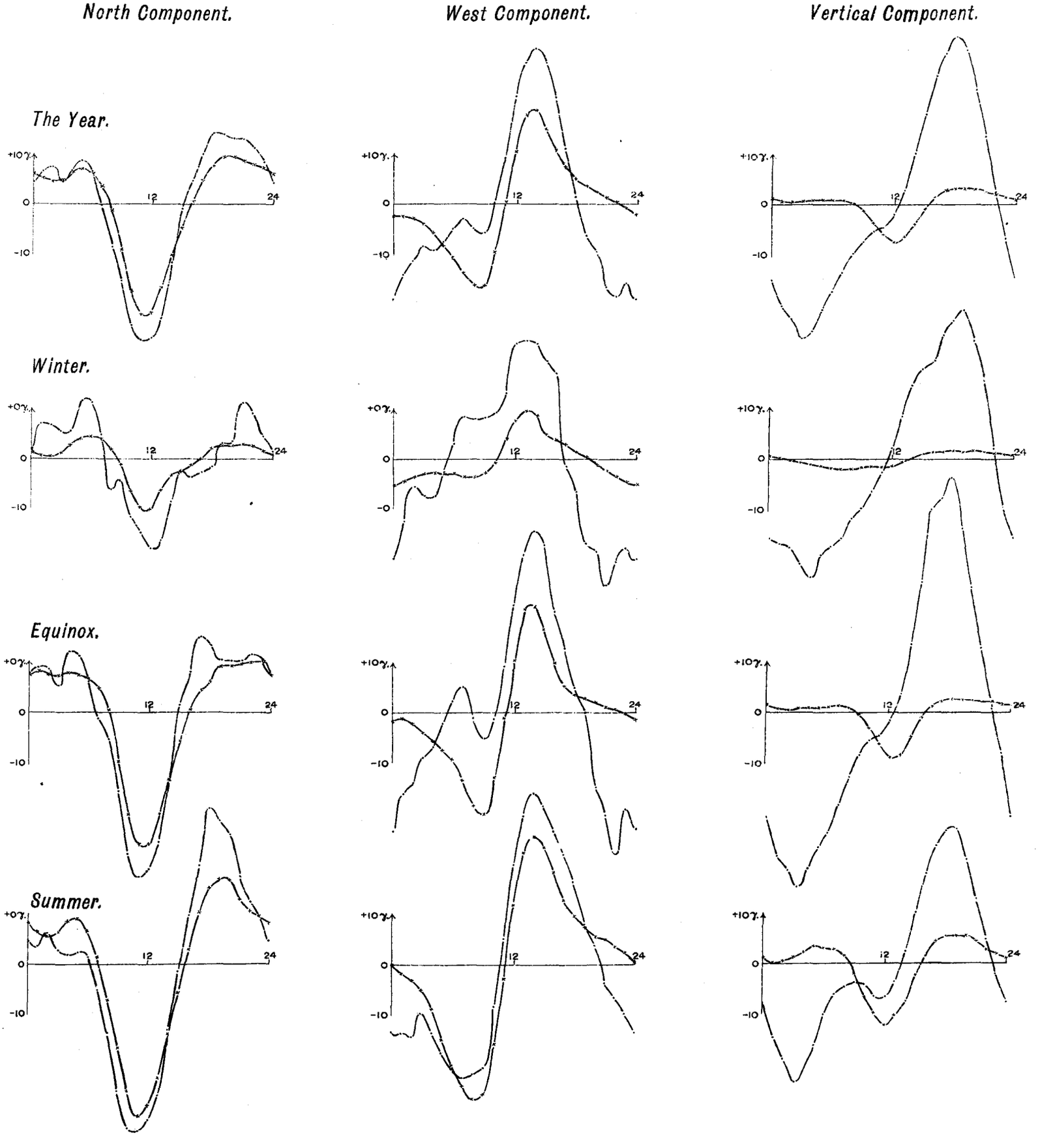
DIURNAL VARIATION IN THE COMPONENTS OF MAGNETIC FORCE ON QUIET AND DISTURBED DAYS. ESKDALEMUIR, 1915.



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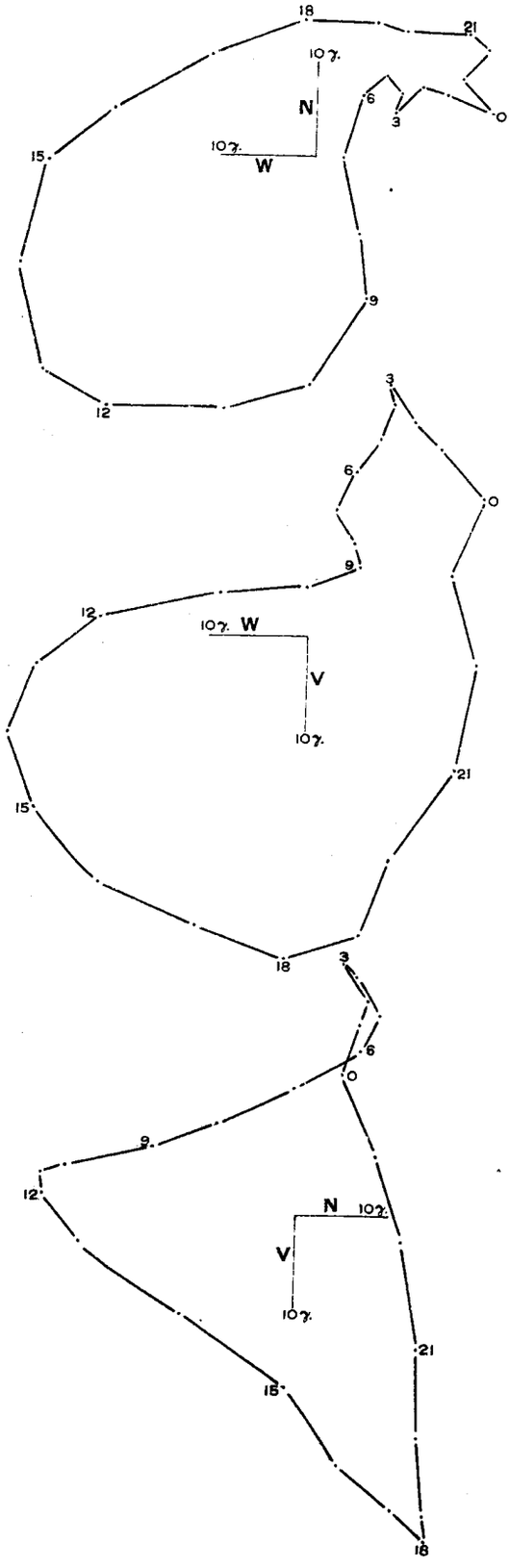
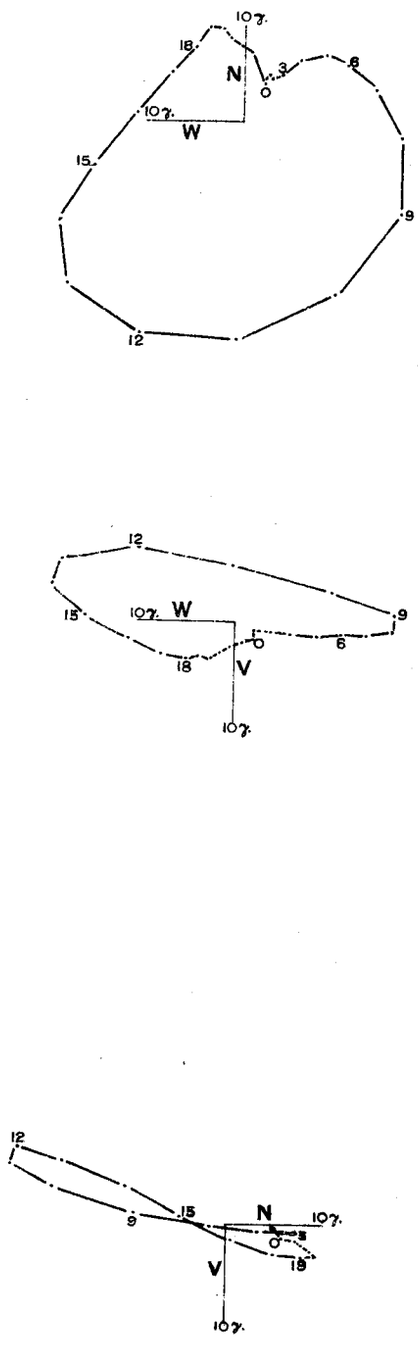
VECTOR DIAGRAMS ILLUSTRATING DIURNAL VARIATION IN MAGNETIC FORCE ON QUIET DAYS AND DISTURBED DAYS. ESKDALEMUIR 1915.



Selected Disturbed Days.



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