M.O. 231 *f.*

AIR MINISTRY.

METEOROLOGICAL OFFICE.

BRITISH METEOROLOGICAL AND MAGNETIC YEAR BOOK, 1918.—Part IV.

FOR OFFICIAL USE C

HOURLY VALUES FROM AUTOGRAPHIC RECORDS: 1918.

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 eighth 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 tables of the present volume fall into three groups. In the first group 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. The form of presentation has been recast.

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 Observatory; and Tables LXVII and LXVIII, in which magnetic data for various stations, British and foreign, are set out.

In the third group are the three tables which 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.

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 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. Rainfall has been given in millimetres in the Monthly and Weekly Reports since the beginning of 1915 ; 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 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 year 1918 was the third in which " Summer Time " was introduced. The reader need not take this into consideration, however, as all the observations at the observatories are referred to Greenwich Mean Time.

(985) Wt. 20/S.O.P. 565 375 3/22 Harrow G 69/1921/8

Some explanation of the insistence in this volume on the references to Richmond and Cahirciveen in connection with Kew Observatory and Valencia Observatory may be desirable.

Kew Observatory is in the Old Deer Park. This Park adjoins the Royal Gardens, Kew, but access to it is by Richmond, not by Kew, so that visitors coming by railway have to be warned not to book to either of the Kew stations. It is of interest to recall that there was once an observatory at Kew, and that some of Bradley's observations which led to the discovery of aberration were made there; the site, in front of Kew Palace, is marked by a sundial.* In the instructions prepared by the King's Observer, Dr. S. C. Demainbray, for the observation of the transit of Venus in 1769, the present observatory is referred to as Richmond Observatory.

The name of Valencia Observatory can be justified on historical grounds, though not geographically. The observatory was established on Valencia Island in 1867, and the instruments were transferred to Westwood House, Cahirciveen, in 1892. The distance between the two sites is about three miles.

The publication of meteorological and geophysical data for the year 1918 is arranged in accordance with the following scheme :—

(*a*) DAILY WEATHER REPORT.—

The *Daily Weather Report* for the first four months of 1918 contains meteorological information from 130 stations in or near Europe, of which about 70 are situated in the British Isles. The omission of the Health Resorts from 1st May reduced the number of stations by about 30. The data include the morning and evening observations upon which the weather charts of North-Western Europe and the Eastern Atlantic are based. Some general information for the 24-hour period is given for all British and most foreign stations.

In accordance with regulations for the Defence of the Realm, the *Daily Weather Report* was supplied to the public, during the early part of the year, fourteen days after the date of issue. On 5th September the general circulation of the *Report* was entirely suspended. Restrictions were removed on 16th November as a result of the Armistice.

(*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 1. Weekly results of observations of the meteorological elements for stations and districts in the British Isles; Section 2. 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 2 has been suspended since August 1914.

* "The History of the Kew Observatory," R. H. Scott, London, *Royal Soc. Proc.*, vol. xxxix., p. 1, 1885.

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.* Meteorology, Terrestrial Magnetism, and Atmospheric Electricity. Issued at the end of each year. Price.

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 the years 1910 to 1914. The 1915 volume is now in the printer's hands.

METEOROLOGICAL OFFICE,
SOUTH KENSINGTON, S.W. 7.
16*th February,* 1922.

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HOURLY VALUES FROM AUTOGRAPHIC RECORDS. 1918.

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.

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

(3) Daily mean values are computed as $\frac{1}{24}\left\{\frac{1}{2}(0 + 24) + (1 + \text{----} + 23)\right\}$

PRESSURE AT STATION LEVEL; MONTHLY MEANS OF HOURLY VALUES.

**Readings in millibars at exact hours, Greenwich Mean Time.*

Aberdeen : H_b (height of barometer cistern above M.S.L.)=26·8 metres. **1918.**

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	24	Mean
Jan.	05·06	04·99	04·78	04·66	04·55	04·56	04·62	04·78	04·98	05·35	05·59	05·73	05·66	05·45	05·34	05·22	05·33	05·36	05·42	05·46	05·33	05·15	05·12	05·03	04·88	05·14
Feb.	08·80	08·81	08·80	08·69	08·43	08·51	08·58	08·85	09·25	09·64	09·77	09·91	09·80	09·57	09·18	08·86	08·77	08·70	08·78	08·72	08·61	08·60	08·62	08·64	08·63	08·95
Mar.	14·93	14·83	14·65	14·35	14·15	14·09	14·06	14·34	14·52	14·67	14·69	14·68	14·58	14·43	14·20	14·03	13·87	13·89	14·02	14·13	14·26	14·18	14·13	14·10	13·97	14·30
April	14·22	14·19	14·10	13·97	13·94	14·00	14·18	14·44	14·58	14·70	14·76	14·76	14·72	14·70	14·65	14·49	14·47	14·52	14·70	14·95	15·28	15·45	15·54	15·60	15·56	14·65
May	14·90	14·82	14·66	14·60	14·51	14·58	14·73	14·93	15·06	15·03	15·11	15·05	15·01	14·95	14·83	14·69	14·58	14·48	14·52	14·62	14·76	15·02	15·10	15·01	14·96	14·82
June	12·41	12·37	12·26	12·17	12·23	12·31	12·36	12·45	12·54	12·56	12·50	12·40	12·29	12·14	12·04	11·93	11·85	11·70	11·67	11·67	11·77	11·91	12·00	11·97	11·92	12·14
July	08·13	08·04	07·95	07·79	07·73	07·69	07·75	07·84	07·90	07·92	07·96	07·88	07·84	07·82	07·87	07·79	07·74	07·71	07·77	07·84	07·97	08·11	08·18	08·21	08·16	07·89
Aug.	09·06	08·97	08·88	08·78	08·74	08·75	08·81	08·96	09·05	09·07	09·06	09·04	08·89	08·73	08·66	08·52	08·36	08·26	08·24	08·23	08·37	08·41	08·38	08·36	08·34	08·68
Sept.	97·74	97·66	97·50	97·42	97·27	97·16	97·30	97·46	97·59	97·75	97·83	97·78	97·68	97·62	97·51	97·47	97·47	97·52	97·64	97·93	98·11	98·19	98·23	98·27	98·32	97·68
Oct.	06·96	06·93	06·75	06·43	06·25	06·13	06·09	06·23	06·59	06·64	06·65	06·61	06·51	06·47	06·39	06·35	06·32	06·55	06·73	06·76	06·74	06·75	06·70	06·62	06·60	06·54
Nov.	09·62	09·37	09·17	08·97	08·69	08·57	08·50	08·85	09·23	09·39	09·54	09·50	09·41	09·31	09·23	09·27	09·41	09·52	09·82	10·00	10·03	10·06	09·99	10·00	09·83	09·40
Dec.	99·41	99·35	99·40	99·39	99·29	99·11	99·07	99·23	99·58	99·70	99·96	99·95	99·67	99·60	99·45	99·55	99·59	99·61	99·65	99·69	99·69	99·72	99·65	99·71	99·58	99·55
Year	08·44	08·36	08·24	08·10	07·98	07·96	08·00	08·20	08·41	08·53	08·62	08·61	08·51	08·40	08·28	08·18	08·15	08·15	08·25	08·33	08·41	08·45	08·47	08·46	08·40	08·31

Eskdalemuir : H_b = 237·3 m. **1918.**

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	24	Mean
Jan.	81·44	81·22	81·24	81·36	81·35	81·31	81·30	81·37	81·67	81·90	82·08	82·27	82·15	81·85	81·62	81·56	81·44	81·36	81·41	81·44	81·50	81·50	81·51	81·41	81·33	81·55
Feb.	86·53	86·49	86·37	86·08	85·92	85·99	86·04	86·19	86·44	86·62	86·78	86·88	86·84	86·61	86·26	86·05	85·89	85·81	85·83	85·92	85·89	85·86	85·93	86·04	86·19	86·21
Mar.	89·16	89·17	88·96	88·75	88·67	88·60	88·72	88·87	88·98	89·07	89·03	88·96	88·79	88·51	88·21	87·96	87·70	87·74	87·90	88·09	88·20	88·32	88·30	88·28	88·21	88·52
April	87·48	87·39	87·26	87·16	87·09	87·18	87·38	87·64	87·74	87·92	87·93	87·84	87·74	87·66	87·50	87·40	87·38	87·48	87·71	88·04	88·45	88·61	88·69	88·81	88·83	87·76
May	89·25	89·18	89·10	88·95	88·88	88·91	89·03	89·25	89·30	89·33	89·21	89·12	88·98	88·93	88·77	88·64	88·42	88·32	88·45	88·71	89·00	89·36	89·42	89·42	89·43	89·00
June	88·94	88·91	88·76	88·65	88·67	88·76	88·91	88·95	88·99	88·98	88·88	88·81	88·63	88·52	88·33	88·19	88·01	87·87	87·89	88·01	88·19	88·49	88·56	88·61	88·54	88·56
July	83·74	83·62	83·51	83·37	83·35	83·34	83·30	83·37	83·41	83·36	83·23	83·27	83·19	83·10	83·12	83·08	83·06	83·08	83·10	83·17	83·37	83·64	83·73	83·72	83·64	83·34
Aug.	85·65	85·59	85·43	85·37	85·36	85·39	85·53	85·69	85·80	85·85	85·72	85·64	85·58	85·49	85·34	85·22	84·97	84·93	84·92	85·04	85·22	85·35	85·26	85·21	85·13	85·39
Sept.	74·59	74·40	74·29	74·12	74·00	73·99	74·03	74·17	74·17	74·26	74·12	74·21	74·19	74·16	74·14	74·15	74·18	74·28	74·43	74·70	74·98	75·16	75·19	75·22	75·04	74·39
Oct.	83·86	83·67	83·41	83·07	82·90	82·82	82·83	83·06	83·24	83·37	83·34	83·40	83·33	83·24	83·10	83·10	83·07	83·18	83·43	83·63	83·69	83·75	83·75	83·57	83·41	83·32
Nov.	85·44	85·29	85·18	85·05	84·97	85·08	85·21	85·30	85·50	85·62	85·81	85·85	85·64	85·52	85·40	85·47	85·60	85·80	86·03	86·13	86·15	86·19	86·14	86·01	85·82	85·61
Dec.	76·77	76·46	76·36	76·27	76·05	75·97	75·92	75·90	76·18	76·42	76·51	76·59	76·37	76·27	76·19	76·28	76·47	76·60	76·75	76·90	76·88	76·94	76·95	76·91	76·78	76·46
Year	84·40	84·28	84·16	84·02	83·94	83·94	84·02	84·15	84·29	84·39	84·38	84·40	84·20	84·15	84·00	83·93	83·85	83·87	83·99	84·15	84·29	84·43	84·45	84·43	84·36	84·17

Cahirciveen (Valencia Obs.) : H_b = 13·7 m. **1918.**

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	24	Mean
Jan.	09·71	09·54	09·29	09·22	08·96	08·75	08·63	08·69	08·82	09·01	09·11	09·31	09·21	08·89	08·48	08·17	08·13	08·20	08·43	08·63	08·80	08·89	08·98	09·04	09·08	08·86
Feb.	16·08	16·05	15·94	15·80	15·48	15·39	15·31	15·29	15·39	15·53	15·58	15·66	15·68	15·43	15·18	15·10	15·13	15·35	15·68	15·99	16·27	16·39	16·54	16·58	16·61	15·71
Mar.	14·20	14·04	13·89	13·63	13·47	13·51	13·57	13·75	13·96	14·11	14·10	14·11	14·08	13·84	13·52	13·32	13·13	13·05	13·12	13·31	13·40	13·50	13·47	13·39	13·29	13·62
April	14·70	14·63	14·48	14·34	14·28	14·31	14·51	14·76	14·93	15·08	15·14	15·18	15·15	15·05	14·94	14·80	14·68	14·68	14·69	14·80	15·06	15·41	15·42	15·44	15·42	14·87
May	15·06	14·89	14·68	14·53	14·47	14·51	14·76	14·98	15·16	15·33	15·39	15·46	15·50	15·51	15·45	15·35	15·20	15·12	15·09	15·11	15·29	15·59	15·67	15·58	15·53	15·16
June	20·95	20·74	20·51	20·26	20·13	20·12	20·34	20·50	20·69	20·79	20·81	20·85	20·93	20·91	20·87	20·75	20·65	20·55	20·43	20·43	20·52	20·78	20·88	20·81	20·68	20·63
July	11·45	11·29	11·14	10·89	10·80	10·84	10·90	11·03	11·25	11·37	11·44	11·51	11·64	11·68	11·68	11·65	11·49	11·38	11·22	11·10	11·12	11·25	11·22	11·07	10·92	11·26
Aug.	15·90	15·74	15·53	15·26	15·09	15·00	15·03	15·15	15·22	15·37	15·51	15·66	15·75	15·81	15·90	15·87	15·80	15·87	15·86	15·84	16·00	16·19	16·26	16·21	16·09	15·66
Sept.	05·07	04·85	04·67	04·44	04·29	04·17	04·23	04·42	04·63	04·86	05·12	05·20	05·20	05·22	05·20	05·21	05·24	05·32	05·42	05·49	05·71	05·79	05·71	05·63	05·54	05·05
Oct.	13·44	13·31	13·15	12·90	12·78	12·75	12·84	13·01	13·41	13·68	13·76	13·83	13·80	13·61	13·41	13·46	13·33	13·25	13·35	13·47	13·45	13·37	13·19	12·94	12·69	13·30
Nov.	11·42	11·32	11·27	11·27	11·21	11·29	11·44	11·73	12·07	12·39	12·49	12·65	12·36	12·12	11·83	11·64	11·49	11·48	11·59	11·61	11·57	11·64	11·73	11·69	11·77	11·73
Dec.	06·78	06·59	06·49	06·53	06·50	06·47	06·49	06·74	06·93	07·35	07·64	07·96	07·77	07·51	07·38	07·36	07·41	07·43	07·32	07·17	07·10	07·03	06·93	06·83	06·73	07·07
Year	12·90	12·75	12·59	12·42	12·29	12·26	12·34	12·50	12·70	12·91	13·01	13·12	13·09	12·96	12·82	12·72	12·64	12·64	12·68	12·75	12·86	12·99	13·00	12·94	12·86	12·74

Richmond (Kew Obs.) : H_b = 10·4 m. **1918.**

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	24	Mean
Jan.	14·28	14·13	13·90	13·80	13·55	13·57	13·62	14·00	14·26	14·83	15·11	15·39	15·10	14·78	14·41	14·45	14·47	14·62	14·67	14·74	14·72	14·80	14·71	14·72	14·55	14·45
Feb.	22·03	21·91	21·74	21·51	21·34	21·39	21·48	21·63	21·96	22·13	22·19	22·34	22·05	21·72	21·27	21·09	20·98	21·00	21·15	21·25	21·26	21·30	21·24	21·23	21·18	21·53
Mar.	17·05	16·95	16·73	16·53	16·44	16·48	16·60	16·79	16·94	17·00	16·94	16·78	16·47	16·08	15·74	15·63	15·56	15·71	15·98	16·24	16·47	16·63	16·65	16·67	16·63	16·45
April	12·22	12·06	11·93	11·82	11·70	11·73	11·98	12·19	12·35	12·40	12·49	12·41	12·30	12·18	12·01	11·88	11·86	12·00	12·17	12·44	12·87	13·02	13·07	13·15	13·19	12·28
May	16·42	16·35	16·25	16·20	16·19	16·31	16·50	16·69	16·77	16·70	16·67	16·55	16·38	16·22	16·05	15·81	15·66	15·62	15·74	15·93	16·20	16·61	16·80	16·78	16·75	16·31
June	18·45	18·29	18·20	18·11	18·12	18·23	18·38	18·47	18·54	18·46	18·39	18·28	18·11	17·90	17·71	17·47	17·30	17·18	17·11	17·21	17·47	17·80	17·98	18·06	18·01	17·96
July	13·55	13·45	13·31	13·24	13·28	13·30	13·32	13·36	13·30	13·10	12·98	12·82	12·68	12·58	12·46	12·28	12·25	12·28	12·48	12·76	13·19	13·37	13·47	13·46	13·00	
Aug.	15·55	15·47	15·35	15·28	15·22	15·34	15·54	15·65	15·80	15·86	15·81	15·68	15·56	15·31	15·10	14·86	14·68	14·60	14·59	14·70	14·96	15·13	15·15	15·19	15·21	15·26
Sept.	06·20	06·00	05·87	05·81	05·72	05·74	06·00	06·37	06·66	07·13	07·21	07·20	07·12	06·99	06·92	06·83	06·75	06·80	06·79	06·96	07·10	07·09	07·01	06·87	06·69	06·64
Oct.	15·96	15·85	15·59	15·29	15·17	15·08	15·03	15·23	15·43	15·55	15·50	15·52	15·29	15·00	14·87	14·78	14·78	14·94	15·30	15·48	15·62	15·80	15·71	15·59	15·52	15·34
Nov.	17·15	16·99	16·95	16·81	16·75	16·81	16·85	17·07	17·33	17·55	17·68	17·66	17·34	17·07	16·87	16·88	16·96	17·27	17·47	17·61	17·70	17·81	17·71	17·77	17·71	17·26
Dec.	10·43	10·19	10·11	09·97	09·63	09·34	09·31	09·42	09·67	09·88	10·09	10·15	09·85	09·62	09·61	09·72	09·88	09·90	09·92	10·07	10·37	10·48	10·48	10·38	10·21	09·93
Year	14·94	14·80	14·66	14·53	14·43	14·44	14·55	14·74	14·92	15·06	15·10	15·08	14·87	14·63	14·43	14·32	14·26	14·32	14·43	14·59	14·79	14·97	14·99	14·99	14·93	14·70

**Note.*—1. The initial 9 or 10 of the readings is omitted, *i.e.*, 1005·06 mb. is written 05·06 and 981·44 mb. becomes 81·44.

2. The latitude correction has been allowed for.

DIURNAL INEQUALITIES OF PRESSURE AT STATION LEVEL.

Departures from the mean of the day adjusted for non-periodic change.

Aberdeen. Unit = 1 millibar. **1918.**

G.M.T.	Midt.	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	Midt.
Jan.	−0·17	−0·23	−0·44	−0·55	−0·65	−0·63	−0·57	−0·40	−0·19	+0·19	+0·43	+0·58	+0·52	+0·32	+0·22	+0·10	+0·22	+0·26	+0·33	+0·37	+0·25	+0·08	+0·06	−0·03	−0·17
Feb.	−0·23	−0·22	−0·22	−0·32	−0·58	−0·49	−0·41	−0·14	+0·27	+0·67	+0·81	+0·95	+0·85	+0·63	+0·24	−0·07	−0·15	−0·21	−0·13	−0·18	−0·28	−0·29	−0·26	−0·23	−0·23
Mar.	+0·15	+0·09	−0·05	−0·31	−0·47	−0·49	−0·48	−0·16	+0·06	+0·25	+0·31	+0·34	+0·28	+0·17	−0·02	−0·15	−0·27	−0·21	−0·04	+0·11	+0·28	+0·24	+0·23	+0·24	+0·15
Apr.	+0·24	+0·15	+0·01	−0·18	−0·26	−0·26	−0·13	+0·07	+0·15	+0·22	+0·22	+0·17	+0·07	−0·01	−0·11	−0·33	−0·40	−0·41	−0·29	−0·09	+0·18	+0·30	+0·33	+0·34	+0·24
May	+0·11	+0·03	−0·13	−0·20	−0·29	−0·22	−0·07	+0·12	+0·25	+0·22	+0·30	+0·23	+0·19	+0·13	0·00	−0·14	−0·25	−0·35	−0·32	−0·22	−0·08	+0·18	+0·25	+0·16	+0·11
June	+0·03	+0·01	−0·08	−0·15	−0·07	+0·03	+0·10	+0·21	+0·32	+0·36	+0·32	+0·24	+0·15	+0·02	−0·06	−0·15	−0·21	−0·34	−0·35	−0·33	−0·21	−0·05	+0·06	+0·05	+0·03
July	+0·25	+0·16	+0·07	−0·09	−0·15	−0·19	−0·13	−0·04	+0·02	+0·03	+0·07	−0·01	−0·05	−0·07	−0·02	−0·10	−0·16	−0·19	−0·13	−0·06	+0·07	+0·21	+0·28	+0·31	+0·25
Aug.	+0·02	−0·04	−0·10	−0·17	−0·18	−0·14	−0·05	+0·13	+0·25	+0·30	+0·32	+0·33	+0·21	+0·08	+0·04	−0·07	−0·20	−0·27	−0·26	−0·24	−0·07	0·00	0·00	+0·01	+0·02
Sep.	+0·35	+0·25	+0·06	−0·04	−0·22	−0·35	−0·23	−0·10	+0·01	+0·14	+0·20	+0·12	0·00	−0·08	−0·22	−0·28	−0·31	−0·28	−0·19	+0·08	+0·24	+0·29	+0·31	+0·32	+0·35
Oct.	+0·24	+0·22	+0·06	−0·25	−0·41	−0·51	−0·54	−0·39	−0·02	+0·05	+0·08	+0·05	−0·03	−0·05	−0·12	−0·14	−0·16	+0·09	+0·28	+0·33	+0·32	+0·35	+0·31	+0·25	+0·24
Nov.	+0·33	+0·07	−0·14	−0·35	−0·64	−0·77	−0·85	−0·51	−0·13	+0·02	+0·16	+0·11	+0·01	−0·10	−0·21	−0·16	−0·03	+0·08	+0·37	+0·54	+0·56	+0·58	+0·50	+0·50	+0·33
Dec.	−0·05	−0·12	−0·08	−0·10	−0·20	−0·39	−0·44	−0·28	+0·06	+0·17	+0·42	+0·41	+0·12	+0·04	−0·11	−0·02	+0·01	+0·02	+0·06	+0·09	+0·08	+0·11	+0·03	+0·08	−0·05
Year	+0·11	+0·03	−0·09	−0·23	−0·34	−0·36	−0·32	−0·12	+0·09	+0·21	+0·31	+0·30	+0·20	+0·09	−0·03	−0·12	−0·15	−0·15	+0·05	+0·03	+0·11	+0·16	+0·18	+0·17	+0·11

Eskdalemuir. **1918.**

G.M.T.	Midt.	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	Midt.
Jan.	−0·16	−0·38	−0·36	−0·23	−0·24	−0·27	−0·28	−0·20	+0·10	+0·34	+0·52	+0·72	+0·60	+0·30	+0·08	+0·02	−0·09	−0·17	−0·11	−0·08	−0·01	−0·01	+0·01	−0·11	−0·16
Feb.	+0·15	+0·12	+0·02	−0·26	−0·40	−0·32	−0·26	−0·09	+0·17	+0·37	+0·54	+0·66	+0·63	+0·41	+0·08	−0·12	−0·26	−0·33	−0·29	−0·19	−0·21	−0·22	−0·14	−0·01	+0·15
Mar.	+0·17	+0·21	+0·04	−0·13	−0·17	−0·20	−0·04	+0·15	+0·30	+0·43	+0·43	+0·40	+0·27	+0·03	−0·23	−0·44	−0·66	−0·58	−0·38	−0·15	0·00	+0·16	+0·18	+0·20	+0·17
Apr.	+0·40	+0·25	+0·06	−0·09	−0·22	−0·19	−0·04	+0·16	+0·21	+0·33	+0·28	+0·14	−0·02	−0·16	−0·37	−0·53	−0·61	−0·56	−0·39	−0·11	+0·24	+0·34	+0·37	+0·43	+0·40
May	+0·34	+0·26	+0·18	+0·02	−0·06	−0·04	+0·08	+0·29	+0·33	+0·35	+0·23	+0·13	−0·02	−0·08	−0·25	−0·38	−0·61	−0·72	−0·60	−0·34	−0·06	+0·29	+0·34	+0·34	+0·34
June	+0·18	+0·17	+0·03	−0·06	−0·02	+0·08	+0·25	+0·31	+0·36	+0·37	+0·29	+0·23	+0·07	−0·02	−0·20	−0·32	−0·48	−0·61	−0·57	−0·43	−0·24	+0·08	+0·17	+0·23	+0·18
July	+0·35	+0·23	+0·13	−0·01	−0·02	−0·03	−0·07	+0·01	+0·05	0·00	−0·12	−0·07	−0·15	−0·24	−0·21	−0·24	−0·26	−0·24	−0·21	−0·14	+0·06	+0·34	+0·43	+0·43	+0·35
Aug.	0·00	−0·04	−0·18	−0·22	−0·20	−0·15	−0·01	+0·19	+0·32	+0·39	+0·29	+0·23	+0·19	+0·12	−0·01	−0·10	−0·33	−0·35	−0·34	−0·20	0·00	+0·16	+0·09	+0·06	0·00
Sep.	+0·38	+0·26	+0·13	−0·07	−0·21	−0·24	−0·22	−0·11	−0·13	−0·06	−0·22	−0·16	−0·20	−0·25	−0·30	−0·31	−0·30	−0·22	−0·10	+0·15	+0·41	+0·57	+0·57	+0·58	+0·38
Oct.	+0·32	+0·14	−0·10	−0·42	−0·57	−0·63	−0·60	−0·35	−0·16	−0·01	−0·02	+0·06	+0·01	−0·06	−0·18	−0·16	−0·17	−0·05	+0·22	+0·44	+0·52	+0·60	+0·62	+0·46	+0·32
Nov.	+0·02	−0·15	−0·27	−0·42	−0·51	−0·42	−0·30	−0·23	−0·05	+0·06	+0·23	+0·26	+0·03	−0·11	−0·24	−0·19	−0·07	+0·11	+0·32	+0·41	+0·41	+0·44	+0·37	+0·23	+0·02
Dec.	+0·32	0·00	−0·10	−0·19	−0·41	−0·49	−0·54	−0·56	−0·28	−0·04	+0·05	+0·13	−0·09	−0·19	−0·27	−0·18	+0·01	+0·14	+0·29	+0·44	+0·42	+0·48	+0·49	+0·45	+0·32
Year	+0·21	+0·09	−0·03	−0·17	−0·24	−0·24	−0·16	−0·03	+0·11	+0·21	+0·21	+0·23	+0·12	−0·02	−0·17	−0·23	−0·31	−0·29	−0·17	−0·01	+0·13	+0·28	+0·30	+0·28	+0·21

Cahirciveen (Valencia Obs.). **1918.**

G.M.T.	Midt.	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	Midt.
Jan.	+0·54	+0·39	+0·17	+0·12	−0·11	−0·29	−0·39	−0·30	−0·15	+0·07	+0·20	+0·42	+0·35	+0·06	−0·33	−0·61	−0·62	−0·53	−0·27	−0·05	+0·15	+0·27	+0·38	+0·47	+0·54
Feb.	+0·63	+0·58	+0·45	+0·29	−0·05	−0·17	−0·27	−0·31	−0·23	−0·11	−0·09	−0·03	−0·03	−0·30	−0·57	−0·68	−0·67	−0·47	−0·16	+0·13	+0·38	+0·48	+0·61	+0·63	+0·63
Mar.	+0·12	0·00	−0·11	−0·33	−0·45	−0·38	−0·28	−0·06	+0·19	+0·38	+0·40	+0·45	+0·46	+0·26	−0·02	−0·19	−0·34	−0·38	−0·27	−0·04	+0·08	+0·22	+0·22	+0·19	+0·12
Apr.	+0·19	+0·09	−0·09	−0·26	−0·35	−0·35	−0·18	+0·04	+0·18	+0·30	+0·33	+0·34	+0·28	+0·15	+0·01	−0·16	−0·31	−0·34	−0·36	−0·28	−0·05	+0·27	+0·25	+0·24	+0·19
May	+0·13	−0·05	−0·28	−0·45	−0·53	−0·51	−0·28	−0·08	+0·08	+0·23	+0·27	+0·32	+0·34	+0·33	+0·25	+0·13	−0·04	−0·14	−0·19	−0·19	−0·03	+0·25	+0·31	+0·20	+0·13
June	+0·19	−0·01	−0·23	−0·47	−0·59	−0·59	−0·36	−0·19	+0·01	+0·13	+0·16	+0·21	+0·30	+0·29	+0·26	+0·15	+0·07	−0·02	−0·13	−0·12	−0·02	+0·25	+0·36	+0·30	+0·19
July	−0·07	−0·21	−0·34	−0·57	−0·64	−0·57	−0·49	−0·34	−0·10	+0·04	+0·14	+0·23	+0·38	+0·44	+0·46	+0·46	+0·32	+0·23	+0·09	−0·01	+0·04	+0·19	+0·18	+0·05	−0·07
Aug.	+0·33	+0·17	−0·05	−0·33	−0·51	−0·60	−0·58	−0·47	−0·41	−0·27	−0·13	+0·01	+0·09	+0·14	+0·22	+0·19	+0·11	+0·17	+0·15	+0·12	+0·30	+0·46	+0·52	+0·46	+0·33
Sep.	+0·25	+0·02	−0·18	−0·43	−0·60	−0·74	−0·70	−0·53	−0·34	−0·13	+0·11	+0·17	+0·15	+0·15	+0·11	+0·10	+0·11	+0·17	+0·25	+0·30	+0·50	+0·56	+0·46	+0·36	+0·25
Oct.	−0·23	−0·33	−0·46	−0·68	−0·77	−0·77	−0·65	−0·45	−0·02	+0·29	+0·40	+0·50	+0·50	+0·34	+0·17	+0·25	+0·16	+0·11	+0·24	+0·39	+0·40	+0·35	+0·20	−0·02	−0·23
Nov.	−0·13	−0·25	−0·31	−0·33	−0·40	−0·34	−0·20	+0·07	+0·40	+0·70	+0·79	+0·93	+0·63	+0·38	+0·07	−0·13	−0·30	−0·32	−0·23	−0·22	−0·28	−0·22	−0·15	−0·20	−0·13
Dec.	−0·32	−0·50	−0·60	−0·56	−0·59	−0·61	−0·59	−0·34	−0·15	+0·27	+0·57	+0·89	+0·70	+0·44	+0·31	+0·30	+0·35	+0·37	+0·26	+0·11	+0·05	−0·02	−0·12	−0·22	−0·32
Year	+0·14	−0·01	−0·17	−0·34	−0·46	−0·49	−0·41	−0·25	−0·05	+0·16	+0·27	+0·38	+0·35	+0·22	+0·08	−0·01	−0·09	−0·09	−0·05	+0·02	+0·13	+0·27	+0·28	+0·22	+0·14

Richmond (Kew Obs.). **1918.**

G.M.T.	Midt.	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	Midt.
Jan.	−0·03	−0·20	−0·44	−0·55	−0·81	−0·80	−0·76	−0·39	−0·14	+0·41	+0·68	+0·95	+0·65	+0·32	−0·06	−0·03	−0·03	+0·11	+0·15	+0·21	+0·18	+0·25	+0·15	+0·15	−0·03
Feb.	+0·07	−0·01	−0·14	−0·34	−0·47	−0·39	−0·26	−0·08	+0·29	+0·49	+0·59	+0·77	+0·52	+0·23	−0·19	−0·33	−0·41	−0·35	−0·17	−0·03	+0·01	+0·09	+0·06	+0·09	+0·07
Mar.	+0·39	+0·31	+0·10	−0·08	−0·15	−0·09	+0·04	+0·25	+0·42	+0·50	+0·45	+0·31	+0·02	−0·35	−0·67	−0·77	−0·82	−0·65	−0·36	−0·09	+0·16	+0·34	+0·38	+0·41	+0·39
Apr.	+0·43	+0·22	+0·05	−0·10	−0·26	−0·27	−0·06	+0·11	+0·23	+0·24	+0·29	+0·17	+0·02	−0·14	−0·35	−0·52	−0·58	−0·48	−0·35	−0·12	+0·27	+0·38	+0·39	+0·43	+0·43
May	+0·27	+0·19	+0·08	+0·01	−0·01	+0·10	+0·27	+0·45	+0·52	+0·43	+0·39	+0·25	+0·07	−0·10	−0·29	−0·54	−0·71	−0·76	−0·65	−0·48	−0·22	+0·18	+0·35	+0·32	+0·27
June	+0·27	+0·13	+0·06	−0·02	+0·01	+0·14	+0·31	+0·42	+0·51	+0·44	+0·39	+0·30	+0·15	−0·04	−0·21	−0·43	−0·59	−0·69	−0·74	−0·62	−0·34	+0·01	+0·20	+0·30	+0·27
July	+0·51	+0·49	+0·35	+0·27	+0·31	+0·33	+0·34	+0·38	+0·32	+0·19	+0·11	−0·02	−0·18	−0·32	−0·43	−0·55	−0·74	−0·77	−0·74	−0·55	−0·27	+0·16	+0·33	+0·43	+0·51
Aug.	+0·12	+0·05	−0·05	−0·11	−0·15	−0·02	+0·19	+0·32	+0·48	+0·56	+0·52	+0·41	+0·30	+0·06	−0·13	−0·30	−0·52	−0·59	−0·58	−0·46	−0·19	0·00	+0·03	+0·09	+0·12
Sep.	−0·20	−0·42	−0·57	−0·65	−0·76	−0·76	−0·52	−0·17	+0·10	+0·55	+0·61	+0·58	+0·48	+0·33	+0·24	+0·13	+0·03	+0·00	+0·03	+0·18	+0·30	+0·27	+0·17	+0·01	−0·20
Oct.	+0·40	+0·31	+0·07	−0·22	−0·32	−0·39	−0·42	−0·20	+0·02	+0·15	+0·12	+0·16	−0·05	−0·32	−0·43	−0·50	−0·49	−0·31	+0·07	+0·27	+0·43	+0·03	+0·55	+0·45	+0·40
Nov.	+0·17	−0·01	−0·08	−0·24	−0·32	−0·29	−0·27	−0·07	+0·16	+0·36	+0·47	+0·42	+0·08	−0·21	−0·44	−0·45	−0·39	−0·11	+0·07	+0·19	+0·25	+0·34	+0·22	+0·25	+0·17
Dec.	+0·39	+0·16	+0·09	−0·04	−0·37	−0·65	−0·68	−0·56	−0·30	−0·08	+0·14	+0·21	−0·08	−0·30	−0·30	−0·18	−0·01	+0·02	+0·05	+0·20	+0·51	+0·03	+0·64	+0·55	+0·39
Year	+0·23	+0·10	−0·04	−0·17	−0·27	−0·26	−0·15	+0·04	+0·22	+0·36	+0·40	+0·38	+0·17	−0·07	−0·27	−0·38	−0·44	−0·38	−0·27	−0·11	+0·09	+0·27	+0·29	+0·29	+0·23

Note.—The entry for the hour n is X_n where $X_n = p_n - \overline{p} - (n-12)\,(p_{24}-p_0)/24$, p_n being the pressure at hour n and $\overline{p}$ the mean for 24 hours.

TEMPERATURE; MONTHLY MEANS OF HOURLY VALUES.

* *Readings, in degrees absolute, at exact hours, Greenwich Mean Time.*

Aberdeen : North Wall Screen on Tower : h_t (height of thermometer bulb above the ground)=12·5 metres. **1918.**

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	24	Mean
Jan.	75·0	74·9	74·9	74·8	74·7	74·7	74·6	74·5	74·6	74·7	75·2	75·6	76·0	76·1	76·0	75·8	75·7	75·5	75·4	75·4	75·4	75·2	75·2	75·2	75·0	75·2
Feb.	78·2	78·1	77·9	77·7	77·7	77·8	77·8	77·7	77·7	78·1	78·7	79·4	79·8	80·0	80·0	79·8	79·4	79·0	78·7	78·6	78·4	78·3	78·2	78·2	78·0	78·5
Mar.	77·4	77·3	77·1	77·0	76·9	76·8	76·9	76·9	77·4	78·1	78·8	79·3	79·9	80·1	80·0	80·0	79·8	79·5	79·0	78·6	78·3	78·1	78·0	77·7	77·6	78·3
April	77·3	77·2	77·0	76·9	76·8	76·8	77·0	77·6	78·3	79·1	79·5	79·6	79·8	79·9	79·7	79·6	79·5	79·3	79·0	78·6	78·3	78·0	77·8	77·5	77·3	78·3
May	81·0	81·7	81·4	81·1	81·1	81·4	82·2	83·0	83·5	84·3	84·6	84·7	85·2	85·4	85·0	84·9	84·6	84·6	83·9	83·8	83·3	82·8	82·6	82·4	82·1	83·3
June	82·9	82·6	82·4	82·0	82·0	82·4	83·2	84·2	84·7	85·1	85·5	85·9	86·2	86·3	86·5	86·4	86·0	85·9	85·6	85·3	84·7	84·1	83·5	83·2	82·9	84·5
July	84·6	84·4	84·2	84·0	83·9	84·2	84·9	85·8	86·3	86·6	87·0	87·1	87·3	87·2	87·0	87·1	87·1	87·0	86·9	86·7	86·1	85·5	85·2	84·8	84·6	85·9
Aug.	85·8	85·6	85·4	85·2	85·0	85·0	85·5	86·3	86·9	87·5	88·1	88·5	88·9	89·1	88·9	88·9	88·5	88·2	87·8	87·2	86·7	86·3	86·1	86·0	85·7	87·0
Sept.	81·0	80·8	80·7	80·5	80·4	80·4	80·4	80·9	81·8	82·6	83·3	83·7	83·9	84·3	84·4	84·4	84·2	83·7	83·0	82·4	81·9	81·7	81·5	81·1	80·9	82·2
Oct.	81·4	81·2	81·1	80·9	80·9	80·9	80·9	80·7	81·0	81·8	82·3	82·9	83·2	83·3	83·3	83·3	82·9	82·6	82·2	82·0	81·9	81·9	81·8	81·7	81·6	81·9
Nov.	78·0	77·8	77·7	77·8	77·7	77·6	77·4	77·5	77·5	77·7	78·3	79·4	79·8	79·9	79·9	79·7	79·3	78·6	78·3	78·5	78·4	78·3	78·1	77·9	77·9	78·4
Dec.	78·0	77·8	77·8	77·8	77·6	77·6	77·5	77·5	77·4	77·5	77·7	78·0	78·3	78·7	78·6	78·5	78·2	78·1	77·9	77·9	77·8	77·8	77·9	77·8	77·8	77·9
Year	80·1	80·0	79·8	79·6	79·6	79·6	79·9	80·2	80·6	81·1	81·6	82·0	82·4	82·5	82·5	82·4	82·1	81·8	81·5	81·2	80·9	80·7	80·5	80·3	80·1	81·0

Eskdalemuir : Louvred Hut : h_t=0.9 m. **1918.**

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	24	Mean
Jan.	74·1	74·0	73·8	73·6	73·4	73·3	73·2	73·2	73·3	73·4	74·0	74·5	74·9	75·1	75·3	75·2	74·7	74·2	74·1	74·0	74·0	74·2	74·1	74·2	74·1	74·1
Feb.	77·2	77·2	77·2	77·2	77·1	77·2	77·1	76·9	76·9	77·3	77·7	78·2	78·6	78·7	78·8	78·6	78·4	78·0	77·6	77·6	77·4	77·5	77·4	77·3	77·2	77·6
Mar.	75·0	74·9	75·0	74·7	74·6	74·4	74·3	74·4	75·0	76·1	77·1	77·7	78·1	78·5	78·7	78·8	78·4	78·0	77·1	76·3	75·9	75·8	75·4	75·2	75·2	76·2
April	75·5	75·3	75·1	75·0	74·8	74·8	75·2	76·1	77·2	78·3	79·1	79·8	80·4	80·9	81·3	81·3	80·8	80·4	79·4	77·8	76·7	76·2	75·8	75·5	75·3	77·6
May	79·9	79·6	79·2	79·0	78·9	79·1	80·1	81·7	83·1	84·1	84·8	85·6	86·1	86·4	86·6	86·5	86·7	86·1	85·4	84·2	82·7	81·8	81·2	80·5	80·1	82·9
June	80·2	79·8	79·4	79·1	79·3	80·1	81·3	82·7	83·9	84·7	85·4	86·4	86·5	87·1	87·2	87·2	86·8	86·8	86·1	85·3	84·1	82·8	81·8	80·9	80·3	83·5
July	82·9	82·6	82·3	81·9	81·8	82·2	83·2	84·5	85·5	86·4	87·2	87·6	88·1	88·4	88·3	88·4	88·2	87·9	87·5	86·8	85·7	84·5	83·8	83·3	83·0	85·4
Aug.	84·1	83·8	83·7	83·6	83·5	83·6	84·0	84·7	85·5	86·4	87·2	87·9	88·1	88·4	88·5	88·2	88·0	87·7	87·0	86·2	85·4	84·9	84·6	84·2	83·9	85·8
Sept.	79·7	79·5	79·4	79·2	79·1	78·9	78·8	79·5	80·6	81·6	82·2	82·6	82·9	83·1	83·4	83·4	83·3	82·9	82·2	81·2	80·4	80·2	80·0	80·0	79·6	81·0
Oct.	79·4	79·5	79·4	79·3	79·2	79·2	79·0	78·9	79·3	80·1	81·0	81·4	82·0	82·1	82·2	81·9	81·6	81·1	80·6	80·3	80·1	79·9	79·5	79·4	79·4	80·3
Nov.	75·1	75·0	74·8	74·8	74·7	74·5	74·8	74·8	74·8	75·3	76·3	77·3	78·0	78·5	78·6	78·3	77·2	76·7	76·1	75·8	75·4	75·2	75·2	7·51	7·50	75·9
Dec.	76·7	76·6	76·5	76·4	76·5	76·6	76·5	76·4	76·3	76·5	76·9	77·3	77·6	77·7	77·8	77·6	77·3	77·1	77·1	77·0	76·9	76·8	76·6	76·5	76·3	76·9
Year	78·3	78·2	78·0	77·8	77·8	77·8	78·1	78·7	79·3	80·0	80·7	81·4	81·8	82·1	82·2	82·1	81·8	81·4	80·8	80·2	79·6	79·1	78·8	78·5	78·3	79·8

Cahirciveen (Valencia Obs.) : North Wall Screen : h_t=1·3 m. **1918.**

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	24	Mean
Jan.	79·3	79·2	79·3	79·1	79·1	79·2	79·2	79·2	79·2	79·3	79·4	79·7	80·1	80·3	80·3	80·3	80·2	80·0	79·9	79·7	79·8	79·7	79·6	79·5	79·5	79·6
Feb.	81·8	81·8	81·8	81·7	81·5	81·4	81·4	81·3	81·3	81·4	81·8	82·2	82·4	82·6	82·5	82·5	82·2	82·0	81·9	81·9	81·7	81·7	81·6	81·5	81·6	81·8
Mar.	79·7	79·5	79·3	79·1	79·0	79·1	79·2	79·2	79·6	80·3	81·1	81·7	82·3	82·7	82·8	82·6	82·3	81·8	81·3	80·7	80·4	80·2	80·0	79·9	79·8	80·6
April	80·7	80·6	80·4	80·2	79·9	79·8	79·8	80·2	81·3	82·2	82·6	83·1	83·4	83·8	83·8	83·6	83·5	83·5	83·2	82·6	81·9	81·5	81·2	81·0	80·7	81·8
May	83·9	83·7	83·5	83·3	83·2	83·1	83·4	84·3	85·1	86·0	86·4	86·9	87·2	87·3	87·3	87·2	87·3	87·1	86·4	85·9	85·1	84·7	84·4	84·2	84·0	85·3
June	85·2	85·0	84·8	84·6	84·5	84·4	85·1	86·0	86·8	87·5	88·0	88·4	88·6	88·5	88·9	88·9	89·0	88·8	88·0	87·5	86·9	86·3	85·8	85·6	85·2	86·8
July	86·5	86·3	86·1	86·0	85·9	85·9	86·3	87·1	87·8	88·6	89·2	89·5	89·7	89·9	89·9	89·8	90·0	89·6	89·1	88·5	87·9	87·3	86·9	86·8	86·6	87·9
Aug.	87·3	87·2	87·1	87·1	87·1	87·1	87·0	87·4	88·0	88·6	89·0	89·4	89·5	89·8	89·8	89·9	89·7	89·4	89·0	88·5	88·0	87·8	87·5	87·3	87·2	88·3
Sept.	84·5	84·6	84·4	84·4	84·4	84·5	84·5	84·6	85·0	85·6	85·9	86·3	86·6	86·7	87·0	86·8	86·4	86·1	85·6	85·3	85·0	84·8	84·7	84·6	84·4	85·3
Oct.	82·9	82·7	82·7	82·6	82·5	82·5	82·5	82·5	82·6	83·0	83·5	84·0	84·3	84·5	84·5	84·4	84·3	84·0	83·7	83·6	83·3	83·3	83·0	82·9	82·7	83·3
Nov.	81·4	81·3	81·4	81·5	81·4	81·4	81·3	81·5	81·5	81·7	82·1	82·5	82·9	82·9	83·0	82·8	82·5	82·1	81·8	81·7	81·7	81·7	81·6	81·7	81·6	81·9
Dec.	82·3	82·2	82·2	82·3	82·2	82·3	82·2	82·1	82·1	82·0	82·1	82·3	82·4	82·6	82·5	82·5	82·3	82·2	82·1	82·1	82·2	82·1	82·0	82·0	82·1	82·2
Year	82·9	82·8	82·6	82·7	82·6	82·5	82·7	82·9	83·4	83·8	84·3	84·7	85·0	85·3	85·2	85·1	85·0	84·7	84·3	84·0	83·7	83·4	83·2	83·1	83·0	83·7

Richmond (Kew Obs.) : North Wall Screen : h_t=3·0m. **1918.**

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	24	Mean
Jan.	76·7	76·6	76·5	76·4	76·4	76·4	76·3	76·3	76·3	76·6	77·0	77·5	78·1	78·5	78·7	78·5	78·1	77·7	77·4	77·3	77·2	77·1	77·0	76·9	76·7	77·2
Feb.	79·1	79·0	78·9	78·8	78·6	78·4	78·3	78·2	78·3	78·9	79·6	80·4	81·2	81·5	81·8	81·8	81·4	80·8	80·3	79·9	79·7	79·6	79·3	79·2	79·2	79·7
Mar.	77·5	77·2	77·1	76·9	76·7	76·6	76·5	76·6	77·3	78·6	79·8	80·9	81·7	82·5	83·0	83·0	82·9	82·5	81·7	80·5	79·6	79·0	78·6	78·1	77·7	79·4
April	78·6	78·3	78·1	77·9	77·8	77·9	78·0	78·3	78·9	79·8	80·6	81·4	81·9	82·4	82·6	82·4	82·6	82·4	82·0	81·2	80·5	79·7	79·2	78·8	78·5	80·0
May	84·1	83·5	83·2	82·9	82·6	82·6	83·4	84·6	85·7	86·9	88·0	88·6	89·5	90·1	90·5	90·9	90·8	90·6	90·1	89·1	87·7	86·5	85·5	84·9	84·2	86·8
June	84·7	84·0	83·5	82·9	82·6	83·2	84·1	85·4	86·7	87·8	88·6	89·3	89·9	90·6	91·0	91·1	91·1	90·7	90·6	89·9	88·4	87·2	86·2	85·4	84·8	87·3
July	87·2	86·9	86·5	86·3	86·1	86·4	87·1	88·1	89·2	90·1	90·9	91·5	91·9	92·2	92·5	92·7	93·0	92·9	92·3	91·5	90·3	89·2	88·4	87·8	87·2	89·6
Aug.	88·1	87·6	87·3	86·8	86·4	86·3	86·7	87·8	88·9	90·0	90·9	91·7	92·2	93·0	93·2	93·6	93·5	93·2	92·6	91·5	90·3	89·5	88·9	88·5	88·0	89·9
Sept.	85·0	84·9	84·7	84·6	84·4	84·2	84·0	84·5	85·5	86·5	87·2	87·9	88·6	89·0	89·0	89·0	88·7	88·3	87·3	86·5	86·0	85·6	85·3	85·0	84·7	86·3
Oct.	81·5	81·4	81·3	81·2	81·3	81·3	81·3	81·6	82·1	82·9	83·7	84·5	84·9	85·3	85·4	85·4	84·9	84·3	83·6	83·0	82·7	82·4	82·1	82·0	81·8	82·9
Nov.	78·8	78·7	78·4	78·1	78·0	78·0	77·9	77·7	77·7	78·3	79·3	80·4	81·3	81·8	81·9	81·6	81·1	80·3	79·9	79·5	79·1	78·9	78·7	78·6	78·5	79·3
Dec.	80·7	80·7	80·8	80·8	80·8	80·8	80·7	80·7	80·5	80·7	81·1	81·5	81·8	82·2	82·3	82·1	81·8	81·6	81·3	81·1	81·0	80·7	80·7	80·7	80·7	81·1
Year	81·8	81·6	81·3	81·1	81·0	81·0	81·2	81·7	82·3	83·1	83·9	84·7	85·3	85·7	86·0	86·0	85·8	85·4	84·9	84·3	83·5	83·0	82·5	82·1	81·8	83·3

**Note.*—The initial 2 of the readings is omitted, i.e., 275·0 degrees absolute is written 75·0.

DIURNAL INEQUALITIES OF TEMPERATURE.

Departures from the Mean of the day adjusted for non-periodic change.

Aberdeen: Unit = 1° centigrade. **1918.**

G.M.T.	Midt.	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	Midt.
Jan.	−0·3	−0·3	−0·3	−0·4	−0·5	−0·5	−0·6	−0·7	−0·6	−0·5	0·0	+0·4	+0·7	+0·9	+0·8	+0·6	+0·5	+0·3	+0·2	+0·1	+0·1	0·0	0·0	−0·1	−0·3
Feb.	−0·5	−0·6	−0·7	−0·9	−0·9	−0·8	−0·8	−0·9	−0·9	−0·4	+0·1	+0·8	+1·3	+1·5	+1·5	+1·3	+0·9	+0·5	+0·2	+0·1	−0·1	−0·2	−0·3	−0·3	−0·5
Mar.	−0·8	−0·9	−1·1	−1·3	−1·4	−1·4	−1·4	−1·3	−0·9	−0·1	+0·6	+1·1	+1·6	+1·8	+1·8	+1·7	+1·5	+1·2	+0·6	+0·2	−0·1	−0·3	−0·4	−0·6	−0·8
April	−1·0	−1·2	−1·4	−1·4	−1·6	−1·5	−1·3	−0·8	−0·1	+0·7	+1·2	+1·3	+1·5	+1·5	+1·4	+1·3	+1·2	+1·0	+0·7	+0·3	0·0	−0·3	−0·5	−0·8	−1·0
May	−1·4	−1·6	−1·8	−2·1	−2·1	−1·9	−1·1	−0·3	+0·3	+1·0	+1·3	+1·4	+1·9	+2·1	+1·7	+1·6	+1·3	+1·2	+0·5	+0·4	−0·1	−0·5	−0·8	−1·0	−1·4
June	−1·5	−1·8	−2·0	−2·4	−2·4	−2·0	−1·2	−0·3	+0·2	+0·6	+1·1	+1·4	+1·8	+1·8	+2·0	+1·9	+1·6	+1·5	+1·1	+0·9	+0·2	−0·4	−1·0	−1·3	−1·5
July	−1·3	−1·4	−1·6	−1·9	−1·9	−1·6	−0·9	−0·1	+0·4	+0·7	+1·1	+1·3	+1·4	+1·3	+1·2	+1·2	+1·2	+1·1	+1·0	+0·8	+0·3	−0·3	−0·7	−1·1	−1·3
Aug.	−1·2	−1·4	−1·6	−1·8	−2·1	−2·0	−1·5	−0·7	−0·1	+0·6	+1·1	+1·5	+1·9	+2·2	+1·9	+1·9	+1·5	+1·2	+0·9	+0·3	−0·3	−0·6	−0·8	−0·9	−1·2
Sept.	−1·2	−1·5	−1·6	−1·7	−1·8	−1·8	−1·8	−1·3	−0·4	+0·3	+1·1	+1·5	+1·7	+2·1	+2·2	+2·2	+2·0	+1·5	+0·8	+0·2	−0·2	−0·5	−0·7	−1·0	−1·2
Oct.	−0·4	−0·7	−0·8	−1·0	−1·0	−1·0	−1·0	−1·2	−0·9	−0·1	+0·4	+1·0	+1·3	+1·4	+1·4	+1·3	+1·0	+0·6	+0·2	0·0	−0·1	−0·1	−0·1	−0·3	−0·4
Nov.	−0·5	−0·6	−0·7	−0·7	−0·7	−0·8	−1·0	−0·9	−0·9	−0·7	−0·1	+1·1	+1·5	+1·5	+1·5	+1·4	+0·9	+0·2	0·0	+0·2	0·0	−0·1	−0·3	−0·4	−0·5
Dec.	0·0	−0·2	−0·2	−0·2	−0·4	−0·4	−0·4	−0·4	−0·5	−0·4	−0·2	0·0	+0·4	+0·8	+0·7	+0·7	+0·3	+0·2	0·0	+0·1	−0·1	0·0	0·0	0·0	0·0
Year	−0·8	−1·0	−1·2	−1·3	−1·4	−1·3	−1·1	−0·7	−0·4	+0·1	+0·6	+1·1	+1·4	+1·6	+1·5	+1·4	+1·2	+0·9	+0·5	+0·3	0·0	−0·3	−0·5	−0·7	−0·8

Eskdalemuir: **1918.**

G.M.T.	Midt.	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	Midt.
Jan.	0·0	−0·1	−0·3	−0·5	−0·6	−0·8	−0·8	−0·9	−0·8	−0·6	−0·1	+0·4	+0·8	+1·0	+1·3	+1·1	+0·6	+0·1	0·0	−0·1	−0·1	+0·1	+0·1	+0·1	0·0
Feb.	−0·4	−0·4	−0·5	−0·4	−0·5	−0·5	−0·5	−0·7	−0·7	−0·3	+0·1	+0·6	+1·0	+1·1	+1·2	+1·0	+0·8	+0·4	0·0	0·0	−0·2	−0·1	−0·2	−0·3	−0·4
Mar.	−1·1	−1·3	−1·2	−1·4	−1·6	−1·8	−1·9	−1·8	−1·2	−0·1	+0·9	+1·4	+1·9	+2·3	+2·5	+2·5	+2·1	+1·8	+0·8	+0·1	−0·4	−0·5	−0·9	−1·1	−1·1
April	−2·2	−2·4	−2·6	−2·7	−2·8	−2·8	−2·5	−1·6	−0·4	+0·6	+1·4	+2·2	+2·8	+3·3	+3·7	+3·7	+3·2	+2·8	+1·8	+0·3	−0·9	−1·4	−1·7	−2·0	−2·2
May	−2·9	−3·2	−3·6	−3·8	−3·9	−3·7	−2·7	−1·1	+0·3	+1·2	+1·9	+2·7	+3·3	+3·5	+3·7	+3·6	+3·8	+3·2	+2·5	+1·3	−0·2	−1·2	−1·8	−2·5	−2·9
June	−3·3	−3·7	−4·1	−4·4	−4·3	−3·4	−2·2	−0·8	+0·4	+1·2	+1·9	+2·8	+3·0	+3·6	+3·7	+3·6	+3·3	+3·2	+2·5	+1·7	+0·5	−0·7	−1·7	−2·7	−3·3
July	−2·5	−2·7	−3·1	−3·4	−3·6	−3·2	−2·1	−0·9	+0·1	+1·0	+1·9	+2·3	+2·7	+3·0	+2·9	+3·1	+2·8	+2·5	+2·1	+1·4	+0·3	−0·9	−1·6	−2·1	−2·5
Aug.	−1·8	−2·0	−2·2	−2·2	−2·3	−2·3	−1·9	−1·1	−0·3	+0·6	+1·4	+2·1	+2·3	+2·6	+2·7	+2·5	+2·3	+1·9	+1·2	+0·4	−0·3	−0·8	−1·1	−1·5	−1·8
Sept.	−1·3	−1·5	−1·6	−1·9	−1·9	−2·2	−2·2	−1·5	−0·4	+0·6	+1·2	+1·6	+1·9	+2·1	+2·4	+2·4	+2·3	+1·9	+1·2	+0·3	−0·6	−0·8	−1·0	−1·0	−1·3
Oct.	−0·9	−0·8	−0·9	−0·9	−1·0	−1·1	−1·3	−1·4	−1·0	−0·1	+0·7	+1·2	+1·7	+1·9	+1·9	+1·6	+1·3	+0·8	+0·3	+0·1	−0·2	−0·4	−0·8	−0·9	−0·9
Nov.	−0·9	−1·0	−1·2	−1·2	−1·2	−1·4	−1·2	−1·1	−1·1	−0·6	+0·4	+1·4	+2·1	+2·5	+2·7	+2·4	+1·3	+0·7	+0·2	−0·1	−0·5	−0·7	−0·7	−0·8	−0·9
Dec.	−0·4	−0·4	−0·5	−0·6	−0·5	−0·4	−0·5	−0·5	−0·6	−0·4	0·0	+0·4	+0·7	+0·9	+0·9	+0·8	+0·5	+0·3	+0·3	+0·2	+0·2	+0·1	−0·1	−0·3	−0·4
Year	−1·5	−1·6	−1·8	−2·0	−2·0	−2·0	−1·7	−1·1	−0·5	+0·3	+1·0	+1·6	+2·0	+2·3	+2·5	+2·4	+2·0	+1·6	+1·1	+0·5	−0·2	−0·6	−1·0	−1·3	−1·5

Cahirciveen (Valencia Obs.) **1918.**

G.M.T.	Midt.	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	Midt.
Jan.	−0·2	−0·3	−0·2	−0·5	−0·4	−0·4	−0·3	−0·3	−0·4	−0·3	−0·2	+0·1	+0·5	+0·7	+0·7	+0·7	+0·6	+0·3	+0·2	0·0	+0·1	0·0	−0·1	−0·2	−0·2
Feb.	−0·1	−0·2	−0·2	−0·1	−0·4	−0·5	−0·5	−0·6	−0·6	−0·5	0·0	+0·4	+0·6	+0·8	+0·7	+0·7	+0·4	+0·2	+0·1	+0·1	−0·1	0·0	−0·2	−0·2	−0·1
Mar.	−0·8	−1·0	−1·3	−1·4	−1·5	−1·5	−1·3	−1·4	−1·0	−0·3	+0·5	+1·1	+1·8	+2·1	+2·2	+2·0	+1·7	+1·2	+0·7	+0·1	−0·2	−0·4	−0·6	−0·7	−0·8
April	−1·1	−1·2	−1·4	−1·6	−1·9	−2·0	−2·0	−1·6	−0·6	+0·4	+0·8	+1·2	+1·6	+2·0	+2·0	+1·8	+1·7	+1·6	+1·3	+0·7	0·0	−0·3	−0·6	−0·9	−1·1
May	−1·4	−1·6	−1·8	−1·9	−2·1	−2·2	−1·8	−1·0	−0·2	+0·7	+1·2	+1·6	+1·9	+2·0	+2·0	+1·9	+2·0	+1·8	+1·1	+0·6	−0·2	−0·7	−0·9	−1·2	−1·4
June	−1·6	−1·8	−2·0	−2·2	−2·3	−2·4	−1·7	−0·8	+0·1	+0·7	+1·2	+1·6	+1·8	+1·7	+2·1	+2·1	+2·2	+2·0	+1·2	+0·7	+0·1	−0·5	−1·0	−1·2	−1·6
July	−1·4	−1·6	−1·8	−1·9	−2·0	−2·0	−1·7	−0·9	−0·2	+0·6	+1·2	+1·5	+1·8	+2·0	+2·0	+1·9	+2·1	+1·7	+1·2	+0·6	−0·1	−0·6	−1·1	−1·2	−1·4
Aug.	−1·0	−1·1	−1·2	−1·2	−1·2	−1·2	−1·3	−0·8	−0·3	+0·4	+0·7	+1·1	+1·3	+1·5	+1·5	+1·6	+1·4	+1·1	+0·7	+0·3	−0·2	−0·5	−0·8	−0·9	−1·0
Sept.	−0·9	−0·8	−1·0	−1·0	−1·0	−0·9	−0·9	−0·8	−0·3	+0·2	+0·6	+0·9	+1·3	+1·4	+1·6	+1·5	+1·1	+0·8	+0·3	0·0	−0·3	−0·5	−0·6	−0·7	−0·9
Oct.	−0·5	−0·7	−0·7	−0·7	−0·9	−0·8	−0·8	−0·9	−0·7	−0·3	+0·2	+0·7	+1·0	+1·2	+1·2	+1·1	+1·0	+0·7	+0·4	+0·3	+0·1	0·0	−0·3	−0·4	−0·5
Nov.	−0·4	−0·5	−0·4	−0·3	−0·4	−0·5	−0·5	−0·4	−0·3	−0·2	+0·2	+0·6	+1·0	+1·0	+1·1	+0·9	+0·6	+0·1	−0·2	−0·2	−0·3	−0·3	−0·4	−0·4	−0·4
Dec.	0·0	−0·1	−0·1	0·0	−0·1	0·0	−0·1	−0·2	−0·1	−0·2	−0·1	+0·1	+0·2	+0·4	+0·3	+0·3	+0·1	0·0	−0·1	0·0	0·0	−0·1	−0·2	−0·2	0·0
Year	−0·8	−0·9	−1·2	−1·1	−1·2	−1·2	−1·1	−0·8	−0·4	+0·1	+0·5	+0·9	+1·2	+1·6	+1·4	+1·4	+1·2	+1·0	+0·6	+0·3	−0·1	−0·3	−0·6	−0·7	−0·8

Richmond (Kew Obs.) **1918.**

G.M.T.	Midt.	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	Midt.
Jan.	−0·4	−0·5	−0·6	−0·8	−0·8	−0·8	−0·9	−0·8	−0·9	−0·6	−0·2	+0·4	+0·9	+1·4	+1·5	+1·4	+1·0	+0·6	+0·3	+0·2	+0·1	0·0	−0·1	−0·3	−0·4
Feb.	−0·6	−0·7	−0·8	−0·9	−1·1	−1·3	−1·4	−1·5	−1·4	−0·9	−0·1	+0·7	+1·5	+1·8	+2·1	+2·0	+1·7	+1·1	+0·6	+0·2	0·0	−0·1	−0·4	−0·5	−0·6
Mar.	−1·8	−2·0	−2·2	−2·4	−2·6	−2·7	−2·8	−2·7	−2·0	−0·7	+0·4	+1·5	+2·4	+3·1	+3·6	+3·6	+3·5	+3·1	+2·3	+1·0	+0·2	−0·5	−0·9	−1·3	−1·8
April	−1·5	−1·7	−2·0	−2·2	−2·3	−2·2	−2·1	−1·7	−1·1	−0·2	+0·6	+1·4	+1·9	+2·3	+2·6	+2·4	+2·6	+2·4	+2·0	+1·2	+0·5	−0·3	−0·9	−1·3	−1·5
May	−2·6	−3·1	−3·5	−3·8	−4·1	−4·1	−3·3	−2·1	−1·0	+0·2	+1·3	+1·9	+2·8	+3·3	+3·7	+4·1	+4·0	+3·8	+3·2	+2·3	+0·9	−0·3	−1·3	−2·0	−2·6
June	−2·5	−3·2	−3·8	−4·3	−4·7	−4·1	−3·1	−1·8	−0·6	+0·5	+1·3	+2·1	+2·6	+3·3	+3·7	+3·8	+3·8	+3·4	+3·3	+2·6	+1·1	−0·1	−1·2	−1·9	−2·5
July	−2·4	−2·8	−3·1	−3·3	−3·5	−3·2	−2·5	−1·5	−0·4	+0·5	+1·2	+1·9	+2·3	+2·6	+2·8	+3·1	+3·4	+3·3	+2·7	+1·9	+0·6	−0·4	−1·3	−1·9	−2·4
Aug.	−1·9	−2·4	−2·7	−3·2	−3·6	−3·7	−3·3	−2·1	−1·1	0·0	+0·9	+1·8	+2·3	+3·1	+3·3	+3·6	+3·6	+3·3	+2·7	+1·6	+0·4	−0·4	−1·0	−1·4	−1·9
Sept.	−1·5	−1·5	−1·8	−1·9	−2·0	−2·2	−2·4	−1·9	−0·9	+0·1	+0·9	+1·6	+2·3	+2·7	+2·7	+2·7	+2·5	+2·0	+1·1	+0·2	−0·3	−0·6	−0·9	−1·2	−1·5
Oct.	−1·3	−1·4	−1·5	−1·7	−1·6	−1·5	−1·5	−1·3	−0·8	0·0	+0·8	+1·6	+2·0	+2·4	+2·5	+2·4	+2·0	+1·3	+0·6	0·0	−0·3	−0·6	−1·0	−1·1	−1·3
Nov.	−0·7	−0·8	−1·1	−1·3	−1·4	−1·5	−1·5	−1·6	−1·7	−1·1	0·0	+1·1	+2·0	+2·5	+2·6	+2·3	+1·9	+1·1	+0·6	+0·3	−0·2	−0·3	−0·5	−0·6	−0·7
Dec.	−0·4	−0·4	−0·3	−0·4	−0·3	−0·4	−0·4	−0·5	−0·6	−0·5	0·0	+0·4	+0·7	+1·0	+1·2	+1·0	+0·7	+0·5	+0·2	0·0	−0·1	−0·4	−0·4	−0·4	−0·4
Year	−1·5	−1·7	−2·0	−2·2	−2·3	−2·3	−2·1	−1·6	−1·0	−0·2	+0·6	+1·4	+2·0	+2·4	+2·7	+2·7	+2·5	+2·1	+1·6	+1·0	+0·2	−0·3	−0·8	−1·2	−1·5

Note.—The entry for the hour n is X_n where $X_n = t_n - \bar{t} - (n-12)\ (t_{24} - t_0)/24$, t_n being the temperature at hour n and $\bar{t}$ the mean for 24 hours.

RELATIVE HUMIDITY; MONTHLY MEANS OF HOURLY VALUES.

Percentages, deduced from thermometer readings at exact hours, Greenwich Mean Time, by Glaisher's method.

Aberdeen. **1918.**

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	24	Mean
Jan.	84	86	86	86	85	85	85	82	83	85	84	83	80	80	82	84	84	87	84	84	84	85	85	84	84	84
Feb.	81	81	81	82	82	82	84	84	84	83	79	76	75	74	74	75	78	80	81	81	81	81	81	80	81	80
Mar.	82	84	84	84	83	85	83	85	82	81	80	76	74	74	74	75	74	77	80	81	81	83	80	82	82	80
April	84	82	84	84	83	83	84	81	80	76	75	74	74	74	75	75	76	77	78	81	81	81	81	82	84	80
May	83	84	85	86	85	84	82	79	78	74	74	74	72	70	73	73	74	74	77	77	79	81	82	83	83	78
June	81	82	82	83	83	81	79	73	70	68	67	65	66	65	67	68	70	70	70	72	74	76	79	80	81	74
July	88	89	90	90	90	88	86	82	80	81	78	79	78	79	80	79	80	79	79	79	82	86	85	86	88	83
Aug.	86	87	88	88	87	88	87	84	80	77	74	74	79	72	73	74	76	76	79	81	83	85	85	85	86	81
Sept.	84	84	84	85	86	84	85	84	81	79	71	71	71	69	69	69	70	73	77	81	82	83	82	85	84	79
Oct.	83	84	85	86	86	86	86	88	85	82	81	78	73	74	75	75	77	78	81	82	83	84	85	85	83	82
Nov.	84	87	85	85	85	87	87	90	87	85	84	83	79	80	80	82	83	88	90	86	84	83	84	84	84	85
Dec.	84	87	85	85	87	87	88	90	88	88	85	84	84	82	83	84	86	84	84	84	84	84	84	84	84	85
Year	84	85	85	85	85	85	85	84	82	80	78	76	75	74	75	76	77	79	80	81	82	83	83	83	84	81

Eskdalemuir. **1918.**

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	24	Mean
Jan.	84	86	84	84	84	86	84	86	87	88	83	83	82	82	85	86	86	87	85	87	85	85	85	85	84	85
Feb.	88	88	89	89	90	89	89	90	91	90	89	87	86	86	86	86	87	89	89	89	90	90	89	88	88	89
Mar.	89	90	90	89	89	90	90	91	89	87	83	81	79	80	79	79	81	83	86	88	88	89	89	89	90	86
April	83	85	83	84	84	86	85	82	80	77	74	71	70	67	66	66	68	68	72	76	79	81	81	81	82	77
May	88	88	89	90	90	89	88	86	80	76	74	72	69	69	68	69	69	70	73	78	82	85	85	87	88	80
June	86	87	88	87	87	86	84	79	75	71	69	68	67	67	67	67	68	69	71	74	77	81	82	84	86	77
July	90	92	92	92	93	93	91	87	83	78	76	74	72	71	71	70	71	75	77	79	84	88	89	90	90	82
Aug.	93	92	92	92	92	92	91	90	87	85	81	79	78	77	77	79	79	80	83	86	88	89	89	90	92	86
Sept.	88	89	90	89	90	90	90	88	86	82	81	80	79	79	79	78	77	79	82	85	87	88	87	88	88	85
Oct.	91	91	92	92	92	91	91	92	91	89	86	85	82	81	81	83	85	87	89	90	90	90	91	91	91	88
Nov.	89	91	91	90	91	91	91	91	91	91	90	88	86	84	83	85	88	88	90	90	90	90	89	90	90	89
Dec.	92	91	91	92	91	90	91	91	92	90	90	89	88	88	89	88	89	90	89	90	90	89	90	90	92	90
Year	88	89	89	89	89	90	89	88	86	84	81	80	78	78	78	78	79	80	82	84	86	87	87	88	88	84

Cahirciveen (Valencia Obs.) **1918.**

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	24	Mean
Jan.	88	89	87	89	89	90	88	88	89	89	89	89	87	87	88	89	89	89	89	91	89	89	89	89	89	89
Feb.	89	90	90	91	91	91	91	92	91	92	91	90	88	88	88	87	87	87	87	87	87	87	88	88	88	89
Mar.	87	87	88	88	88	87	86	86	85	84	82	79	78	76	76	77	79	82	84	86	86	86	87	88	88	84
April	84	84	84	85	85	85	84	84	81	78	78	76	75	75	75	76	78	78	79	82	84	82	83	82	84	81
May	87	89	89	89	89	89	89	87	85	82	79	77	76	76	77	78	77	78	81	83	87	87	87	88	88	84
June	86	85	86	87	87	87	86	84	80	78	76	73	73	74	73	73	72	73	76	78	80	81	84	85	86	80
July	88	88	88	89	88	89	89	87	83	81	79	78	77	75	75	76	75	76	78	80	82	85	87	87	88	83
Aug.	90	90	91	90	92	91	93	91	90	88	87	85	84	83	82	80	80	82	83	85	87	88	89	89	89	87
Sept.	85	84	85	84	84	84	85	85	84	82	83	81	80	80	79	79	81	81	82	82	83	83	84	85	85	83
Oct.	88	89	88	87	88	88	88	88	87	88	86	85	83	83	83	83	84	85	86	87	88	88	89	88	89	87
Nov.	86	86	86	85	86	86	86	86	85	84	84	83	82	82	82	83	84	85	86	86	86	86	86	86	86	85
Dec.	88	88	88	88	89	88	88	88	88	87	87	87	86	86	86	86	86	86	87	87	87	87	89	88	88	87
Year	87	88	87	88	88	88	88	87	86	84	83	82	81	80	80	81	81	82	83	84	85	86	87	87	87	85

Richmond (Kew Obs.) **1918.**

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	24	Mean
Jan.	84	84	85	86	86	84	84	83	83	84	82	81	79	77	76	78	79	81	83	83	83	84	84	85	85	82
Feb.	85	85	85	87	86	87	86	86	86	84	82	77	75	74	73	75	76	79	81	82	83	84	85	85	85	82
Mar.	83	86	86	87	87	87	86	86	84	80	76	71	68	65	62	64	64	64	68	72	76	79	81	83	83	77
April	88	88	89	90	89	89	89	88	86	84	79	76	76	74	72	74	73	74	74	76	80	83	85	86	88	82
May	83	86	87	88	88	89	86	81	77	72	69	66	63	61	60	57	58	58	60	63	68	73	79	81	84	73
June	81	83	85	86	88	85	82	76	70	64	62	59	57	56	55	55	56	58	59	62	67	73	76	78	81	70
July	83	85	86	87	87	87	85	81	76	72	68	66	65	65	64	63	62	63	64	68	73	78	80	82	83	75
Aug.	85	87	88	90	90	91	89	85	79	74	69	65	64	61	61	60	60	63	66	71	77	80	82	83	85	76
Sept.	85	86	88	88	88	89	90	87	82	77	73	70	67	65	66	65	67	70	75	79	82	83	84	84	86	79
Oct.	90	90	90	91	91	91	91	90	88	86	82	78	76	74	73	75	76	81	84	86	87	89	90	90	90	85
Nov.	90	90	90	91	91	91	91	91	90	90	87	84	82	79	79	79	81	84	85	87	88	89	89	89	90	87
Dec.	89	89	88	88	89	89	89	89	89	89	88	86	85	83	82	82	83	84	85	85	86	87	88	89	89	87
Year	86	86	87	88	88	88	87	85	82	80	76	74	71	70	69	69	70	71	79	76	79	82	83	85	86	79

WIND SPEED; MONTHLY MEANS OF HOURLY VALUES.

Averages, in metres per second, for periods of sixty minutes centred at the exact hours Greenwich Mean Time.

Aberdeen : H_a (height of anemometer above M.S.L.)=37 metres. **1918.**
h_a (height of anemometer above ground)=23 metres.

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	24	Mean
Jan.	4·4	3·9	4·2	4·2	4·2	4·2	4·1	3·9	4·2	3·8	4·4	4·6	4·6	4·8	4·8	5·0	4·9	4·8	4·6	4·8	4·6	4·7	4·5	4·4	4·3	4·4
Feb.	4·6	4·4	4·5	3·8	3·9	4·0	4·3	4·3	4·3	4·6	4·7	4·8	5·0	4·9	5·0	4·6	4·7	4·6	4·3	4·2	4·6	4·7	4·6	4·6	4·6	4·5
Mar.	3·1	3·0	3·2	3·0	3·0	3·2	3·2	3·0	3·1	3·3	3·6	3·7	3·8	3·7	4·0	3·7	3·7	3·4	3·2	3·2	3·1	3·2	3·2	3·1	3·1	3·3
Apr.	3·2	3·4	3·0	3·1	3·1	3·1	3·1	3·1	3·5	3·8	4·4	4·6	4·8	4·9	4·7	4·9	4·7	4·5	3·9	3·1	2·9	3·2	3·1	3·2	3·2	3·7
May	2·1	2·1	2·1	2·0	2·1	2·3	2·4	2·5	2·9	3·1	3·6	3·7	3·8	4·0	4·1	3·8	3·5	3·1	2·8	2·7	2·3	2·0	2·0	2·1	2·0	2·8
June	2·9	3·2	3·3	3·2	3·2	3·0	3·6	4·4	4·6	4·7	5·0	4·9	4·8	4·7	4·8	4·5	4·5	4·1	3·9	3·4	3·3	3·1	2·8	3·0	2·9	3·9
July	2·1	1·9	2·0	1·9	1·9	2·2	2·5	2·5	2·8	3·1	3·3	3·4	3·7	3·5	3·2	3·2	3·2	3·1	2·9	2·7	2·4	2·2	2·1	2·1	2·1	2·7
Aug.	2·3	2·4	2·2	2·2	2·1	2·2	2·3	2·7	2·9	3·2	3·7	3·5	3·7	3·8	3·8	4·0	3·7	3·4	3·0	3·0	2·6	2·5	2·4	2·6	2·4	2·9
Sept.	3·6	3·7	4·0	3·6	3·5	3·6	3·3	3·6	3·9	4·2	4·4	4·8	4·7	4·7	4·9	4·9	4·5	4·5	4·2	3·9	3·9	4·0	4·0	3·8	3·7	4·1
Oct.	3·9	3·7	3·5	3·6	3·4	3·5	3·5	3·6	3·9	4·4	4·7	5·0	5·0	4·8	4·6	4·4	4·4	4·2	3·7	3·8	3·8	3·7	3·8	3·8	3·7	4·0
Nov.	2·8	2·7	2·9	3·0	3·1	3·1	3·6	3·4	3·3	3·2	3·5	3·8	3·9	3·7	3·3	3·3	3·1	3·0	3·1	3·1	3·2	3·0	2·9	2·9	3·0	3·2
Dec.	3·8	3·4	3·7	3·5	3·4	3·6	3·3	3·1	3·3	3·3	3·4	3·4	3·7	3·9	3·8	3·8	3·6	3·5	3·6	3·7	3·2	3·2	3·2	3·4	3·5	3·5
Year	3·2	3·2	3·2	3·1	3·1	3·2	3·3	3·4	3·5	3·7	4·1	4·2	4·3	4·3	4·2	4·2	4·0	3·8	3·6	3·5	3·3	3·3	3·2	3·2	3·2	3·6

Eskdalemuir. : H_a=250 m. h_a=15 m. **1918.**

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	24	Mean
Jan.	6·5	6·8	6·5	6·3	6·6	6·6	6·6	6·7	6·0	6·4	6·9	6·9	7·2	7·4	7·5	6·9	6·8	6·9	6·6	6·5	6·2	5·8	5·8	5·6	6·3	6·6
Feb.	7·0	6·8	6·6	6·9	6·7	6·6	6·5	6·7	6·4	6·5	6·5	7·6	8·2	8·3	8·8	8·6	8·1	7·8	7·5	7·6	8·0	8·2	7·9	7·8	7·5	7·4
Mar.	4·2	4·1	3·9	3·6	3·6	4·1	3·8	4·0	4·3	4·8	5·6	6·0	5·8	6·1	6·3	6·1	5·8	5·2	4·7	4·1	4·0	3·7	3·8	3·8	3·9	4·6
Apr.	4·6	4·8	4·8	4·6	4·5	4·7	5·0	5·0	5·5	6·0	6·3	6·5	6·6	6·7	6·9	6·8	7·0	7·2	6·4	5·1	4·7	4·8	4·7	4·6	4·6	5·6
May	2·6	2·4	2·4	2·5	2·5	2·6	2·8	3·4	4·4	4·9	4·8	5·0	5·3	5·4	5·5	5·5	5·8	5·6	5·0	4·3	3·8	3·0	2·8	2·6	2·5	3·9
June	3·4	3·2	3·2	2·9	2·8	2·9	3·2	3·8	4·5	5·1	5·4	5·5	5·7	5·9	5·9	6·0	5·8	5·7	5·2	4·6	4·1	4·0	3·9	3·5	3·4	4·4
July	2·2	2·3	2·2	2·2	2·3	2·3	2·9	3·5	4·0	4·5	4·8	5·1	5·3	5·8	5·7	5·5	5·2	4·9	4·6	3·9	3·2	2·9	2·5	2·2	2·2	3·8
Aug.	3·5	3·7	3·6	3·6	3·4	3·5	3·5	3·5	4·0	4·9	5·2	5·7	5·9	6·1	6·3	6·2	6·3	5·5	5·2	4·6	4·4	3·9	3·6	3·6	3·8	4·6
Sept.	4·6	4·4	4·5	4·2	4·2	4·1	4·1	4·6	5·1	6·2	7·1	6·9	7·3	7·5	7·3	7·2	6·5	5·9	5·7	5·2	5·0	4·4	4·0	4·3	4·6	5·4
Oct.	5·8	6·3	5·7	6·0	5·9	5·9	5·9	5·5	5·8	6·4	6·4	6·8	7·1	7·3	7·1	6·7	6·0	6·3	6·1	5·6	5·6	5·6	5·3	5·6	5·6	6·1
Nov.	3·1	3·2	3·1	3·3	3·3	3·1	2·8	3·2	3·5	3·9	3·8	3·9	4·2	4·2	3·9	3·7	3·4	3·5	3·3	3·1	3·0	2·9	3·0	3·1	3·1	3·4
Dec.	5·1	5·2	5·0	4·3	4·1	4·3	4·5	4·9	5·1	5·1	5·5	5·9	6·4	6·4	6·6	6·4	5·9	5·5	5·4	5·2	5·7	5·5	5·3	5·3	5·0	5·4
Year	4·4	4·4	4·3	4·2	4·2	4·2	4·3	4·6	4·9	5·4	5·7	6·0	6·3	6·4	6·5	6·3	6·1	5·9	5·5	5·0	4·8	4·6	4·4	4·3	4·4	5·1

Cahirciveen (Valencia Obs.) : H_a=26 m. h_a=14 m. **1918.**

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	24	Mean
Jan.	5·8	5·8	6·1	6·2	6·0	6·6	6·6	6·6	6·6	6·5	6·6	6·8	6·9	6·7	6·6	6·3	6·4	6·3	6·5	7·2	7·1	6·7	6·6	6·3	6·1	6·5
Feb.	8·2	8·0	7·8	7·6	7·6	7·5	7·2	7·2	6·7	6·7	7·1	7·5	7·8	8·4	8·7	8·9	8·8	8·4	8·5	8·2	8·1	8·1	8·0	7·8	8·0	7·9
Mar.	4·5	4·3	4·2	4·2	4·2	4·2	4·1	3·8	4·1	4·5	5·2	5·7	5·6	5·8	6·1	6·1	6·0	5·7	5·6	5·2	5·2	4·7	4·3	4·3	4·4	4·9
Apr.	4·4	4·5	4·7	4·5	4·3	4·5	4·3	4·5	4·4	4·4	4·7	5·2	5·5	5·6	5·9	5·9	5·7	5·4	4·4	4·4	4·7	4·6	4·4	4·7	4·2	4·8
May	3·9	3·7	3·5	3·7	3·9	3·8	3·6	3·6	3·8	4·2	4·7	5·4	5·6	5·9	6·1	6·2	6·2	5·9	5·4	5·0	4·2	4·1	4·1	3·8	4·0	4·6
June	3·5	3·6	3·7	3·8	3·9	3·6	3·7	4·3	4·7	4·8	5·4	5·8	5·8	6·0	6·0	6·1	6·2	6·1	5·9	5·7	4·7	4·0	3·8	3·7	3·5	4·8
July	4·1	4·0	3·9	3·8	3·8	3·6	3·7	3·9	4·6	4·9	5·5	5·8	6·0	6·0	6·3	6·1	6·0	5·7	5·5	5·2	4·6	4·4	4·0	4·2	4·1	4·8
Aug.	4·1	3·8	3·6	3·7	3·7	3·9	3·9	4·0	4·6	5·1	5·4	5·6	6·0	6·5	6·5	6·5	6·1	5·7	5·4	5·0	4·6	4·6	4·3	4·1	4·3	4·9
Sept.	6·2	6·4	6·1	5·9	6·4	6·4	6·4	6·5	6·8	6·6	6·9	7·3	7·2	7·5	7·7	7·6	7·4	7·3	6·8	6·6	6·2	6·1	6·3	6·2	6·1	6·7
Oct.	6·3	6·2	6·2	6·4	6·3	6·5	6·7	6·6	6·4	6·3	6·3	6·6	6·4	6·4	6·8	6·7	6·2	5·7	5·5	5·4	5·2	5·4	5·5	5·9	6·3	6·2
Nov.	6·1	6·1	6·4	6·0	5·8	5·9	5·7	5·6	5·8	5·6	5·8	6·1	6·4	6·6	6·4	6·6	6·3	6·2	6·2	6·1	6·0	5·9	6·4	6·9	6·2	6·1
Dec.	8·5	8·9	8·9	9·0	8·8	8·8	8·4	8·1	7·9	7·9	7·3	7·7	7·5	7·7	7·9	7·5	7·5	8·1	7·8	8·2	8·4	8·4	8·1	8·1	8·6	8·2
Year	5·5	5·5	5·4	5·4	5·4	5·5	5·4	5·4	5·5	5·6	5·9	6·3	6·4	6·6	6·8	6·7	6·6	6·4	6·1	6·0	5·8	5·6	5·5	5·5	5·5	5·9

Richmond (Kew Obs.) : H_a=25 m. h_a=20 m. **1918.**

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	24	Mean
Jan.	3·5	3·4	3·4	3·5	3·5	3·3	3·3	3·4	3·4	3·6	3·6	4·3	4·4	4·5	4·3	4·2	3·7	3·3	3·2	3·3	3·5	3·7	3·6	3·5	3·4	3·6
Feb.	3·9	3·8	3·8	3·7	3·9	3·8	3·7	3·7	3·8	4·0	4·2	4·8	5·3	5·1	5·1	4·9	4·4	4·3	4·0	4·2	4·1	4·2	4·0	3·9	4·0	4·2
Mar.	2·8	2·9	3·0	2·8	2·9	3·1	3·4	3·6	3·7	4·2	4·5	5·0	5·3	5·4	5·5	5·4	5·0	4·6	3·9	3·5	3·4	3·3	2·9	2·7	2·9	3·9
Apr.	3·1	3·1	3·1	3·0	3·2	3·3	3·4	3·8	4·1	4·2	4·2	4·8	4·8	4·8	5·0	4·8	4·7	4·5	4·1	3·8	3·6	3·5	3·3	3·2	3·1	3·9
May	2·3	2·1	2·0	1·7	2·0	2·0	2·3	2·8	3·3	3·5	3·5	3·9	4·0	4·3	4·3	4·3	4·2	4·2	3·8	3·2	3·0	2·8	2·4	2·2	2·1	3·1
June	1·7	1·7	1·6	1·6	1·5	1·5	2·1	2·6	3·2	3·4	3·5	3·7	3·6	3·5	3·7	3·8	3·8	3·4	3·4	3·0	2·7	2·4	2·2	2·0	1·8	2·7
July	2·2	2·1	2·0	2·1	2·0	2·2	2·6	3·1	3·6	3·8	4·1	4·5	4·5	4·4	4·1	4·2	4·2	3·8	3·6	3·0	2·6	2·6	2·5	2·3	2·2	3·2
Aug.	1·9	1·8	1·7	1·8	1·7	1·7	2·0	2·3	2·6	3·0	3·3	3·4	3·4	3·7	3·4	3·7	3·6	3·3	2·8	2·5	2·3	2·3	2·3	2·1	1·9	2·6
Sept.	3·5	3·3	3·1	2·9	2·7	2·7	2·7	3·2	4·1	4·3	4·6	5·2	5·5	5·6	5·6	5·7	5·4	5·0	4·1	3·5	3·6	3·6	3·6	3·6	3·4	4·0
Oct.	2·2	2·3	2·2	2·1	2·3	2·6	2·4	2·5	2·9	3·2	3·4	4·2	4·1	3·9	3·8	3·6	3·3	2·7	2·5	2·5	2·4	2·5	2·4	2·4	2·3	2·9
Nov.	2·2	2·2	2·0	2·1	2·0	1·9	1·9	2·1	2·1	2·3	2·4	3·3	3·4	3·9	3·8	3·4	3·2	3·0	2·6	2·7	2·3	2·6	2·3	2·3	2·3	2·6
Dec.	3·9	4·0	4·1	4·1	4·1	4·2	4·1	4·3	4·0	4·1	3·9	4·6	4·5	4·8	4·6	4·4	3·9	4·2	3·9	3·8	3·6	3·9	3·5	3·8	3·8	4·1
Year	2·8	2·7	2·7	2·6	2·6	2·7	2·8	3·1	3·4	3·6	3·8	4·3	4·4	4·5	4·4	4·4	4·1	3·9	3·5	3·3	3·1	3·1	2·9	2·8	2·8	3·4

Note.—At Aberdeen, Cahirciveen and Richmond, the speed of the wind is obtained from the records of a Robinson Cup-anemometer.
At Eskdalemuir the speed is obtained from the records of a Dines Pressure-tube Anemometer.

RAINFALL; MONTHLY TOTALS OF HOURLY VALUES.

Amounts, in millimetres, for periods of sixty minutes centered at the exact hours, Greenwich Mean Time.*

Aberdeen: H_r (height of receiving surface above M.S.L.) = H (height of station above M.S.L.) + h_r (height of receiving surface above ground). **1918.**
= 14·0 metres + 0·6 metres.

G.M.T.	0 to 0·30	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	23·30 to 24	Day.
Jan.	1·3	3·0	1·4	2·0	2·1	0·9	1·1	0·5	1·0	0·3	0·6	0·5	1·5	3·7	5·6	4·3	4·3	5·1	4·3	4·8	4·6	2·0	2·7	2·5	1·7	61·8
Feb.	0·8	1·4	2·1	1·6	1·1	1·3	4·0	2·8	2·1	1·9	1·4	0·5	2·1	1·3	0·3	0·1	0·5	0·7	0·5	0·2	0·1	1·1	1·7	1·9	1·0	32·5
Mar.	0·8	2·0	3·5	3·8	2·8	3·2	2·8	1·3	1·3	0·7	0·6	0·4	0·2	0·1	0·4	0·6	0·6	2·5	1·9	3·6	1·8	1·5	1·1	0·8	2·3	40·6
April	0·2	0·4	0·4	1·1	1·3	0·9	0·5	0·9	0·5	0·7	0·4	0·2	0·0	0·2	0·0	0·1	0·2	0·5	0·3	0·1	0·6	0·5	0·1	0·7	0·1	10·9
May	0·7	1·4	1·9	2·5	1·1	1·1	1·8	2·7	3·4	2·7	1·3	0·6	0·1	0·1	0·4	5·8	5·4	4·5	4·0	0·9	0·2	0·7	1·3	2·1	0·3	47·0
June	0·5	2·6	0·4	1·9	2·1	1·5	2·4	0·9	1·3	0·7	1·1	0·6	2·9	2·0	1·8	0·6	2·7	5·2	1·0	0·6	0·8	0·4	0·2	0·4	0·1	34·7
July	3·5	2·9	2·7	1·7	2·8	4·7	6·1	7·4	5·7	8·7	12·5	9·7	5·0	6·4	11·6	9·5	7·5	6·3	6·7	3·7	5·1	4·1	4·5	6·3	5·1	150·2
Aug.	0·8	3·1	2·3	2·2	1·2	1·3	0·8	0·5	0·6	0·0	2·1	4·8	2·7	0·4	14·5	9·0	6·2	4·1	3·8	1·3	1·2	1·6	0·7	2·5	1·1	68·8
Sept.	1·9	3·0	3·1	8·6	7·9	8·4	8·8	3·8	3·0	4·8	4·1	4·7	3·9	3·8	3·9	5·3	6·9	9·5	7·9	8·3	6·2	7·4	3·5	2·3	1·0	132·0
Oct.	0·9	3·6	3·5	7·2	6·5	3·6	2·4	2·7	1·0	0·1	0·0	3·4	0·2	0·6	1·9	2·0	3·0	2·6	3·8	2·1	1·6	1·6	1·8	1·3	0·7	58·1
Nov.	5·0	4·1	2·0	0·6	3·4	5·1	4·8	3·9	3·9	3·3	0·3	0·2	0·7	0·2	0·1	0·9	0·2	0·6	1·0	1·6	1·4	0·4	0·1	2·1	2·5	48·4
Dec.	0·3	2·7	3·2	3·8	4·0	3·1	2·0	2·7	2·9	6·0	1·9	1·8	1·1	0·4	1·1	3·8	2·0	2·3	3·1	4·8	4·0	1·8	1·0	0·8	0·0	60·6
Year	16·7	30·2	26·5	37·0	36·3	35·1	37·5	30·1	26·7	29·9	26·3	27·4	20·4	19·2	41·6	42·0	39·5	43·9	38·3	32·0	27·6	23·1	18·7	23·7	15·9	745·6

Eskdalemuir: $H_r = 242·0$ m. + 0·4 m. **1918.**

G.M.T.	0 to 0·30	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	23·30 to 24	Day.
Jan.	7·1	14·0	7·9	5·9	7·3	5·3	5·5	5·4	6·9	3·1	4·5	6·9	9·1	6·9	9·1	9·9	14·1	13·6	5·0	6·6	6·2	7·9	14·2	15·2	6·4	204·0
Feb.	4·2	6·8	5·7	10·6	6·8	5·8	7·2	8·0	9·5	10·0	7·1	6·6	3·0	5·7	9·6	9·1	11·6	16·1	11·1	12·8	13·1	12·3	9·8	6·1	4·2	212·8
Mar.	2·1	4·1	5·2	2·2	2·7	0·7	0·3	0·8	3·8	3·4	1·6	0·8	1·3	2·0	2·7	3·1	4·2	2·5	0·7	0·9	0·8	1·0	0·3	1·4	1·3	49·9
April	0·3	0·1	0·0	0·4	0·0	0·3	0·5	1·1	2·1	0·9	1·0	1·2	0·3	0·4	0·2	1·2	0·3	0·4	0·4	0·9	3·8	3·0	0·8	0·2	0·0	19·8
May	1·3	2·7	2·0	2·6	3·7	3·2	2·7	3·5	3·6	3·2	4·0	2·4	2·9	4·3	1·2	1·5	0·9	0·2	8·9	6·9	4·5	5·7	3·6	1·9	2·7	80·1
June	1·1	4·0	4·5	1·7	0·8	0·2	1·4	0·2	1·2	2·1	1·8	0·8	1·5	1·2	2·5	1·9	2·3	0·8	2·3	1·1	1·4	5·5	6·0	1·7	1·3	49·3
July	2·9	5·1	9·5	6·7	5·2	5·7	2·2	1·5	1·1	1·2	1·0	5·3	4·4	1·7	5·8	3·0	13·9	5·3	2·0	1·3	2·1	0·9	8·2	6·2	1·5	103·7
Aug.	1·8	4·2	3·6	6·8	6·4	6·4	4·7	1·6	2·0	3·5	2·8	4·8	12·4	7·2	6·5	5·3	5·4	1·6	3·5	4·4	2·0	1·2	4·8	3·1	0·8	106·8
Sept.	5·1	9·2	11·2	8·9	9·5	9·8	4·4	5·6	6·6	12·4	14·0	10·6	16·7	12·3	8·6	9·3	11·3	11·5	8·7	14·7	12·5	5·1	11·6	7·2	4·7	241·5
Oct.	5·9	13·6	14·3	14·3	10·7	10·2	14·4	6·2	6·1	7·3	11·3	9·7	8·0	13·8	7·2	10·3	10·0	8·9	7·1	7·6	5·3	7·3	10·1	12·9	7·1	239·6
Nov.	3·2	2·2	5·6	5·4	5·7	9·3	2·0	1·6	1·7	3·7	4·2	5·9	6·4	8·8	6·8	7·2	7·0	4·0	1·3	1·8	2·4	0·9	6·8	3·2	1·4	108·5
Dec.	3·5	7·5	7·1	4·5	4·6	6·7	4·8	8·6	13·0	12·1	10·8	6·9	6·2	4·6	9·4	10·1	8·2	6·0	8·4	4·5	4·1	4·7	5·1	7·6	2·8	171·8
Year	38·5	73·5	76·6	70·0	63·4	63·6	50·1	44·1	57·6	62·9	64·1	61·9	72·2	68·9	69·6	71·9	89·2	70·9	59·4	63·5	58·2	55·5	81·3	66·7	34·2	1587·8

Cahirciveen (Valencia Obs.): $H_r = 9·1$ m. + 0·5 m. **1918.**

G.M.T.	0 to 0·30	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	23·30 to 24	Day.
Jan.	3·3	7·1	9·2	9·9	5·2	5·3	4·0	3·3	6·7	10·8	9·8	7·7	7·2	10·3	6·9	7·0	5·4	5·1	5·6	5·8	10·0	8·2	7·4	7·3	4·0	172·5
Feb.	5·0	10·0	8·3	8·4	9·5	10·4	11·7	10·5	8·0	11·3	8·5	8·4	9·4	8·0	8·9	4·0	5·3	6·7	4·1	4·1	2·1	3·1	2·6	5·5	4·0	177·8
Mar.	4·4	7·0	5·4	12·7	4·5	4·4	1·5	1·8	0·8	1·0	0·3	1·4	0·8	3·4	2·7	7·1	3·1	2·0	3·3	5·7	4·1	8·3	5·1	5·4	3·6	99·8
April	0·5	0·8	3·3	4·8	0·6	0·4	0·6	0·3	1·4	0·9	0·0	2·3	2·8	1·5	1·3	0·8	1·3	6·7	2·5	2·7	2·9	2·1	0·2	2·5	0·9	44·1
May	1·9	8·1	5·6	4·6	7·4	3·4	3·4	2·7	0·6	0·5	0·3	0·8	0·6	2·0	1·6	2·2	0·9	1·4	1·9	3·0	3·7	5·2	2·2	2·8	1·2	68·0
June	1·7	3·9	4·1	6·5	7·4	1·9	0·8	3·5	0·6	0·2	0·1	0·2	2·4	0·7	3·2	1·7	3·6	0·7	0·5	1·2	2·0	1·2	1·8	3·1	3·4	56·4
July	1·9	6·5	6·0	4·2	4·2	5·9	5·6	11·8	4·3	2·0	0·1	1·8	1·7	1·4	1·9	1·8	7·5	7·9	4·5	6·6	7·3	6·1	7·4	6·6	5·7	120·7
Aug.	1·3	1·4	1·8	2·7	4·1	2·4	2·1	6·4	5·3	4·8	3·8	2·3	5·0	3·9	2·5	0·5	1·1	1·6	1·5	0·7	0·3	4·2	5·9	4·2	1·0	70·8
Sept.	2·2	4·0	5·0	8·8	4·8	6·4	7·0	14·2	17·2	11·3	10·8	7·0	10·0	7·7	6·7	5·0	4·8	2·5	8·4	6·9	10·3	7·6	6·9	6·0	1·2	182·7
Oct.	7·9	10·4	6·9	7·4	8·7	10·2	9·2	12·5	7·2	3·9	3·7	4·5	2·1	5·6	4·8	8·2	7·5	7·1	5·6	6·5	9·8	6·0	4·7	6·4	2·3	169·1
Nov.	4·3	6·9	7·4	7·6	6·9	3·1	2·5	8·3	1·4	0·6	1·8	1·6	1·2	1·7	4·0	11·9	5·9	6·2	11·8	8·5	8·8	10·5	10·5	8·3	2·8	144·5
Dec.	2·0	5·0	10·4	9·9	5·8	8·9	6·3	8·3	6·0	6·5	12·4	15·0	12·0	3·9	7·0	9·5	10·8	7·9	9·9	8·8	10·6	14·7	7·0	4·0	2·0	204·6
Year	36·4	71·1	73·4	87·5	69·1	62·7	54·7	83·6	59·5	53·8	51·6	53·0	55·2	50·1	51·5	59·7	57·2	55·8	59·6	60·5	71·9	77·2	61·7	62·1	32·1	1511·0

Richmond (Kew Obs.): $H_r = 5·5$ m. + 0·5 m. **1918.**

G.M.T.	0 to 0·30	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	23·30 to 24	Day.
Jan.	3·1	6·5	4·9	8·4	2·7	4·6	2·1	1·3	1·2	1·1	1·0	0·8	2·0	1·6	1·7	4·6	4·1	4·2	1·7	1·0	1·2	2·6	4·5	5·1	2·7	74·7
Feb.	0·5	0·9	1·8	3·0	2·0	0·3	0·3	0·1	2·1	1·0	0·3	0·4	0·5	0·1	0·1	0·4	0·2	1·4	1·3	0·3	0·1	0·9	0·5	2·2	0·7	21·4
Mar.	0·0	0·1	0·2	3·8	1·4	1·6	0·6	0·1	0·1	0·0	0·5	1·1	1·7	2·5	3·5	3·8	0·4	0·2	0·0	0·5	0·1	0·0	0·2	0·1	0·3	22·8
April	1·3	4·1	2·8	3·0	2·6	2·4	2·7	2·5	2·2	2·4	2·5	2·9	3·5	5·8	7·0	6·2	1·6	1·9	1·7	2·9	3·7	6·0	3·5	3·0	2·0	80·2
May	0·9	0·9	1·3	0·8	0·2	0·2	1·2	6·5	2·7	1·8	2·3	4·4	2·0	3·3	0·6	0·4	0·5	0·2	0·3	0·2	0·3	2·2	9·1	3·3	0·6	46·2
June	0·0	0·1	0·6	0·2	1·4	1·3	0·0	0·0	0·2	0·0	0·1	0·7	0·6	0·0	1·7	5·4	2·9	7·5	0·5	1·0	1·6	1·2	1·1	1·0	0·4	29·5
July	0·0	0·0	0·2	0·5	0·0	0·2	6·2	7·8	9·1	5·6	5·4	6·7	11·0	16·7	7·7	1·9	8·5	7·8	15·0	5·0	2·8	3·3	0·0	0·0	0·0	121·4
Aug.	0·8	0·4	0·0	0·0	0·1	0·2	0·0	3·3	0·7	1·1	2·9	6·6	5·8	2·8	0·5	0·2	1·5	2·3	0·6	0·6	1·0	1·2	2·6	0·3	0·1	35·6
Sept.	1·9	5·2	5·1	3·3	5·6	15·6	10·9	2·6	3·4	1·3	0·7	1·8	2·1	3·0	3·9	5·5	6·2	3·9	3·3	7·8	6·0	19·3	11·3	13·3	2·0	145·0
Oct.	0·4	0·6	0·3	1·0	1·2	1·0	2·3	0·8	0·5	1·8	1·2	3·4	0·5	0·8	1·0	1·2	1·5	1·3	1·1	0·6	1·2	2·3	1·7	0·5	0·4	28·6
Nov.	0·3	0·6	4·5	2·2	2·3	1·4	1·9	2·0	2·6	3·3	5·5	3·4	2·2	3·1	2·0	1·2	1·7	0·9	1·0	2·4	0·7	3·3	4·4	0·4	0·0	53·3
Dec.	0·7	2·9	3·8	1·5	2·5	3·9	3·4	5·9	4·1	2·0	0·5	2·3	4·0	2·0	2·1	1·6	1·4	1·4	0·2	0·1	0·4	3·1	3·1	0·5	0·1	53·5
Year	9·9	22·3	25·5	27·7	22·0	32·7	31·6	32·9	28·9	21·4	22·9	34·5	36·2	41·7	31·8	32·4	30·5	33·0	26·7	22·4	19·1	45·4	42·0	29·7	9·3	712·2

*The half-hours before and after midnight are tabulated separately.

Note.—The amounts of rainfall are obtained at each observatory from the autographic records of a Beckley raingauge.

For **Falmouth** see p. 55.

DURATION OF BRIGHT SUNSHINE; MONTHLY MEANS OF HOURLY VALUES.

Amounts for periods of sixty minutes centering at the hours of Local Apparent Time.

Aberdeen : h_s (height of recorder above ground)=20·7 metres. **1918.**

Hour, L.A.T.	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	Day.
Jan.	..	..	..	..	..	·07	·15	·25	·22	·25	·11	·02	..	..	..	..	..	1·07
Feb.	..	..	..	·01	·14	·30	·41	·38	·34	·24	·22	·19	·08	..	..	..	..	2·31
Mar.	..	..	..	·04	·18	·26	·26	·26	·26	·29	·25	·27	·19	·06	..	..	..	2·32
April	..	·04	·14	·23	·32	·38	·44	·46	·48	·49	·50	·45	·42	·37	·20	·04	..	4·96
May	·01	·16	·32	·40	·41	·46	·38	·45	·46	·43	·42	·34	·33	·24	·21	·12	·01	5·15
June	·06	·21	·37	·50	·50	·52	·54	·53	·51	·45	·45	·35	·31	·32	·30	·30	·11	6·33
July	·06	·19	·26	·28	·29	·27	·26	·33	·39	·37	·40	·35	·32	·26	·38	·30	·03	4·74
Aug.	..	·03	·16	·28	·35	·30	·21	·26	·30	·32	·30	·37	·36	·27	·17	·04	..	3·73
Sept.	..	..	·05	·32	·35	·39	·42	·38	·38	·47	·46	·52	·39	·30	·04	..	..	4·47
Oct.	..	..	..	·05	·21	·37	·33	·34	·35	·31	·30	·25	·11	·04	..	..	..	2·66
Nov.	..	..	..	..	·01	·11	·28	·43	·39	·42	·35	·12	·01	..	..	..	..	2·12
Dec.	..	..	..	..	..	·01	·25	·28	·30	·26	·22	·01	..	..	..	..	..	1·33
Year	·01	·05	·11	·18	·23	·29	·32	·36	·36	·36	·33	·27	·21	·16	·11	·07	·01	3·43

Eskdalemuir : h_s=1·5 m. **1918.**

Hour, L.A.T.	4	5	6	7	8	9	10	11	Noon.	13	14	15	16	17	18	19	20	Day.
Jan.	..	..	..	..	·02	·17	·25	·25	·19	·18	·17	·11	..	..	..	..	..	1·34
Feb.	..	..	..	·01	·06	·11	·10	·14	·12	·15	·09	·03	·01	..	..	..	..	0·82
Mar.	..	..	..	·06	·22	·26	·27	·33	·29	·30	·25	·26	·23	·07	..	..	..	2·54
April	..	·02	·12	·24	·30	·30	·38	·39	·46	·54	·50	·52	·57	·51	·34	·05	..	5·24
May	·01	·16	·37	·42	·42	·39	·42	·42	·43	·43	·39	·43	·48	·36	·35	·21	·02	5·71
June	·07	·22	·29	·38	·42	·47	·48	·51	·51	·49	·46	·50	·46	·42	·29	·20	·03	6·20
July	..	·14	·29	·32	·31	·37	·40	·43	·50	·44	·45	·48	·40	·33	·32	·16	·02	5·36
Aug.	..	·03	·10	·16	·18	·25	·37	·39	·31	·30	·31	·21	·27	·28	·09	·03	..	3·28
Sept.	..	..	·06	·20	·36	·38	·39	·34	·33	·31	·36	·38	·37	·23	·11	..	..	3·81
Oct.	..	..	..	·02	·13	·25	·24	·23	·29	·25	·20	·15	·09	..	..	..	..	1·85
Nov.	..	..	..	..	·01	·16	·30	·35	·40	·38	·38	·29	·02	..	..	..	..	2·29
Dec.	..	..	..	..	..	·07	·20	·28	·25	·25	·22	·06	..	..	..	..	..	1·33
Year	·01	·05	·10	·15	·20	·27	·32	·34	·34	·33	·31	·29	·24	·18	·13	·05	·01	3·32

Cahirciveen (Valencia Obs.) : h_s=12·8 m. **1918.**

Hour, L.A.T.	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	Day.
Jan.	..	..	..	..	..	·04	·14	·16	·23	·27	·18	·10	..	..	..	..	..	1·12
Feb.	..	..	..	..	·06	·17	·20	·15	·13	·13	·16	·16	·10	·01	..	..	..	1·27
Mar.	..	..	..	·13	·42	·52	·60	·64	·63	·65	·59	·50	·42	·19	..	..	..	5·29
April	..	..	·25	·46	·56	·53	·52	·53	·56	·50	·54	·54	·49	·38	·24	..	..	6·10
May	·01	·13	·30	·36	·45	·48	·57	·61	·64	·63	·58	·56	·52	·43	·38	·23	..	6·88
June	·02	·28	·42	·45	·43	·43	·46	·47	·47	·54	·58	·57	·53	·45	·42	·26	·01	6·79
July	·02	·15	·35	·44	·46	·57	·57	·62	·71	·73	·62	·63	·51	·52	·39	·24	·03	7·56
Aug.	..	·01	·12	·17	·22	·15	·19	·22	·31	·34	·42	·25	·25	·29	·25	·05	..	3·24
Sept.	..	..	·03	·23	·36	·39	·38	·48	·45	·49	·54	·48	·36	·21	·03	..	..	4·43
Oct.	..	..	..	..	·17	·25	·36	·39	·37	·34	·29	·27	·22	·02	..	..	..	2·68
Nov.	..	..	..	..	·02	·18	·19	·30	·28	·30	·26	·22	·05	..	..	..	..	1·80
Dec.	..	..	..	..	..	·05	·21	·25	·31	·27	·19	·06	..	..	..	..	..	1·34
Year	·00	·05	·12	·20	·26	·31	·36	·40	·43	·43	·41	·36	·29	·21	·14	·07	·00	4·04

Richmond (Kew Obs.) : h_s=13·3 m. **1918.**

Hour, L.A.T.	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	Day.
Jan.	..	..	..	..	·01	·09	·19	·28	·32	·39	·36	·22	·03	..	..	..	..	1·89
Feb.	..	..	..	·02	·16	·26	·29	·31	·35	·27	·27	·20	·14	..	..	..	..	2·27
Mar.	..	..	..	·05	·20	·39	·47	·47	·50	·51	·49	·43	·36	·20	..	..	..	4·07
April	..	..	·03	·06	·13	·19	·26	·24	·29	·35	·32	·29	·27	·26	·15	·01	..	2·85
May	..	·06	·32	·43	·45	·51	·56	·63	·61	·57	·56	·56	·58	·58	·48	·25	..	7·15
June	·01	·31	·54	·66	·64	·68	·63	·55	·51	·54	·51	·42	·46	·46	·50	·29	·02	7·73
July	..	·11	·37	·51	·51	·50	·49	·42	·41	·39	·43	·41	·42	·46	·30	·13	·01	5·87
Aug.	..	·02	·27	·44	·43	·46	·55	·53	·54	·53	·51	·49	·44	·37	·27	·06	..	5·01
Sept.	..	..	·07	·31	·47	·52	·46	·48	·52	·48	·46	·46	·37	·32	·05	..	..	4·97
Oct.	..	..	..	·01	·09	·16	·26	·34	·35	·34	·30	·29	·21	·07	..	..	..	2·42
Nov.	..	..	..	..	·02	·11	·23	·28	·33	·30	·30	·19	·04	..	..	..	..	1·80
Dec.	..	..	..	..	..	·01	·08	·11	·17	·28	·18	·08	..	..	..	..	..	0·91
Year	·00	·04	·13	·21	·26	·32	·37	·39	·41	·41	·39	·34	·27	·23	·15	·06	·00	3·98

Note.—The hourly duration of Sunshine is obtained from the records of the Campbell-Stokes Recorder an instrument in which 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 bright sunshine being shewn by the length of the scorch on the card.

For **Falmouth** see p. 55

I.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (X.) *Mean Values for periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **January, 1918.**

Hour. G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon.	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	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	985	985	986	989	990	990	986	988	987	984	974	966	962	965	970	973	976	977	985	988	988	985	979	981	983	981
2	983	983	994	986	987	986	993	991	990	986	979	975	971	972	977	977	974	974	976	977	987	989	986	986	985	983
3	984	982	981	979	987	986	985	985	989	990	985	980	967	958	971	961	974	978	955	978	984	983	984	988	981	979
4	981	981	992	1003	991	988	977	984	987	987	986	975	969	968	964	963	975	975	972	975	979	978	976	984	991	980
5	991	978	979	975	975	979	981	980	979	972	974	957	929	956	963	971	974	980	972	970	977	980	980	979	994	973
6	993	985	986	988	970	971	984	979	977	968	972	970	960	954	939	959	962	970	983	987	983	976	978	981	1009	974
7	1009	982	985	978	975	978	980	982	980	978	975	972	966	966	970	973	981	986	983	984	983	982	983	985	981	979
8	981	982	982	983	983	983	985	986	985	982	975	969	963	962	969	977	982	984	985	984	984	984	983	983	981	980
9	981	979	979	981	984	987	988	988	988	988	983	973	965	965	973	975	979	986	984	986	988	981	979	980	1002	981
10	1001	977	978	982	986	988	991	994	983	981	979	975	968	962	962	965	959	969	971	1001	974	977	978	982	982	978
11	982	980	979	979	981	987	991	985	987	987	977	967	959	965	967	972	976	979	982	984	984	984	984	984	984	979
12	984	985	986	987	989	993	992	994	993	988	987	981	948	925	963	942	962	969	968	971	974	977	982	975	987	976
13	986	966	967	964	966	967	971	971	970	961	963	961	961	960	941	934	958	970	973	973	972	990	981	971	975	966
14	975	986	982	977	969	968	974	974	974	972	966	956	950	951	952	955	966	971	978	970	966	970	971	977	975	969
15	975	971	976	976	980	980	981	981	980	978	976	967	965	964	962	967	959	971	981	955	968	971	981	971	977	972
16	977	974	987	981	971	981	984	985	980	969	963	961	958	958	962	967	975	979	982	981	981	984	982	985	986	975
17	986	980	977	976	978	982	982	984	982	979	973	966	966	962	951	965	971	976	982	982	986	985	988	994	990	977
18	989	980	979	981	981	985	986	986	985	975	966	956	955	960	964	970	975	981	984	983	985	986	985	985	985	978
19	985	984	984	985	986	989	990	992	991	989	978	966	961	961	968	974	980	984	985	985	987	987	987	987	985	982
20	985	986	986	985	990	995	997	995	1000	990	977	965	954	957	955	960	965	971	979	982	983	990	991	987	989	980
21	989	1008	984	982	987	993	995	994	993	989	984	975	958	965	973	950	953	950	959	975	979	976	975	971	991	977
22	990	984	979	971	984	981	988	986	985	979	968	962	959	953	954	960	964	974	975	979	983	984	984	982	979	975
23	979	987	976	982	981	984	987	993	990	983	971	965	962	964	968	968	970	976	982	984	985	986	986	987	986	979
24	986	984	986	989	990	993	995	998	1001	998	996	984	969	964	965	959	957	945	958	973	976	983	982	980	979	980
25	979	978	991	978	984	981	992	992	989	975	966	956	957	963	968	974	976	978	980	983	980	985	982	983	984	978
26	983	983	983	982	982	993	989	991	988	980	974	971	969	968	971	973	978	980	983	988	985	990	989	984	984	982
27	984	1003	979	977	973	988	993	988	973	978	972	961	955	939	943	956	970	978	982	978	975	983	983	983	984	975
28	984	988	983	983	984	986	987	988	985	978	968	965	963	966	967	978	976	965	970	973	978	987	988	993	995	979
29	995	986	988	989	993	993	998	1000	1002	998	999	988	983	973	982	961	956	958	949	949	938	944	980	962	972	977
30	972	963	964	963	970	979	984	974	971	932	928	938	925	923	950	943	938	953	958	968	965	1015	949	903	926	954
31	926	950	967	954	950	974	978	978	969	963	958	957	964	953	923	951	972	979	943	948	943	945	977	973	953	959
Mean	983	981	981	980	981	984	987	987	985	979	974	967	960	959	962	964	969	973	974	977	977	981	981	979	982	976

II.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (—Y.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **January, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon.	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean.
													4,000 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
1	946	947	950	949	951	951	951	948	946	943	939	941	947	957	967	962	959	956	952	955	952	946	935	946	945	950
2	945	943	935	940	945	951	951	951	951	947	946	951	957	962	967	968	964	971	974	964	955	951	947	946	947	953
3	947	949	946	950	947	946	950	950	952	952	951	957	963	976	978	984	978	987	983	967	958	948	935	925	907	956
4	907	917	906	930	937	934	939	945	951	949	949	952	957	962	968	963	962	962	962	949	954	951	935	902	922	944
5	922	920	941	949	951	954	951	949	949	955	952	956	947	957	967	966	967	939	919	961	956	948	938	937	925	948
6	925	917	925	919	943	946	943	946	945	950	949	957	965	970	968	970	965	950	952	952	951	943	940	942	922	947
7	922	920	930	940	947	947	946	946	946	945	944	951	961	962	963	957	955	955	952	952	951	951	947	948	946	948
8	946	946	947	946	948	948	946	947	951	953	950	946	958	962	964	959	956	951	951	951	950	950	947	946	947	951
9	947	945	951	951	951	952	951	949	947	946	946	948	952	958	966	962	956	957	955	948	955	951	946	940	935	951
10	935	934	949	956	954	953	952	951	959	967	950	948	956	959	968	974	967	963	950	940	951	941	938	938	947	952
11	947	951	951	952	954	953	949	947	947	946	943	943	949	951	961	959	955	952	951	951	951	949	949	951	950	951
12	950	951	952	954	953	952	951	948	946	941	941	954	957	965	974	965	957	978	970	962	951	939	929	892	872	950
13	872	904	928	940	951	950	946	946	941	935	935	941	952	965	965	946	962	958	954	948	938	919	924	938	934	941
14	934	939	918	909	933	930	939	943	942	935	935	943	957	963	974	909	967	962	949	953	943	937	930	924	933	943
15	933	947	947	951	944	954	950	946	943	941	941	943	952	961	965	967	947	963	959	935	935	940	913	925	936	946
16	936	938	939	927	936	944	939	941	941	935	937	947	958	964	967	961	956	955	956	952	949	946	945	943	933	946
17	933	940	943	947	951	951	949	947	943	940	940	946	955	964	962	962	957	956	956	954	951	948	940	930	929	948
18	929	937	943	946	950	950	951	949	947	940	935	946	959	964	970	968	962	956	954	955	954	951	949	949	949	951
19	948	950	951	953	953	952	951	950	947	941	937	945	953	960	968	965	959	959	958	956	952	948	947	945	945	952
20	945	948	949	951	953	955	951	956	951	946	945	950	961	975	973	971	963	961	956	954	949	947	947	946	945	954
21	945	943	928	946	951	956	951	947	941	937	940	945	950	961	978	978	964	957	946	952	948	940	928	923	924	948
22	924	929	929	958	960	947	950	951	946	936	937	943	956	962	960	958	955	951	954	953	950	946	945	945	943	948
23	943	937	935	950	942	945	946	948	945	938	936	940	947	950	957	958	955	954	954	954	951	948	948	948	948	947
24	948	950	953	955	955	954	951	951	949	943	942	948	958	961	970	965	962	966	946	945	946	941	940	941	940	952
25	940	940	951	943	945	952	945	945	945	940	943	942	953	961	966	963	958	955	954	951	940	928	940	945	946	948
26	946	950	950	956	964	946	947	945	940	933	937	950	960	963	963	961	958	956	955	953	948	921	935	945	948	949
27	948	926	931	936	952	950	947	947	952	948	942	942	955	964	976	969	961	953	953	950	942	940	936	943	947	948
28	947	951	948	949	949	947	946	943	938	933	933	939	945	955	962	965	958	947	949	952	949	948	949	945	938	948
29	938	945	951	952	956	956	951	951	949	943	949	945	953	961	981	972	978	993	1012	994	958	920	882	913	922	954
30	922	950	970	934	934	942	946	948	945	947	949	948	956	964	971	967	972	971	948	950	933	850	814	812	784	932
31	784	857	901	902	931	924	932	939	939	940	934	943	956	976	977	993	971	984	938	956	963	940	919	891	911	936
Mean	931	936	940	943	948	948	947	947	946	943	942	947	955	962	968	966	961	961	956	954	949	940	933	931	930	948

III.—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. (Z.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **January, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon.	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean.
													44,000 γ (.44 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	1093	1088	1088	1086	1085	1085	1085	1085	1085	1085	1085	1083	1088	1088	1088	1089	1094	1095	1093	1090	1090	1091	1093	1091	1089	1088
2	1089	1089	1085	1086	1086	1085	1085	1084	1085	1085	1084	1081	1080	1078	1080	1085	1089	1089	1089	1091	1090	1088	1086	1085	1084	1085
3	1084	1084	1084	1082	1077	1078	1080	1080	1078	1077	1075	1075	1079	1080	1081	1088	1090	1092	1104	1106	1099	1097	1097	1094	1094	1086
4	1094	1091	1089	1076	1077	1077	1078	1078	1076	1077	1078	1079	1080	1080	1084	1088	1089	1088	1090	1083	1092	1091	1093	1096	1088	1084
5	1088	1088	1084	1083	1084	1084	1083	1083	1082	1081	1080	1076	1083	1083	1083	1087	1090	1094	1101	1092	1090	1089	1090	1090	1090	1086
6	1090	1085	1077	1070	1069	1076	1077	1078	1079	1078	1076	1074	1075	1077	1088	1095	1098	1098	1093	1088	1086	1088	1087	1085	1075	1082
7	1074	1072	1071	1072	1074	1075	1076	1076	1076	1075	1073	1072	1074	1076	1079	1083	1084	1084	1083	1082	1082	1082	1082	1082	1082	1078
8	1082	1082	1081	1080	1080	1080	1079	1079	1077	1077	1077	1077	1077	1080	1080	1082	1083	1082	1081	1081	1081	1081	1081	1081	1079	1080
9	1078	1079	1078	1078	1078	1077	1077	1077	1076	1075	1071	1072	1073	1073	1075	1078	1080	1078	1078	1079	1078	1080	1082	1083	1077	1077
10	1077	1074	1074	1074	1074	1074	1073	1073	1072	1070	1071	1071	1074	1077	1078	1083	1087	1087	1088	1086	1083	1084	1083	1081	1078	1078
11	1078	1077	1077	1076	1075	1074	1074	1075	1074	1075	1077	1076	1077	1077	1078	1079	1081	1079	1078	1077	1076	1076	1076	1076	1075	1077
12	1075	1075	1074	1073	1072	1072	1072	1071	1071	1070	1069	1075	1081	1086	1112	1103	1095	1087	1087	1088	1089	1087	1088	1088	1081	1081
13	1088	1085	1081	1079	1080	1079	1078	1078	1077	1078	1075	1074	1075	1077	1087	1093	1091	1088	1086	1085	1086	1085	1078	1078	1078	1082
14	1077	1061	1052	1054	1053	1066	1071	1073	1075	1077	1073	1068	1071	1075	1079	1081	1082	1082	1084	1084	1088	1090	1088	1088	1085	1075
15	1084	1080	1077	1075	1072	1068	1070	1071	1070	1068	1064	1066	1066	1067	1068	1076	1088	1081	1081	1086	1088	1085	1084	1084	1077	1076
16	1077	1076	1072	1070	1070	1069	1069	1068	1069	1070	1067	1066	1064	1065	1068	1074	1075	1075	1075	1075	1074	1073	1073	1072	1071	1071
17	1071	1068	1068	1070	1071	1071	1071	1071	1070	1069	1065	1061	1063	1066	1069	1073	1076	1076	1073	1072	1072	1072	1071	1068	1067	1070
18	1067	1066	1067	1066	1067	1067	1067	1066	1068	1070	1068	1064	1064	1063	1064	1068	1068	1072	1072	1071	1069	1068	1068	1067	1066	1067
19	1065	1064	1064	1063	1063	1063	1063	1063	1063	1065	1063	1063	1064	1063	1063	1066	1067	1067	1066	1066	1066	1066	1065	1064	1063	1064
20	1063	1062	1062	1062	1061	1060	1060	1060	1059	1059	1059	1055	1056	1059	1062	1063	1067	1068	1067	1067	1067	1066	1064	1063	1062	1062
21	1062	1052	1050	1054	1057	1057	1058	1059	1059	1059	1057	1054	1054	1054	1058	1067	1076	1080	1085	1078	1074	1073	1072	1067	1057	1063
22	1057	1054	1057	1053	1042	1051	1055	1058	1059	1061	1058	1055	1055	1060	1063	1063	1064	1066	1064	1064	1065	1065	1065	1064	1064	1059
23	1064	1062	1059	1053	1057	1058	1059	1059	1060	1063	1063	1063	1062	1058	1057	1063	1065	1065	1063	1063	1063	1064	1063	1063	1062	1061
24	1061	1060	1059	1058	1058	1058	1058	1057	1056	1055	1050	1051	1054	1057	1060	1066	1071	1079	1081	1074	1070	1067	1065	1064	1064	1062
25	1064	1062	1053	1053	1053	1053	1053	1055	1056	1056	1058	1058	1060	1060	1062	1066	1063	1062	1062	1064	1065	1062	1062	1061	1059	
26	1062	1059	1059	1059	1053	1054	1056	1057	1059	1061	1058	1056	1059	1062	1062	1062	1062	1062	1060	1061	1062	1063	1059	1058	1058	1059
27	1058	1050	1051	1051	1051	1052	1054	1054	1054	1053	1054	1058	1061	1063	1065	1069	1071	1069	1066	1066	1067	1064	1063	1061	1059	1059
28	1059	1055	1057	1058	1058	1058	1057	1057	1059	1059	1060	1059	1058	1056	1059	1059	1063	1067	1066	1063	1063	1061	1059	1057	1053	1059
29	1053	1054	1054	1054	1053	1053	1052	1051	1050	1050	1045	1049	1049	1050	1054	1063	1075	1080	1091	1108	1114	1122	1130	1106	1087	1070
30	1088	1071	1033	1043	1053	1057	1057	1055	1057	1060	1057	1056	1060	1071	1072	1083	1101	1106	1106	1089	1086	1070	1028	986	925	1061
31	925	968	987	1033	1044	1037	1044	1050	1055	1056	1057	1059	1058	1065	1082	1085	1078	1081	1113	1125	1139	1129	1094	1077	1071	1063
Mean	1069	1067	1065	1066	1066	1067	1067	1068	1068	1068	1067	1066	1067	1069	1072	1077	1080	1080	1081	1081	1081	1080	1077	1074	1069	1072

IV. ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES

Eskdalemuir. **January, 1918.**

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	° ′ ″	° ′	a 280+		
						3·5	0	1
						3·6	0	2
						3·5	1	3
						3·5	0	4
						3·5	1D	5
						3·2	1	6
						3·0	0	7
						3·3	0C	8
						3·3	0	9
10	10 25	11 3	16723	17 11 51	69 38·3	3·3	0	10
						3·3	0C	11
						3·3	1D	12
						3·3	1	13
						3·3	0	14
15	10 30	11 6	16715	17 12 6	69 38·7	3·2	1	15
						3·3	0	16
						3·2	0C	17
						3·1	0C	18
						3·1	0C	19
						3·0	0	20
						3·0	1	21
						3·0	0	22
						3·0	0	23
						3·0	0	24
						3·0	0	25
						2·9	0	26
						2·9	0	27
						2·8	0	28
						2·7	1D	29
						2·7	2D	30
31	10 32	10 59	16691	17 13 22	69 40·5	2·6	2D	31

MAGNETIC NOTES.

January, 1918.

This was the quietest month of the year, the character figure "0" having been assigned on 21 days. The mean figure was 0·40. The 8th, 18th, and 19th were especially quiet, the absolute ranges of the N,W, and V components for these days averaging 34 γ, 36 γ, and 7 γ respectively. The only considerable disturbance during the month began with a rather slow "sudden commencement" at 28d. 14h. 47m. but there were not any large changes until after 12h. of the next day, and the disturbance did not develop fully until the 30th. The largest and most rapid changes took place between 20h. and 24h. on the 30th. They are shown in the form of vector diagrams in Plates IV., V. and VI., and exhibit the usual counter-clockwise rotation of the vectors. The traces for the month exhibit fewer cases than usual of short period oscillations and there were no instances of isolated bays occurring during spells of otherwise quiet conditions.

EXPLANATORY NOTE

Extreme values of each component of magnetic force are given for each day in the *Geophysical Journal*.

The daily means given in Tables I to III are computed as $\frac{1}{24}[\frac{1}{2}(0+24)+(1+\ldots+23)]$.

"Temperature in Magnet House" is the mean of the corrected readings, at 9h. 30m. G.M.T., of the thermometers in the N. W. and V. magnetograph boxes.

The times of the absolute observations are those of the declination and dip observations only. The horizontal force values refer to the mean time of the declination observations, being derived by a combined use of the actual observations and curve measurements.

C in the "Magnetic Character of Day" column denotes an "International Quiet Day" while D denotes a disturbed day used for the computation of Tables LXa—LXc.

V.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (X.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **February, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	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	952	959	958	947	967	967	968	968	963	955	957	943	946	950	948	948	964	964	989	978	953	1001	969	967	966	962
2	966	963	967	974	977	972	976	978	979	976	967	970	966	962	962	965	968	967	972	992	968	973	982	981	972	972
3	972	975	977	971	973	976	979	982	982	979	972	967	963	950	958	968	977	979	982	981	982	982	988	981	982	975
4	982	978	979	978	979	982	983	983	984	982	977	975	974	972	966	958	966	963	972	982	983	983	982	984	985	977
5	985	982	981	980	981	983	987	1002	1004	998	994	973	955	956	953	961	957	952	972	979	980	986	988	979	982	978
6	982	973	977	979	987	998	998	981	967	938	942	948	939	926	932	948	958	954	952	968	978	978	977	975	974	965
7	973	977	977	988	985	972	978	987	967	978	978	966	958	957	956	958	964	966	972	976	977	976	974	987	977	973
8	977	980	978	979	981	981	983	985	985	981	976	972	966	958	957	961	965	971	976	981	983	982	982	981	991	976
9	991	987	978	978	982	986	988	990	991	986	974	965	966	966	965	971	977	982	991	987	983	962	953	971	976	978
10	976	972	976	972	973	978	981	981	974	976	975	965	961	961	970	980	986	966	977	979	976	1006	1019	991	987	978
11	987	959	965	971	972	974	970	986	979	968	962	962	959	951	969	968	973	976	975	987	968	956	950	942	950	967
12	950	937	942	961	939	967	971	966	968	956	931	926	926	937	942	952	986	972	981	997	960	917	928	943	930	952
13	930	945	937	921	931	963	963	957	933	945	943	932	936	935	943	938	952	962	966	965	950	938	940	942	933	945
14	933	942	943	914	990	994	984	971	955	949	925	926	933	937	941	953	961	967	972	978	958	951	960	967	967	955
15	966	973	972	974	970	970	974	976	983	971	952	946	939	947	951	963	979	960	970	954	981	980	971	967	978	966
16	978	978	979	977	979	981	988	986	975	950	950	937	906	930	944	951	958	965	972	978	978	996	980	979	978	966
17	978	976	975	977	982	984	983	985	985	980	969	953	952	950	945	957	962	967	976	980	977	976	980	981	983	972
18	983	986	984	981	985	979	986	987	978	981	977	967	962	958	961	960	965	969	977	985	983	985	985	982	988	977
19	988	988	990	991	992	990	992	982	983	979	972	961	957	958	957	957	961	967	972	976	980	981	983	984	982	977
20	982	983	982	985	988	989	990	991	988	980	970	966	963	965	967	970	977	970	969	965	970	976	1002	981	969	978
21	969	972	977	980	991	1017	990	986	982	984	954	941	954	962	965	971	971	971	976	976	977	980	980	980	980	975
22	980	981	982	980	981	984	982	983	979	976	968	963	961	965	968	970	970	971	977	980	983	985	985	985	985	977
23	985	985	985	984	985	986	988	990	987	980	971	967	965	971	972	970	966	971	980	965	982	996	1001	975	964	979
24	964	965	970	979	986	979	984	992	990	984	942	926	940	946	955	952	956	960	965	975	974	970	976	975	977	967
25	976	976	976	977	980	979	976	979	980	978	966	959	956	958	960	963	969	971	979	982	985	987	989	987	987	975
26	987	986	986	986	988	983	987	986	983	970	960	959	958	957	964	969	970	978	984	984	988	988	988	989	988	978
27	988	989	987	986	989	992	994	994	992	984	973	965	961	964	968	972	977	984	980	966	963	967	980	985	990	979
28	990	975	983	977	972	977	981	980	985	991	978	965	959	940	938	945	964	964	976	982	962	958	968	971	974	970
Mean	974	973	974	973	978	982	982	983	979	973	963	956	953	953	956	961	968	968	975	978	974	976	977	975	975	971

VI.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (— Y.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **February, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
												4,000 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
1	911	929	942	959	940	944	942	936	940	935	948	945	950	961	961	951	956	914	907	923	935	942	915	914	921	938
2	921	928	912	944	929	934	942	943	943	940	940	943	950	952	958	953	956	958	921	913	937	937	934	955	928	939
3	928	934	930	936	940	945	945	943	942	938	940	945	956	958	964	957	953	951	950	949	947	942	935	937	942	945
4	942	945	947	945	945	944	943	941	940	935	938	943	950	958	958	958	952	945	957	951	949	945	943	940	943	946
5	943	947	948	945	945	947	945	948	947	944	950	960	961	953	964	972	972	966	962	958	952	950	948	943	940	953
6	940	941	921	871	847	902	956	953	947	951	952	954	953	961	966	961	960	956	949	950	946	945	945	940	921	940
7	921	929	948	943	922	937	940	945	954	951	941	949	949	966	971	960	956	952	950	948	945	937	942	940	944	946
8	944	945	945	947	946	945	943	941	937	935	939	944	952	957	958	958	956	951	950	949	948	948	948	945	945	947
9	945	950	934	936	940	945	945	945	942	940	945	955	963	971	969	961	955	953	958	959	958	924	913	930	931	947
10	931	932	897	921	934	934	937	934	934	937	937	951	950	972	966	969	980	966	932	952	942	902	919	896	902	938
11	902	937	945	926	926	933	937	932	927	925	929	944	960	964	984	967	966	965	956	960	951	922	919	903	894	941
12	894	898	852	888	900	934	922	929	940	932	933	949	961	970	988	985	963	967	972	946	911	907	892	875	895	930
13	895	825	828	851	857	895	921	932	921	937	944	948	955	964	980	969	960	965	954	968	968	932	918	897	876	924
14	876	871	889	914	879	917	945	934	945	945	947	942	956	968	963	968	956	951	952	956	953	942	934	932	930	936
15	930	932	889	908	919	929	934	932	931	929	926	933	943	955	967	982	993	988	1006	1002	966	952	940	922	918	946
16	918	922	936	943	945	947	947	945	947	940	951	953	948	947	960	965	960	955	953	952	947	919	929	937	937	945
17	936	940	940	943	946	947	949	949	944	933	933	935	948	958	958	962	958	949	947	950	946	925	937	936	938	945
18	938	946	947	942	940	943	944	944	944	935	928	937	952	952	958	959	957	952	942	949	952	949	946	943	943	946
19	943	941	940	941	937	942	941	942	941	941	947	949	952	952	956	955	952	952	952	951	949	945	942	943	942	946
20	942	944	944	944	942	942	943	941	935	933	935	944	950	957	962	960	960	955	944	954	949	949	920	909	928	944
21	928	939	949	949	948	933	919	940	942	943	949	955	959	957	960	957	950	943	947	946	940	946	944	943	941	946
22	941	941	941	941	940	940	940	937	933	929	933	941	949	955	955	950	949	949	948	949	946	943	944	944	943	943
23	943	943	943	943	942	942	940	938	933	926	929	942	955	967	966	973	955	960	955	941	943	944	889	867	903	940
24	903	916	920	917	912	914	935	938	941	936	941	949	957	957	957	956	949	943	942	939	933	912	925	928	940	935
25	940	941	943	943	941	941	940	938	936	933	933	944	954	956	957	958	952	949	950	949	947	946	946	944	944	945
26	944	944	943	942	942	944	942	938	933	928	927	942	958	966	968	963	955	951	950	947	946	943	942	943	943	946
27	943	944	944	946	944	940	937	938	935	933	935	947	956	965	971	969	963	960	959	952	944	925	926	905	919	945
28	919	937	939	916	925	926	924	933	958	948	936	936	972	974	987	988	1000	980	968	956	926	895	923	927	930	946
Mean	927	930	927	930	928	935	939	940	940	937	939	946	954	960	965	964	961	955	951	951	946	935	931	926	928	942

VII.—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. (Z.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **February, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
													44,000 γ (·44 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	1071	1069	1059	1042	1043	1050	1055	1057	1060	1063	1059	1057	1059	1060	1066	1075	1075	1084	1083	1073	1080	1051	1055	1062	1064	1063
2	1064	1064	1062	1047	1039	1050	1056	1058	1058	1057	1055	1054	1054	1055	1059	1063	1065	1067	1073	1071	1066	1065	1062	1042	1045	1058
3	1046	1052	1056	1059	1060	1060	1060	1059	1058	1058	1056	1053	1053	1056	1060	1061	1064	1064	1063	1062	1062	1063	1062	1061	1059	1059
4	1060	1057	1057	1059	1060	1059	1059	1059	1058	1056	1054	1053	1050	1049	1053	1061	1066	1069	1065	1063	1063	1062	1062	1062	1059	1059
5	1059	1057	1056	1057	1057	1057	1057	1053	1049	1049	1048	1047	1050	1052	1053	1057	1062	1069	1068	1067	1066	1064	1063	1063	1062	1058
6	1063	1062	1025	1008	974	989	996	1014	1032	1042	1045	1050	1056	1060	1072	1074	1074	1078	1079	1075	1067	1065	1063	1062	1063	1047
7	1064	1060	1056	1046	1043	1046	1051	1052	1053	1049	1051	1054	1058	1059	1063	1065	1065	1064	1064	1063	1063	1064	1064	1063	1060	1057
8	1061	1060	1060	1060	1060	1059	1059	1060	1060	1061	1061	1060	1061	1061	1064	1064	1064	1064	1064	1063	1062	1062	1061	1061	1059	1061
9	1060	1053	1056	1058	1057	1057	1058	1057	1058	1057	1056	1054	1051	1049	1051	1055	1057	1058	1058	1058	1062	1081	1087	1053	1052	1058
10	1053	1058	1057	1059	1061	1060	1059	1058	1059	1058	1059	1056	1058	1057	1061	1063	1070	1080	1085	1075	1072	1073	1049	1045	1049	1062
11	1050	1037	1014	1048	1055	1056	1059	1057	1059	1060	1059	1059	1060	1063	1068	1074	1074	1073	1072	1069	1079	1086	1068	1047	1052	1060
12	1054	1031	1015	1015	1023	1024	1032	1047	1049	1052	1054	1055	1065	1074	1085	1114	1135	1136	1141	1160	1091	1090	1090	1070	1028	1070
13	1029	1030	1024	1028	1012	1015	1032	1046	1063	1074	1074	1077	1080	1086	1088	1092	1095	1099	1103	1109	1122	1132	1121	1104	1088	1074
14	1089	1082	1065	1026	1033	1028	1021	1034	1045	1053	1061	1071	1075	1078	1081	1088	1089	1086	1084	1086	1095	1103	1100	1091	1085	1069
15	1085	1070	1071	1071	1072	1074	1075	1077	1077	1077	1072	1069	1069	1069	1072	1079	1085	1100	1108	1130	1123	1102	1095	1088	1076	1084
16	1078	1071	1072	1074	1074	1074	1072	1071	1073	1074	1071	1071	1076	1084	1079	1081	1082	1082	1079	1078	1080	1079	1076	1074	1073	1076
17	1075	1075	1076	1076	1075	1075	1074	1072	1072	1072	1067	1066	1066	1068	1072	1075	1077	1079	1079	1077	1079	1083	1079	1077	1075	1074
18	1076	1072	1068	1068	1068	1069	1069	1069	1072	1077	1073	1072	1070	1071	1073	1079	1081	1082	1081	1079	1077	1076	1076	1076	1074	1074
19	1075	1074	1072	1069	1070	1069	1069	1070	1072	1073	1072	1074	1074	1075	1075	1078	1078	1077	1075	1075	1076	1076	1077	1076	1075	1074
20	1077	1076	1075	1075	1074	1074	1074	1074	1075	1077	1075	1071	1070	1071	1071	1071	1074	1079	1085	1086	1087	1085	1080	1071	1071	1076
21	1072	1071	1071	1072	1067	1051	1055	1059	1064	1068	1075	1075	1075	1078	1081	1083	1084	1083	1080	1079	1079	1078	1076	1076	1076	1073
22	1077	1077	1076	1076	1076	1075	1074	1074	1074	1074	1073	1068	1069	1070	1073	1077	1077	1076	1076	1075	1077	1077	1077	1076	1076	1075
23	1078	1078	1077	1076	1076	1075	1076	1076	1078	1079	1079	1073	1071	1071	1074	1080	1092	1084	1084	1092	1091	1083	1084	1076	1066	1079
24	1068	1052	1043	1050	1052	1056	1059	1062	1064	1067	1065	1063	1062	1068	1074	1082	1088	1088	1088	1088	1088	1087	1081	1080	1075	1070
25	1077	1078	1079	1080	1080	1080	1080	1081	1081	1082	1080	1078	1076	1077	1080	1083	1083	1082	1079	1079	1079	1078	1078	1078	1078	1080
26	1079	1080	1079	1079	1078	1077	1076	1078	1080	1079	1078	1073	1071	1071	1074	1079	1082	1080	1079	1080	1078	1078	1078	1077	1077	1078
27	1078	1078	1077	1077	1077	1076	1075	1074	1074	1074	1070	1066	1067	1068	1070	1074	1077	1078	1080	1086	1095	1098	1081	1062	1064	1076
28	1066	1065	1056	1066	1066	1070	1072	1070	1063	1061	1061	1062	1063	1074	1086	1091	1091	1090	1089	1090	1105	1115	1100	1091	1074	1078
Mean	1067	1064	1059	1058	1057	1057	1059	1061	1064	1065	1064	1064	1065	1067	1071	1076	1079	1080	1081	1082	1081	1081	1077	1070	1066	1069

VIII.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES.

Eskdalemuir. **February, 1918.**

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	° ′ ″	° ′	a 280+		
						2·7	2	1
						2·7	1	2
						2·7	0	3
						2·7	0	4
						2·7	1D	5
6	10 43	11 17	16696	17 15 28	69 39·7	2·7	2D	6
						2·7	0	7
						2·7	0C	8
						2·7	1	9
						2·7	1	10
						2·7	1	11
						2·8	2D	12
						2·8	2D	13
14	10 29	10 39		17 13 46		2·8	1	14
15	10 25	11 2	16706	17 10 53	69 40·4	2·8	1D	15
						2·8	1	16
						2·8	0	17
						2·8	0	18
						2·8	0C	19
20	11 22	11 51	16711	17 13 4	69 38·7	2·8	1	20
						2·8	0	21
						2·8	0C	22
						2·8	1	23
						2·8	0	24
						2·8	0C	25
						2·7	0C	26
27	10 39	11 14	16720	17 12 32	69 38·9	2·7	0	27
						2·7	1	28

MAGNETIC NOTES.

February, 1918.

The month was one of average amount of disturbance, the mean magnetic character figure being 0·64. To the 1st, 6th, 12th, 13th, the figure "2" was assigned, but on none of these days was the range of disturbance more than moderate. The disturbance on the 1st was the end of that which began on 28th January. It included a well-marked tooth-shaped projection on the N. and W. traces, centering at 1d. 20h. 47m. and indicating ranges of 184 γ and 110 γ in the N. and W. components. On the 5th, a slight disturbance occurred with a sudden commencement at 6h. 52m. Quiet conditions were restored by 18h. on the same day but disturbance began again suddenly at 1h. 17m. on the 6th, and continued for about 15h. As is usual in disturbances beginning soon after midnight, the initial change in vertical force was entirely by way of decrease; the recovery set in about 4h. The only other prominent disturbance of the month was that beginning about 19h. on the 9th, and continuing till 5h. on the 14th. The total ranges of the three components in this interval were 200γ in N., 209γ in W., and 343γ in V. There were numerous pulsations, principally of the W. component, of very small amplitude and of about 1m. period. These are particularly noticeable on the records between 21h. and 22h. on the 10th and between 1h. and 2h. on the 11th.

See Explanatory Note, Table IV.

IX.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (X.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **March, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	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	974	975	974	969	975	979	979	971	970	968	957	954	953	953	954	965	969	975	977	980	987	998	995	995	987	973
2	987	985	977	975	976	982	990	979	979	971	958	959	966	970	975	980	983	965	978	984	1000	994	974	976	984	978
3	984	975	965	982	986	989	982	985	987	967	949	925	939	945	940	972	959	935	952	975	981	981	961	964	951	965
4	951	961	960	966	976	975	977	979	975	967	955	951	951	954	964	970	974	973	979	977	978	977	979	984	979	969
5	979	980	978	979	980	983	985	981	978	969	959	949	945	950	960	975	981	980	980	982	987	990	994	991	989	976
6	989	986	988	986	987	987	987	982	985	985	973	960	948	958	964	969	979	981	986	989	990	985	985	990	990	980
7	990	989	986	987	986	989	994	991	989	981	970	964	965	970	974	976	978	979	985	991	985	1000	1010	966	961	983
8	961	860	‡	‡	810§	905	934	926	922	912	914	909	907	916	922	940	925	939	948	965	944	946	950	950	947	—
9	947	940	944	944	952	951	958	957	955	952	941	932	933	938	945	949	965	965	965	964	965	967	966	961	964	953
10	964	962	968	965	968	966	968	965	961	953	947	943	946	959	965	960	956	975	938	956	966	971	993	983	979	963
11	979	964	956	954	963	966	973	970	970	965	955	950	946	952	972	966	973	980	970	986	947	955	967	969	974	964
12	974	966	972	961	965	960	968	964	947	939	908	911	930	939	940	944	1003	971	967	974	979	959	965	972	982	958
13	982	968	969	968	968	964	962	959	952	951	946	940	937	944	947	961	972	974	970	974	974	976	976	978	976	963
14	976	977	978	982	979	981	979	977	973	959	953	951	955	958	958	966	968	958	974	977	983	985	980	979	980	971
15	980	985	993	985	991	996	1002	991	990	987	970	946	939	954	979	929	961	976	1009	988	979	974	974	977	984	977
16	985	997	994	1004	995	989	980	978	967	965	951	937	940	936	952	960	952	955	993	952	959	987	970	971	971	969
17	971	973	971	971	971	970	972	975	967	955	937	934	935	941	946	955	961	966	971	976	979	981	991	976	979	965
18	979	980	980	981	986	990	987	988	987	975	953	926	919	933	944	961	967	975	977	979	980	982	980	980	980	970
19	980	981	982	979	980	981	985	985	975	962	973	939	935	940	946	955	972	977	982	991	989	987	992	991	986	973
20	986	981	980	982	988	993	998	983	984	981	956	925	936	945	932	939	955	965	976	982	985	985	984	982	984	971
21	984	984	986	985	985	990	989	999	993	977	959	945	938	936	941	965	977	971	970	974	989	975	994	983	979	974
22	979	981	978	981	982	981	980	984	981	967	950	942	931	925	951	936	960	976	976	984	987	989	988	988	992	970
23	993	994	974	993	992	964	982	986	981	969	948	940	939	942	953	958	971	977	974	982	991	972	985	983	985	972
24	985	981	980	982	977	979	981	983	977	956	947	940	932	937	941	952	962	973	979	983	983	984	985	984	985	969
25	985	984	983	985	986	986	986	985	977	962	943	931	931	940	952	966	973	981	986	992	990	981	983	986	985	973
26	985	986	987	991	992	996	1001	1000	985	964	945	934	935	942	954	961	965	966	980	992	998	1000	1005	997	992	978
27	992	993	988	986	990	988	988	981	977	951	943	934	933	946	952	954	973	973	980	979	991	1016	982	987	991	974
28	991	990	985	986	983	988	985	985	980	971	956	943	947	950	954	966	976	987	989	997	994	988	991	980	984	977
29	984	982	991	986	998	1017	1005	979	967	958	950	937	937	944	965	980	991	985	987	991	990	988	988	994	999	979
30	999	981	981	983	978	985	986	986	971	968	957	938	937	948	962	977	984	987	992	988	997	987	988	991	991	977
31	991	989	991	989	993	999	1001	996	980	963	956	946	942	934	947	961	977	984	991	992	994	992	991	990	987	979
Mean †	981	979	978	979	981	982	984	981	975	965	952	941	941	946	954	961	971	973	978	981	983	984	984	982	982	971

§ Approximate Value. † Mean of 30 days, 8th omitted. ‡ Light spot thrown off edge of sheet by a violent natural disturbance.

X.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (— Y.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **March, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
	4,000 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
1	930	924	919	944	938	933	933	938	936	938	931	937	947	955	956	951	947	948	948	944	938	937	936	934	928	939
2	928	920	920	928	936	932	928	934	938	941	943	957	960	967	964	957	954	938	946	947	913	921	925	930	934	939
3	934	922	942	928	929	924	922	928	933	933	930	944	965	978	985	968	970	969	952	952	946	941	904	891	874	940
4	874	899	933	952	936	936	935	932	930	929	935	941	952	958	960	957	954	946	949	950	947	943	939	939	938	940
5	938	941	942	942	941	941	939	935	930	928	931	941	955	962	962	963	954	951	952	949	934	924	938	939	939	943
6	939	939	939	937	938	938	938	941	949	944	944	954	960	973	973	965	956	952	953	949	944	937	932	936	941	947
7	941	944	941	942	942	943	943	941	943	942	944	954	964	968	965	960	953	948	952	952	950	951	962	905	890	947
8	890	829	<713	<713	874	936	920	915	918	920	927	936	938	941	941	947	938	934	874	902	935	936	936	931	922	<903
9	922	945	944	921	925	930	927	919	914	912	920	931	946	953	957	952	952	946	944	941	940	940	940	937	938	936
10	938	933	928	930	931	931	930	926	920	920	924	940	957	976	985	989	981	957	952	946	940	931	893	912	919	940
11	919	922	926	954	922	909	912	919	923	923	932	949	963	969	981	978	964	970	944	951	898	921	912	917	920	937
12	920	920	923	924	917	914	940	931	920	917	933	954	973	983	978	970	949	956	944	936	937	922	928	925	914	938
13	914	912	920	925	925	928	923	916	917	914	923	938	955	972	967	959	953	946	944	944	942	941	939	938	938	936
14	938	938	937	933	925	922	925	924	918	917	930	945	970	979	976	973	966	943	939	954	952	946	928	930	933	942
15	933	941	944	933	935	933	932	940	951	936	944	944	957	970	1002	955	947	944	960	952	946	943	941	938	938	947
16	938	907	906	893	900	911	924	925	919	917	920	933	960	984	988	997	981	970	930	938	928	933	938	940	939	937
17	939	938	936	933	933	931	931	930	930	930	933	941	954	962	960	956	948	944	946	946	944	941	933	928	933	940
18	933	938	937	936	935	935	936	930	920	917	924	945	954	965	963	959	949	940	939	943	943	944	941	940	942	940
19	942	939	939	938	933	932	930	925	917	914	920	932	949	959	955	946	945	943	944	944	938	937	931	935	933	937
20	933	936	938	939	938	938	935	934	935	935	933	945	967	973	960	952	942	937	941	941	943	941	940	940	940	942
21	940	940	939	938	936	936	936	930	921	919	922	938	956	978	994	987	992	954	941	934	911	923	920	933	934	942
22	934	940	950	936	933	937	949	934	920	916	923	939	960	968	981	975	968	927	954	954	949	945	944	944	947	945
23	947	937	933	951	911	925	930	920	913	912	922	936	956	965	969	963	957	953	945	936	932	904	928	938	938	937
24	938	933	939	943	940	938	935	923	917	914	917	928	946	963	964	958	951	944	940	938	938	938	938	939	941	938
25	941	941	941	940	939	937	935	927	914	907	914	930	948	962	967	962	952	944	940	940	933	919	924	938	939	937
26	939	942	947	940	937	934	930	920	908	912	927	949	971	978	979	973	973	957	953	949	946	945	940	926	921	944
27	921	953	941	939	935	927	924	925	909	905	920	949	969	992	1003	997	989	959	949	933	933	894	915	933	932	942
28	932	926	927	922	925	921	926	925	918	912	919	936	965	983	990	983	973	970	962	952	949	940	928	936	930	942
29	930	941	930	919	935	920	927	915	920	918	924	941	962	973	972	965	956	946	936	944	942	943	941	925	922	938
30	922	935	939	936	941	936	931	920	916	912	918	935	955	965	970	965	952	943	941	935	900	936	941	941	940	937
31	940	939	937	935	936	936	933	921	910	914	917	936	965	973	976	964	960	948	939	918	920	937	940	940	939	939
Mean†	931	933	935	934	932	930	931	928	924	922	927	941	959	970	973	967	960	950	946	944	936	934	932	932	930	940

† Mean of 30 days, 8th omitted.

XI.—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. (Z.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **March, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
	44000 γ (·44 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	1076	1073	1073	1068	1068	1069	1072	1073	1073	1072	1073	1071	1069	1071	1076	1080	1081	1080	1078	1078	1078	1076	1071	1069	1067	1073
2	1068	1071	1074	1074	1072	1069	1069	1069	1070	1070	1072	1070	1071	1071	1072	1076	1079	1087	1082	1078	1079	1073	1073	1067	1066	1073
3	1067	1066	1062	1057	1059	1057	1059	1065	1066	1070	1072	1071	1069	1072	1083	1121	1121	1116	1106	1089	1079	1077	1083	1064	1052	1077
4	1054	1052	1055	1056	1064	1069	1071	1070	1070	1069	1068	1068	1064	1063	1066	1069	1072	1073	1072	1071	1070	1070	1069	1067	1065	1067
5	1066	1065	1065	1066	1066	1066	1066	1067	1067	1066	1063	1060	1058	1060	1062	1064	1065	1067	1067	1068	1069	1068	1063	1059	1057	1065
6	1059	1061	1061	1062	1062	1062	1062	1061	1058	1058	1055	1054	1055	1056	1060	1063	1064	1065	1063	1065	1066	1067	1067	1063	1062	1061
7	1063	1063	1063	1063	1062	1062	1061	1062	1062	1060	1058	1055	1052	1055	1060	1063	1064	1063	1061	1062	1065	1064	1062	1065	1050	1061
8	1052	§	§	§	963	982	1045	1067	1072	1075	1078	1082	1088	1091	1091	1092	1099	1096	1122	1106	1088	1084	1079	1063	1062	---
9	1063	1050	1045	1058	1066	1070	1071	1074	1074	1071	1067	1066	1065	1068	1071	1072	1071	1074	1071	1071	1071	1071	1071	1071	1071	1068
10	1073	1073	1072	1071	1070	1070	1070	1071	1072	1071	1065	1057	1053	1056	1061	1073	1090	1124	1122	1098	1085	1081	1079	1070	1066	1076
11	1067	1066	1068	1055	1046	1052	1055	1058	1061	1059	1053	1050	1046	1047	1051	1066	1078	1091	1111	1099	1100	1098	1097	1092	1075	1070
12	1077	1063	1051	1060	1068	1067	1030	1016	1026	1036	1041	1047	1054	1069	1085	1094	1117	1109	1102	1097	1076	1072	1076	1074	1062	1067
13	1064	1053	1062	1069	1071	1071	1071	1071	1070	1067	1062	1056	1057	1062	1069	1074	1078	1079	1074	1073	1072	1071	1072	1072	1072	1069
14	1074	1075	1075	1072	1072	1071	1071	1071	1071	1067	1061	1055	1053	1055	1060	1069	1079	1089	1092	1085	1082	1081	1083	1079	1075	1073
15	1077	1074	1066	1069	1070	1069	1069	1069	1062	1060	1057	1061	1061	1063	1072	1087	1084	1081	1074	1075	1078	1077	1077	1075	1073	1071
16	1074	1068	1049	1038	1031	1037	1044	1055	1066	1068	1064	1058	1055	1066	1089	1097	1117	1123	1128	1108	1106	1092	1082	1080	1078	1075
17	1080	1080	1080	1080	1080	1080	1079	1077	1075	1071	1069	1068	1065	1067	1069	1071	1073	1076	1076	1077	1077	1078	1077	1074	1073	1075
18	1074	1075	1076	1077	1076	1076	1076	1077	1077	1077	1075	1072	1070	1072	1073	1076	1078	1078	1077	1076	1077	1076	1076	1076	1075	1076
19	1077	1075	1073	1073	1075	1076	1077	1080	1082	1081	1075	1070	1067	1069	1075	1077	1078	1079	1078	1079	1080	1079	1078	1075	1073	1076
20	1074	1074	1075	1076	1076	1076	1076	1077	1072	1066	1059	1058	1060	1065	1071	1073	1076	1078	1077	1078	1077	1078	1078	1078	1077	1073
21	1078	1078	1077	1077	1077	1077	1077	1077	1077	1074	1070	1066	1064	1067	1075	1093	1123	1133	1128	1113	1102	1087	1077	1077	1078	1085
22	1080	1078	1074	1071	1076	1077	1074	1075	1079	1077	1074	1070	1068	1075	1087	1103	1113	1120	1100	1087	1084	1084	1083	1082	1079	1083
23	1080	1072	1059	1023	1039	1060	1069	1076	1078	1080	1078	1078	1075	1076	1079	1083	1087	1090	1093	1102	1077	1091	1089	1085	1083	1076
24	1084	1081	1081	1080	1080	1078	1079	1081	1083	1083	1077	1070	1068	1069	1074	1077	1081	1083	1082	1082	1082	1083	1082	1082	1081	1079
25	1082	1082	1082	1082	1081	1080	1082	1084	1084	1080	1074	1070	1067	1067	1069	1074	1079	1081	1082	1082	1085	1090	1088	1085	1082	1080
26	1083	1083	1081	1080	1081	1080	1080	1083	1083	1079	1071	1067	1062	1063	1068	1075	1083	1086	1085	1083	1083	1083	1080	1068	1067	1078
27	1068	1063	1064	1071	1074	1076	1079	1080	1079	1079	1074	1071	1072	1074	1080	1086	1097	1110	1115	1115	1105	1089	1082	1081	1080	1083
28	1081	1078	1079	1080	1080	1080	1080	1081	1082	1078	1073	1070	1067	1069	1077	1086	1089	1087	1089	1092	1095	1098	1088	1085	1086	1082
29	1086	1082	1076	1077	1066	1057	1064	1070	1068	1068	1068	1067	1064	1069	1077	1084	1090	1093	1093	1085	1084	1083	1084	1083	1077	1076
30	1078	1075	1077	1080	1081	1080	1083	1086	1086	1078	1073	1070	1065	1065	1070	1082	1089	1091	1089	1091	1096	1086	1082	1081	1080	1081
31	1080	1081	1081	1081	1081	1079	1080	1083	1082	1080	1073	1067	1062	1069	1074	1077	1083	1088	1094	1100	1094	1086	1082	1081	1080	1081
Mean†	1074	1071	1069	1068	1069	1070	1070	1071	1072	1071	1067	1064	1063	1066	1072	1080	1086	1090	1089	1085	1082	1080	1078	1075	1072	1074

† Mean of 30 days, 8th omitted. § Light spot thrown off sheet by a violent natural disturbance.

XII.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES.

Eskdalemuir. **March, 1918.**

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	° ′ ″	° ′	a 280+		
						2·7	0	1
						2·7	1	2
						2·8	1	3
						2·8	0	4
						2·8	0C	5
6	11 9	11 40	16699	17 15 12	69 39·3	2·8	0C	6
						2·8	2	7
						2·8	2D	8
						2·8	1	9
						2·8	1	10
						2·8	1D	11
12	9 56	10 36	16652	17 16 8	69 42·8	2·8	1D	12
						2·8	0	13
						2·8	0	14
						2·8	1D	15
						2·8	2D	16
						2·7	0	17
						2·7	0	18
19	11 59	12 29	16684	17 15 48	69 41·2	2·7	0C	19
						2·7	0	20
						2·7	1	21
						2·7	1	22
						2·7	2	23
						2·7	0C	24
						2·7	0C	25
26	10 42	11 11	16692	17 16 34	69 41·0	2·7	0	26
						2·7	1	27
						2·7	0	28
						2·7	0	29
						2·7	0	30
						2·7	0	31

MAGNETIC NOTES.

March, 1918.

The month as a whole was slightly quieter than the average of the year, its mean character figure being 0·58. The principal disturbance of the month began with a sudden commencement at 7d. 21h. 11m. Within 2 minutes N. changed by + 60 γ and W. by + 21 γ and within 5 minutes V. changed by −7 γ. During the next 4 hours, the disturbance exhibited comparatively slow changes, but about 1h. on the 8th, a state of intense agitation developed. This was accompanied by, and superposed upon, a rapid fall in value of all three components, the traces of W. and V. going off the sheet. (For additional notes, see *Geophysical Journal*, March, 1918, p. 22; *Nature*, 14th March, 1918, p. 32.) The recovery in V. was accompanied by pulsations of 5m. period. The disturbance was practically over in 24 hours, but about 18h., just before its termination, a large bay developed. This showed a range of 113γ in N., 165γ in W., 52γ in V. A number of isolated bays are shown on the traces for the month, the approximate times of their occurrence being 1d. 21h. 10m., 11d. 19h. 11m. (a double oscillation accompanied by an inverted bay on the V. trace), 16d. 17h. 54m., 16d. 21h. 13m., 23d. 19h. 45m. (very prominent). Two isolated oscillations of considerable rapidity, just before and after 18h. on the 15th, are also noteworthy.

See Explanatory Note, Table IV.

XIII.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (X.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **April, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	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	988	989	988	991	991	991	991	987	978	962	946	934	932	954	965	977	982	992	997	1006	1006	1001	1003	997	993	981
2	993	1007	992	981	997	993	992	999	997	987	971	949	932	950	958	957	971	978	992	994	999	998	997	995	994	982
3	994	993	993	992	993	993	996	995	987	972	952	938	931	942	959	960	972	982	994	1000	1008	1005	1002	994	987	981
4	987	981	1007	987	997	997	985	993	962	952	951	931	922	928	940	966	982	1007	1001	994	996	997	1000	970	953	976
5	953	956	977	994	986	992	982	958	962	954	925	908	908	911	929	965	982	992	1021	1017	976	967	962	953	954	964
6	954	927	898	962	953	957	967	960	959	922	879	902	923	937	1013	964	942	967	958	986	983	970	965	955	963	950
7	963	897	976	977	943	971	976	961	932	931	922	908	907	916	938	954	957	976	992	991	987	985	987	982	980	956
8	980	962	972	975	980	976	983	988	982	967	948	944	937	937	957	961	983	993	994	1012	987	987	970	975	981	973
9	981	981	982	980	979	983	979	989	977	957	938	927	942	945	947	948	967	977	993	997	997	987	990	1004	989	973
10	989	982	982	984	980	978	981	982	971	964	948	937	941	941	948	956	964	976	990	994	994	1012	1015	1006	1007	976
11	1007	992	992	990	998	994	979	976	980	973	952	941	934	927	924	987	986	997	991	982	946	979	937	920	946	969
12	946	932	961	952	952	947	963	977	977	956	954	951	947	947	954	972	977	993	992	992	979	981	983	979	972	966
13	972	972	974	975	975	974	976	974	962	943	927	920	924	933	946	958	966	975	984	987	989	987	982	982	979	965
14	979	980	982	982	981	983	987	987	977	964	943	942	942	946	955	967	977	986	992	993	992	991	990	988	989	975
15	989	990	994	986	991	991	992	987	981	966	946	944	943	949	954	973	978	987	1003	989	993	995	993	992	990	979
16	990	989	988	989	988	991	993	993	988	979	964	953	948	962	960	976	981	991	994	1002	1000	991	989	987	987	983
17	987	987	988	988	988	989	989	989	985	974	957	947	948	957	973	986	993	1006	997	996	1003	1007	992	987	987	984
18	987	997	991	995	999	992	991	990	983	971	959	953	949	970	972	981	960	1012	990	1010	1007	1022	993	1007	962	986
19	962	992	986	990	990	977	975	967	975	967	953	912	904	904	937	962	972	977	987	986	987	983	982	992	980	968
20	980	974	975	973	976	977	982	985	979	968	954	946	947	952	961	968	977	983	988	993	992	993	1002	988	992	976
21	992	989	987	990	990	990	993	997	997	992	978	963	953	956	964	978	987	1002	1015	1014	1017	1022	980	992	997	989
22	997	993	988	985	988	987	983	977	975	969	958	948	943	955	967	981	987	995	1002	997	997	996	1007	997	976	982
23	976	1016	991	973	1011	1008	1007	997	978	938	947	951	952	957	962	976	979	995	1001	1010	994	987	985	988	985	983
24	985	987	982	984	983	981	981	978	967	949	944	942	950	963	968	972	983	995	997	995	1002	1003	1004	1001	1002	979
25	1002	1004	1006	1016	1006	998	996	988	987	977	964	961	966	967	982	995	995	1007	1024	1022	1015	997	965	914	1006	990
26	1006	997	1007	971	967	956	961	976	972	952	926	927	924	931	941	948	964	981	993	997	1033	980	984	984	984	969
27	983	981	978	973	983	981	982	982	981	963	955	948	945	946	952	965	965	980	996	1000	1001	996	993	992	992	976
28	992	991	992	992	995	996	996	1000	1000	996	975	963	957	966	946	966	967	983	999	998	1006	1004	987	982	983	983
29	983	983	983	984	985	985	984	984	985	981	971	959	948	948	953	963	971	981	991	996	996	1009	1006	1006	1007	981
30	1007	1011	1008	1001	985	991	965	939	960	947	941	926	915	934	954	965	965	1031	1045	1011	1015	977	980	996	990	978
Mean	983	981	984	984	984	984	984	982	977	963	948	939	937	944	956	968	974	990	997	999	997	994	988	984	984	976

XIV.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (—Y.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **April, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon.	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
											4,000 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
1	939	938	938	938	936	934	930	921	910	904	917	939	960	989	983	978	966	953	939	934	933	926	928	926	944	940
2	944	944	910	912	913	908	926	919	909	910	928	943	957	977	988	973	961	949	944	944	942	942	943	941	939	939
3	939	938	937	936	936	934	930	923	914	909	915	928	946	964	981	967	960	952	948	947	948	946	932	911	921	939
4	921	933	914	893	919	925	941	935	916	922	920	935	951	976	989	982	968	960	942	945	944	927	896	880	936	935
5	936	917	924	888	911	943	930	917	920	905	916	928	950	963	970	981	969	970	948	921	912	905	913	861	856	927
6	856	835	811	884	848	902	912	913	901	897	913	953	973	999	1013	979	968	990	957	951	942	960	917	884	847	923
7	847	928	876	874	904	925	908	904	914	918	921	937	957	973	973	968	952	942	939	941	942	943	947	921	912	929
8	912	944	928	920	920	921	930	914	909	901	910	928	947	960	970	960	964	962	959	940	911	938	933	935	937	935
9	937	929	925	927	923	925	933	917	900	899	912	933	967	980	989	961	955	946	942	937	938	921	928	926	933	935
10	933	934	933	928	923	925	924	917	904	896	906	925	946	965	969	968	958	943	943	943	942	953	945	959	944	937
11	944	917	902	919	920	925	926	925	912	906	910	931	960	973	965	988	983	965	992	950	910	863	885	858	872	929
12	872	894	894	898	903	912	907	893	896	915	924	928	941	944	946	949	948	952	941	936	941	945	943	934	933	924
13	933	933	933	932	930	927	923	914	901	898	909	927	949	965	960	952	941	938	938	939	942	939	935	938	938	933
14	938	937	935	933	930	930	930	924	915	911	917	928	942	949	952	949	944	944	943	942	941	938	941	941	939	936
15	939	938	941	952	936	923	920	914	909	909	917	933	951	970	974	970	962	956	954	948	950	948	943	939	937	941
16	937	935	933	933	930	928	928	922	915	908	917	923	936	960	960	957	951	944	944	946	946	939	932	941	939	936
17	939	937	936	933	930	928	926	920	914	908	911	920	939	957	965	960	955	954	951	946	952	942	913	898	899	934
18	899	880	887	902	913	918	917	912	911	913	921	933	944	978	994	989	973	987	963	966	966	916	937	919	862	934
19	862	875	911	917	912	979	969	939	919	922	929	938	954	962	965	959	949	943	931	933	928	934	933	939	934	935
20	934	935	929	928	924	922	920	914	910	907	912	923	938	950	951	949	946	945	944	941	938	938	938	934	939	932
21	939	937	933	928	928	926	925	922	916	912	914	926	943	961	965	967	964	960	961	960	959	910	918	917	908	936
22	908	927	932	923	921	921	917	912	912	914	926	942	959	973	971	971	964	957	948	939	942	937	919	904	917	935
23	917	918	893	915	902	906	913	910	912	913	929	934	959	972	970	966	964	954	944	923	933	934	937	935	934	932
24	934	933	935	933	928	924	921	913	910	919	934	949	964	978	973	961	954	952	944	940	943	943	938	932	923	940
25	923	915	933	894	907	904	902	903	904	911	920	934	954	965	967	965	958	957	960	959	949	938	912	841	838	926
26	838	858	858	909	927	901	900	911	907	912	923	949	966	981	982	974	975	970	959	949	904	924	927	929	931	928
27	931	930	925	929	923	906	907	907	910	912	918	926	939	949	954	959	954	947	944	940	939	939	937	938	938	932
28	938	937	935	933	932	927	928	923	918	913	915	921	933	959	950	959	954	951	944	938	921	928	918	922	928	933
29	928	929	929	928	928	926	922	918	913	912	914	918	928	938	946	947	950	954	952	944	938	937	938	942	940	933
30	940	939	934	939	936	933	936	933	929	933	926	927	935	942	958	962	951	965	952	933	927	923	925	918	871	936
Mean	919	921	917	919	920	924	923	917	911	910	918	932	950	966	970	966	959	955	949	943	937	933	928	919	916	933

XV.—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. (Z.) *Mean Values for periods of 60 Minutes centred at the Hours of Greenwich Mean Time,* **April, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon.	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean.
													44,000 γ (·44 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	1081	1079	1080	1079	1080	1080	1081	1082	1081	1074	1065	1058	1052	1054	1063	1069	1075	1082	1085	1084	1082	1081	1078	1075	1072	1075
2	1072	1051	1052	1063	1063	1068	1069	1073	1074	1074	1069	1065	1065	1066	1070	1077	1082	1084	1084	1083	1082	1081	1079	1078	1078	1072
3	1078	1078	1078	1077	1077	1078	1080	1082	1080	1077	1072	1065	1060	1058	1061	1067	1069	1072	1073	1075	1077	1078	1081	1081	1064	1074
4	1064	1037	1031	1039	1049	1053	1054	1056	1063	1062	1063	1058	1054	1053	1061	1070	1077	1086	1098	1095	1091	1093	1084	1072	1018	1064
5	1018	1022	1003	1028	1051	1038	1030	1049	1059	1071	1072	1070	1068	1065	1068	1081	1103	1122	1129	1110	1113	1105	1067	1027	1020	1065
6	1020	995	961	957	972	1023	1056	1080	1086	1081	1072	1060	1068	1084	1142	1142	1127	1128	1135	1121	1112	1081	1049	1036	1003	1066
7	1003	932	957	1007	1011	1003	1031	1051	1065	1070	1078	1080	1078	1080	1083	1086	1089	1093	1095	1093	1091	1090	1085	1074	1063	1056
8	1063	1044	1063	1076	1080	1077	1072	1079	1083	1083	1081	1076	1072	1072	1075	1077	1081	1087	1091	1113	1118	1103	1103	1098	1093	1083
9	1093	1092	1089	1087	1084	1078	1070	1073	1074	1070	1064	1063	1061	1067	1076	1084	1082	1083	1085	1089	1089	1091	1086	1066	1068	1078
10	1067	1074	1078	1079	1079	1075	1074	1074	1074	1071	1067	1061	1059	1064	1072	1079	1088	1092	1088	1083	1081	1076	1075	1057	1013	1073
11	1013	1030	1053	1059	1066	1070	1072	1073	1074	1069	1063	1064	1067	1079	1089	1115	1149	1174	1204	1208	1166	1031	1027	1021	968	1084
12	968	923	970	1026	1060	1069	1069	1076	1075	1074	1072	1073	1075	1080	1087	1094	1094	1099	1109	1114	1101	1094	1084	1082	1085	1068
13	1084	1085	1087	1087	1087	1086	1086	1087	1086	1083	1078	1070	1063	1063	1071	1078	1083	1085	1083	1087	1087	1087	1089	1087	1087	1082
14	1087	1087	1088	1089	1089	1088	1087	1088	1087	1083	1078	1076	1073	1075	1078	1085	1087	1085	1087	1088	1087	1087	1085	1085	1085	1085
15	1085	1084	1083	1079	1073	1080	1084	1083	1082	1078	1074	1068	1061	1059	1063	1069	1075	1079	1085	1088	1084	1082	1082	1082	1082	1078
16	1082	1082	1083	1083	1083	1082	1082	1083	1082	1079	1076	1072	1063	1062	1068	1073	1079	1088	1091	1088	1085	1086	1086	1082	1081	1080
17	1081	1081	1081	1082	1082	1082	1083	1086	1087	1085	1080	1074	1068	1066	1069	1072	1075	1078	1082	1083	1082	1082	1085	1083	1075	1079
18	1075	1056	1070	1072	1075	1077	1078	1078	1076	1073	1069	1066	1062	1061	1066	1079	1087	1092	1103	1099	1101	1102	1080	1048	1021	1076
19	1021	1019	1038	1063	1067	1029	1001	1020	1041	1054	1058	1062	1069	1075	1082	1087	1090	1089	1094	1096	1093	1088	1085	1078	1071	1064
20	1070	1074	1079	1080	1080	1078	1077	1078	1077	1078	1079	1076	1073	1073	1077	1079	1080	1080	1080	1081	1082	1082	1078	1078	1075	1078
21	1075	1074	1076	1076	1077	1077	1076	1075	1072	1072	1069	1067	1066	1067	1069	1070	1073	1074	1077	1081	1083	1085	1084	1080	1074	1075
22	1074	1074	1068	1072	1075	1075	1077	1076	1074	1072	1069	1064	1057	1057	1062	1068	1074	1081	1093	1095	1089	1087	1081	1067	1065	1074
23	1064	1053	1050	1039	1036	1052	1056	1059	1057	1060	1060	1063	1059	1061	1068	1078	1084	1092	1095	1098	1090	1085	1081	1080	1078	1068
24	1078	1077	1077	1076	1076	1076	1076	1076	1076	1071	1066	1068	1065	1068	1076	1080	1082	1081	1082	1081	1078	1077	1073	1071	1068	1075
25	1068	1058	1032	1040	1051	1060	1064	1067	1066	1063	1060	1056	1050	1053	1059	1066	1073	1078	1082	1088	1093	1098	1097	1014	1008	1063
26	1008	989	970	947	936	953	990	1012	1035	1049	1057	1056	1056	1058	1068	1078	1089	1101	1113	1121	1099	1076	1077	1075	1076	1044
27	1075	1076	1077	1072	1058	1060	1065	1065	1062	1060	1058	1059	1061	1060	1064	1072	1075	1078	1079	1078	1077	1075	1076	1075	1074	1069
28	1074	1074	1074	1075	1074	1074	1074	1068	1064	1064	1064	1063	1060	1063	1070	1076	1080	1079	1083	1085	1086	1079	1072	1071	1072	1073
29	1072	1074	1075	1076	1075	1075	1074	1073	1070	1069	1069	1069	1068	1067	1067	1070	1071	1072	1076	1077	1078	1075	1071	1070	1071	1072
30	1071	1067	1067	1065	1059	1038	1028	1023	1025	1038	1049	1055	1056	1063	1067	1079	1086	1091	1101	1110	1096	1057	1075	1070	1046	1063
Mean	1059	1051	1053	1058	1061	1062	1064	1068	1070	1070	1068	1066	1064	1066	1073	1080	1085	1090	1095	1096	1092	1083	1079	1069	1058	1072

XVI.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES

Eskdalemuir. **April, 1918.**

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	° ′ ″	° ′	a		
						280+		
						2·7	0	1
2	10 36	11 6	16690	17 13 37	69 39·8	2·7	0	2
						2·7	0	3
						2·7	1	4
						2·7	2D	5
						2·7	2D	6
						2·7	1	7
						2·7	1	8
9	11 29	11 58	16692	17 17 34	69 40·7	2·7	1	9
10	10 57	11 9			69 41·4	2·7	1	10
						2·7	2D	11
						2·6	2	12
						2·6	0C	13
						2·7	0C	14
						2·6	0C	15
16	11 34	12 6	16700	17 12 10	69 40·5	2·7	0	16
						2·7	0	17
						2·7	1	18
						2·7	1D	19
						2·6	0C	20
						2·6	1	21
						2·6	1	22
23	10 33	11 2	16691	17 11 12	69 40·2	2·6	1	23
						2·6	0C	24
						2·6	2	25
						2·6	2D	26
						2·6	0	27
						2·6	0	28
						2·6	1	29
						2·7	2	30

MAGNETIC NOTES.

April, 1918.

Judging from the mean character figure, 0·81, this was one of the two most disturbed months of the year. For each of the three components the mean absolute daily range was larger than in any other month of the year, but this was due rather to the frequency than to the magnitude of disturbance. The most considerable storm of the month began at 10d. 20h. 56m. with a sudden commencement involving only moderate changes in the components. As is usual with disturbances beginning at such an hour, the full development was not reached till the p.m. hours of the following day. The largest changes took place between 11d. 20½h. and 12d. 2h., and included oscillations of the N. and W. components through ranges of 248 γ and 205 γ respectively. The V. component showed a drop in value of 185 γ in the 24 minutes ending at 21h. on the 11th. This disturbance had shown fewer than usual of the rapid pulsations of small amplitude, and after 24h. on the 12th, exceptionally quiet conditions prevailed. Disturbances of limited extent were also recorded on the 18th and 19th, and again on the 25th and 26th. Lastly, the month closed with a moderate storm which began with a sudden commencement at 29d. 21h. 20m., and which showed some resemblance to that referred to above as beginning on the 10th.

See Explanatory Note, Table IV.

XVII.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (**X.**) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **May, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	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	990	1001	946	996	992	987	961	966	976	961	949	936	936	946	952	967	981	996	1013	1017	995	1002	992	982	982	977
2	982	980	976	972	985	986	989	981	975	970	955	941	938	951	963	978	983	989	1004	1009	990	992	992	991	990	978
3	990	987	989	990	992	983	991	993	987	977	953	941	945	942	967	986	966	986	1000	1000	1001	993	992	992	991	981
4	991	989	985	986	993	990	975	983	972	975	955	942	928	933	943	956	966	995	989	996	990	990	989	989	988	975
5	988	990	995	996	1003	991	978	960	943	956	953	937	935	941	967	998	1006	1006	1032	1015	997	991	996	993	991	982
6	991	986	985	982	976	984	986	980	972	964	953	952	957	953	953	971	986	987	995	996	991	991	992	993	990	978
7	990	988	987	989	992	993	996	980	968	960	950	945	950	960	976	991	997	1002	1003	999	1001	1003	1010	1001	994	985
8	994	991	994	994	995	998	993	983	976	962	946	940	947	951	967	987	1003	1001	1005	1001	1001	1000	1001	1001	1002	985
9	1002	1015	1007	995	1001	1010	1007	999	987	976	957	952	958	960	968	976	991	1001	1002	1017	1005	997	1001	1000	999	991
10	999	994	996	996	997	1000	1003	1001	992	982	957	953	952	956	968	986	992	998	1008	1005	1001	1001	1001	1002	1009	989
11	1009	996	995	996	996	996	996	990	976	967	966	971	973	975	986	986	1007	997	1001	1011	1016	1013	993	995	1009	992
12	1009	987	978	981	992	999	996	991	971	955	948	937	952	952	968	994	985	997	1010	1011	1007	999	1002	1002	995	984
13	995	986	991	997	1002	999	1001	999	989	977	955	948	950	956	970	993	984	1004	1006	999	1000	998	996	996	996	987
14	996	999	1005	1003	1004	1003	999	986	978	966	945	937	941	937	961	976	992	1002	1004	1011	1007	1010	996	1000	1003	986
15	1003	1000	990	991	992	992	981	967	957	953	953	946	947	953	972	982	1018	1049	1048	1022	1007	1006	991	989	995	988
16	995	990	983	982	989	985	981	975	971	966	963	963	966	965	981	995	988	1021	1046	1067	1014	962	845	<773	<732	<968
17	<732	<770	<800	856	812	902	921	911	893	908	926	921	916	947	937	976	986	966	981	1012	1046	979	971	966	988	<923
18	988	955	956	921	948	926	951	955	957	922	942	941	927	954	971	990	987	1021	1011	1012	990	995	992	978	952	966
19	952	976	966	949	962	967	967	961	960	943	938	944	959	967	996	1030	1008	989	1002	1034	1006	996	980	974	986	977
20	986	957	967	974	967	967	965	969	966	950	938	940	953	957	972	995	990	990	997	1019	1014	986	987	971	986	974
21	986	961	991	966	952	956	948	953	949	941	941	948	951	966	966	978	976	985	996	995	1002	997	996	1005	996	971
22	997	991	983	977	976	979	983	971	961	957	963	957	951	962	974	972	979	987	997	1001	1006	1006	1011	1019	1001	982
23	1001	977	978	986	989	982	979	973	976	963	952	952	962	965	978	976	981	987	996	997	996	995	995	995	992	980
24	992	992	992	991	988	985	983	978	977	972	964	963	967	973	981	988	997	1001	1006	1004	1007	1010	1005	1004	1001	989
25	1001	996	992	992	994	993	992	987	979	967	957	963	975	973	982	991	1000	1003	1001	1002	999	995	993	990	989	988
26	989	984	986	987	988	990	984	980	974	969	965	964	956	961	966	983	987	1001	999	998	999	996	993	995	994	983
27	994	990	990	990	993	995	992	987	978	968	966	973	977	980	978	971	981	993	1003	1007	1002	997	996	993	992	987
28	992	991	991	992	997	997	993	990	987	973	968	959	966	953	963	969	983	989	999	1011	1008	1008	1003	1002	1001	987
29	1002	997	999	1003	1005	1008	1007	999	1002	994	986	973	969	974	1009	1003	984	1003	1019	1032	1006	983	983	985	980	996
30	980	991	983	970	968	978	978	973	957	941	945	945	941	955	975	985	983	996	986	1004	1005	998	992	985	982	976
31	982	982	985	987	983	984	985	977	968	960	958	950	956	953	953	958	973	988	1018	1016	1010	998	992	988	988	979
Mean†	992	987	985	984	987	987	985	980	973	963	954	950	952	957	971	983	988	998	1005	1008	1002	998	995	993	992	982

† Mean of 29 days, 16th and 17th omitted.

XVIII.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (**—Y.**) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **May, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean.
													4,000 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
1	871	872	895	893	886	883	899	927	920	917	917	926	935	950	954	949	941	939	941	931	917	946	922	936	936	921
2	936	944	931	925	914	912	907	903	911	907	916	924	937	954	957	957	951	944	947	947	934	935	938	939	955	932
3	955	920	923	931	909	909	909	899	898	900	912	928	939	947	965	969	943	944	944	941	941	941	941	935	930	930
4	930	932	927	934	920	910	928	923	915	909	915	933	956	973	980	978	965	956	935	931	932	935	934	933	933	937
5	933	933	929	926	932	919	918	914	904	920	918	934	947	957	963	956	948	949	957	933	933	933	938	931	928	934
6	928	925	928	919	917	925	910	903	906	916	925	939	956	964	959	960	958	946	944	942	940	938	939	938	935	935
7	935	936	934	923	920	912	909	900	899	904	916	933	947	957	961	957	947	939	937	937	941	943	939	938	937	932
8	937	937	933	928	920	909	904	899	897	905	920	944	969	987	982	969	958	944	943	944	946	945	944	940	944	938
9	943	951	930	915	919	914	909	902	900	902	916	938	961	970	970	962	956	946	938	938	938	938	942	941	940	935
10	940	935	935	935	933	926	907	895	891	901	916	930	946	958	962	959	954	951	943	938	939	938	942	940	933	934
11	933	932	932	930	924	918	908	901	898	919	927	944	952	958	968	964	972	957	948	946	956	903	934	935	924	936
12	924	900	916	932	926	917	910	907	908	919	916	930	951	954	959	970	956	954	949	946	947	943	937	930	930	934
13	930	909	930	927	926	938	919	903	903	908	922	935	950	962	963	962	943	943	941	940	946	945	943	942	940	935
14	940	938	939	933	932	917	908	887	903	897	916	932	953	962	969	959	956	953	947	946	946	945	938	941	927	935
15	927	911	921	930	927	919	905	900	889	900	921	938	960	980	998	988	989	972	962	959	954	917	913	926	933	938
16	933	893	898	905	907	904	900	896	904	908	919	934	950	956	965	975	972	985	994	991	924	876	803	<782	<721	<915
17	<720	<737	811	853	887	864	856	859	867	909	919	918	931	939	953	954	951	942	942	922	917	931	941	911	889	<897
18	889	912	927	915	913	926	917	896	884	878	904	917	921	941	953	939	942	949	950	935	946	930	931	905	930	923
19	930	936	941	914	917	915	909	903	908	910	921	927	939	955	959	966	953	949	946	946	939	933	945	946	946	934
20	946	921	923	912	913	923	910	906	892	898	899	914	933	953	967	955	949	944	942	924	931	929	934	929	896	926
21	896	929	921	905	920	915	910	902	893	903	904	915	929	948	948	940	939	940	937	930	934	934	926	924	924	923
22	924	907	895	907	915	910	905	897	908	907	916	931	946	955	957	949	945	942	940	939	941	945	937	934	929	927
23	929	923	943	937	918	917	908	907	904	907	914	932	956	961	961	949	941	938	940	940	937	936	935	934	939	932
24	938	934	930	922	918	917	911	906	903	909	918	936	947	948	947	949	949	947	948	940	939	938	938	936	936	932
25	936	931	930	929	921	908	901	906	909	913	930	954	963	964	962	954	943	938	928	930	935	934	931	929	928	932
26	928	925	925	922	918	911	902	895	893	896	915	938	954	963	959	953	940	933	932	934	933	936	934	933	933	928
27	933	931	931	925	920	915	913	909	906	906	917	939	959	965	958	951	949	944	937	933	938	939	937	936	933	933
28	932	928	925	923	919	910	906	902	902	906	910	927	945	954	962	961	959	951	942	939	938	938	937	936	934	931
29	934	934	937	930	921	919	914	917	911	908	902	916	936	951	973	965	964	966	969	976	948	922	917	921	919	935
30	919	915	909	903	939	921	914	901	900	895	902	920	936	947	961	968	965	967	945	932	934	935	929	928	928	929
31	927	923	921	918	915	915	905	904	898	893	905	923	942	949	947	944	945	946	949	929	931	935	934	931	931	926
Mean†	928	925	926	922	920	916	909	904	902	905	915	931	947	958	963	959	952	948	944	940	939	935	935	933	932	932

† Mean of 29 days, 16th and 17th omitted.

XIX.—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. **(Z.)** *Mean Values for periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **May, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
													44,000 γ(·44 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	1045	1005	969	958	979	1006	1029	1033	1041	1047	1049	1044	1045	1048	1054	1062	1067	1069	1073	1086	1095	1074	1065	1067	1070	1043
2	1070	1066	1051	1054	1062	1069	1072	1071	1065	1059	1055	1052	1051	1053	1061	1067	1072	1076	1079	1082	1086	1082	1077	1074	1061	1067
3	1061	1059	1063	1056	1058	1066	1068	1067	1065	1059	1053	1049	1046	1049	1054	1067	1078	1078	1080	1077	1077	1076	1074	1074	1074	1065
4	1074	1073	1073	1070	1067	1072	1066	1056	1054	1051	1050	1050	1051	1056	1067	1082	1088	1090	1097	1091	1082	1076	1074	1072	1072	1070
5	1072	1071	1067	1060	1045	1038	1041	1046	1055	1053	1058	1057	1057	1062	1078	1100	1109	1107	1101	1107	1098	1086	1079	1075	1072	1072
6	1072	1070	1068	1068	1070	1065	1063	1063	1060	1053	1047	1044	1036	1042	1053	1058	1065	1072	1074	1075	1074	1073	1073	1072	1072	1063
7	1072	1070	1068	1065	1065	1066	1069	1073	1069	1063	1057	1053	1051	1053	1056	1063	1070	1072	1071	1071	1070	1069	1068	1067	1068	1065
8	1067	1066	1066	1069	1071	1074	1074	1071	1068	1064	1061	1055	1050	1050	1056	1066	1077	1082	1081	1076	1071	1071	1069	1069	1069	1068
9	1069	1062	1052	1058	1066	1069	1070	1069	1067	1063	1060	1056	1053	1056	1060	1069	1073	1077	1080	1078	1078	1077	1073	1069	1069	1067
10	1069	1070	1070	1069	1071	1072	1073	1071	1065	1057	1053	1050	1052	1057	1061	1065	1068	1071	1073	1073	1070	1069	1068	1068	1064	1066
11	1065	1067	1070	1070	1071	1073	1073	1074	1071	1063	1057	1056	1056	1060	1062	1069	1077	1084	1087	1086	1085	1082	1073	1068	1058	1071
12	1058	1054	1061	1063	1065	1071	1073	1073	1069	1066	1060	1058	1054	1059	1060	1066	1072	1075	1078	1078	1074	1072	1070	1063	1064	1066
13	1064	1058	1056	1061	1066	1061	1061	1063	1063	1056	1057	1057	1055	1055	1061	1070	1082	1086	1086	1083	1076	1074	1072	1071	1071	1067
14	1070	1070	1069	1071	1073	1077	1075	1076	1073	1066	1063	1058	1056	1062	1072	1077	1080	1080	1076	1074	1073	1072	1073	1069	1053	1071
15	1053	1055	1060	1065	1069	1073	1076	1074	1069	1062	1050	1047	1043	1044	1060	1078	1086	1103	1110	1105	1100	1097	1080	1075	1068	1073
16	1067	1054	1061	1067	1072	1075	1076	1072	1067	1060	1054	1050	1046	1048	1052	1059	1065	1065	1067	1092	1130	1076	964	809	<809	<1047
17	<809	<812	<815	883	843	960	1038	1048	1059	1076	1078	1079	1085	1103	1123	1124	1108	1087	1084	1093	1091	1075	1058	1022	1039	<1028
18	1039	1051	1055	1042	1040	1035	1019	1042	1051	1056	1056	1055	1063	1066	1077	1095	1101	1102	1101	1096	1083	1079	1056	1051	1042	1063
19	1041	1029	1013	1017	1034	1035	1067	1076	1076	1073	1064	1060	1060	1068	1083	1096	1099	1091	1087	1084	1083	1080	1068	1043	1039	1064
20	1038	1025	1034	1050	1054	1053	1060	1063	1069	1068	1061	1057	1054	1058	1070	1086	1089	1090	1087	1086	1081	1078	1070	1047	1051	1064
21	1051	1029	1015	1030	1036	1044	1056	1064	1070	1070	1069	1066	1060	1062	1071	1078	1077	1075	1077	1079	1078	1074	1070	1057	1058	1061
22	1057	1049	1043	1053	1061	1064	1066	1069	1065	1057	1049	1045	1045	1050	1056	1062	1069	1069	1067	1070	1074	1073	1070	1060	1053	1060
23	1053	1056	1054	1055	1060	1065	1069	1069	1067	1065	1057	1054	1055	1060	1061	1066	1068	1070	1069	1070	1072	1072	1071	1071	1069	1064
24	1068	1064	1064	1065	1067	1068	1069	1071	1068	1065	1061	1057	1054	1058	1063	1064	1065	1068	1066	1068	1069	1068	1067	1067	1067	1065
25	1067	1068	1068	1065	1065	1064	1064	1064	1060	1055	1051	1048	1049	1056	1060	1067	1076	1082	1084	1078	1073	1072	1070	1069	1067	1066
26	1066	1068	1069	1070	1071	1068	1066	1063	1060	1058	1050	1038	1036	1047	1058	1061	1067	1072	1074	1071	1069	1069	1068	1067	1067	1063
27	1066	1066	1066	1068	1071	1071	1070	1068	1066	1066	1059	1051	1051	1058	1067	1071	1077	1080	1082	1079	1072	1069	1067	1067	1067	1068
28	1065	1066	1066	1068	1069	1070	1069	1068	1064	1061	1059	1057	1052	1052	1056	1061	1067	1072	1074	1075	1073	1070	1066	1064	1064	1065
29	1063	1063	1062	1061	1061	1061	1061	1058	1053	1052	1050	1048	1040	1043	1056	1075	1085	1085	1086	1086	1093	1087	1079	1072	1059	1066
30	1058	1048	1049	1056	1051	1050	1059	1061	1063	1062	1055	1053	1051	1053	1057	1069	1073	1078	1087	1086	1078	1071	1068	1067	1066	1063
31	1064	1065	1065	1065	1066	1065	1062	1060	1058	1053	1049	1041	1040	1045	1044	1046	1055	1062	1068	1081	1080	1072	1066	1062	1060	1060
Mean†	1061	1057	1055	1056	1059	1061	1063	1065	1064	1060	1056	1052	1051	1055	1062	1071	1077	1080	1081	1081	1079	1075	1070	1066	1063	1065

† Mean of 29 days 16th and 17th. omitted.

XX.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES.

Eskdalemuir. **May, 1918.**

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	° ′ ″	° ′	a 280+		
						2·7	2D	1
2	11 18	11 48	16682	17 13 0	69 40·8	2·7	1	2
						2·7	0	3
						2·7	1	4
						2·6	1	5
						2·6	0	6
						2·6	0C	7
						2·6	0C	8
						2·6	0C	9
						2·7	0	10
						2·7	1	11
						2·7	1	12
						2·7	0	13
14	10 32	11 0	16683	17 10 47	69 41·2	2·7	1	14
15	11 27	12 20			‡69 39·8	2·8	1	15
						2·8	2D	16
						2·8	2D	17
						2·8	2D	18
						2·8	2D	19
						2·9	1	20
						2·9	1	21
22	7 29	7 59	16702	17 3 18	69 40·1	2·9	0	22
						2·9	0	23
						2·9	0	24
						3·0	0	25
						3·0	0C	26
						3·1	0C	27
28	10 37	11 8	16707	17 9 35	69 39·8	3·2	0	28
						3·2	1	29
						3·2	1	30
						3·3	0	31

‡ By Needles in West Hut (Pier 3).

MAGNETIC NOTES.

May, 1918.

With the exception of the disturbed period from the 15th to the 19th, the month was one of quieter conditions, the mean character figure being that of the average for the year, viz., 0·68. The disturbance in question began soon after 13h. on the 15th, but the larger changes associated with it did not occur until 22h. on the following day. These changes were of sufficient magnitude to take all three traces off the sheet; in the case of V. for nearly three-and-a-half hours. During ten hours beginning at 16d. 22h. the movements were especially rapid, in fact, there are indications that the period from 15d. 13h. to, say, 16d. 13h. did not properly belong to the disturbance which gave the large changes about 16d. 22h. Of miscellaneous phenomena of the month, mention should be made of a tooth-shaped bay on the N. trace, centering at 1d. 21h. 6m., on the rising side of which minute pulsations were superposed; also of a similar occurrence at 11d. 20h. 37m. Pulsations were rare except during the times of disturbance.

See Explanatory Note, Table IV.

XXI.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (**X.**) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **June, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	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	γ
1	988	989	986	984	993	1000	1002	998	991	975	954	944	950	957	971	974	983	996	998	1003	1002	1000	998	997	994	985
2	994	993	993	995	998	1001	1003	1003	999	985	970	964	958	965	980	987	993	1003	1003	1007	1005	999	999	1000	998	992
3	998	995	995	997	999	1000	1003	1005	1001	989	968	957	960	964	970	990	998	988	996	1003	1006	1002	999	998	997	991
4	998	1001	1000	1001	1001	1002	997	990	985	980	971	969	970	975	980	994	995	991	997	1006	1011	1013	1007	1001	997	993
5	997	995	994	990	993	1001	1000	996	989	981	969	968	957	962	970	979	994	1007	1019	1006	1012	1015	1014	1007	1005	992
6	1005	1005	1000	999	1004	1006	1008	997	992	980	959	949	943	962	965	976	979	1004	998	1006	1011	1008	1007	1007	1014	991
7	1014	991	994	995	1000	1006	1006	998	986	980	968	950	950	966	980	990	999	1015	1004	1008	1006	1004	1001	1001	1000	992
8	1000	998	1001	998	1005	1009	1006	996	981	964	950	951	933	955	966	988	995	1007	1009	1010	1012	1009	1004	1000	997	989
9	997	995	999	999	1003	1004	1005	998	987	980	971	964	957	967	977	999	1011	1036	1049	1035	1021	1008	1008	1004	1029	1000
10	1030	995	997	1014	1032	1005	991	981	904	860	861	889	900	1008	1038	1015	965	971	999	983	984	976	952	965	962	969
11	962	953	946	927	968	981	966	952	948	941	916	921	940	942	966	967	952	975	969	994	995	1003	989	998	981	962
12	981	954	941	975	939	920	961	958	941	930	937	932	927	932	947	946	971	1008	1044	1015	1010	986	973	981	991	963
13	991	970	950	972	976	976	974	966	953	942	942	948	958	960	969	981	988	995	1006	1013	996	991	982	981	981	974
14	981	982	994	986	967	986	971	961	959	941	932	916	925	976	981	975	972	979	992	990	991	989	986	986	995	972
15	995	976	990	986	986	975	982	976	947	959	957	941	946	946	967	990	995	1038	1021	1048	1022	987	982	976	971	982
16	972	948	987	982	951	938	987	991	972	943	937	932	942	951	967	988	997	996	1017	1022	1015	1002	987	1000	1003	977
17	1003	991	987	972	973	962	957	966	963	960	958	952	943	966	972	986	997	996	1013	1032	1010	1004	976	977	972	979
18	972	972	973	972	980	977	975	963	947	943	956	962	962	968	978	990	983	997	1002	1007	1017	997	993	985	992	978
19	993	991	983	981	988	990	985	975	961	957	954	957	961	969	973	981	984	997	1007	997	995	988	988	987	987	981
20	987	986	989	988	988	988	984	981	973	962	955	958	960	957	961	972	988	1002	1008	1012	1002	1002	1007	1001	1013	984
21	1013	980	983	988	992	999	997	988	975	960	952	954	962	968	984	985	991	992	1022	1010	1002	1002	1003	1005	997	987
22	998	999	994	998	999	998	994	989	970	954	958	964	965	969	970	974	991	999	1004	1000	995	994	993	993	993	986
23	993	994	992	992	995	997	990	984	974	963	952	948	950	960	975	986	994	995	995	993	994	994	992	990	990	983
24	990	997	998	1000	1004	1006	1000	985	973	968	955	953	963	972	976	992	991	983	1003	1000	998	994	993	997	993	987
25	993	993	992	994	999	1000	993	980	969	964	964	959	963	968	986	995	995	1005	1012	1011	1004	1004	1007	1007	1006	990
26	1007	1006	1006	1003	1004	999	999	1000	990	975	962	955	959	970	984	988	1010	1010	1013	1029	1013	998	994	981	985	994
27	985	979	982	982	994	988	978	966	955	945	935	935	945	958	976	991	999	1009	1014	1011	1011	1000	1002	994	994	981
28	995	996	995	995	998	991	992	987	980	968	957	951	950	961	974	991	995	996	996	998	1002	1005	1003	1007	1000	987
29	1000	1000	995	993	997	1000	998	993	983	972	967	961	961	963	972	986	992	1000	1010	1016	1010	1008	1005	1005	1001	991
30	1001	999	994	995	994	996	991	986	977	966	957	950	947	952	959	975	990	999	1007	1009	1008	1005	995	995	995	985
Mean	994	987	987	988	991	990	990	984	971	960	951	948	950	963	974	984	990	1000	1008	1009	1005	1000	995	994	994	984

XXII.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (**— Y.**) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **June, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
											4,000 γ (·04 C.S.G. units) +															
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	931	928	921	914	911	906	904	899	891	888	897	914	934	944	954	950	944	942	936	936	937	937	935	932	928	924
2	928	927	923	923	918	910	903	901	897	894	906	921	939	958	966	960	952	947	939	939	938	938	939	935	924	929
3	924	922	921	918	912	907	902	904	901	900	909	922	935	943	949	954	949	932	932	936	938	938	937	935	931	926
4	931	928	926	923	919	912	905	902	903	910	918	934	950	965	969	968	958	947	942	941	938	938	935	934	924	933
5	924	918	921	912	914	913	906	899	896	903	918	936	953	968	974	971	966	955	947	932	937	939	941	938	938	933
6	938	938	920	932	916	914	908	912	912	899	905	929	954	975	974	971	960	949	936	934	937	937	937	941	935	934
7	935	914	919	911	907	899	896	899	895	903	918	934	948	966	971	966	953	945	931	931	932	934	934	935	938	928
8	938	932	934	930	921	913	907	908	900	907	915	942	964	973	970	964	948	939	934	934	933	937	937	931	929	934
9	929	931	927	927	923	915	907	903	900	903	913	928	944	960	963	968	958	962	969	966	929	916	912	909	870	931
10	870	863	918	873	885	865	891	894	888	907	904	904	908	912	968	981	971	951	944	934	937	943	931	958	913	918
11	913	918	918	928	915	910	899	899	893	880	890	914	931	931	942	959	949	948	939	943	934	923	938	917	905	922
12	905	901	929	906	897	885	891	880	879	878	894	909	923	935	947	947	948	955	942	949	942	938	924	922	909	918
13	909	891	900	907	899	904	901	895	886	888	897	911	922	930	936	943	944	941	942	931	923	920	915	897	900	914
14	900	911	897	882	883	893	883	902	896	898	910	915	936	947	950	958	943	938	941	937	935	934	929	930	929	919
15	929	918	918	890	888	888	901	907	891	893	901	917	938	945	952	959	947	952	951	960	937	925	928	905	899	922
16	899	927	932	878	887	905	910	894	884	884	889	908	918	931	934	947	949	938	943	923	929	921	913	912	891	915
17	892	903	901	899	912	902	910	897	889	897	909	925	933	949	958	956	948	947	953	939	938	940	924	909	908	922
18	908	908	921	925	917	899	897	885	882	892	908	927	935	944	949	948	939	944	943	939	935	932	932	927	929	923
19	929	919	907	902	902	898	889	894	900	909	922	935	940	942	939	933	933	940	942	929	927	927	929	928	925	921
20	925	922	924	918	912	905	892	889	889	901	913	924	939	944	947	943	938	935	931	931	929	932	935	917	898	922
21	898	901	907	906	901	890	877	873	873	879	894	922	945	956	956	951	945	940	960	943	934	935	939	940	935	920
22	935	931	922	914	908	897	896	900	894	901	910	917	932	943	945	940	935	930	933	930	929	929	927	924	923	922
23	923	920	919	917	913	904	894	894	896	900	916	935	949	960	963	955	938	924	918	922	924	927	924	924	928	923
24	928	936	931	922	916	908	902	906	913	913	924	940	952	958	953	956	948	932	933	929	929	930	932	925	927	930
25	927	927	921	921	910	900	897	896	903	914	924	936	946	945	955	956	948	938	939	939	937	935	934	930	929	928
26	929	929	924	917	908	902	902	893	884	883	895	917	941	964	973	973	975	961	948	952	948	929	921	911	892	928
27	892	900	916	907	896	889	884	877	879	891	902	917	939	951	955	954	947	945	944	940	936	934	929	916	916	919
28	917	917	914	916	909	907	901	892	888	890	898	917	933	945	957	957	949	940	937	937	934	934	934	930	928	923
29	928	927	922	917	914	909	906	898	895	896	904	915	928	940	947	954	948	941	941	945	941	938	936	933	925	926
30	925	920	920	922	923	911	899	898	894	898	903	919	943	956	953	952	946	941	936	936	934	931	927	931	933	926
Mean	919	918	919	912	908	902	899	896	893	897	907	923	938	949	956	956	949	943	941	938	934	932	930	926	919	924

XXIII.—TERRESTRIAL MAGNETIC FORCE: ~~NORTH~~ COMPONENT.

Eskdalemuir. (Z.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **June, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
	44,000 γ (·44 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	1059	1053	1054	1059	1061	1059	1056	1058	1058	1057	1055	1047	1036	1033	1038	1045	1055	1060	1068	1068	1067	1066	1063	1062	1061	1056
2	1059	1059	1060	1061	1063	1061	1061	1061	1057	1052	1045	1039	1040	1045	1052	1057	1062	1062	1063	1064	1064	1062	1060	1059	1060	1057
3	1059	1058	1058	1060	1060	1060	1058	1055	1050	1049	1046	1042	1038	1037	1040	1043	1052	1058	1060	1058	1060	1061	1060	1059	1058	1053
4	1056	1056	1056	1056	1056	1056	1057	1055	1051	1047	1042	1038	1028	1028	1032	1037	1045	1051	1054	1055	1058	1059	1058	1058	1057	1050
5	1056	1053	1049	1053	1053	1049	1052	1053	1050	1045	1040	1035	1033	1034	1038	1044	1049	1054	1058	1062	1060	1057	1055	1055	1055	1049
6	1053	1051	1051	1051	1054	1055	1055	1051	1045	1046	1045	1035	1032	1032	1037	1043	1053	1059	1065	1063	1060	1057	1055	1052	1047	1050
7	1046	1045	1045	1050	1052	1051	1051	1050	1046	1043	1043	1041	1038	1040	1045	1050	1053	1059	1064	1065	1063	1060	1057	1055	1054	1051
8	1052	1053	1052	1052	1052	1052	1053	1053	1050	1043	1039	1040	1037	1038	1045	1056	1058	1059	1057	1056	1054	1052	1053	1053	1053	1050
9	1052	1052	1052	1053	1055	1054	1053	1051	1050	1047	1042	1035	1033	1033	1039	1045	1051	1057	1068	1081	1089	1079	1051	1043	1015	1052
10	1014	1001	961	972	993	1014	1029	1032	1034	1029	1031	1060	1077	1177	1214	1164	1133	1143	1132	1111	1099	1060	1004	1026	1039	1063
11	1038	1051	1054	1037	1051	1056	1057	1059	1065	1065	1063	1054	1047	1063	1076	1073	1082	1083	1074	1067	1068	1066	1053	1042	1038	1060
12	1037	1022	965	953	945	963	1008	1039	1043	1049	1052	1047	1049	1049	1059	1065	1073	1080	1095	1092	1085	1060	1063	1053	1026	1039
13	1026	1038	1024	1014	1044	1058	1062	1063	1064	1063	1053	1044	1039	1041	1046	1051	1057	1062	1065	1074	1078	1077	1069	1048	1048	1053
14	1047	1037	1036	1024	1015	1024	1034	1042	1047	1046	1043	1046	1053	1066	1076	1076	1086	1081	1073	1067	1063	1060	1059	1059	1052	1053
15	1051	1048	1030	1037	1050	1050	1045	1043	1046	1042	1039	1044	1046	1045	1056	1065	1070	1075	1083	1067	1057	1063	1051	1035	1026	1051
16	1026	1005	998	1014	1021	1013	1022	1042	1051	1054	1054	1050	1045	1048	1057	1060	1069	1076	1075	1078	1075	1064	1051	1043	1022	1045
17	1022	1016	1023	1031	1033	1033	1034	1042	1049	1050	1050	1050	1049	1046	1056	1064	1073	1073	1071	1076	1074	1063	1041	1043	1047	1049
18	1046	1050	1050	1047	1047	1050	1057	1059	1061	1057	1050	1044	1041	1044	1050	1053	1059	1063	1066	1066	1064	1060	1059	1057	1054	1054
19	1054	1043	1045	1049	1053	1054	1055	1056	1056	1055	1055	1052	1050	1055	1056	1056	1058	1063	1064	1063	1062	1060	1059	1059	1059	1056
20	1059	1058	1057	1058	1060	1061	1058	1052	1049	1048	1043	1038	1037	1039	1041	1041	1050	1060	1066	1067	1063	1061	1057	1055	1041	1053
21	1041	1041	1049	1053	1057	1056	1055	1050	1048	1043	1037	1033	1029	1033	1044	1053	1068	1072	1071	1072	1073	1068	1063	1058	1057	1053
22	1057	1057	1058	1057	1059	1059	1057	1054	1055	1056	1056	1053	1051	1052	1053	1055	1055	1055	1059	1061	1061	1059	1057	1057	1057	1056
23	1057	1057	1059	1059	1060	1061	1059	1057	1055	1050	1045	1038	1036	1042	1045	1050	1056	1062	1062	1058	1055	1056	1056	1057	1057	1054
24	1057	1056	1056	1057	1057	1057	1056	1057	1057	1055	1048	1041	1041	1050	1058	1060	1070	1072	1071	1066	1063	1062	1059	1059	1058	1058
25	1058	1057	1058	1060	1062	1062	1059	1057	1052	1042	1033	1032	1030	1034	1041	1049	1055	1057	1055	1055	1056	1056	1055	1055	1055	1051
26	1055	1055	1056	1057	1057	1056	1053	1053	1053	1046	1041	1033	1034	1041	1045	1051	1065	1077	1086	1087	1082	1080	1068	1063	1045	1058
27	1045	1050	1054	1054	1050	1053	1054	1053	1050	1048	1043	1043	1042	1048	1054	1058	1060	1062	1064	1066	1066	1066	1057	1055	1058	1054
28	1058	1059	1060	1060	1062	1062	1058	1056	1053	1047	1043	1042	1045	1048	1049	1054	1061	1063	1062	1062	1063	1063	1062	1059	1057	1056
29	1057	1058	1059	1062	1063	1063	1059	1059	1059	1051	1048	1048	1041	1038	1042	1048	1055	1059	1062	1061	1062	1063	1062	1059	1057	1056
30	1057	1055	1056	1057	1059	1059	1059	1059	1058	1053	1047	1046	1040	1042	1049	1055	1062	1065	1065	1066	1066	1066	1066	1063	1060	1057
Mean	1048	1046	1043	1044	1047	1049	1051	1052	1052	1050	1046	1043	1041	1047	1054	1057	1063	1067	1069	1069	1067	1063	1056	1053	1049	1053

XXIV.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES

Eskdalemuir. **June, 1918.**

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	° ′ ″	° ′	a 280+		
						3·1	0	1
						3·3	0C	2
						3·4	0C	3
4	11 10	11 38	16714	17 12 2	69 38·3	3·5	0C	4
						3·3	0	5
						3·5	1	6
						3·4	1	7
						3·5	0	8
						3·6	2D	9
						3·6	2D	10
						3·6	1D	11
						3·6	2D	12
13	11 25	11 49	16698	17 8 26	69 39·6	3·8	1	13
						3·9	1	14
						3·9	2D	15
						3·9	1	16
						3·9	1	17
						4·0	0	18
19	11 45	12 10	16706	17 12 15	69 39·2	4·0	0	19
						4·0	0	20
						4·1	1	21
						4·1	0	22
						4·2	0	23
						4·2	0	24
						4·2	0	25
						4·2	1	26
27	7 26	7 55	16687	16 59 56	69 40·4	4·2	0	27
						4·3	0	28
						4·3	0C	29
						4·3	0C	30

MAGNETIC NOTES.

June, 1918.

This was one of the two quietest months in the year. Its chief feature of interest lay in the disturbance which began shortly before 24h. on the 8th. Whether the abrupt change observed at 8d. 23h. 9m. was really of the "sudden commencement" type is uncertain. The rise in N. at that time was 67 γ, in W. 48 γ, but there was no change in V. Another abrupt movement took place at 10d. 20h. 49m., when there occurred a rapid rise of 94 γ in N., a fall of 54 γ in W., while during the immediately subsequent oscillations of N. and W. there was a rapid fall in V. This phenomenon was repeated on the following day at 20h. 15m. and 23h. 26m. The maximum value of V. on the 10th was reached at 13h. 30m., and the subsequent minimum at 21h. 48m. These times are unusually early. Another disturbance of moderate intensity began gradually about 5h. on the 15th, but exhibited no feature of particular interest. The last three days of the month were more than usually quiet.

See Explanatory Note, Table IV.

XXV.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (**X.**) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **July, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	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	991	992	996	1001	1003	998	990	975	962	962	957	948	940	962	999	1043	1010	1001	1016	1008	1004	1005	996	1000	990
2	1000	992	997	1001	1002	1003	993	988	980	977	964	961	961	967	978	980	991	996	1014	1012	1007	1015	990	961	978	988
3	978	984	986	997	987	991	988	980	977	971	947	942	948	952	977	977	1018	1023	1010	1018	1011	1007	992	990	993	986
4	994	994	1003	995	992	991	986	970	975	978	969	965	964	962	968	992	989	996	1005	1010	1009	1003	999	1002	997	988
5	997	992	991	994	994	1001	993	986	973	958	968	973	966	957	973	989	1001	997	1006	1010	1007	998	997	997	993	988
6	994	993	994	993	993	994	992	985	978	971	964	960	960	963	972	985	989	995	1008	1014	1014	1005	998	995	999	988
7	999	997	994	994	995	993	991	982	972	959	952	951	952	960	974	994	994	998	1010	1013	1011	1022	1024	1024	1018	990
8	1018	1005	998	994	992	999	990	989	986	972	962	962	955	973	970	973	991	1019	1038	1035	1013	1000	994	991	992	992
9	993	994	991	996	999	986	973	968	965	954	949	935	940	965	958	985	993	1012	1021	1019	1035	1025	991	989	1008	985
10	1008	989	989	990	985	991	989	980	968	963	953	954	959	970	981	989	990	996	1010	1026	1025	1020	998	969	968	986
11	968	939	987	990	990	968	976	979	973	955	940	932	949	950	972	998	981	1003	1004	1010	1029	996	987	981	985	978
12	986	993	978	982	978	976	978	970	957	948	944	948	953	968	978	987	996	1010	1009	1002	1018	1019	1003	998	990	983
13	990	997	996	1000	993	991	986	976	962	951	952	952	959	965	975	1020	1031	1016	1013	1014	1006	999	996	1001	1009	990
14	1009	1002	993	996	1005	1003	994	984	975	969	964	956	954	950	961	973	986	991	1018	1039	1002	1018	1020	1006	991	990
15	992	984	1000	997	1004	997	979	977	948	947	945	957	943	956	967	982	991	1001	1004	1007	1005	1001	998	992	982	982
16	982	989	991	990	982	988	995	987	973	955	943	956	952	962	977	992	1004	1013	1016	1035	1003	998	994	997	992	987
17	992	987	989	991	993	996	989	982	971	955	943	944	962	975	974	988	993	1001	1007	1003	1009	1008	1008	1015	1010	987
18	1011	1005	1012	1012	1019	1007	998	987	970	960	952	943	954	958	965	983	994	1000	1007	1006	1003	998	995	992	988	988
19	988	988	988	992	997	998	994	987	978	966	962	955	953	957	968	984	996	1002	1007	1002	1002	998	995	993	990	985
20	990	989	994	997	997	995	988	977	974	969	962	957	956	963	973	986	998	1006	1007	1008	1006	1001	1000	1000	1000	987
21	1001	1003	1006	1004	999	997	987	983	981	978	969	963	964	970	974	990	1007	1006	‡	‡	‡	‡	‡	‡	1003	—
22	1003	1004	1006	1005	1007	1006	1002	996	983	966	958	961	977	985	986	1002	1009	1004	1003	1006	1007	1006	1003	1001	1000	995
23	1000	994	991	994	1002	1008	1007	1001	983	964	971	967	964	964	969	979	989	1007	1016	1014	1021	1016	1005	997	1002	993
24	1002	1000	999	997	1000	1000	990	979	983	980	972	973	960	974	980	989	995	1004	1009	1023	1016	1001	999	1002	1003	993
25	1004	1004	1005	1021	1024	1029	1006	998	982	980	977	973	962	976	987	1023	1051	1038	1047	1054	1000	996	988	975	977	1004
26	977	976	982	981	983	999	997	992	980	965	949	940	943	941	949	958	987	1004	1021	1022	1009	1000	985	972	967	979
27	967	975	977	991	1001	1000	985	983	972	953	940	934	945	955	956	977	997	985	1000	1000	1003	997	998	1001	990	979
28	990	984	981	987	996	992	974	972	976	959	935	902	930	955	957	961	1002	1039	1049	1038	1004	979	981	953	935	973
29	936	939	993	986	973	979	988	942	946	951	934	923	938	946	952	985	995	1020	1040	1034	1010	981	978	984	983	974
30	983	960	975	992	985	989	966	924	967	971	931	928	930	940	963	944	981	994	1005	998	1012	996	998	993	1001	972
31	1001	986	991	990	966	977	982	984	978	954	947	945	946	966	947	977	1001	992	1001	1017	1006	1002	992	991	1007	981
Mean †	991	987	992	995	994	994	988	979	972	962	952	949	952	960	969	985	1000	1006	1014	1017	1010	1003	997	991	991	986

‡ Gas failed.

† Mean of 28 days, 21st, 23rd and 24th omitted.

XXVI.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (**—Y.**) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **July, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
												4,000 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
1	933	923	920	915	913	909	903	895	898	899	910	933	938	945	959	971	982	960	953	948	943	944	947	939	949	933
2	949	936	920	914	909	899	889	895	897	901	904	913	925	939	944	941	944	937	959	945	947	952	922	902	913	924
3	914	918	917	922	929	904	894	909	904	899	912	920	932	946	955	950	943	934	931	935	936	926	934	937	936	926
4	936	932	923	906	904	900	896	904	910	909	913	922	941	956	956	960	961	956	950	947	943	937	932	931	925	930
5	925	921	921	910	903	900	894	903	896	903	915	918	934	947	951	944	938	937	941	944	940	938	935	926	918	924
6	918	918	918	914	909	902	899	897	900	905	917	927	940	951	953	954	950	948	944	942	936	932	931	929	924	927
7	924	921	921	918	917	909	899	889	885	894	908	929	947	958	961	961	955	947	942	939	939	942	946	945	940	929
8	940	923	929	880	853	871	864	862	887	904	921	924	937	946	947	955	961	957	950	942	929	926	926	910	892	918
9	893	886	895	910	915	909	900	887	889	884	894	909	932	950	955	963	955	948	943	940	923	902	911	914	907	917
10	907	913	917	916	913	908	888	887	891	897	910	927	948	957	962	962	956	948	949	950	943	941	920	908	874	925
11	874	891	907	911	917	929	919	894	885	883	884	900	924	936	953	969	951	951	941	926	911	905	899	909	912	916
12	912	898	894	903	905	911	892	889	889	893	904	908	926	949	954	954	951	953	949	938	939	927	919	905	912	919
13	912	915	904	913	897	890	886	884	882	883	895	918	941	953	956	981	957	958	954	951	945	936	930	929	927	924
14	928	913	912	916	912	904	895	893	895	901	912	928	940	949	960	959	959	954	960	960	937	939	919	890	899	926
15	899	918	938	908	894	889	896	903	905	906	910	924	936	948	958	955	950	942	937	933	935	934	929	932	936	925
16	936	923	917	913	917	912	906	905	902	904	904	914	927	936	945	955	961	952	940	933	928	934	928	925	912	925
17	912	913	917	917	914	907	898	895	894	897	909	926	941	955	961	966	958	950	949	943	943	944	934	929	915	928
18	915	924	920	910	904	896	889	890	902	904	912	928	942	952	955	954	954	949	945	939	933	928	928	927	923	925
19	923	923	923	917	912	902	893	888	883	884	893	909	930	937	942	941	938	936	933	929	923	927	928	926	922	928
20	922	921	923	918	915	906	901	901	896	897	901	911	932	951	959	960	955	947	940	936	927	928	930	928	926	925
21	927	925	925	924	923	928	922	917	907	908	910	920	934	944	951	950	948	942	935	934	934	934	930	930	927	929
22	927	929	927	922	915	906	900	899	902	910	914	930	955	967	967	968	961	945	930	934	938	937	934	934	931	931
23	931	922	921	915	912	902	889	884	885	897	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	—
24	+	+	+	+	+	+	+	+	+	+	911	925	940	959	967	967	958	951	945	945	925	929	928	928	926	—
25	926	924	927	936	934	928	892	892	904	907	926	951	970	984	994	1002	1016	989	967	921	925	940	936	921	918	942
26	918	915	913	908	917	926	883	883	888	892	907	920	935	945	958	957	953	942	926	920	929	936	933	907	914	921
27	914	913	906	918	907	909	910	902	900	907	907	920	943	952	960	961	958	945	943	931	931	930	931	934	913	926
28	913	906	924	897	931	905	897	896	883	875	874	891	924	942	953	950	966	965	944	928	911	899	850	872	835	911
29	835	863	903	919	944	935	905	897	899	894	902	914	934	947	948	947	947	953	949	935	915	900	921	932	947	921
30	947	945	904	899	894	891	886	910	905	881	889	912	919	929	942	933	933	929	929	921	921	911	919	918	921	915
31	921	918	912	914	907	914	903	889	888	893	905	921	939	950	943	945	948	935	934	937	911	923	934	932	916	921
Mean †	917	916	916	912	911	906	896	894	895	897	905	920	937	949	955	958	956	949	944	937	931	929	925	921	916	924

‡ Drum out of bearings.

† Mean of 28 days, 21st, 23rd and 24th omitted.

XXVII.—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. (Z.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **July, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
												44,000 γ (·44 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	1060	1061	1061	1063	1065	1064	1064	1063	1063	1055	1046	1041	1047	1050	1051	1049	1056	1078	1092	1101	1101	1091	1078	1072	1065	1066
2	1065	1055	1061	1065	1066	1066	1065	1062	1059	1054	1048	1044	1046	1051	1055	1056	1063	1069	1071	1076	1076	1072	1076	1066	1067	1062
3	1067	1067	1067	1067	1060	1059	1066	1067	1066	1060	1058	1057	1059	1064	1068	1066	1064	1068	1067	1067	1071	1077	1073	1068	1065	1066
4	1065	1063	1057	1056	1061	1065	1064	1060	1055	1052	1048	1047	1047	1054	1063	1064	1074	1077	1071	1067	1066	1066	1067	1065	1064	1061
5	1063	1062	1061	1062	1064	1065	1065	1065	1062	1056	1053	1057	1057	1058	1056	1053	1061	1071	1073	1068	1069	1068	1065	1064	1064	1062
6	1064	1064	1064	1064	1064	1064	1065	1062	1059	1054	1047	1038	1040	1044	1052	1058	1067	1070	1071	1072	1071	1070	1067	1065	1062	1061
7	1062	1062	1062	1063	1064	1065	1064	1064	1061	1058	1050	1045	1046	1044	1046	1054	1064	1068	1067	1063	1061	1059	1058	1058	1058	1059
8	1058	1059	1054	1024	1025	1036	1042	1042	1043	1038	1036	1033	1034	1038	1052	1058	1060	1064	1073	1083	1083	1078	1070	1063	1053	1052
9	1053	1042	1048	1056	1058	1061	1063	1063	1057	1052	1050	1044	1047	1053	1057	1058	1063	1068	1075	1076	1075	1075	1062	1057	1049	1059
10	1049	1052	1052	1058	1057	1056	1059	1059	1058	1054	1053	1048	1043	1043	1047	1054	1060	1063	1064	1067	1069	1071	1060	1046	1007	1055
11	1007	1005	1025	1055	1060	1051	1051	1056	1059	1059	1060	1055	1053	1055	1061	1062	1072	1078	1082	1082	1082	1079	1075	1068	1041	1059
12	1041	1033	1036	1037	1050	1058	1063	1066	1063	1058	1055	1052	1048	1052	1057	1066	1070	1073	1078	1079	1075	1074	1063	1063	1062	1059
13	1061	1060	1055	1047	1055	1063	1064	1067	1065	1060	1052	1050	1049	1057	1060	1068	1082	1085	1082	1076	1072	1071	1069	1067	1062	1064
14	1061	1055	1062	1064	1066	1068	1068	1065	1060	1052	1049	1041	1037	1035	1044	1052	1058	1061	1062	1069	1079	1074	1050	1047	1052	1057
15	1052	1043	1024	1036	1048	1056	1057	1056	1056	1054	1054	1054	1052	1054	1064	1074	1076	1080	1079	1077	1073	1073	1071	1068	1056	1060
16	1056	1051	1061	1064	1063	1060	1062	1064	1066	1067	1063	1051	1048	1054	1056	1062	1068	1072	1077	1086	1085	1077	1072	1066	1064	1065
17	1064	1066	1066	1068	1071	1071	1069	1069	1069	1068	1059	1047	1042	1047	1054	1060	1064	1068	1071	1074	1073	1072	1066	1062	1063	1064
18	1062	1064	1051	1036	1038	1045	1047	1048	1051	1050	1052	1051	1053	1055	1058	1063	1067	1072	1077	1076	1073	1072	1070	1069	1067	1058
19	1066	1064	1062	1064	1068	1071	1070	1069	1066	1060	1056	1053	1051	1054	1058	1062	1066	1071	1071	1071	1073	1071	1069	1068	1068	1065
20	1068	1067	1064	1065	1067	1069	1068	1065	1064	1060	1059	1053	1051	1050	1052	1054	1057	1060	1064	1066	1068	1066	1066	1065	1065	1062
21	1065	1064	1064	1064	1066	1066	1066	1064	1059	1054	1054	1050	1045	1042	1046	1056	1064	1074	1073	1069	1065	1065	1066	1066	1066	1061
22	1065	1065	1064	1065	1066	1070	1068	1064	1058	1057	1050	1043	1040	1041	1048	1057	1068	1076	1077	1073	1068	1065	1065	1065	1065	1062
23	1064	1064	1064	1067	1067	1066	1060	1057	1058	1057	1056	1056	1052	1050	1057	1063	1067	1071	1073	1073	1073	1073	1073	1070	1069	1063	1064
24	1062	1061	1063	1063	1064	1064	1063	1059	1056	1053	1053	1048	1043	1050	1057	1058	1063	1068	1072	1071	1075	1073	1068	1066	1065	1061
25	1064	1065	1064	1060	1058	1058	1058	1054	1051	1048	1049	1048	1045	1052	1065	1079	1105	1160	1182	1169	1129	1098	1084	1082	1080	1081
26	1080	1079	1079	1079	1077	1059	1056	1056	1054	1055	1058	1055	1054	1057	1065	1072	1075	1089	1100	1104	1096	1089	1081	1073	1067	1072
27	1066	1070	1068	1061	1067	1074	1075	1074	1074	1074	1076	1073	1069	1067	1076	1078	1085	1096	1093	1092	1089	1084	1078	1075	1061	1076
28	1060	1059	1041	1025	1022	1031	1048	1056	1061	1063	1070	1073	1067	1076	1084	1087	1085	1094	1114	1114	1102	1060	1006	1006	1011	1062
29	1010	960	1008	1045	1039	1024	1036	1051	1054	1059	1060	1061	1064	1068	1076	1080	1085	1093	1113	1124	1119	1109	1094	1087	1075	1065
30	1074	1021	1029	1055	1066	1076	1072	1058	1052	1058	1065	1060	1059	1063	1068	1080	1081	1082	1085	1092	1097	1096	1082	1075	1064	1068
31	1064	1060	1068	1070	1069	1063	1063	1067	1069	1069	1071	1068	1063	1063	1079	1083	1083	1085	1091	1097	1105	1099	1086	1081	1070	1076
Mean †	1058	1053	1054	1056	1058	1060	1061	1061	1060	1057	1055	1052	1050	1054	1060	1065	1071	1078	1083	1084	1082	1077	1069	1065	1059	1063

† Mean of 28 days, 21st, 23rd and 24th omitted.

XXVIII.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES

Eskdalemuir. **July, 1918.**

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	° ′ ″	° ′	a 280+		
1	7 53	8 24	16699	17 3 9	69 39·3	4·4	1	1
						4·4	0	2
						4·4	0	3
						4·4	0	4
5	7 58	10 52	16705	17 2 33	69 38·8	4·4	0	5
						4·4	0	6
						4·5	0C	7
8	7 37	8 8	16720	16 59 53	69 38·1	4·5	1D	8
						4·5	1	9
						4·6	1	10
						4·6	1D	11
12	7 28	8 11	16697	17 2 38	69 40·9	4·7	1	12
						4·7	1	13
						4·8	1	14
						4·8	1	15
						4·8	0	16
						4·8	0	17
						4·9	0	18
						4·9	0C	19
						4·9	0C	20
						4·9	0C	21
						4·9	0C	22
						5·0	0	23
						5·1	0	24
						5·1	2D	25
						5·1	1	26
						5·2	1	27
						5·2	2D	28
						5·3	2D	29
						5·3	2	30
31	10 58	11 25	16684	17 10 8	69 41·2	5·4	1	31

MAGNETIC NOTES.

July, 1918.

The mean character figure, 0·65, was practically the mean for the year. Disturbance, when present, was moderate in extent, and on some days, *e.g.*, from the 19th to the 22nd, the conditions were unusually quiet. The most prominent disturbance of the month began with a sudden commencement at 25d. 2h. 54m., and continued until the end of the month. The usual rise in V. is noticed, reaching the maximum about 18h. on the 25th, but the subsequent drop in value was slight. Numerous cases of short period pulsations were noticed during the month, particularly at the following times:—4d. 14h., 5d. 14h., 5d. 23h., 10d. 0h., 12d. 21h., 15d. 13h., 24d. 19½h., 26d. 18h. The N. trace for 16h.–18h. on the 2nd shows a close resemblance to that for the corresponding interval 24 hours later.

See Explanatory Note, Table IV.

XXIX.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (X.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **August, 1918.**

Hour G.M.T.	0.h	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
													15,000 γ (·15 C.G.S. units) +													
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	981	986	986	992	986	981	974	967	955	947	948	952	953	953	957	986	1005	996	991	1000	999	995	996	998	979
2	998	994	993	994	993	999	995	961	966	980	970	964	965	970	965	972	990	997	998	1018	1005	997	973	972	978	984
3	979	960	978	961	963	969	972	966	961	951	932	914	936	964	980	986	986	997	1006	994	1003	995	992	982	983	972
4	983	988	986	986	986	983	975	965	958	950	948	947	958	961	971	991	987	989	1001	1010	1018	1014	981	992	997	981
5	997	996	990	991	990	983	976	973	968	963	960	954	958	943	957	984	1017	1000	1019	1018	997	986	981	978	981	982
6	982	973	971	984	993	987	980	973	969	934	946	949	938	933	924	969	997	1001	1015	1022	1004	1004	996	978	977	976
7	977	988	986	989	993	991	985	982	966	950	949	953	942	958	962	988	989	990	998	1042	1012	1004	1004	996	986	983
8	986	1009	992	975	972	978	967	943	934	938	929	918	928	935	957	998	1020	997	1014	1022	1003	1002	1021	1007	988	985
9	988	952	996	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	—
10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	—
11	*	*	*	*	*	*	*	*	*	*	*	962	951	956	968	992	1002	1004	1008	1001	998	995	999	997	—	
12	997	994	996	989	971	983	963	959	979	968	949	918	939	949	966	980	993	996	998	999	996	999	997	997	994	978
13	994	995	999	998	996	988	985	986	980	969	965	971	977	973	970	980	990	1015	1013	1017	1009	1000	1019	998	987	991
14	987	984	990	988	989	992	990	990	983	969	955	968	960	965	967	978	986	994	1009	1002	1013	1020	1002	975	988	986
15	988	984	982	983	980	982	985	987	981	972	961	949	946	953	954	965	1011	1037	1166	1058	1128	1007	936	962	985	994
16	985	967	950	894	908	937	967	959	955	885	826	878	914	933	947	958	954	959	964	979	983	974	971	974	973	942
17	974	971	980	978	980	977	973	968	960	949	937	928	930	940	945	955	969	978	990	984	985	985	985	989	980	967
18	980	979	971	969	971	984	981	977	972	967	958	953	950	952	959	969	974	982	989	993	994	993	992	993	990	975
19	990	989	988	986	985	981	979	973	963	951	945	947	947	949	951	964	979	988	993	996	1000	1001	999	998	996	977
20	996	999	997	992	994	995	991	984	976	962	941	944	936	949	932	950	973	984	995	1005	998	997	995	990	981	978
21	981	970	965	964	974	982	989	982	967	946	929	930	938	945	955	965	976	989	994	1000	1000	999	997	994	995	972
22	996	997	1002	1005	1010	1004	999	988	979	964	951	947	944	951	975	991	997	991	1004	1011	999	996	998	995	995	987
23	995	994	991	985	994	991	995	991	970	952	937	941	949	958	968	970	996	976	994	1000	1002	1003	1005	1005	1002	982
24	1002	1000	993	993	993	994	988	981	955	936	944	951	958	971	944	963	990	1005	1019	1001	997	1008	966	945	941	978
25	941	961	984	965	968	1002	1001	994	940	926	920	916	890	936	921	936	957	999	974	996	1000	992	993	999	1010	964
26	1010	997	949	977	977	956	964	951	932	942	922	911	928	947	958	981	957	985	984	1000	1001	992	996	988	991	966
27	991	981	970	982	961	961	990	951	922	938	909	925	904	937	971	950	967	975	977	1016	989	986	986	992	999	964
28	999	986	983	985	977	976	982	978	966	948	928	928	923	926	934	959	969	979	992	995	991	993	991	987	996	970
29	996	988	987	980	980	982	984	982	974	958	934	930	936	947	958	965	976	977	984	992	995	992	991	989	991	974
30	991	988	985	985	984	987	990	987	979	969	956	946	950	957	965	971	979	989	995	990	998	996	994	1002	1004	981
31	1004	986	984	987	987	988	986	985	976	957	953	960	969	977	967	982	1000	970	1021	1021	1005	989	1004	993	989	985
Mean †	990	985	983	980	981	983	983	975	965	952	939	939	941	951	956	969	983	991	1003	1006	1004	996	990	988	988	976

* Gas pressure failed, and light out of adjustment. † Mean for 26 days only, 8th, 9th, 10th 11th and 14th omitted.

XXX.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (—Y.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **August, 1918.**

Hour; G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
													4,000 γ (·04 C.G.S. units) +													
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	916	908	908	913	905	896	886	886	880	886	896	914	935	946	944	946	935	927	919	921	923	926	926	930	935	916
2	935	926	911	908	905	908	894	886	896	902	915	928	947	954	947	940	940	935	936	940	926	921	893	893	881	919
3	881	878	909	904	910	886	870	871	877	881	896	914	932	947	964	966	946	947	941	929	925	923	924	929	920	915
4	920	919	915	910	903	897	889	889	891	899	915	935	951	962	967	961	950	942	940	947	942	935	919	909	915	925
5	915	913	904	900	896	896	893	885	891	903	924	936	962	964	950	950	958	938	930	918	926	916	918	918	917	921
6	918	916	934	915	884	883	880	881	887	908	912	922	947	961	953	948	946	933	933	938	931	920	908	911	914	919
7	914	908	916	907	910	902	889	895	902	903	919	926	941	952	947	952	948	947	947	955	924	925	931	944	927	925
8	927	926	889	906	917	911	898	886	891	894	901	912	934	952	963	960	939	936	933	908	926	926	914	892	892	918
9	892	906	906	899	916	893	884	881	888	893	901	917	932	942	959	954	946	949	941	933	936	916	909	913	916	917
10	916	919	893	897	916	906	901	895	893	895	901	910	925	936	948	952	946	944	931	933	941	908	901	902	900	917
11	900	905	888	915	916	903	894	887	883	887	894	904	943	952	962	946	956	957	944	938	919	932	926	909	911	919
12	911	910	910	910	921	915	899	891	895	899	902	908	930	944	954	953	952	944	941	941	936	930	925	924	919	923
13	919	917	917	907	905	904	901	898	898	903	910	922	937	956	952	954	951	948	941	934	930	921	904	894	901	921
14	902	907	906	899	904	901	899	897	894	894	907	922	937	949	945	950	948	937	930	923	927	898	899	914	902	916
15	902	907	912	906	903	899	896	894	894	895	900	917	938	948	947	952	986	998	1029	985	971	928	875	864	877	926
16	877	885	899	912	899	907	899	894	892	896	877	903	937	957	947	945	927	915	905	910	915	917	916	913	915	911
17	915	910	910	907	899	894	895	894	894	899	908	923	935	948	945	937	932	931	928	927	926	919	921	911	916	
18	911	915	919	928	920	905	896	899	895	896	903	915	926	937	942	942	933	926	923	921	924	923	923	920	920	919
19	920	920	915	915	910	902	895	891	888	890	906	928	945	957	950	942	934	926	926	926	931	929	926	922	921	921
20	921	924	926	924	915	910	903	899	894	896	909	931	945	960	949	937	931	920	912	910	915	925	933	944	955	923
21	956	949	938	932	921	908	893	889	885	885	903	924	944	955	954	943	929	919	912	914	921	927	929	932	926	923
22	926	922	915	911	911	900	906	913	902	905	919	943	964	970	967	964	950	929	920	924	911	921	916	920	921	926
23	921	923	921	916	912	895	893	886	881	884	900	924	948	959	961	948	943	916	918	926	929	932	931	921	924	920
24	924	922	919	918	910	899	899	904	900	899	913	938	965	976	958	957	960	960	924	916	927	917	903	876	889	924
25	889	881	913	909	912	891	889	882	905	908	912	925	943	962	960	959	953	949	927	935	938	931	922	914	905	922
26	905	900	892	943	911	895	907	899	884	888	895	910	928	955	958	969	940	942	937	917	933	933	926	896	913	919
27	913	895	909	908	909	927	916	906	914	912	906	922	931	955	943	943	940	929	904	893	916	927	928	925	918	920
28	918	928	899	905	908	906	897	889	884	885	902	918	936	948	945	946	938	927	925	926	924	924	912	916	942	917
29	942	921	923	911	911	911	905	899	895	895	900	921	942	954	954	943	936	927	920	921	922	921	911	919	924	921
30	924	919	920	913	911	903	895	888	886	889	902	912	932	948	949	942	933	929	926	919	927	918	913	912	895	916
31	895	902	910	910	905	903	895	892	887	889	905	921	939	955	947	955	963	945	953	925	889	923	928	909	902	919
Mean †	915	912	914	913	908	902	895	892	892	896	905	922	941	955	952	950	945	937	932	928	926	925	918	914	915	920

† Mean for 26 days only, 8th, 9th, 10th 11th and 14th omitted.

XXXI.—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. (Z.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **August, 1918.**

Hour. G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
Day.	44,000 γ (·44 C.G.S. units)																									
	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	1068	1062	1067	1070	1073	1081	1083	1084	1082	1079	1072	1066	1065	1069	1072	1076	1078	1082	1086	1082	1082	1082	1079	1078	1072	1076
2	1071	1061	1063	1068	1074	1075	1076	1081	1075	1067	1067	1060	1054	1060	1069	1077	1084	1085	1084	1085	1094	1094	1089	1081	1061	1075
3	1060	1058	1051	1029	1006	1018	1049	1070	1075	1075	1074	1072	1069	1066	1072	1085	1095	1094	1094	1094	1092	1091	1086	1078	1071	1069
4	1070	1071	1076	1076	1076	1078	1077	1074	1067	1058	1053	1050	1044	1042	1054	1066	1071	1076	1079	1080	1083	1089	1079	1075	1064	1069
5	1063	1057	1064	1070	1073	1077	1077	1075	1074	1069	1059	1056	1057	1069	1072	1074	1086	1104	1112	1109	1097	1092	1084	1080	1080	1077
6	1079	1075	1059	1049	1055	1068	1072	1068	1061	1061	1064	1057	1050	1056	1069	1077	1077	1083	1086	1086	1089	1085	1084	1080	1076	1070
7	1075	1071	1071	1072	1075	1076	1072	1069	1067	1065	1067	1060	1058	1059	1059	1063	1071	1075	1076	1080	1097	1084	1076	1054	1028	1070
8	1028	1028	1041	1055	1052	1048	1047	1055	1063	1067	1067	1068	1066	1064	1068	‡	1077	1083	1085	1087	1082	1080	1067	1058	1049	—
9	1049	1032	1035	1051	1057	1072	1078	1077	1074	1071	1070	1064	1059	1061	1072	1086	1101	1099	1103	1100	1092	1085	1065	1063	1066	1072
10	1066	1048	1053	1065	1069	1072	1075	1078	1078	1074	1071	1068	1063	1061	1064	1068	1073	1080	1083	1080	1079	1075	1073	1073	1066	1070
11	1066	1052	1055	1059	1061	1069	1074	1079	1077	1077	1069	1062	1058	1067	1080	1085	1082	1083	1089	1092	1092	1084	1068	1068	1069	1073
12	1069	1066	1069	1073	1072	1065	1069	1070	1069	1070	1072	1069	1065	1060	1066	1072	1075	1077	1078	1077	1079	1079	1080	1080	1080	1072
13	1080	1078	1075	1075	1077	1079	1075	1071	1070	1069	1064	1063	1060	1061	1072	1076	1078	1085	1089	1091	1093	1088	1075	1070	1069	1075
14	1069	1069	1067	1070	1073	1076	1075	1073	1071	1066	1067	1064	§	1064	1067	1070	1079	1087	1094	1093	1088	1084	1068	1046	1042	—
15	1042	1053	1057	1057	1067	1074	1076	1076	1074	1073	1071	1066	1062	1057	1059	1062	1057	1058	1081	1118	1191	1151	1063	1021	1073	1074
16	1073	1079	1082	1007	993	1019	1043	1064	1071	1074	1074	1073	1108	1099	1094	1090	1094	1093	1092	1088	1088	1084	1083	1082	1079	1073
17	1079	1080	1076	1074	1075	1081	1082	1083	1081	1083	1084	1079	1070	1063	1068	1075	1078	1078	1080	1078	1076	1077	1077	1073	1072	1077
18	1072	1072	1069	1063	1059	1066	1069	1069	1072	1071	1068	1065	1062	1059	1060	1065	1068	1070	1068	1067	1068	1069	1069	1068	1068	1067
19	1068	1067	1067	1067	1069	1070	1071	1071	1066	1062	1059	1053	1049	1052	1060	1061	1062	1062	1062	1061	1062	1064	1064	1064	1063	1063
20	1063	1062	1062	1060	1060	1061	1059	1059	1059	1057	1050	1046	1045	1051	1059	1064	1068	1071	1073	1074	1072	1069	1066	1064	1062	1061
21	1062	1065	1068	1071	1074	1075	1074	1076	1079	1076	1068	1058	1047	1045	1048	1057	1060	1062	1062	1061	1059	1058	1057	1055	1056	1063
22	1056	1053	1049	1047	1048	1052	1054	1052	1055	1051	1045	1045	1047	1052	1057	1064	1072	1073	1072	1071	1075	1069	1063	1056	1055	1057
23	1055	1056	1056	1057	1055	1059	1061	1060	1061	1061	1053	1047	1043	1047	1051	1060	1067	1073	1069	1063	1060	1059	1059	1059	1057	1058
24	1057	1057	1059	1059	1062	1064	1062	1062	1065	1063	1053	1044	1037	1046	1060	1067	1075	1091	1111	1115	1105	1070	1036	1038	985	1063
25	985	995	1001	1002	965	1016	1041	1051	1054	1051	1051	1052	1054	1060	1076	1093	1095	1107	1112	1091	1078	1073	1071	1068	1062	1053
26	1062	1049	1018	983	990	1021	1043	1051	1061	1064	1065	1062	1061	1063	1069	1079	1102	1104	1090	1091	1081	1076	1074	1064	1042	1059
27	1042	1049	1050	1052	1052	1049	1049	1056	1058	1059	1062	1060	1066	1079	1103	1103	1095	1090	1095	1097	1086	1075	1072	1069	1062	1070
28	1061	1039	1053	1058	1062	1065	1067	1069	1070	1067	1057	1049	1054	1061	1064	1067	1072	1078	1077	1079	1076	1074	1073	1070	1062	1065
29	1062	1048	1055	1058	1065	1069	1072	1075	1076	1074	1069	1062	1056	1058	1067	1070	1077	1078	1078	1076	1074	1074	1071	1065	1068	1068
30	1064	1062	1063	1066	1068	1070	1073	1073	1071	1068	1061	1059	1052	1053	1061	1070	1075	1078	1081	1081	1077	1077	1073	1067	1057	1068
31	1057	1057	1062	1065	1068	1070	1071	1071	1070	1065	1060	1052	1047	1045	1050	1054	1063	1069	1073	1099	1105	1095	1127	1121	1086	1072
Mean †	1061	1059	1059	1055	1054	1061	1066	1068	1069	1067	1063	1059	1057	1059	1066	1072	1077	1081	1083	1084	1086	1081	1074	1069	1062	1068

‡ Discontinuity caused through drier being changed. § Discontinuity caused during scale test.
† Mean for 26 days only, 8th, 9th, 10th, 11th and 14th omitted.

XXXII.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES

Eskdalemuir. **August, 1918.**

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).	Day.
Aug.	h. m.	h. m.	γ	° ′ ″	° ′	a		
						280+		
						5·4	0C	1
						5·4	2	2
						5·5	1	3
						5·5	1	4
						5·5	1	5
6	11 3	11 37	16692	17 13 28	69 40·1	5·6	1	6
7	11 5	11 19			69 39·9	5·6	1	7
8	11 34	11 45			69 41·6	5·7	1	8
9	12 33	12 41			69 41·1	5·6	1	9
						5·7	1	10
						5·7	1	11
						5·7	0	12
13	10 58	11 29	16721	17 8 59	69 38·6	5·7	0	13
						5·7	1	14
						5·7	2D	15
						5·8	2D	16
						5·8	0	17
						5·8	0C	18
19	12 25	12 44	16696	17 15 39	69 39·8	5·8	0C	19
20	12 14	12 25			69 40·7	5·8	0	20
21	12 6	12 16			69 40·8	5·8	0C	21
						5·9	0	22
						5·9	0	23
						5·9	2	24
						6·0	2D	25
						6·1	2D	26
						6·1	1D	27
28	11 13	11 50	16670	17 11 52	69 41·6	6·0	1	28
						6·1	1	29
						6·2	0C	30
						6·2	2	31

MAGNETIC NOTES.

August, 1918.

This was the most disturbed month of the year, the mean character figure being 0·87. Two of its storms are worthy of special mention. The first began with a well-marked sudden commencement at 2d. 16h. 41m., the changes in the first few minutes thereafter being + 92 γ in N. + 48 γ in W. and − 4 γ in V. The most rapid changes occurred during the first hour after the commencement. The vertical force changes during the whole disturbance, which lasted with only occasional intermission for nearly a week, were slight. A prominent peak on the N. trace at 7d. 20h. 9m. was followed by an inverted bay at 8d. oh. 12m., and these, together with the trace between, closely resemble similar occurrences at 8d 21h. 56m. and 9d. 1h. 5m. The second disturbance was one of the most important of the year, not on account of its duration, which was short, but because of the large changes which occurred during the first five hours after its beginning. Its sudden commencement at 15d. 15h. 32m. was more than usually abrupt, and exhibited very clearly the initial depression in value of N. and W. before the sudden rise. The first movement was − 33 γ in N., − 29 γ in W., and this was followed by a change of + 125 γ in N., + 136 γ in W. Associated, with these two movements, which occupied about four and a half minutes was a drop of 14 γ in V. Plate VII shows those portions of the magnetograms which cover the first six hours of the storm. Quiet conditions were restored by 20h. on the 16th.

See Explanatory Note, Table IV.

XXXIII.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (X.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **September, 1918.**

Hour. G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
													15,000 γ (·15 C.G.S. units) +													
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	989	995	989	988	987	977	965	956	934	934	932	941	944	979	960	961	965	1001	995	993	992	982	975	993	990	972
2	991	977	980	982	979	976	968	953	931	939	940	939	953	961	961	970	985	972	996	997	988	1000	989	995	1021	972
3	1021	975	982	981	981	964	963	971	955	940	941	947	957	958	970	987	992	991	991	995	996	997	978	991	1002	976
4	1002	1010	978	994	973	967	963	966	947	934	926	902	918	931	972	989	977	992	990	993	1003	1001	991	992	977	971
5	976	997	975	981	979	977	970	963	957	932	928	931	938	951	964	960	999	999	1009	1021	997	986	987	984	969	973
6	969	983	978	981	975	979	985	981	961	950	940	936	940	962	979	989	1005	998	1025	980	980	990	998	1013	965	978
7	965	972	970	984	979	977	976	971	960	946	941	945	950	957	967	972	987	1005	997	986	981	983	985	991	996	973
8	996	1000	999	984	1002	977	980	987	957	896	921	937	940	950	961	977	975	980	998	1021	991	987	984	982	981	974
9	981	972	960	976	990	992	982	965	957	950	945	948	958	967	976	985	989	992	1003	1004	1003	995	1009	986	983	979
10	983	986	986	986	986	984	985	975	966	955	946	943	949	958	971	980	991	996	997	1005	997	993	1005	987	984	980
11	984	982	985	986	985	986	985	981	976	962	951	946	946	956	963	975	979	988	990	992	1001	1000	996	1002	990	979
12	989	978	978	978	979	980	980	974	965	956	948	946	950	959	969	978	982	988	994	999	1004	1001	1000	1001	992	978
13	992	994	992	995	1001	988	980	983	973	964	950	942	941	944	950	957	964	965	989	991	989	990	988	989	988	975
14	988	988	987	986	984	981	979	971	964	948	920	920	927	942	962	966	964	971	992	989	998	993	990	990	989	971
15	989	988	990	986	983	982	979	979	971	955	941	930	931	944	950	965	969	980	991	997	999	995	998	993	994	974
16	994	974	987	1014	985	982	986	986	982	971	953	948	950	964	966	985	1005	990	965	975	988	979	959	958	971	976
17	971	970	964	985	980	985	989	986	978	971	949	920	919	934	949	964	976	971	966	971	980	972	972	980	985	967
18	985	983	980	983	980	952	928	929	959	961	941	942	928	928	946	953	955	970	989	988	982	1003	977	982	984	963
19	984	975	986	996	984	1009	975	945	943	924	878	896	925	925	914	921	954	963	969	967	973	983	974	971	972	955
20	972	974	964	960	954	976	940	961	915	917	907	897	907	936	945	953	941	964	959	975	975	986	985	974	971	952
21	970	955	976	976	947	1005	980	930	849	869	865	849	860	930	915	932	974	1005	953	954	934	958	929	908	953	934
22	953	941	945	924	944	975	965	951	946	930	915	913	913	912	929	945	954	955	957	963	962	970	954	965	970	945
23	970	963	958	980	988	973	958	959	950	936	926	923	924	933	950	948	953	945	959	972	971	974	973	974	974	957
24	974	979	975	973	973	978	971	963	940	939	909	898	905	909	940	960	950	947	953	946	973	973	970	975	973	953
25	973	972	969	961	968	971	963	964	952	943	928	919	921	934	927	945	957	959	972	973	970	971	974	975	974	957
26	974	974	969	975	978	979	978	969	957	950	943	932	939	930	938	953	961	972	968	980	986	988	985	979	980	965
27	980	978	983	992	998	999	975	983	969	953	939	925	924	923	938	952	960	960	973	981	981	982	980	981	981	967
28	980	981	979	991	982	984	977	979	972	952	943	939	959	957	925	963	974	976	973	986	977	989	984	981	996	971
29	996	998	981	975	978	981	975	977	969	956	944	937	932	929	939	960	963	972	972	973	1008	982	965	972	988	968
30	988	963	977	992	967	964	973	967	958	947	943	940	938	942	939	956	971	1023	972	974	993	1001	988	988	974	969
Mean	983	979	977	982	979	980	972	968	954	943	932	928	933	944	951	963	972	980	982	985	986	987	981	982	982	968

XXXIV.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (—Y.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **September, 1918.**

Hour. G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
													4,000 γ (·04 C.G.S. units) +													
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	902	830	860	867	873	889	887	889	889	902	916	942	959	984	982	958	951	961	930	911	903	910	916	906	913	913
2	913	917	910	903	905	897	894	895	897	905	923	938	947	955	948	941	942	924	929	935	927	922	924	921	912	921
3	912	893	901	895	886	896	883	894	890	903	926	935	944	943	942	947	927	918	926	922	912	912	908	938	897	914
4	897	923	913	879	876	885	889	893	900	906	924	926	950	956	951	953	931	919	920	912	906	899	930	929	921	916
5	921	906	895	895	900	900	897	895	893	897	905	931	946	948	948	932	920	926	904	896	904	913	906	917	931	913
6	931	911	911	908	910	906	902	892	886	893	913	938	948	957	955	949	942	928	917	922	920	908	902	898	900	918
7	900	920	916	911	901	903	903	893	892	899	916	938	953	953	954	945	934	912	921	913	905	921	918	916	926	919
8	926	917	895	892	896	925	900	889	889	889	917	922	942	948	951	947	934	925	914	885	900	919	911	913	922	914
9	922	938	938	926	903	892	892	889	884	890	912	938	949	953	948	941	932	931	938	938	926	926	920	904	917	922
10	917	917	912	911	908	905	900	894	892	895	910	932	949	954	956	942	931	922	926	913	927	924	884	909	921	918
11	920	922	924	905	903	902	900	895	892	889	899	917	932	945	946	938	924	918	919	926	925	910	916	905	898	915
12	898	910	912	910	905	904	899	897	894	898	904	916	926	932	937	932	926	927	931	932	934	930	921	915	924	917
13	924	919	916	920	898	893	899	910	916	921	924	931	943	953	954	941	931	920	923	926	926	925	923	920	918	923
14	918	915	912	910	907	903	898	892	894	904	917	933	948	954	967	961	946	932	926	907	916	926	925	921	917	922
15	917	920	909	904	904	904	902	896	895	898	911	921	932	943	942	935	926	924	926	927	926	923	916	898	878	916
16	878	867	909	857	881	909	904	904	899	898	903	916	936	944	938	937	938	927	924	928	929	890	876	911	893	909
17	893	898	919	910	920	924	904	903	895	896	904	921	941	946	959	961	947	924	917	908	899	910	892	893	899	916
18	899	904	912	910	908	921	957	953	949	932	917	916	926	931	926	934	922	920	915	915	915	879	905	899	884	919
19	884	892	872	887	867	871	893	910	941	905	911	929	933	954	937	932	931	921	900	902	904	862	899	905	913	907
20	913	909	893	927	902	899	916	920	892	894	909	918	925	930	924	932	909	915	905	905	904	909	911	877	899	910
21	899	918	907	896	931	942	939	914	889	906	909	911	939	946	934	957	942	926	926	908	940	904	888	854	873	917
22	873	905	917	921	920	909	897	877	870	872	884	904	927	935	941	933	923	909	877	864	866	838	877	905	910	898
23	910	937	908	885	888	908	893	883	881	885	893	910	931	940	942	927	916	915	916	918	915	915	913	913	912	910
24	912	910	908	907	906	908	902	899	895	898	890	915	925	939	948	953	942	926	916	905	883	897	872	889	899	910
25	899	905	909	920	914	913	924	915	884	882	887	902	919	940	936	935	931	924	920	915	905	894	903	896	896	911
26	896	903	910	911	904	905	901	895	892	893	899	910	931	934	933	937	930	925	908	912	923	921	919	915	915	913
27	915	911	910	905	917	914	910	912	904	909	914	926	944	949	959	955	938	918	925	921	920	919	918	914	912	922
28	912	906	906	896	899	898	906	894	888	883	898	915	950	983	963	985	990	974	966	955	939	919	905	895	888	926
29	888	885	894	904	905	903	902	896	893	897	895	906	916	932	943	953	943	937	933	920	895	878	888	905	901	909
30	901	896	868	834	878	896	895	894	889	881	891	901	921	933	938	948	933	883	921	925	906	903	887	910	920	902
Mean	906	907	906	900	901	904	903	899	895	897	907	922	938	947	947	945	934	924	921	916	913	907	906	906	907	915

XXXV—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. (Z.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **September, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
	44,000 γ (·44 C.G.S. units) +																									
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	1085	1064	1045	1061	1064	1063	1065	1065	1063	1061	1053	1050	1048	1052	1070	1096	1100	1095	1110	1108	1098	1087	1077	1069	1052	1072
2	1051	1035	1049	1058	1061	1063	1067	1067	1063	1062	1060	1058	1057	1061	1065	1070	1073	1077	1078	1075	1076	1073	1073	1071	1056	1064
3	1056	1047	1053	1059	1061	1056	1043	1049	1052	1051	1055	1056	1057	1061	1065	1074	1097	1103	1087	1081	1083	1077	1072	1048	1045	1064
4	1043	1022	1015	1024	1033	1042	1042	1050	1050	1047	1044	1050	1060	1065	1076	1077	1081	1081	1078	1077	1077	1071	1052	1031	1029	1053
5	1029	999	1021	1043	1053	1060	1063	1065	1065	1060	1058	1055	1052	1058	1067	1081	1096	1095	1096	1087	1074	1071	1071	1068	1049	1062
6	1048	1054	1064	1067	1068	1067	1068	1070	1070	1069	1065	1054	1049	1054	1061	1075	1091	1099	1095	1085	1077	1073	1067	1049	1045	1068
7	1044	1049	1059	1059	1061	1065	1068	1068	1069	1067	1060	1052	1056	1061	1066	1073	1078	1085	1083	1085	1083	1073	1070	1068	1061	1067
8	1060	1038	1037	1051	1050	1036	1032	1044	1050	1054	1045	1045	1051	1055	1062	1072	1078	1080	1080	1087	1080	1060	1062	1064	1061	1057
9	1060	1054	1040	1042	1056	1059	1063	1064	1064	1059	1053	1046	1046	1052	1059	1064	1067	1064	1064	1071	1074	1071	1062	1058	1062	1059
10	1061	1062	1063	1063	1064	1065	1065	1066	1065	1063	1058	1055	1051	1050	1058	1067	1073	1072	1068	1072	1070	1068	1069	1063	1060	1064
11	1059	1053	1052	1054	1060	1062	1065	1065	1063	1061	1059	1055	1049	1048	1052	1059	1066	1067	1065	1063	1063	1065	1062	1058	1059	1059
12	1059	1060	1061	1063	1065	1067	1068	1070	1069	1066	1064	1058	1053	1052	1054	1060	1062	1061	1058	1060	1060	1062	1063	1060	1060	1601
13	1060	1057	1059	1056	1053	1057	1060	1057	1057	1056	1055	1052	1050	1052	1059	1072	1087	1085	1073	1069	1069	1067	1066	1065	1065	1062
14	1065	1065	1065	1065	1065	1066	1068	1068	1065	1060	1058	1056	1055	1058	1064	1075	1090	1087	1082	1081	1077	1071	1069	1068	1067	1069
15	1066	1064	1058	1059	1061	1062	1066	1068	1065	1063	1059	1054	1052	1056	1064	1069	1070	1068	1066	1064	1064	1065	1065	1064	1059	1063
16	1058	1052	1019	1009	1017	1031	1047	1058	1066	1068	1067	1060	1047	1045	1054	1061	1075	1109	1105	1090	1079	1075	1072	1028	1020	1057
17	1020	1031	1026	1037	1035	1016	1037	1046	1050	1050	1051	1056	1058	1073	1079	1084	1106	1121	1111	1102	1088	1075	1061	1062	1056	1062
18	1055	1063	1066	1067	1066	1059	1026	1017	1025	1039	1058	1066	1067	1073	1081	1084	1087	1084	1084	1086	1083	1078	1070	1071	1061	1065
19	1061	1050	1046	1005	965	989	1011	1032	1036	1051	1062	1071	1074	1082	1092	1086	1088	1105	1118	1112	1100	1088	1073	1065	1061	1061
20	1061	1028	1048	1020	1021	1042	1043	1049	1062	1079	1084	1082	1087	1105	1091	1088	1093	1094	1087	1082	1082	1076	1052	1060	1060	1067
21	1060	1046	1046	1050	1039	1036	1032	1049	1054	1074	1071	1073	1086	1166	1178	1182	1219	1200	1187	1157	1066	993	973	999	1035	1084
22	1035	1044	1050	1056	1047	1052	1067	1080	1083	1084	1083	1079	1072	1066	1065	1070	1079	1095	1112	1119	1104	1079	1069	1071	1066	1074
23	1066	1050	1024	1023	1013	1017	1034	1054	1062	1062	1061	1058	1051	1053	1059	1082	1096	1097	1085	1079	1077	1075	1074	1074	1073	1060
24	1074	1071	1070	1072	1074	1073	1075	1075	1076	1073	1071	1068	1065	1062	1066	1080	1104	1113	1103	1097	1096	1080	1074	1070	1069	1078
25	1069	1069	1068	1064	1063	1068	1066	1062	1072	1074	1070	1063	1060	1064	1075	1084	1089	1090	1085	1084	1083	1084	1079	1073	1071	1073
26	1071	1070	1070	1069	1069	1070	1072	1072	1073	1070	1065	1064	1063	1064	1064	1072	1080	1084	1088	1084	1079	1075	1075	1075	1072	1072
27	1072	1070	1068	1063	1054	1047	1055	1057	1061	1063	1063	1059	1057	1059	1063	1073	1096	1101	1084	1077	1075	1073	1072	1071	1072	1068
28	1073	1072	1071	1058	1061	1064	1068	1072	1076	1076	1072	1060	1051	1054	1061	1067	1092	1109	1119	1104	1106	1101	1092	1081	1061	1077
29	1061	1051	1062	1067	1068	1068	1069	1069	1071	1068	1070	1069	1068	1064	1062	1067	1079	1079	1088	1098	1079	1069	1076	1075	1055	1071
30	1055	1009	992	1009	1030	1046	1062	1068	1071	1072	1072	1067	1064	1067	1069	1077	1091	1109	1090	1080	1077	1068	1061	1054	1048	1061
Mean	1058	1050	1049	1050	1050	1052	1056	1060	1062	1063	1062	1060	1059	1064	1070	1078	1089	1094	1091	1087	1080	1071	1066	1061	1057	1066

XXXVI.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES

Eskdalemuir. **September, 1918.**

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	° ′ ″	° ′	a 280+		
						6·2	2D	1
						6·2	1	2
3	11 38	12 6	16711	17 13 16	69 39·6	6·2	1	3
						6·3	1	4
						6·3	2	5
						6·3	1	6
						6·3	0	7
						6·3	1	8
						6·4	0	9
						6·3	0	10
11	10 49	11 17	16690	17 9 39	69 40·7	6·4	0C	11
						6·4	0C	12
						6·4	0	13
						6·4	0	14
						6·4	0C	15
						6·4	1	16
						6·4	1	17
18	12 3	12 33	16675	17 12 41	69 42·2	6·4	1D	18
						6·3	2D	19
						6·3	1D	20
						6·3	2D	21
						6·3	1	22
						6·3	0	23
						6·3	1	24
						6·3	0C	25
						6·3	0C	26
						6·3	0	27
						6·3	1	28
						6·3	1	29
						6·3	1	30

MAGNETIC NOTES.

September, 1918.

The month was characterised by frequent disturbance of moderate extent, and the mean character figure was 0·73. The most noteworthy occurrence was the storm of the 21st. It was ushered in by a feebly marked sudden commencement at 4h. 20m., and for some hours thereafter intense activity, but no large changes, were shown by the horizontal components. The principal movements began soon after 16h. on the 21st and lasted six hours. These are represented in Plate VIII. Some of the larger changes in N., it will be noticed, took place with great rapidity, exceeding 30 γ per min. in some cases. An interesting feature is the occurrence of pulsations of period averaging 20 secs., which are shown on the N. trace by a series of dots. The absolute ranges for the day were 501 γ in N., 265 γ in W., 344 γ in V. Occasions upon which rapid oscillations in value of the components appeared were fairly numerous during the month, particularly at 1d. 4–12h., 4d. 6–18h., 5d. 4–18h., 7d. 12–17h., 21d. 8–15h., 30d. 4–16h. A well-marked bay is shown soon after 18h. on the 5th, with a range of 114 γ in N., 81 γ in W. A similar one occurred about 17h. on the 30th.

See Explanatory Note, Table IV.

XXXVII.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (X.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **October, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
											15,000 γ (·15 C.G.S. units) +															
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	974	974	966	966	969	973	972	970	948	893	913	929	933	937	945	954	958	971	984	983	1033	994	974	987	953	962
2	953	983	977	963	961	958	991	969	977	955	924	926	936	943	951	977	979	974	987	984	983	989	978	990	977	968
3	977	983	972	973	955	944	989	984	968	934	949	942	941	948	958	961	968	981	981	973	979	993	974	978	981	967
4	981	967	974	966	983	968	977	984	960	945	938	938	934	937	949	964	978	981	974	1009	1008	974	980	974	983	969
5	982	977	973	972	971	980	982	979	967	959	949	942	941	956	958	962	970	982	972	979	984	1012	988	974	957	971
6	957	980	978	976	969	961	980	982	973	957	953	948	942	944	951	959	968	987	987	978	982	986	978	1021	979	971
7	979	970	966	988	985	977	982	981	979	972	955	947	943	952	957	956	963	971	982	983	986	1003	984	982	983	973
8	982	982	982	981	989	996	991	974	977	950	946	948	928	927	958	980	994	989	968	946	923	943	940	940	931	963
9	931	927	921	956	957	933	964	961	958	947	938	923	924	936	946	955	964	968	971	980	971	967	966	969	976	952
10	976	967	970	968	966	971	973	971	961	948	936	931	936	936	945	956	965	970	975	978	978	986	974	978	977	963
11	977	973	972	973	977	977	976	971	965	956	945	941	944	949	957	962	970	975	981	985	982	991	981	982	981	969
12	981	981	982	980	981	986	982	982	975	966	956	949	949	946	958	967	966	971	976	984	982	982	986	983	984	973
13	984	986	981	981	984	985	985	983	978	968	951	943	941	941	950	961	972	979	987	988	986	986	986	984	984	974
14	983	983	983	983	983	985	986	985	981	974	958	+	+	+	+	+	+	+	+	+	+	+	+	+	+	—
15	+	+	+	+	+	+	+	+	+	+	+	950	927	925	926	955	959	939	960	981	985	980	984	990	989	—
16	989	980	986	1020	++	++	++	++	++	++	++	896	891	937	945	1019	940	915	919	937	935	940	936	938	928	—
17	928	941	910	914	960	921	945	920	921	921	903	886	915	926	923	932	937	938	950	956	997	964	959	963	955	935
18	955	956	949	954	956	971	956	966	958	943	919	913	926	931	926	947	957	966	951	951	965	1000	960	965	965	952
19	965	972	965	964	958	965	974	965	956	938	935	931	936	952	956	940	944	959	963	969	971	980	1016	954	950	959
20	950	941	939	961	968	970	970	970	943	893	881	895	921	925	923	927	941	956	961	980	971	971	970	984	979	947
21	978	959	963	964	966	970	974	976	958	954	944	933	931	928	943	953	963	959	959	961	984	968	972	978	979	960
22	979	984	979	979	973	973	980	966	949	942	926	909	911	925	922	939	952	963	968	975	979	977	979	1000	984	960
23	984	975	974	975	979	971	975	975	970	939	930	924	918	924	930	939	954	956	955	958	969	969	976	981	984	958
24	984	983	979	975	988	984	982	983	961	954	941	928	929	923	955	952	965	973	980	987	970	957	973	979	976	966
25	975	978	978	977	977	978	980	978	975	969	959	947	933	942	963	963	958	973	974	980	983	978	982	979	986	970
26	986	977	978	974	976	974	974	975	972	968	958	948	946	953	960	971	980	981	977	978	983	985	987	984	988	973
27	988	981	980	982	982	982	979	978	974	965	957	951	951	953	959	969	970	979	982	984	985	989	987	984	982	975
28	982	982	982	983	981	984	983	982	979	972	961	956	948	938	959	938	949	983	962	972	981	984	990	982	982	971
29	981	980	974	972	976	977	977	976	973	962	947	941	939	944	952	957	967	977	983	977	981	996	1009	977	976	971
30	976	975	973	978	979	978	981	983	979	971	960	954	955	956	965	971	967	978	986	989	988	988	990	996	1008	972
31	1008	983	978	984	974	992	1006	963	912	893	934	940	931	933	927	913	956	958	970	988	982	982	965	967	958	959
Mean†	972	972	968	970	973	971	978	973	963	947	939	935	936	940	949	954	963	972	974	978	981	983	979	978	974	965

‡ Gas blown out while removing water from Thermograph gas pipe. ‡‡ Gas became foul and useless.
† Mean for 25 days only, 14th, 15th, 16th, 21st, 22nd and 26th omitted.

XXXVIII—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (—Y.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **October, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
											4,000 γ (·04 C.G.S. units) +															
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	920	902	878	909	888	895	901	902	890	883	894	909	922	938	942	942	927	921	921	918	875	883	902	905	905	907
2	905	896	895	901	918	925	919	895	889	887	889	904	925	939	943	930	938	901	903	926	899	906	907	920	917	911
3	917	917	907	900	910	926	915	898	898	889	896	909	923	939	948	949	935	910	885	914	902	920	893	891	892	912
4	892	930	905	891	904	923	905	900	891	890	896	903	924	940	948	954	931	931	921	911	899	895	909	913	898	913
5	898	899	907	903	912	911	905	898	889	888	891	903	920	943	960	961	947	938	934	925	866	868	870	895	934	910
6	934	911	904	901	907	917	911	902	889	881	885	904	925	934	938	938	934	931	927	910	896	888	896	931	910	912
7	910	908	924	916	903	909	912	908	902	895	899	911	928	937	943	943	917	900	915	920	905	876	900	913	916	912
8	916	917	919	923	919	915	915	924	910	909	909	931	942	952	955	973	937	976	931	845	873	901	837	829	827	913
9	827	824	859	845	861	899	894	878	878	881	898	908	930	939	948	945	937	926	925	920	920	898	911	911	911	900
10	911	908	901	902	909	909	909	899	891	888	894	907	926	932	931	926	921	919	917	906	910	904	910	908	910	910
11	910	910	908	909	909	907	906	899	892	888	896	912	929	936	935	932	928	926	926	926	921	911	910	916	915	914
12	915	913	908	909	907	907	905	900	896	893	898	909	926	931	931	938	931	924	921	905	916	916	916	916	909	914
13	910	906	908	911	913	912	911	906	896	889	890	900	919	932	933	933	927	925	923	918	920	920	919	915	911	914
14	911	911	911	911	911	910	909	905	899	897	900	+	+	+	+	+	+	+	+	+	+	+	+	+	+	—
15	+	+	+	+	+	+	+	+	+	+	+	921	949	951	952	959	960	938	924	926	923	907	905	913	912	—
16	912	905	919	897	908	962	966	901	915	865	929	944	939	942	933	982	939	926	924	880	874	895	918	896	903	919
17	903	897	910	911	918	935	900	897	892	888	900	895	919	943	926	896	902	903	916	900	838	883	896	896	890	902
18	890	904	912	905	905	903	922	927	914	910	916	919	927	933	925	917	912	910	895	895	906	892	898	895	905	910
19	905	901	905	904	916	918	915	904	900	895	900	918	932	952	950	945	931	924	918	912	903	903	863	830	835	909
20	835	873	913	911	899	902	899	895	900	902	912	919	922	927	921	912	897	909	911	891	904	904	905	904	882	904
21	882	867	873	891	898	902	902	902	895	884	893	905	923	929	936	940	943	940	947	928	906	891	892	895	899	907
22	899	895	886	886	889	905	904	906	906	896	906	906	920	936	937	932	914	917	912	911	911	905	904	897	890	907
23	890	900	905	908	906	913	906	896	893	894	913	920	932	938	943	944	932	920	922	909	894	897	874	874	884	909
24	884	884	874	883	888	893	902	903	899	903	912	924	937	935	939	933	922	921	919	924	911	906	906	909	905	909
25	905	875	886	897	902	905	906	904	899	892	898	917	922	923	940	954	936	933	932	921	922	913	911	904	878	912
26	878	890	899	903	900	903	900	901	900	898	900	912	925	939	933	928	920	922	920	917	918	916	915	910	917	911
27	917	905	905	911	910	908	908	905	899	893	896	908	920	926	928	926	916	916	916	915	911	911	901	904	911	911
28	904	910	911	906	910	910	908	905	900	895	900	919	941	947	946	948	937	892	930	921	916	914	915	905	911	916
29	911	911	900	910	908	908	904	900	896	893	896	905	914	924	929	926	922	921	916	916	906	906	892	872	891	907
30	891	906	910	911	906	906	905	902	899	895	900	910	932	931	931	929	922	917	920	921	918	916	911	878	888	911
31	888	889	900	895	890	913	896	928	916	900	919	925	927	943	939	919	921	922	910	881	893	884	888	907	911	909
Mean†	900	900	902	903	905	911	907	903	897	893	900	912	927	937	939	937	926	921	918	910	901	901	898	898	898	910

‡ Gas blown out while removing water from Thermograph gas pipe. † Mean for 25 days only, 14th, 15th, 16th, 21st, 22nd and 25th omitted.

XXXIX.—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. **(Z.)** *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **October, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
	44,000 γ (·44 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	1049	1035	1035	1001	1010	1039	1054	1063	1069	1074	1072	1068	1068	1070	1067	1068	1074	1074	1072	1075	1072	1059	1055	1046	1030	1057
2	1031	1036	1048	1055	1044	1041	1043	1055	1065	1068	1070	1065	1057	1059	1067	1085	1089	1098	1090	1077	1078	1073	1070	1062	1039	1064
3	1041	1032	1045	1054	1053	1031	1031	1047	1053	1061	1064	1064	1065	1064	1067	1078	1089	1103	1107	1088	1085	1064	1064	1063	1062	1063
4	1063	1049	1054	1053	1038	1038	1047	1055	1060	1064	1071	1072	1069	1066	1070	1075	1093	1092	1091	1086	1064	1071	1058	1043	1056	1064
5	1058	1067	1070	1070	1070	1069	1070	1072	1074	1072	1071	1069	1068	1064	1065	1071	1082	1084	1085	1088	1097	1077	1068	1062	1028	1072
6	1029	1022	1032	1048	1055	1061	1063	1067	1067	1069	1067	1065	1063	1063	1065	1068	1070	1072	1074	1079	1088	1083	1067	1037	1033	1062
7	1034	1037	1046	1051	1059	1062	1062	1065	1067	1067	1065	1062	1061	1063	1067	1072	1083	1087	1082	1077	1076	1076	1071	1069	1069	1066
8	1070	1070	1069	1068	1065	1064	1065	1065	1065	1068	1065	1061	1064	1065	1070	1091	1139	1180	1203	1177	1133	1125	1090	1070	1059	1092
9	1060	1037	1026	1018	994	996	1036	1066	1073	1072	1065	1062	1060	1064	1068	1073	1077	1078	1078	1078	1083	1090	1085	1082	1078	1060
10	1079	1073	1071	1073	1071	1072	1075	1079	1083	1082	1079	1076	1073	1077	1081	1082	1083	1082	1081	1083	1083	1078	1078	1077	1074	1078
11	1075	1076	1078	1078	1077	1078	1079	1080	1082	1080	1076	1071	1068	1071	1073	1076	1078	1079	1077	1077	1080	1080	1077	1077	1076	1077
12	1077	1078	1077	1077	1077	1077	1077	1078	1080	1076	1073	1067	1064	1067	1069	1076	1080	1083	1082	1083	1080	1079	1078	1076	1072	1076
13	1073	1075	1076	1076	1076	1077	1077	1078	1080	1078	1072	1066	1065	1067	1066	1069	1075	1076	1077	1078	1078	1077	1077	1076	1076	1074
14	1077	1076	1076	1075	1075	1075	1075	1077	1078	1076	1074	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	-
15	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	1054	1058	1060	1067	1074	1104	1126	1117	1103	1095	1096	1087	1078	1075	-
16	1076	1068	1059	‖	‖	‖	‖	‖	‖	‖	‖	1114	1129	1183	1204	1263	1220	1195	1162	1183	1142	1103	1072	1071	1067	—
17	1068	1079	1065	1030	1036	1027	1032	1056	1076	1085	1083	1091	1091	1093	1123	1150	1155	1135	1107	1107	1110	1088	1082	1076	1065	1085
18	1065	1058	1065	1074	1083	1082	1080	1075	1081	1086	1090	1093	1104	1103	1114	1115	1106	1110	1114	1118	1110	1090	1069	1084	1083	1091
19	1084	1080	1083	1084	1082	1078	1079	1081	1086	1088	1088	1083	1080	1083	1096	1129	1146	1114	1103	1102	1101	1097	1078	1050	1031	1090
20	1032	1042	1051	1066	1080	1085	1088	1090	1092	1096	1099	1102	1102	1100	1108	1115	1125	1117	1106	1103	1097	1095	1095	1088	1078	1092
21	1078	1067	1059	1071	1079	1084	1087	1090	1095	1094	§	§	§	1083	1091	1099	1106	1108	1111	1117	1105	1092	1100	1099	1097	—
22	1098	1093	1085	1079	1076	1080	1084	1085	1085	1087	§	§	1085	1088	1094	1098	1108	1107	1101	1098	1096	1095	1092	1080	1071	—
23	1072	1076	1083	1087	1087	1087	1087	1090	1093	1094	1090	1090	1093	1099	1101	1105	1111	1118	1120	1122	1118	1103	1080	1082	1081	1090
24	1081	1074	1068	1064	1064	1068	1073	1078	1084	1086	1083	1082	1082	1085	1088	1090	1091	1090	1088	1087	1095	1106	1101	1096	1094	1084
25	1094	1089	1086	1086	1086	1086	1086	1085	1085	1085	1084	1080	1081	1080	1081	1093	1092	1092	1094	1098	1093	1093	1092	1091	1088	1088
26	1088	*	*	*	*	*	*	*	*	*	*	1080	1082	1083	1085	1086	1087	1086	1087	1086	1085	1084	1083	1083	1078	—
27	1079	1079	1082	1082	1082	1083	1084	1084	1086	1087	1083	1079	1077	1077	1078	1082	1085	1083	1082	1082	1082	1082	1082	1081	1081	1082
28	1081	1080	1079	1080	1080	1079	1079	1080	1081	1080	1077	1073	1074	1079	1087	1103	1126	1131	1104	1098	1093	1089	1085	1085	1079	1088
29	1079	1077	1079	1080	1080	1080	1081	1081	1083	1082	1080	1079	1081	1081	1082	1085	1086	1085	1083	1085	1088	1083	1072	1074	1077	1081
30	1078	1078	1080	1080	1080	1080	1080	1080	1080	1080	1076	1076	1075	1076	1078	1082	1085	1083	1080	1078	1079	1079	1079	1081	1069	1079
31	1069	1068	1071	1073	1070	1043	1041	1045	1054	1068	1075	1076	1083	1088	1103	1129	1114	1101	1095	1095	1085	1082	1080	1065	1045	1078
Mean †	1065	1063	1065	1064	1064	1063	1067	1072	1076	1078	1077	1075	1075	1076	1081	1090	1097	1098	1095	1093	1090	1085	1077	1072	1065	1077

‡ Gas blown out while removing water from Thermograph gas pipe. ‖ Gas became foul and useless. § Making and fitting new lamp.
* Burner became choked and gas went out. † Mean for 25 days only, 14th, 15th, 16th, 21st, 22nd and 26th omitted.

XL.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES

Eskdalemuir. **October, 1918.**

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	° ′ ″	′	a 280+		
						6·2	1	1
2	11 41	12 5	16677	17 10 33	69 41·8	6·2	1D	2
						6·1	1	3
						6·1	1	4
						6·1	2	5
						6·1	1	6
						6·0	1	7
						6·0	2D	8
						6·0	1	9
						6·0	0	10
11	11 46	12 15	16694	17 10 56	69 40·7	5·9	0C	11
						5·9	0C	12
						5·9	0C	13
						5·8	?0C	14
15	11 39	11 46	—	17 14 26	—	5·2	1	15
						5·6	2	16
17	11 35	11 59	16661	17 10 48	69 44·0	5·7	2D	17
						5·7	1	18
						5·7	1	19
						5·7	1	20
						5·7	1	21
						5·7	0	22
						5·7	0	23
24	11 34	12 1	16678	17 13 23	69 42·1	5·6	0	24
						5·6	1	25
						5·6	0	26
						5·6	0C	27
						5·5	1	28
29	11 45	12 12	16680	17 8 7	69 41·6	5·5	0	29
						5·5	0	30
						5·5	1D	31

MAGNETIC NOTES.

October, 1918.

The mean character figure was 0·77. The first four days were almost continually disturbed, but the remainder of the month, except for brief or moderate disturbances on the 8th and 16th, was tolerably quiet. Very quiet conditions prevailed on the 13th and 27th. Well-marked bays were recorded at 4d. 19h. and 6d. 23h., and a very rapid fall in N. at 8d. 18h. Rapid oscillations in value, of small amplitude, of the horizontal components were noticed during the daylight hours of the 1st, 2nd, 3rd, 4th, and 31st. A sudden commencement is noted at 5d. 13h. 15m., but the subsequent movements were small though very rapid. The disturbance on the 8th only lasted 8 hours. The most noticeable feature in this interval was the rapid fall in N. and V. at 18h. The rate of change of N. was 18·5 γ per min., of V. 14·3 γ per min.

See Explanatory Note, Table IV.

XLI—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (X.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **November, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
	15,000 γ (·15 C.G.S. units) +																									
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	957	962	967	967	972	976	972	970	967	957	942	946	944	945	954	959	962	968	977	976	979	1010	975	976	971	966
2	971	970	970	966	977	981	983	983	967	945	950	951	946	946	951	960	957	976	980	983	983	982	981	981	991	969
3	991	978	976	975	975	981	981	979	975	965	953	946	946	951	958	970	977	983	983	985	986	985	984	982	986	973
4	986	984	981	981	983	986	987	985	980	970	956	951	952	961	971	979	984	987	989	990	990	983	979	976	974	978
5	973	975	976	980	984	986	983	982	978	973	963	959	960	966	971	976	980	983	985	987	990	990	991	985	984	978
6	984	983	984	983	985	988	986	984	979	972	967	966	968	973	979	975	975	981	985	985	988	986	985	985	985	980
7	985	986	988	989	990	990	989	988	987	978	971	960	960	966	976	979	985	985	985	986	987	988	987	986	987	982
8	987	985	990	986	985	987	988	986	985	980	970	965	965	970	974	969	971	981	988	988	989	990	990	989	989	982
9	988	982	981	983	983	987	991	990	987	984	977	965	961	967	974	986	979	983	983	986	985	986	987	985	982	982
10	982	982	984	984	985	988	991	990	996	993	978	967	959	958	961	958	975	979	960	967	958	953	959	964	973	974
11	973	964	968	984	962	988	998	974	939	920	938	951	949	948	930	959	954	940	940	969	963	949	964	954	960	957
12	959	961	930	966	973	955	972	964	943	899	909	918	917	918	933	959	949	989	984	984	969	961	983	946	952	952
13	952	960	967	967	933	966	984	942	920	938	949	945	940	919	952	958	967	987	966	955	962	959	990	959	959	956
14	959	963	954	965	972	982	975	970	966	951	918	914	934	952	955	960	963	973	958	993	979	955	956	965	969	960
15	968	958	962	959	976	961	980	971	956	951	946	943	940	944	942	936	957	937	960	943	951	970	969	968	963	956
16	963	939	958	958	967	960	973	956	948	941	925	933	932	927	932	963	957	958	987	962	959	1008	972	962	963	956
17	963	958	963	966	959	967	966	965	962	952	942	932	926	942	944	929	959	963	985	971	963	974	977	977	983	959
18	982	970	971	968	964	973	975	960	965	958	948	944	943	944	940	951	952	960	964	964	975	976	972	976	974	962
19	974	973	968	962	971	970	976	978	970	960	956	949	946	951	942	941	949	959	961	955	983	960	962	967	965	962
20	965	962	963	972	977	977	984	986	984	970	‡	‡	‡	‡	‡	‡	‡	986	986	986	987	986	984	986	982	—
21	981	980	979	977	980	986	990	990	985	967	956	946	941	931	941	951	955	957	961	970	969	973	976	975	976	967
22	976	974	971	976	979	984	982	983	981	975	955	945	946	955	963	970	975	978	982	985	988	977	981	970	975	973
23	975	970	978	956	969	972	954	984	933	889	892	890	915	906	925	928	940	929	941	945	945	947	936	940	948	939
24	948	945	945	943	940	946	949	948	945	944	937	941	920	935	936	941	957	955	947	985	959	945	959	961	963	947
25	962	959	959	957	955	960	949	955	958	951	944	944	945	952	956	960	971	960	969	965	970	970	963	966	965	958
26	965	967	965	962	963	969	972	972	969	965	959	950	953	956	960	960	967	970	973	974	974	974	974	970	970	966
27	969	964	964	961	971	973	972	970	970	965	955	952	950	949	957	961	968	972	973	977	975	976	975	974	973	966
28	973	973	974	973	974	977	978	978	977	973	964	956	952	946	955	947	967	972	978	982	983	979	968	986	971	970
29	971	973	973	975	973	975	976	976	973	977	972	974	977	983	995	998	998	1001	1007	968	958	968	994	935	916	977
30	915	904	902	935	947	956	952	950	946	942	935	934	941	948	953	952	944	966	957	947	963	947	954	954	958	944
Mean †	970	967	967	969	971	975	977	973	966	956	949	946	946	949	954	960	965	970	973	973	973	973	974	969	970	965

‡ Clock stopped. † Mean for 29 days only, 20th omitted.

XLII.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (—Y.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **November, 1918.**

Hour G.M.T.	oh.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
	4,000 γ (·04 C.G.S. units) +																									
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	911	903	904	910	906	905	903	896	894	892	898	911	922	931	932	927	922	919	919	917	904	895	905	905	907	910
2	907	911	908	916	917	915	907	905	900	896	905	914	927	927	928	927	918	907	918	916	912	910	907	909	890	912
3	890	897	897	902	907	905	904	903	897	895	897	908	917	923	925	925	921	918	916	916	907	905	908	907	910	908
4	910	910	906	910	911	910	908	907	903	895	900	912	922	927	929	927	923	923	921	921	916	898	899	885	887	911
5	887	906	908	906	908	906	908	906	900	895	900	913	932	932	929	929	921	921	918	916	916	913	905	906	905	912
6	905	909	907	910	908	911	908	906	901	900	906	918	929	932	932	927	923	921	919	917	915	913	911	911	911	914
7	911	911	913	915	914	912	911	911	910	905	911	922	935	932	932	927	926	922	920	919	916	912	911	911	908	917
8	908	906	907	904	907	909	910	906	905	905	912	922	929	934	935	930	927	925	922	919	916	914	911	897	893	915
9	893	898	904	907	911	912	912	911	910	906	910	918	922	930	929	934	928	932	924	919	915	908	896	890	900	913
10	900	905	907	906	907	907	907	910	908	905	905	915	932	932	939	928	931	946	928	921	896	877	879	877	878	911
11	878	869	916	878	912	931	928	918	903	900	908	908	913	933	921	927	932	900	889	839	840	863	852	838	879	896
12	879	872	915	905	910	973	935	937	917	908	903	912	921	921	928	916	927	888	854	857	846	877	884	903	911	904
13	911	911	905	900	920	919	914	923	926	922	908	912	926	908	921	918	885	863	847	880	900	888	902	884	896	904
14	896	907	919	906	906	910	907	905	905	900	906	906	920	927	924	921	915	913	905	857	877	860	890	898	887	903
15	887	906	900	903	905	929	960	915	899	897	908	915	920	921	922	915	916	830	862	890	890	897	894	874	857	902
16	856	891	894	914	903	908	910	910	904	895	911	899	925	918	931	909	904	903	873	899	898	871	890	884	909	901
17	909	906	900	904	904	900	903	905	905	897	899	909	921	907	920	909	910	913	899	891	904	901	902	898	899	905
18	899	898	904	902	903	902	902	910	915	912	912	920	926	931	922	922	923	920	910	897	898	897	902	904	905	910
19	905	900	904	910	899	909	905	907	904	899	905	914	919	932	926	921	920	921	914	880	884	866	869	891	898	904
20	898	904	909	910	906	910	901	899	897	899	‡	‡	‡	‡	‡	‡	930	929	921	916	913	909	907	905	906	—
21	906	911	915	914	921	920	915	909	904	905	907	913	926	925	928	926	918	909	910	905	896	898	902	898	898	912
22	898	904	909	912	914	915	910	910	907	904	900	909	919	925	926	925	923	920	920	918	918	909	859	869	875	909
23	875	872	861	842	895	882	883	910	904	918	894	921	943	935	934	925	982	942	919	909	893	878	888	893	899	905
24	898	884	882	876	882	877	884	888	890	892	892	917	940	929	940	928	909	919	896	812	854	893	898	898	897	895
25	897	903	898	901	897	888	892	892	892	897	901	908	912	914	916	914	919	908	909	914	908	903	902	904	906	904
26	906	903	901	903	901	895	898	898	901	901	902	903	913	919	914	914	911	912	913	912	909	905	903	897	877	905
27	877	891	894	898	894	902	894	897	899	898	899	906	913	914	914	913	911	909	909	908	906	906	903	904	903	903
28	903	901	903	902	904	903	903	903	905	901	903	909	919	925	922	920	914	911	911	909	912	909	901	867	894	906
29	894	904	903	898	903	903	903	905	904	906	904	918	922	930	931	924	925	930	946	989	957	923	886	840	829	913
30	829	823	892	898	892	896	898	897	895	895	901	906	910	915	920	927	921	928	940	913	883	877	868	888	898	898
Mean †	894	897	903	902	906	909	908	907	904	901	904	912	923	925	927	923	921	913	908	902	900	895	894	891	893	907

‡ Clock stopped. † Mean for 29 days only, 20th omitted.

XLIII.—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. (Z.) *Mean Values for Periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **November, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
											44,000 γ (·44 C.G.S. units) +															
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	1045	1066	1072	1073	1075	1075	1077	1078	1080	1082	1082	1082	1080	1080	1083	1084	1085	1082	1082	1081	1082	1075	1070	1074	1077	1078
2	1078	1078	1078	1073	1071	1073	1075	1076	1079	1079	1079	1077	1078	1083	1086	1088	1090	1091	1083	1079	1079	1079	1079	1079	1069	1079
3	1069	1070	1072	1074	1075	1074	1075	1075	1077	1077	1078	1074	1071	1075	1078	1081	1080	1077	1076	1076	1077	1077	1075	1075	1075	1075
4	1075	1074	1075	1074	1073	1073	1072	1072	1074	1074	1073	1071	1072	1074	1075	1076	1075	1073	1073	1072	1072	1079	1079	1067	1069	1074
5	1069	1070	1072	1073	1073	1071	1070	1070	1071	1070	1065	1065	1066	1070	1071	1073	1073	1073	1072	1070	1070	1071	1073	1072	1072	1071
6	1072	1073	1072	1072	1072	1070	1070	1070	1072	1073	1070	1069	1068	1071	1073	1075	1075	1073	1072	1071	1071	1071	1071	1071	1071	1072
7	1071	1070	1070	1069	1068	1068	1068	1068	1068	1068	1064	1064	1064	1068	1071	1072	1071	1070	1070	1070	1070	1070	1069	1069	1068	1069
8	1068	1069	1066	1067	1067	1067	1067	1066	1066	1065	1063	1062	1062	1064	1067	1070	1070	1069	1068	1068	1068	1068	1068	1070	1070	1067
9	1070	1068	1068	1067	1067	1066	1066	1066	1067	1066	1062	1061	1064	1065	1066	1070	1072	1072	1071	1071	1071	1072	1074	1073	1070	1068
10	1070	1070	1068	1067	1067	1068	1067	1066	1064	1062	1061	1057	1058	1062	1064	1073	1075	1073	1084	1087	1095	1102	1078	1062	1057	1070
11	1057	1046	1035	1035	1034	1019	1026	1042	1051	1056	1059	1062	1062	1071	1085	1089	1095	1114	1132	1140	1075	1071	1049	1013	995	1062
12	995	1018	981	1017	1045	1026	1018	1035	1053	1065	1076	1083	1091	1099	1108	1107	1105	1112	1099	1091	1086	1070	1051	1038	1022	1062
13	1021	1038	1060	1059	1049	1053	1056	1061	1065	1065	1066	1068	1071	1078	1083	1082	1098	1099	1098	1096	1077	1076	1047	1037	1058	1068
14	1058	1061	1045	1056	1065	1065	1066	1069	1069	1070	1071	1078	1077	1078	1078	1078	1077	1176	1083	1090	1071	1076	1057	1053	1056	1069
15	1056	1041	1045	1060	1061	1049	1029	1041	1058	1063	1061	1064	1069	1070	1076	1085	1087	1021	1114	1105	1102	1075	1036	1050	1042	1067
16	1042	1034	1042	1036	1033	1037	1049	1056	1061	1064	1065	1068	1078	1083	1090	1108	1111	1103	1098	1085	1083	1068	1043	1061	1061	1067
17	1061	1044	1049	1052	1056	1058	1061	1063	1064	1065	1066	1070	1075	1087	1088	1095	1090	1084	1080	1078	1076	1073	1071	1069	1065	1070
18	1065	1065	1064	1062	1064	1064	1063	1063	1062	1063	1066	1067	1069	1074	1082	1084	1082	1081	1081	1082	1078	1072	1069	1069	1067	1071
19	1067	1066	1065	1063	1063	1065	1066	1065	1067	1069	1070	1072	1070	1071	1078	1083	1084	1082	1085	1097	1073	1070	1074	1072	1071	1072
20	1071	1070	1068	1065	1063	1063	1063	1063	1064	1065	‡	‡	‡	‡	‡	‡	1063	1061	1062	1062	1062	1062	1062	1061	1061	—
21	1061	1059	1059	1059	1059	1057	1055	1055	1057	1059	1061	1062	1066	1068	1069	1073	1076	1078	1075	1072	1071	1069	1066	1064	1061	1065
22	1061	1060	1059	1059	1059	1058	1058	1057	1058	1058	1062	1062	1061	1060	1061	1063	1065	1063	1062	1061	1061	1064	1067	1057	1049	1060
23	1048	1043	1037	1036	1025	1010	1014	993	1009	1017	1030	1048	1097	1103	1098	1133	1138	1134	1114	1104	1093	1093	1089	1082	1078	1067
24	1077	1076	1076	1075	1068	1067	1067	1068	1067	1065	1062	1059	1067	1072	1080	1095	1096	1086	1088	1095	1080	1076	1071	1067	1060	1075
25	1060	1055	1055	1059	1063	1063	1063	1062	1061	1060	1061	1060	1061	1061	1063	1064	1066	1069	1070	1067	1067	1066	1067	1065	1063	1063
26	1063	1062	1062	1060	1059	1061	1061	1060	1058	1059	1057	1057	1057	1059	1056	1059	1062	1061	1061	1061	1061	1061	1060	1056	1051	1059
27	1051	1057	1058	1059	1055	1057	1057	1057	1055	1055	1057	1054	1053	1055	1059	1062	1062	1061	1060	1059	1058	1057	1057	1056	1056	1057
28	1055	1054	1054	1054	1053	1052	1052	1052	1051	1052	1051	1049	1050	1055	1060	1066	1064	1061	1058	1056	1056	1058	1063	1063	1057	1056
29	1057	1054	1054	1054	1052	1051	1051	1050	1051	1050	1052	1049	1048	1047	1044	1044	1046	1046	1053	1176	1214	1219	1185	1081	1059	1076
30	1059	1060	1038	1055	1070	1067	1064	1064	1065	1065	1066	1066	1066	1066	1068	1069	1078	1077	1086	1093	1082	1069	1068	1063	1055	1068
Mean†	1059	1059	1057	1059	1060	1058	1058	1059	1062	1063	1064	1065	1068	1071	1074	1079	1081	1081	1081	1085	1080	1077	1070	1063	1059	1068

† Mean for 29 days only, 20th omitted. ‡ Clock stopped.

XLIV.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES.

Eskdalemuir. **November, 1918.**

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	° ′ ″	° ′	a 280+		
						5·5	0	1
						5·4	0	2
						5·4	0	3
						5·4	0	4
						5·4	0C	5
6	11 1	11 31	16704	17 8 10	69 39·6	5·4	0C	6
						5·4	0C	7
						5·3	0	8
						5·4	0	9
						5·3	1	10
						5·3	2D	11
						5·3	2D	12
13	11 12	11 39	16684	17 11 27	69 41·1	5·3	2	13
						5·2	2	14
						5·2	2D	15
						5·2	1	16
						5·1	1	17
						5·1	0	18
						5·1	1	19
20	11 46	12 12		17 7 48	69 40·8	5·1	0	20
						5·0	0	21
						5·0	0	22
						5·0	2D	23
						4·9	1	24
25	11 24	11 48	16690	17 7 21	69 41·0	4·9	0	25
						4·8	0C	26
						4·8	0C	27
						4·8	1	28
						4·8	2D	29
						4·7	1	30

MAGNETIC NOTES.

November, 1918.

The mean character figure, 0·70, was practically that of the mean for the year. The first nine days were quiet; disturbances prevailed from the 10th to the 16th, and on the 23rd, 24th, and 29th. The last of these was preceded by a sudden commencement at 28d. 19h. 35m., but beyond the occurrence of a bay about 23h. on that day, nothing particular happened. The subsequent disturbance of the 29th began with a sudden commencement at 13h. 26m. V. began to increase in the characteristic manner at 18h., and its chief drop in value began soon after 22½h. It is noticed, however, that the minimum was little below the undisturbed value. The principal movement on N. took place between 22h. 9m. and 22h. 55m., and consisted of a double oscillation having a range of 336 γ, part of it at the rate of 24 γ per min. The changes in W. were much smaller. Tolerably quiet conditions were restored by 2h. on the 30th. A noticeable feature of the month is the close similarity in the V. curves for 11th–12th and 12th–13th; also between those of 13th–14th and 14th–15th. The latter repetition is especially striking. The curves are reproduced in Plate IX.

See Explanatory Note, Table IV.

XLV.—TERRESTRIAL MAGNETIC FORCE: NORTH COMPONENT.

Eskdalemuir. (**X.**) *Mean Values for periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **December, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
	15,000 γ (·15 C.G.S. units) +																									
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	958	963	952	956	963	963	968	967	959	941	952	946	934	936	942	939	961	951	918	943	916	935	926	928	950	946
2	950	938	945	946	953	954	961	964	963	953	948	946	947	948	952	952	958	964	966	968	963	968	977	966	967	957
3	966	967	969	966	962	969	971	965	934	924	918	898	908	938	949	946	927	926	956	969	960	965	956	955	960	948
4	960	962	963	961	966	965	962	961	966	961	946	947	955	964	958	946	951	958	962	969	971	980	980	969	964	962
5	964	965	968	967	967	969	971	972	968	968	968	969	967	970	970	971	973	976	978	981	981	981	979	978	977	959
6	976	975	974	975	976	976	976	975	973	971	970	972	973	978	981	980	980	980	983	979	980	980	981	980	976	977
7	976	978	978	977	978	985	988	986	980	981	990	993	981	972	972	970	963	968	965	1015	957	935	932	932	916	972
8	916	904	897	941	961	970	960	925	927	952	926	926	898	929	975	951	930	930	916	927	934	955	971	970	934	938
9	933	945	931	940	967	920	959	954	940	914	905	906	915	925	901	947	940	939	947	952	982	950	941	956	939	938
10	939	955	955	954	953	955	951	949	944	922	903	918	919	937	921	949	972	949	957	980	971	954	961	960	944	947
11	944	955	962	960	954	956	955	954	954	963	966	957	955	957	955	957	968	947	954	964	973	944	957	965	957	958
12	956	958	953	953	959	959	964	960	968	967	963	964	960	957	932	954	959	965	972	972	973	971	963	958	962	961
13	962	953	953	965	976	969	971	969	972	976	969	963	955	938	960	962	954	954	949	964	960	982	949	987	969	963
14	968	958	962	967	965	965	968	970	960	951	945	952	953	942	942	946	941	960	965	969	962	959	974	963	962	959
15	962	962	949	967	971	980	979	972	966	964	969	964	958	947	948	951	958	962	964	971	973	972	972	968	970	965
16	970	968	966	965	972	979	982	982	972	971	967	961	959	955	949	951	953	945	947	945	952	957	962	968	967	962
17	966	965	966	970	988	975	977	978	970	956	952	964	964	964	966	960	960	969	972	982	969	970	961	968	968	968
18	968	962	965	971	976	981	980	971	979	977	976	980	980	976	976	974	976	977	965	965	976	971	997	973	964	975
19	963	955	949	966	980	995	994	993	974	940	941	930	916	935	930	951	964	947	939	951	951	961	965	958	956	956
20	956	952	949	939	960	961	962	966	972	969	961	960	961	957	955	955	941	920	935	953	948	957	960	958	949	954
21	948	950	950	950	959	957	939	956	961	954	949	959	956	959	960	964	958	954	960	976	958	963	964	964	963	957
22	963	961	965	960	971	972	971	967	957	969	977	974	974	974	970	970	966	969	969	970	974	985	979	964	969	970
23	969	935	962	936	959	959	969	957	966	952	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	—
24	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	960	958	962	952	955	965	969	971	962	974	974	978	973	974	973	—
25	973	967	968	968	979	980	976	977	984	989	979	978	969	969	934	942	1032	1000	1085	992	841	831	819	899	863	957
26	863	870	906	908	932	928	947	923	925	930	923	920	923	923	952	953	960	949	988	959	940	1012	948	930	929	935
27	928	944	937	941	947	949	947	944	943	942	936	936	938	942	945	947	950	955	957	958	958	958	956	957	957	947
28	956	957	959	961	961	961	961	958	956	952	949	948	947	939	947	953	960	962	961	961	962	960	959	967	962	957
29	962	963	962	961	961	965	966	969	965	957	949	948	947	944	947	953	950	958	962	962	963	965	969	967	966	959
30	965	965	966	968	969	970	971	968	965	965	964	965	965	967	965	965	966	970	973	974	970	971	969	967	968	968
31	968	967	970	973	975	973	972	973	975	972	974	975	964	945	941	955	958	951	956	969	975	967	970	970	968	966
Mean †	954	954	954	958	965	965	967	964	960	956	952	951	949	951	952	956	957	956	958	966	963	965	964	962	958	958

† Mean for 28 days only, 23rd, 24th and 25th omitted. ‡ Clock accidentally stopped after changing sheets.

XLVI.—TERRESTRIAL MAGNETIC FORCE: WEST COMPONENT.

Eskdalemuir. (**—Y.**) *Mean Values for periods of 60 Minutes centred at the Hours of Greenwich Mean Time.* **December, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
	4,000 γ (·04 C.G.S. units) +																									
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	897	894	880	903	902	913	908	910	907	891	897	903	920	913	926	936	914	884	897	821	859	758	812	835	847	886
2	847	886	903	903	905	908	905	903	902	900	900	903	908	913	916	910	905	907	905	903	900	892	905	898	903	902
3	903	902	902	902	907	910	911	912	901	912	898	919	918	916	924	936	931	907	909	907	894	848	858	887	890	904
4	890	891	893	900	901	902	900	901	902	901	905	913	912	913	920	917	903	911	905	904	902	888	898	896	897	903
5	897	900	898	897	897	902	901	901	901	902	906	909	912	912	912	910	909	908	908	907	902	902	900	901	902	904
6	902	902	902	902	905	904	904	904	903	907	911	915	918	918	918	915	914	913	913	914	912	908	902	904	906	909
7	906	905	902	902	905	908	903	904	905	917	924	924	924	922	926	920	925	932	929	838	882	852	859	842	822	901
8	822	801	822	824	859	875	916	921	911	915	931	931	932	966	970	944	918	902	882	880	883	857	801	837	871	889
9	870	885	888	922	895	901	907	909	907	892	899	914	920	923	904	908	891	889	866	853	838	866	863	865	908	891
10	908	885	890	889	902	902	911	923	918	912	909	919	890	901	902	899	867	887	889	899	885	879	872	878	886	896
11	886	893	892	885	893	897	904	907	905	900	905	902	910	915	915	890	884	890	901	889	843	864	871	853	887	891
12	887	896	893	908	906	912	912	906	902	901	896	903	911	913	900	900	911	909	882	893	890	881	888	881	886	899
13	886	893	898	904	898	914	911	907	907	907	908	909	922	912	917	914	905	849	901	906	869	848	878	893	886	898
14	886	895	897	899	903	906	906	906	911	909	912	903	912	911	906	916	910	909	907	902	895	894	882	881	895	903
15	895	896	899	898	900	899	901	908	907	909	912	912	913	912	912	911	907	906	906	903	901	901	900	896	901	907
16	900	900	908	901	900	899	900	900	896	900	903	906	911	916	920	917	927	923	911	892	879	876	882	894	902	903
17	902	905	905	901	899	898	901	901	906	908	907	916	916	918	917	907	901	900	883	889	895	892	893	896	906	902
18	906	901	902	900	900	898	901	899	902	908	914	915	917	917	915	908	906	906	909	905	899	896	889	879	871	903
19	871	864	863	858	860	880	903	906	909	905	917	911	916	935	942	911	907	924	910	922	908	876	884	891	893	899
20	893	887	884	903	893	894	897	900	906	905	907	907	906	917	911	917	907	891	883	898	894	900	895	883	863	898
21	863	889	895	894	899	892	898	901	900	905	908	914	910	907	906	915	916	927	901	871	891	900	899	898	893	901
22	893	893	877	879	889	875	889	890	893	903	911	913	915	911	906	910	910	908	910	908	899	862	884	890	887	896
23	887	889	864	884	871	880	901	898	900	901	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	—
24	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	905	910	914	927	911	917	914	917	901	900	905	899	898	896	890	—
25	890	896	896	900	898	895	921	939	907	910	912	915	919	923	940	931	962	940	938	815	783	748	812	862	890	894
26	889	898	884	883	876	882	894	900	890	897	894	900	908	906	909	915	904	889	827	878	875	797	810	857	875	881
27	875	869	879	883	880	883	886	888	888	888	894	897	898	899	898	892	893	893	894	897	895	895	894	894	894	890
28	894	894	894	894	894	894	895	894	893	894	899	902	906	905	908	906	900	897	896	894	894	893	894	893	895	897
29	895	899	899	899	900	895	894	894	894	894	897	899	900	905	909	899	895	892	894	894	896	895	897	896	895	897
30	895	897	897	897	897	899	899	897	895	899	904	905	905	908	907	905	903	902	899	899	899	899	899	894	894	900
31	894	897	900	905	905	904	902	904	902	899	904	906	909	920	921	917	914	910	906	891	878	889	895	895	894	903
Mean †	888	890	891	894	895	898	902	903	902	903	906	910	912	915	916	912	906	902	897	891	888	875	879	882	887	898

† Mean for 28 days. 23rd, 24th and 25th omitted. ‡ Clock accidentally stopped after changing sheets.

XLVII—TERRESTRIAL MAGNETIC FORCE: VERTICAL COMPONENT.

Eskdalemuir. **(Z.)** *Mean Values for periods of 60 Minutes centred at the Hours of Greenwich Mean Time* **December, 1918.**

Hour G.M.T.	0h.	1h.	2h.	3h.	4h.	5h.	6h.	7h.	8h.	9h.	10h.	11h.	Noon	13h.	14h.	15h.	16h.	17h.	18h.	19h.	20h.	21h.	22h.	23h.	Midt.	Mean
												44,000 γ (·44 C.G.S. units) +														
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	1055	1043	1043	1043	1042	1041	1046	1050	1054	1059	1058	1055	1057	1066	1070	1088	1144	1137	1150	1149	1097	1063	1047	1044	1034	1070
2	1035	1043	1053	1059	1059	1058	1057	1057	1056	1060	1059	1057	1058	1059	1059	1060	1061	1059	1058	1058	1060	1060	1055	1054	1056	1057
3	1056	1056	1055	1054	1053	1048	1048	1044	1048	1048	1053	1051	1062	1064	1069	1072	1083	1104	1086	1071	1072	1077	1072	1069	1067	1063
4	1067	1061	1059	1057	1056	1055	1053	1052	1049	1049	1049	1046	1046	1048	1053	1059	1064	1064	1064	1061	1059	1057	1051	1048	1050	1055
5	1051	1053	1054	1054	1053	1051	1050	1049	1049	1047	1046	1048	1049	1051	1053	1051	1051	1051	1049	1047	1047	1047	1047	1047	1047	1050
6	1048	1048	1048	1048	1048	1048	1047	1047	1046	1044	1043	1043	1043	1044	1045	1046	1047	1047	1046	1046	1047	1047	1047	1046	1046	1046
7	1047	1047	1047	1047	1044	1043	1042	1042	1041	1037	1035	1035	1038	1042	1042	1047	1050	1052	1060	1079	1049	1057	1063	1054	1010	1047
8	1011	958	904	944	1014	1018	1007	1019	1031	1038	1052	1059	1080	1119	1224	1170	1105	1139	1165	1118	1094	1075	1059	1039	1039	1061
9	1041	1037	1031	1017	993	1014	1029	1042	1050	1058	1066	1068	1072	1086	1111	1106	1092	1095	1094	1087	1075	1058	1052	1039	981	1058
10	982	1004	1034	1042	1047	1049	1051	1050	1054	1056	1065	1067	1083	1087	1092	1096	1100	1087	1082	1069	1045	1059	1063	1059	1047	1061
11	1049	1024	1034	1046	1046	1041	1048	1053	1057	1059	1061	1060	1055	1057	1059	1070	1075	1077	1074	1078	1069	1059	1046	1035	1041	1055
12	1042	1049	1051	1050	1050	1049	1049	1054	1056	1058	1058	1057	1055	1055	1063	1066	1064	1062	1067	1063	1060	1058	1058	1058	1050	1057
13	1052	1051	1049	1040	1040	1039	1040	1047	1049	1051	1053	1052	1053	1058	1060	1064	1068	1084	1079	1068	1075	1062	1056	1045	1042	1055
14	1044	1053	1055	1055	1055	1055	1056	1056	1055	1054	1055	1057	1056	1066	1073	1073	1072	1069	1066	1066	1069	1066	1053	1057	1055	1060
15	1057	1057	1055	1052	1055	1055	1054	1055	1055	1054	1054	1054	1056	1061	1066	1066	1066	1066	1066	1064	1063	1063	1062	1063	1062	1059
16	1066	1064	1060	1058	1058	1058	1058	1059	1059	1058	1059	1060	1061	1063	1069	1068	1069	1073	1085	1095	1100	1093	1085	1079	1073	1069
17	1075	1072	1070	1066	1056	1059	1061	1062	1063	1065	1068	1066	1063	1064	1071	1072	1073	1072	1074	1072	1070	1071	1071	1070	1063	1068
18	1066	1068	1068	1068	1067	1066	1065	1064	1064	1062	1062	1062	1060	1061	1064	1067	1066	1068	1071	1073	1071	1071	1066	1059	1064	1066
19	1067	1067	1068	1067	1064	1055	1051	1051	1052	1056	1058	1060	1072	1094	1101	1103	1093	1097	1112	1109	1108	1110	1101	1093	1087	1080
20	1090	1087	1085	1074	1066	1075	1075	1075	1074	1074	1076	1077	1076	1079	1083	1089	1107	1125	1126	1115	1100	1102	1094	1089	1092	1088
21	1095	1091	1091	1090	1087	1083	1081	1076	1075	1075	1078	1078	1079	1079	1080	1083	1089	1090	1096	1101	1094	1090	1090	1091	1091	1086
22	1094	1094	1092	1087	1072	1072	1076	1078	1081	1080	1078	1078	1078	1081	1083	1085	1085	1085	1083	1083	1085	1090	1076	1081	1078	7082
23	1080	1074	1055	1055	1060	1073	1072	1078	1074	1073	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	—
24	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	1082	1083	1085	1086	1093	1089	1088	1087	1093	1093	1089	1087	1087	1089	1088	—
25	1090	1088	1087	1085	1083	1081	1075	1064	1067	1065	1067	1071	1076	1080	1096	1134	1236	>1270	>1353	1328	1153	1079	1095	1058	1037	>1119
26	1039	1049	1073	1079	1084	1091	1087	1085	1093	1096	1104	1109	1114	1123	1116	1110	1107	1109	1117	1105	1114	1098	1056	1069	1068	1093
27	1069	1064	1073	1076	1078	1082	1087	1091	1094	1094	1092	1094	1098	1098	1097	1099	1099	1098	1096	1096	1096	1096	1096	1094	1094	1090
28	1096	1094	1094	1094	1094	1094	1093	1094	1096	1097	1096	1096	1094	1094	1095	1097	1099	1098	1098	1097	1096	1094	1094	1093	1092	1095
29	1094	1094	1093	1094	1092	1092	1091	1091	1093	1094	1097	1099	1098	1099	1100	1103	1104	1102	1098	1098	1096	1096	1094	1094	1093	1096
30	1095	1094	1094	1093	1093	1091	1091	1091	1092	1092	1093	1093	1093	1090	1091	1093	1093	1092	1092	1092	1093	1093	1094	1094	1094	1093
31	1095	1094	1093	1091	1089	1088	1088	1088	1088	1088	1088	1089	1089	1088	1092	1096	1097	1101	1103	1102	1101	1101	1099	1097	1095	1094
Mean †	1060	1058	1058	1059	1059	1060	1060	1062	1063	1064	1066	1067	1069	1074	1081	1082	1083	1086	1088	1084	1079	1075	1070	1066	1061	1070

† Mean for 28 days, 23rd, 24th and 25th omitted.

‡ Clock accidentally stopped after changing sheets.

XLVIII.—ABSOLUTE OBSERVATIONS; TEMPERATURE OF THE MAGNETOGRAPHS; MAGNETIC CHARACTER FIGURES; NOTES

Eskdalemuir. **December, 1918.**

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	° ′ ″	° ′	a 280+		
						4·7	2D	1
						4·7	0	2
						4·6	1	3
4	11 14	11 41	16687	17 6 42	69 40·5	4·6	0	4
						4·5	0C	5
						4·5	0C	6
						4·5	2	7
						4·5	2D	8
						4·4	2D	9
10	12 2	12 13			69 44·0	4·4	1	10
						4·4	1	11
12	10 29	10 35	16725	17 2 57		4·4	1	12
12	14 18	14 34			69 42·3	4·4	1	13
						4·4	0	14
						4·3	0	15
						4·3	0	16
						4·3	0	17
18	12 6	12 51	16715	17 6 6	69 38·1	4·3	0	18
						4·3	1	19
						4·3	1	20
						4·3	1	21
						4·3	1	22
						4·2	1	23
						4·2	1	24
						4·1	2D	25
						4·1	2D	26
						4·0	0	27
						4·0	0C	28
						4·0	0C	29
						3·9	0C	30
						4·0	0	31

MAGNETIC NOTES.

December, 1918.

The mean character figure was 0·77. Two disturbances, on the 7th and 25th, are worthy of note. The first began soon after 18h. and continued until 24h. on the 13th. The absolute ranges during this interval were 249 γ in N., 316 γ in W., 310 γ in V. The changes in V. were largest on the second day of the disturbance, and the time (13h. 51m.) at which the maximum was reached was unusually early. Intense activity in the horizontal components was displayed during the daylight hours of each day of the disturbance. A sharp tooth-like prominence on the N. trace—a not uncommon occurrence at the end of a disturbance—is shown about 23h. on the 13th. The second disturbance began with a sudden commencement at 25d. 3h. 53m., but no large movements began until 13½h. on the same day, when large and rapid changes occurred in N. and W. The V. trace went off the sheet towards a maximum about 17½h. on the 25th, but the subsequent drop did not carry the vertical force much below its undisturbed value. Very quiet conditions supervened by 2h. on the 27th.

See Explanatory Note, Table IV.

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.)
Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons.

XLIX.—NORTH COMPONENT (*all days except Mar. 8, May 16, 17, July 21, 23, 24, Aug. 8, 9, 10, 11, 14, Oct. 14, 15, 16, 21, 22, 26, Nov. 20, Dec. 23, 24, 25*).

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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.	4·9	5·1	3·8	4·3	7·9	10·4	x10·5	8·8	3·1	− 2·2	− 9·0	-16·0	n17·2	-14·4	-12·3	− 7·1	− 2·8	− 1·7	1·4	1·7	5·5	5·4	3·2	6·8
F.	2·3	3·0	2·4	7·3	10·8	11·5	x11·8	7·8	2·5	− 7·6	-15·1	n18·1	-17·9	-14·8	-10·4	− 3·3	− 3·0	3·8	6·5	3·1	4·2	5·8	4·0	3·4
M.	7·9	6·9	7·8	9·7	10·9	x12·4	9·5	4·0	− 6·1	-19·2	-30·6	n30·8	-25·4	-17·2	-10·7	− 0·4	1·2	6·1	9·3	11·5	11·7	12·1	9·7	9·8
A.	5·3	8·2	7·9	8·5	8·2	7·8	6·0	0·7	-12·7	-27·6	-36·7	n38·7	-31·5	-19·9	− 7·6	− 1·5	14·0	21·2	x22·8	20·7	17·8	11·6	7·6	7·7
M.	4·8	3·0	2·0	4·5	4·4	2·3	− 2·8	− 9·7	-19·7	-28·1	n32·5	-30·1	-25·3	-12·0	0·8	6·0	15·5	22·7	x25·8	19·5	15·6	12·7	10·9	9·7
J.	3·6	2·8	4·5	6·8	6·2	6·0	− 0·3	-13·1	-24·3	-32·4	n35·4	-33·7	-20·9	− 9·4	0·5	5·7	15·8	23·7	x25·3	21·5	15·7	10·8	10·3	10·6
J.	1·1	0·1	8·9	8·3	8·6	2·4	− 6·7	-13·8	-23·6	-33·3	n37·6	-33·6	-25·8	-17·2	− 0·6	14·0	20·0	27·9	x31·0	24·1	17·6	11·0	5·7	5·1
A.	8·0	5·7	3·6	4·1	6·0	0·3	− 1·3	-11·8	-24·8	-37·3	n37·8	-34·9	-25·0	-20·3	− 6·8	7·0	14·5	27·1	x29·8	28·4	20·4	14·2	12·2	12·8
S.	11·5	9·7	13·8	11·3	12·4	4·8	− 0·1	-13·8	-24·9	-35·8	n39·8	-34·7	-24·0	-16·3	− 4·1	4·9	12·2	14·5	17·3	18·3	x19·4	14·1	14·4	14·9
O.	8·0	3·9	6·5	9·0	7·2	13·9	9·0	− 0·8	-17·6	-25·2	n29·6	-28·8	-24·6	-15·8	-10·2	− 1·6	7·0	8·6	12·7	15·8	17·5	13·5	12·9	8·6
N.	1·6	1·8	3·8	5·3	9·5	x11·4	7·9	0·5	− 8·9	-16·1	-19·2	n19·5	-16·7	-10·8	− 5·4	0·1	4·9	7·5	8·2	8·0	8·3	8·8	4·3	4·7
D.	− 2·2	− 2·2	1·4	8·2	8·0	x 9·6	6·5	2·6	− 2·1	− 6·0	− 6·8	n 9·4	− 8·0	− 6·6	− 2·8	− 2·1	− 3·8	− 1·1	6·3	2·7	5·2	3·2	1·9	− 2·4
Y.	4·7	4·5	5·5	7·3	8·3	8·2	4·2	− 3·2	-13·3	-22·6	-27·4	n27·4	-21·9	-14·6	− 5·8	1·8	8·0	13·4	x16·4	14·6	13·2	10·2	8·1	7·6
W.	1·7	1·9	2·9	6·3	9·0	x10·7	9·2	4·9	− 1·3	− 8·0	-12·5	n15·8	-14·9	-11·6	− 7·7	− 3·1	− 1·2	2·1	5·6	3·9	5·8	5·8	3·4	3·1
Eq.	8·2	7·2	9·0	9·6	9·7	9·7	6·1	− 2·5	-15·3	-27·0	n34·2	-33·2	-26·4	-17·3	− 8·2	0·4	8·6	12·6	15·5	16·6	x16·6	12·8	11·2	10·3
S.	4·3	4·4	4·7	5·9	6·3	4·3	− 2·7	-12·1	-23·1	-32·8	n35·7	-33·1	-24·3	-14·7	− 1·5	8·2	16·5	25·3	x28·0	23·4	17·3	12·2	9·8	9·5

L.—WEST COMPONENT (*all days except Mar. 8, May 16, 17, July 21, 23, 24, Aug. 8, 9, 10, 11, 14, Oct. 14, 15, 16, 21, 22, 26, Nov. 20, Dec. 23, 24, 25*).

Eskdalemuir. **1918.**

	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.	-12·5	− 8·3	− 5·3	− 0·4	− 0·3	− 1·1	− 1·0	− 2·1	− 4·9	− 6·1	− 1·4	6·9	14·3	x20·2	18·0	13·5	12·7	7·7	6·0	1·7	− 8·2	-14·9	-10·6	n17·9
F.	-12·0	-15·0	-11·9	-14·5	− 6·9	− 2·9	− 2·6	− 2·5	− 5·4	− 3·5	3·4	11·9	18·1	x23·0	21·4	18·1	12·7	8·7	8·1	3·0	− 8·0	-12·0	n16·3	-14·8
M.	− 7·9	− 6·1	− 6·3	− 9·0	-10·3	− 9·3	-12·9	-16·9	n18·9	-13·2	1·0	18·3	29·9	x33·1	26·4	19·4	9·6	5·8	3·6	− 4·2	− 6·1	− 8·1	− 8·4	− 9·5
A.	-13·1	-17·6	-15·1	-14·5	-10·5	-10·7	-17·0	-22·9	n23·5	-15·5	− 1·6	16·1	32·3	x36·5	32·5	25·6	22·4	16·1	9·7	4·7	− 0·1	− 4·2	-13·7	-16·0
M.	− 4·9	− 3·8	− 8·1	-10·7	-15·0	-21·2	-26·9	n29·2	-25·9	-16·5	− 0·5	15·5	26·4	x31·0	26·6	20·2	15·6	11·6	6·8	6·3	2·5	1·6	0·0	− 1·4
J.	− 6·8	− 5·3	-12·5	-16·5	-22·4	-25·7	-28·1	n31·4	-27·8	-17·5	− 1·6	14·0	24·9	31·2	x32·1	24·8	18·9	16·5	13·5	10·0	8·0	5·9	1·5	− 5·8
J.	− 8·5	− 8·1	-11·9	-13·5	-18·1	-28·5	n29·9	-29·2	-27·4	-18·6	− 4·5	12·9	25·2	31·4	x33·9	31·8	24·9	20·1	13·6	7·6	5·4	1·4	− 2·6	− 7·4
A.	− 8·1	− 6·3	− 7·2	-12·4	-18·7	-25·0	-28·0	n28·1	-24·6	-14·9	1·4	20·8	x34·2	31·9	29·8	24·3	16·2	11·2	7·3	6·0	4·3	− 2·7	− 5·8	− 5·4
S.	− 7·6	− 8·9	-14·2	-14·0	-10·3	-11·6	-15·1	n19·1	-17·3	− 7·2	7·3	23·1	x32·4	32·0	30·0	19·6	9·6	5·8	0·7	− 1·5	− 8·0	− 9·2	− 8·6	− 8·0
O.	-11·1	− 8·7	− 7·0	− 6·0	0·2	− 3·4	− 7·5	-13·7	n17·5	-10·3	1·4	16·5	26·6	x29·0	26·7	16·7	11·0	8·6	0·6	− 8·3	− 8·7	-11·2	-11·6	-11·5
N.	-10·3	− 4·6	− 5·4	− 1·6	1·7	0·6	− 0·2	− 3·3	− 5·6	− 3·3	5·4	16·4	18·3	x19·7	15·8	14·1	6·1	1·2	− 4·7	− 7·2	-11·3	-12·6	n15·9	-13·3
D.	− 8·5	− 7·2	− 4·2	− 3·0	− 0·3	3·8	5·1	− 3·9	4·6	7·8	11·3	13·8	16·9	x17·3	14·0	8·1	4·1	− 1·0	− 6·9	-10·5	n23·0	-19·5	-15·9	-10·8
Y.	− 9·3	− 8·3	− 9·2	− 9·7	− 9·3	-11·2	-13·7	n16·2	-16·2	− 9·9	1·8	15·5	25·0	x28·0	25·6	19·7	13·6	9·4	4·9	0·6	− 4·4	− 7·1	− 9·5	-10·2
W.	-10·8	− 8·8	− 6·7	− 4·9	− 1·5	0·1	0·4	− 1·0	− 2·8	− 1·3	4·7	12·2	16·9	x20·1	17·3	13·4	8·9	4·1	0·6	− 3·2	-12·6	-14·8	n16·2	-14·2
Eq.	− 9·9	-10·3	-10·9	-10·9	− 7·8	− 8·7	-13·1	-18·1	n19·3	-11·6	2·0	18·5	30·3	x32·7	28·9	20·3	13·1	9·1	3·6	− 2·3	− 5·7	− 8·2	-10·6	-11·3
S.	− 7·1	− 5·9	− 9·9	-13·3	-18·5	-25·1	-28·2	n29·5	-26·4	-16·9	− 1·3	15·8	27·7	x31·4	30·6	25·3	18·9	14·9	10·3	7·5	5·0	1·6	− 1·7	− 5·0

LI.—VERTICAL COMPONENT (*all days except Mar. 8, May 16, 17, July 21, 23, 24, Aug. 8, 9, 10, 11, 14, Oct. 14, 15, 16, 21, 22, 26, Nov. 20, Dec. 23, 24, 25*).

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	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.	− 4·6	n 6·7	− 6·1	− 6·0	− 5·3	− 4·5	− 4·2	− 4·0	− 3·7	− 5·2	− 6·0	− 4·5	− 2·7	0·2	5·2	8·1	8·6	x 9·8	9·0	9·4	8·5	5·5	2·0	− 2·9
F.	− 5·2	-10·0	-11·1	n12·4	-11·6	− 9·8	− 7·5	− 5·2	− 3·6	− 4·3	− 5·0	− 4·0	− 1·6	2·1	7·2	10·4	12·0	12·5	x13·4	12·6	12·4	8·4	2·0	− 1·8
M.	− 3·9	− 5·6	− 6·6	− 5·7	− 4·9	− 4·7	− 3·2	− 2·6	− 3·9	− 7·2	− 9·8	n11·6	− 8·5	− 2·2	5·5	12·0	x15·9	14·9	11·5	8·8	6·7	4·8	1·8	− 1·4
A.	n20·9	-19·2	-13·9	-11·3	-10·3	− 8·2	− 3·9	1·8	− 1·7	− 3·5	− 6·0	− 8·2	− 6·0	1·3	8·3	13·7	18·6	23·8	x24·9	20·9	11·7	7·1	− 2·6	-12·9
M.	− 6·7	− 9·4	− 8·2	− 5·5	− 3·5	− 1·0	0·2	− 1·0	− 4·6	− 8·9	-12·5	n14·4	-10·4	− 3·2	5·8	11·7	14·6	x15·8	15·6	13·3	9·7	4·8	0·3	− 2·6
J.	− 6·5	-10·2	− 9·5	− 6·3	− 4·4	− 2·2	− 0·8	− 1·0	− 3·7	− 7·4	-10·3	n11·9	− 6·0	0·9	3·7	9·7	14·0	x15·9	15·1	13·6	9·4	2·5	− 0·2	− 4·5
J.	-10·5	− 9·1	− 7·0	− 4·8	− 3·7	− 2·1	− 2·1	− 3·5	− 6·1	− 8·1	-11·9	n13·0	− 9·9	− 3·8	1·1	7·1	14·7	19·3	x20·7	18·5	13·3	5·0	0·9	− 5·0
A.	− 8·4	− 8·4	-12·9	n13·4	− 6·4	− 1·8	0·6	0·7	− 1·3	− 4·8	− 9·3	-10·9	− 9·0	− 2·2	3·8	8·7	12·6	15·0	16·3	x18·0	12·6	6·2	0·5	− 6·4
S.	-16·4	n17·4	-16·5	-16·3	-13·9	-10·6	− 6·2	− 3·8	− 2·6	− 3·8	− 6·3	− 7·4	− 1·5	4·2	12·2	23·7	x27·9	25·3	21·6	14·4	5·9	0·2	− 4·4	− 8·5
O.	n14·7	-12·6	-13·1	-13·4	-14·1	-10·6	− 5·6	− 1·4	0·5	− 0·7	− 2·5	− 2·7	− 1·2	4·0	13·1	20·0	x20·5	17·6	15·4	12·5	7·3	− 0·1	− 5·7	-12·5
N.	− 9·1	n10·9	− 8·5	− 7·8	− 9·8	− 9·9	− 8·7	− 5·9	− 4·7	− 4·1	− 3·3	− 0·2	3·2	6·3	11·1	12·7	13·1	12·5	x16·2	11·6	9·1	1·4	− 5·5	− 9·1
D.	n11·5	-11·2	-10·6	-10·3	− 9·8	− 9·4	− 8·0	− 6·2	− 5·2	− 3·4	− 2·9	− 0·6	4·3	11·6	12·2	13·0	15·8	x17·7	14·3	8·8	5·3	− 0·7	− 3·9	− 9·3
Y.	− 9·9	n10·9	-10·3	− 9·4	− 8·1	− 6·2	− 4·1	− 3·0	− 3·4	− 5·1	− 7·1	− 7·4	− 4·1	1·6	7·4	12·6	15·7	x16·7	16·2	13·5	9·3	3·8	− 1·2	− 6·4
W.	− 7·6	n 9·7	− 9·1	− 9·1	− 9·1	− 8·4	− 7·1	− 5·3	− 4·3	− 4·2	− 4·3	− 2·3	0·8	5·1	8·9	11·0	12·4	13·1	x13·2	10·6	8·8	3·6	− 1·3	− 5·7
Eq.	n14·0	-13·7	-12·5	-11·7	-10·8	− 8·5	− 4·7	− 2·4	− 1·9	− 3·8	− 6·1	− 7·5	− 4·3	1·8	9·8	17·3	x20·7	20·4	18·3	14·1	7·9	3·0	− 2·7	− 8·8
S.	− 8·0	− 9·3	− 9·4	− 7·5	− 4·5	− 1·8	− 0·5	− 1·2	− 3·9	− 7·3	-11·0	n12·6	− 8·8	− 2·1	3·6	9·3	14·0	16·5	x16·9	15·9	11·2	4·6	0·4	− 4·0

x and *n* mark respectively the mean maximum and minimum hourly values in each month or season. In the tables of diurnal inequalities the value to which the letter *n* is prefixed is to be taken with the minus sign.

LII.-LIV.—DIURNAL INEQUALITIES OF THE MAGNETIC COMPONENTS, DECLINATION, INCLINATION, AND HORIZONTAL FORCE.

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

LII.—DECLINATION (measured positive towards the West) (*all days except Mar. 8, May 16, 17, July 21, 23, 24, Aug. 8, 9, 10, 11, 14, Oct. 14, 15, 16, 21, 22, 26, Nov. 20, Dec. 23, 24, 25*).

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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.	−2·75	−1·94	−1·27	−0·34	−0·55	−0·84	−0·82	−0·94	−1·15	−1·06	0·27	2·32	3·86	x4·84	4·28	3·08	2·65	1·61	1·09	0·23	−1·94	−3·24	−3·44	n3·93
F.	−2·49	−3·13	−2·48	−3·28	−2·01	−1·28	−1·22	−0·96	−1·21	−0·22	1·58	3·44	4·63	x5·41	4·82	3·74	2·68	1·47	1·20	0·40	−1·83	−2·70	n3·44	−3·10
M.	−2·03	−1·61	−1·70	−2·36	−2·68	−2·57	−3·11	n3·55	−3·33	−1·42	2·06	5·47	7·40	x7·54	5·82	3·82	1·80	0·77	0·14	−1·53	−1·92	−2·31	−2·25	−2·46
A.	−2·88	−3·95	−3·43	−3·35	−2·56	−2·56	−3·69	n4·52	−3·83	−1·37	1·91	5·51	8·25	x8·36	6·83	5·11	3·54	1·87	0·51	−0·33	−1·10	−1·52	−3·14	−3·61
M.	−1·26	−0·93	−1·70	−2·36	−3·21	−4·30	−5·11	n5·13	−3·88	−1·53	1·87	4·86	6·71	x6·80	5·17	3·59	2·12	0·91	−0·22	0·04	−0·46	−0·45	−0·66	−0·85
J.	−1·55	−1·21	−2·72	−3·65	−4·76	−5·40	n5·49	−5·36	−3·97	−1·47	1·83	4·78	6·15	x6·69	6·26	4·52	2·75	1·80	1·12	0·66	0·62	0·50	−0·33	−1·77
J.	−1·72	−1·96	−2·87	−3·14	−4·06	n5·74	−5·46	−4·88	−3·95	−1·64	1·36	4·55	6·50	x7·20	6·67	5·40	3·67	2·26	0·78	0·04	−0·01	−0·38	−0·86	−1·76
A.	−2·08	−1·60	−1·63	−2·69	−4·05	−5·30	n5·44	−4·83	−3·34	−0·69	2·56	6·20	x8·25	7·51	6·28	4·36	2·32	0·57	−0·36	−0·54	−0·39	−1·38	−1·89	−1·84
S.	−2·19	−2·33	n3·64	−3·43	−2·79	−2·57	−2·98	−2·92	−1·89	0·74	3·85	6·64	x7·84	7·30	6·15	3·57	1·15	0·27	−0·91	−1·41	−2·76	−2·66	−2·56	−2·48
O.	−2·67	−1·95	−1·95	−1·72	−0·40	−1·51	−2·01	−2·64	−2·38	−0·51	2·07	5·00	x6·73	6·67	5·89	3·38	1·75	1·18	−0·66	−2·58	−2·77	−3·03	n3·07	−2·79
N.	−2·12	−1·01	−1·29	−0·63	−0·25	−0·57	−0·51	−0·69	−0·56	0·32	2·22	4·40	x4·60	4·53	3·43	2·76	0·90	−0·22	−1·41	−1·90	−2·73	−3·02	n3·40	−2·90
D.	−1·54	−1·29	−0·92	−1·08	−0·53	0·17	0·62	0·62	1·02	1·91	2·64	3·29	3·80	x3·81	2·94	1·71	1·03	−0·13	−1·75	−2·23	n4·84	−4·04	−3·24	−1·98
Y.	−2·11	−1·91	−2·13	−2·34	−2·32	−2·71	−2·94	n2·98	−2·37	−0·58	2·03	4·70	6·23	x6·39	5·38	3·75	2·20	1·03	−0·04	−0·76	−1·68	−2·02	−2·36	−2·46
W.	−2·22	−1·84	−1·49	−1·33	−0·83	−0·63	−0·48	−0·49	−0·47	0·24	1·68	3·36	4·22	x4·65	3·87	2·82	1·81	0·68	−0·22	−0·87	−2·83	−3·25	n3·38	−2·98
Eq.	−2·44	−2·46	−2·68	−2·72	−2·11	−2·30	−2·95	n3·41	−2·86	−0·64	2·47	5·65	x7·56	7·47	6·17	3·97	2·06	1·02	−0·23	−1·46	−2·14	−2·38	−2·76	−2·83
S.	−1·65	−1·42	−2·23	−2·96	−4·02	−5·18	n5·37	−5·05	−3·78	−1·33	1·90	5·10	6·90	x7·05	6·09	4·47	2·72	1·38	0·33	0·05	−0·06	−0·43	−0·93	−1·56

LIII.—INCLINATION (*all days except Mar. 8, May 16, 17, July 21, 23, 24, Aug. 8, 9, 10, 11, 14, Oct. 14, 15, 16, 21, 22, 26, Nov. 20, Dec. 23, 24, 25*).

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	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.	−0·19	−0·33	−0·29	−0·41	−0·63	−0·75	n0·76	−0·62	−0·19	0·13	0·45	x0·78	0·75	0·53	0·56	0·39	0·14	0·20	0·01	0·09	0·03	0·09	0·17	−0·15
F.	−0·04	−0·15	−0·20	−0·49	−0·84	n0·92	−0·89	−0·58	−0·14	0·45	0·77	x0·83	0·75	0·54	0·42	0·11	0·24	−0·11	−0·25	0·06	0·20	0·08	0·12	0·03
M.	−0·45	−0·46	−0·53	−0·59	−0·62	n0·73	−0·43	0·01	0·67	1·31	x1·69	1·32	0·82	0·39	0·30	−0·06	0·13	−0·13	−0·38	−0·43	−0·46	−0·49	−0·41	−0·47
A.	−0·60	−0·66	−0·56	−0·54	−0·57	−0·49	−0·15	0·36	1·24	1·99	x2·23	1·96	1·23	0·58	0·05	−0·07	−0·88	n1·09	−1·04	−0·90	−0·84	−0·49	−0·28	−0·49
M.	−0·37	−0·35	−0·17	−0·22	−0·07	0·25	0·71	1·18	1·66	x1·91	1·78	1·27	0·84	0·08	−0·44	−0·49	−0·94	−1·29	n1·40	−1·04	−0·81	−0·73	−0·69	−0·66
J.	−0·26	−0·33	−0·28	−0·27	−0·06	0·07	0·55	1·43	2·02	x2·24	2·05	1·59	0·70	0·01	−0·57	−0·61	−1·04	−1·45	n1·51	−1·24	−0·93	−0·74	−0·70	−0·68
J.	−0·16	−0·46	−0·51	−0·39	−0·29	0·35	0·96	1·38	1·91	x2·30	2·16	1·58	0·91	0·39	−0·60	−1·35	−1·41	−1·71	n1·74	−1·24	−0·90	−0·61	−0·29	−0·31
A.	−0·56	−0·45	−0·41	−0·35	−0·17	0·04	0·65	1·33	2·05	x2·57	2·17	1·55	0·70	0·62	−0·05	−0·71	−0·94	−1·59	n1·65	−1·49	−1·08	−0·70	−0·65	−0·87
S.	−1·00	−0·88	n1·02	−0·86	−0·94	−0·34	0·15	1·17	1·87	x2·34	2·27	1·58	0·86	0·52	−0·02	−0·11	−0·28	−0·41	−0·59	−0·79	−0·94	−0·72	−0·86	−1·01
O.	−0·66	−0·39	−0·59	−0·79	−0·81	n1·09	−0·57	0·29	1·48	1·80	x1·81	1·45	1·02	0·54	0·45	0·27	−0·16	−0·28	−0·44	−0·54	−0·77	−0·65	−0·74	−0·64
N.	−0·13	−0·30	−0·35	−0·50	−0·89	n0·99	−0·72	−0·11	0·56	0·99	x1·04	0·92	0·79	0·46	0·31	0·03	−0·11	−0·19	−0·03	−0·09	−0·08	−0·28	−0·10	−0·27
D.	0·02	0·00	−0·27	−0·72	−0·75	n0·93	−0·72	−0·40	−0·09	0·15	0·14	0·32	0·29	0·37	0·21	0·30	x0·56	0·53	0·09	0·26	0·25	0·16	0·10	0·14
Y.	−0·37	−0·40	−0·43	−0·52	−0·55	−0·46	−0·10	0·45	1·09	1·52	x1·55	1·26	0·81	0·42	0·05	−0·19	−0·39	−0·63	n0·74	−0·61	−0·53	−0·42	−0·36	−0·45
W.	−0·08	−0·19	−0·28	−0·53	−0·78	n0·90	−0·77	−0·43	0·03	0·43	0·60	x0·72	0·64	0·47	0·38	0·21	0·21	0·11	−0·04	0·08	0·10	0·01	0·07	−0·06
Eq.	−0·68	−0·60	−0·67	−0·69	−0·73	−0·66	−0·25	0·46	1·32	1·86	x2·00	1·58	0·98	0·51	0·20	0·01	−0·30	−0·48	−0·61	−0·67	n0·75	−0·59	−0·57	−0·65
S.	−0·34	−0·40	−0·34	−0·30	−0·15	0·18	0·72	1·33	1·91	x2·25	2·04	1·50	0·79	0·27	−0·42	−0·79	−1·08	−1·51	n1·58	−1·25	−0·93	−0·70	−0·58	−0·63

LIV.—HORIZONTAL FORCE (*all days except Mar. 8, May 16, 17, July 21, 23, 24, Aug. 8, 9, 10, 11, 14, Oct. 14, 15, 16, 21, 22, 26, Nov. 20, Dec. 23, 24, 25*).

Eskdalemuir. **1918.**

	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.	1·1	2·4	2·1	3·9	7·4	9·6	x 9·7	7·8	1·5	− 3·9	− 9·0	n13·3	−12·2	− 7·8	− 6·4	− 2·8	1·1	0·7	3·2	2·1	2·8	0·7	− 1·8	1·2
F.	− 1·3	− 1·5	− 1·2	2·7	8·3	10·1	x10·5	6·6	0·8	− 8·2	−13·4	n13·8	−11·7	− 7·3	− 3·6	2·2	0·9	6·2	8·6	3·8	1·7	2·0	− 1·0	− 1·2
M.	5·2	4·7	5·5	6·6	7·4	9·1	5·3	− 1·2	−11·4	−22·3	n28·9	−24·0	−15·4	− 6·7	− 2·4	5·4	4·0	7·5	x10·0	9·7	9·4	9·1	6·8	6·5
A.	1·2	2·6	3·1	3·9	4·7	4·3	0·7	− 6·1	−19·1	−30·9	n35·5	−32·2	−20·5	− 8·2	2·3	6·2	20·0	x25·0	24·7	21·2	16·9	9·9	3·2	2·6
M.	3·1	1·8	− 0·5	1·2	− 0·3	− 4·0	−10·6	−17·9	−26·5	n31·7	−31·2	−24·2	−16·4	− 2·3	8·6	11·7	19·4	25·1	x26·7	20·5	15·7	12·6	10·4	8·8
J.	1·4	1·1	0·7	1·6	− 0·7	− 1·9	− 8·5	−21·7	−31·4	n36·1	−34·3	−28·1	−12·7	0·2	9·9	12·7	20·6	27·5	x28·1	23·4	17·4	12·0	10·3	8·4
J.	− 1·5	3·5	5·0	4·0	2·9	− 6·1	−15·2	−21·8	−30·7	n37·3	−36·7	−28·4	−17·3	− 7·2	9·4	22·7	26·5	32·6	x33·6	25·3	18·4	10·9	4·7	2·7
A.	5·3	3·6	1·3	0·2	0·2	− 1·3	− 9·5	−19·6	−30·9	n40·0	−35·7	−27·2	−13·8	−10·1	2·2	13·8	18·6	29·2	x30·7	28·9	20·8	12·8	9·9	10·7
S.	8·8	6·7	9·0	6·7	8·8	1·2	− 4·6	−18·8	−28·9	n36·3	−35·9	−26·4	−13·4	− 6·2	4·9	10·5	14·5	15·6	16·7	x17·1	16·2	10·7	11·2	11·9
O.	4·4	1·2	3·9	6·8	6·9	12·3	6·4	− 4·8	−21·9	−27·1	n27·9	−22·6	−15·7	− 6·6	− 1·9	3·4	9·9	10·7	12·3	12·7	x14·2	9·6	8·9	4·9
N.	− 1·5	0·4	2·0	4·6	9·6	x11·1	7·5	− 0·5	−10·2	−16·3	n16·7	−13·8	−10·6	− 4·5	− 0·5	4·2	6·5	7·5	6·4	5·6	4·6	4·7	− 0·6	0·6
D.	− 4·5	− 4·2	0·1	6·9	7·5	x10·3	7·7	3·7	− 0·6	− 3·5	− 3·1	− 5·0	− 2·7	− 1·2	1·4	0·3	− 2·4	− 1·4	4·0	− 0·6	− 1·8	− 2·7	− 2·8	n 5·4
Y.	1·8	1·9	2·6	4·1	5·2	4·6	0·0	− 7·9	−17·4	−24·5	n25·7	−21·6	−13·5	− 5·7	2·0	7·5	11·6	15·5	x17·1	14·1	11·4	7·7	5·0	4·3
W.	− 1·6	− 0·7	0·8	4·5	8·2	x10·3	8·9	4·4	− 2·1	− 8·0	−10·6	n11·4	− 9·3	− 5·2	− 2·3	1·0	1·5	3·3	5·5	2·7	1·8	1·2	− 1·6	− 1·5
Eq.	4·9	3·8	5·4	6·0	6·9	6·7	2·0	− 7·7	−20·3	−29·2	n32·0	−26·3	−16·3	− 6·9	0·7	6·4	12·1	14·7	x15·9	15·2	14·4	9·8	7·6	6·5
S.	2·1	2·5	1·6	1·7	0·5	− 3·3	−10·9	−20·2	−29·9	n36·3	−34·5	−27·0	−15·0	− 4·8	7·5	15·2	21·3	28·6	x29·8	24·5	18·0	12·1	8·8	7·7

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

Note.—The corrections formerly applied on account of the effect of the N. Force on the W. Magnetograph, etc., have been ignored this year as insignificant.

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

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

LV.—NORTH COMPONENT (*Quiet Days*).

Eskdalemuir. **1918.**

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.	Mid
	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.	2·2	1·2	1·8	2·8	6·2	x 7·7	7·5	6·9	3·3	− 5·3	−14·3	n18·4	−17·2	−15·4	− 7·6	− 2·4	1·6	4·3	4·3	5·9	5·9	6·1	7·3	5·6
F.	8·0	8·0	8·0	x 9·6	8·4	8·8	7·5	6·3	0·9	− 7·7	−13·5	−16·9	n17·5	−15·7	−13·1	−10·3	− 5·9	− 0·2	2·6	5·6	6·2	6·8	6·4	7·0
M.	9·6	9·3	9·2	8·8	9·9	11·3	9·6	4·7	− 7·1	−15·0	−30·4	n36·1	−20·5	−22·0	−11·4	− 1·5	3·4	7·4	12·1	12·4	9·8	12·1	x12·5	11·0
A.	9·9	10·3	8·5	9·3	8·9	10·9	9·2	− 0·2	−15·8	−31·4	n35·8	−33·8	−26·8	−19·0	− 8·6	− 0·4	8·2	15·4	13·7	x15·5	15·3	15·3	10·9	10·1
M.	8·5	7·6	5·7	8·4	11·7	8·8	0·1	− 9·2	−18·9	−29·2	n31·3	−28·6	−23·9	−15·4	− 4·9	5·2	12·9	15·6	x17·5	14·6	11·5	13·0	10·7	8·8
J.	6·9	4·8	5·6	7·2	9·2	7·9	4·9	− 1·5	−12·1	−23·8	−30·2	n31·2	−26·6	−18·1	− 3·9	3·3	6·0	12·4	x18·0	17·8	15·3	10·9	9·7	7·5
J.	8·2	8·9	10·1	11·8	10·5	5·9	− 2·6	−11·6	−23·7	−30·5	n33·3	−30·1	−23·6	−14·9	1·1	8·5	11·5	15·4	x15·7	14·6	14·6	13·0	11·7	8·9
A.	7·7	5·0	3·7	6·6	9·2	8·9	3·2	− 6·1	−18·4	−29·3	n31·7	−29·4	−25·9	−20·8	−12·5	0·9	12·4	14·9	15·2	x19·3	18·2	15·8	16·7	16·4
S.	9·9	9·1	8·0	9·2	10·0	7·3	3·5	− 5·9	−17·0	−28·2	n36·0	−33·3	−26·3	−21·7	− 8·0	− 1·8	5·8	11·3	16·3	x19·9	18·8	18·2	17·4	13·3
O.	7·7	6·2	6·4	8·4	9·9	7·9	5·9	0·4	− 8·9	−20·4	n26·6	−26·4	−25·4	−16·7	− 7·9	− 3·2	3·3	8·8	12·5	11·0	x14·3	12·3	10·5	10·0
N.	2·3	2·5	1·9	5·3	x 7·8	6·8	5·4	2·6	− 3·6	−11·3	n17·1	−16·5	−12·9	− 6·4	− 5·0	− 0·4	2·6	4·5	5·9	6·7	6·5	6·0	3·4	3·0
D.	0·7	1·3	1·7	1·9	3·1	3·7	2·9	− 0·3	− 3·3	− 6·1	− 5·9	− 6·7	n 7·0	− 4·8	− 2·6	− 1·4	1·8	x 3·8	3·6	3·2	3·2	3·0	3·2	1·1
Y.	6·8	6·2	5·9	7·4	8·7	8·0	4·8	− 1·2	−10·4	−19·9	−25·5	n25·6	−21·9	−15·9	− 7·0	− 0·3	5·3	9·5	11·5	x12·2	11·6	11·0	10·0	8·7
W.	3·3	3·2	3·3	4·9	6·3	x 6·7	5·8	3·9	− 0·7	− 7·6	−12·7	n14·6	−13·6	−10·6	− 7·1	− 3·6	0·0	3·1	4·1	5·4	5·5	5·5	5·1	4·3
Eq.	9·3	8·7	8·0	8·9	9·7	9·4	7·0	− 0·3	−12·2	−23·8	−32·2	n32·4	−27·0	−19·8	− 9·0	− 1·7	5·2	10·7	13·6	x14·7	14·5	14·4	12·8	11·2
S.	7·8	6·6	6·3	8·5	10·2	7·9	1·4	− 7·1	−18·2	−28·2	n31·6	−29·8	−25·0	−17·3	− 5·0	4·5	10·7	14·6	x16·6	x16·6	14·9	13·2	12·2	10·4

LVI.—WEST COMPONENT (*Quiet Days*).

Eskdalemuir. **1918.**

	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.	− 4·2	− 2·1	− 0·5	1·8	1·2	− 0·5	− 1·8	− 3·0	− 6·1	n 9·3	− 5·2	4·3	9·5	x14·2	11·6	6·7	3·5	2·6	1·9	− 0·1	− 2·6	− 5·6	− 7·9	− 8·3
F.	− 2·6	− 2·7	− 2·3	− 4·0	− 2·8	− 4·1	− 6·1	− 9·3	n12·2	− 9·6	− 1·5	7·5	11·7	x13·2	11·2	7·1	4·7	4·3	3·2	1·4	− 0·9	− 1·5	− 2·2	− 2·6
M.	− 2·4	− 1·0	− 0·9	− 2·7	− 3·6	− 5·4	−10·5	−15·3	n19·3	−15·4	− 3·6	11·1	23·3	x23·8	18·4	11·2	6·5	5·5	3·8	− 2·8	− 9·2	− 7·5	− 2·7	− 1·4
A.	− 1·4	− 2·0	− 1·0	− 7·0	−11·3	−13·7	−20·7	−27·5	n27·7	−18·7	− 4·4	12·4	x26·0	25·6	19·8	13·1	10·7	8·3	5·7	6·5	4·9	2·8	0·6	− 1·0
M.	3·9	− 1·6	− 9·7	−13·0	−20·3	−25·2	−31·7	n33·8	−30·3	−16·2	5·4	24·9	x35·2	32·7	25·0	16·5	7·6	3·7	3·4	5·3	6·2	5·2	3·5	3·2
J.	− 3·1	− 5·5	− 7·3	−10·7	−18·1	−24·9	−27·4	n30·0	−28·4	−20·0	− 5·8	11·0	24·4	28·8	x29·6	22·6	13·6	10·0	11·4	9·7	8·5	6·7	5·5	− 0·7
J.	− 0·8	− 1·0	− 5·2	− 8·8	−15·2	−22·6	−27·0	n31·3	−27·5	−21·1	− 6·7	12·9	24·5	x28·9	28·7	23·9	15·7	8·1	6·4	4·0	5·2	5·0	3·8	0·2
A.	0·7	− 1·3	− 0·8	− 7·4	−17·8	−27·3	−29·5	n33·0	−30·4	−17·4	− 0·5	17·5	x30·0	29·4	24·9	14·9	7·7	3·8	3·0	8·3	7·9	7·0	7·0	3·4
S.	− 4·3	− 3·3	− 5·9	− 9·8	−10·0	−10·2	−15·7	n23·7	−22·9	−14·8	− 1·4	13·6	24·5	x24·7	21·5	13·6	10·0	7·4	9·1	9·5	2·7	2·2	− 6·8	−10·2
O.	− 6·1	− 7·2	− 4·4	− 4·5	− 5·6	− 6·5	−11·4	−18·0	n22·9	−18·5	− 6·1	10·3	18·2	18·8	x19·4	12·8	10·2	9·0	3·9	5·8	2·4	2·0	0·2	− 2·0
N.	− 4·6	− 4·2	− 2·5	− 4·1	− 4·0	− 5·6	− 5·9	− 7·5	−10·0	− 6·4	2·3	14·1	x15·4	13·6	11·3	7·5	6·0	4·6	3·1	0·9	− 1·8	− 5·2	− 6·1	n11·3
D.	− 2·2	− 2·6	− 2·9	− 2·2	− 2·1	− 2·3	− 3·0	− 3·9	− 2·0	2·2	4·7	6·8	8·1	x 9·3	5·4	2·5	0·6	0·2	− 0·3	− 1·4	− 2·7	− 3·7	n 4·6	− 3·9
Y.	− 2·3	− 2·9	− 3·6	− 6·0	− 9·1	−12·4	−15·9	−19·7	n20·0	−13·7	− 1·9	12·2	20·9	x21·9	18·9	12·7	8·1	5·6	4·5	3·9	1·7	0·6	− 0·8	− 2·9
W.	− 3·4	− 2·9	− 2·1	− 2·1	− 1·9	− 3·1	− 4·2	− 5·9	n 7·6	− 5·8	0·1	8·2	11·2	x12·6	9·9	6·0	3·7	2·9	2·0	0·2	− 2·0	− 4·0	− 5·2	− 6·5
Eq.	− 3·5	− 3·4	− 3·0	− 6·0	− 7·6	− 9·0	−14·6	−21·1	n23·2	−16·8	− 3·9	11·8	23·0	x23·2	19·8	12·7	9·3	7·6	5·6	4·7	0·2	− 0·1	− 2·2	− 3·7
S.	0·2	− 2·4	− 5·8	−10·0	−17·8	−25·0	−28·9	n32·0	−29·1	−18·7	− 1·9	16·6	28·5	x30·0	27·0	19·5	11·2	6·4	6·0	6·8	7·0	6·0	4·9	1·5

LVII.—VERTICAL COMPONENT (*Quiet Days*).

Eskdalemuir. **1918.**

	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.	− 1·4	− 1·3	− 1·6	− 1·3	− 1·4	− 1·5	− 1·3	− 1·6	− 0·7	− 1·8	n 3·5	− 2·6	− 1·7	− 0·6	2·3	3·8	x 4·1	3·1	2·6	2·1	2·0	1·7	0·8	− 0·3
F.	0·1	− 0·5	− 0·9	− 0·9	− 1·6	− 2·0	− 1·0	− 0·1	0·3	− 0·7	− 2·8	n 3·2	− 2·6	− 0·1	2·9	x 3·6	2·6	1·4	1·3	1·3	1·1	1·2	0·6	0·0
M.	− 0·5	− 0·8	− 0·5	− 0·2	− 0·5	0·4	1·9	2·2	1·1	− 3·6	− 7·5	n 9·2	− 7·8	− 3·9	− 0·8	1·7	3·4	2·9	3·8	5·1	x 6·2	4·5	1·8	0·2
A.	1·3	2·8	2·2	1·1	1·8	2·2	2·7	1·9	− 1·0	− 4·6	− 7·9	n12·4	−11·8	− 6·3	− 1·1	2·2	2·9	4·3	x 6·0	4·6	4·1	2·5	1·8	0·7
M.	0·3	− 1·9	− 0·1	2·7	3·5	3·7	2·7	− 0·1	− 3·3	− 8·7	−15·5	n17·9	−13·3	− 6·7	− 0·1	6·7	10·5	x11·5	8·9	5·9	4·9	2·9	1·7	1·9
J.	3·0	3·6	4·9	5·9	5·5	4·4	3·4	0·6	− 4·1	− 8·9	−11·9	n17·2	−16·6	−11·6	− 6·7	0·5	4·3	6·0	6·0	7·2	x 7·3	6·3	4·7	3·4
J.	2·4	1·3	2·3	4·3	6·4	5·4	3·4	− 0·1	− 3·9	− 7·9	−12·8	−15·0	n15·4	−11·5	− 4·9	2·3	8·4	x 9·0	7·0	5·7	3·9	3·5	3·2	3·2
A.	− 3·8	− 2·4	− 1·6	− 0·2	3·7	5·5	x 6·3	5·9	3·2	− 2·2	− 7·4	n12·4	−11·7	− 6·9	− 1·1	1·9	4·3	5·4	4·2	3·6	4·2	2·7	0·9	− 2·1
S.	− 3·2	− 4·5	− 4·5	− 2·6	− 0·4	1·3	1·3	2·3	0·8	− 2·6	− 7·1	n10·5	− 9·1	− 4·0	3·0	7·7	x 8·3	6·8	5·4	4·2	4·7	3·3	0·6	− 1·2
O.	0·3	1·5	1·4	1·1	1·8	2·3	3·0	x 4·9	3·1	− 1·2	− 6·5	n 8·8	− 6·9	− 5·9	− 1·7	2·0	2·7	1·9	2·3	2·3	1·7	0·7	− 0·4	− 1·7
N.	0·2	0·6	0·5	− 0·6	− 0·6	− 0·7	− 0·8	− 1·0	− 0·7	− 3·0	− 3·8	n 3·9	− 0·8	0·6	2·9	x 3·4	2·4	1·9	1·2	1·0	1·1	1·2	0·0	− 1·1
D.	0·3	0·4	0·4	− 0·2	− 0·9	n 1·7	− 1·7	− 0·8	− 1·2	− 1·0	− 0·1	− 0·5	− 0·3	1·0	2·2	x 3·0	2·3	0·9	0·3	0·2	− 0·2	− 0·4	− 0·7	− 1·1
Y.	− 0·1	− 0·1	0·2	0·8	1·4	1·6	1·7	1·2	− 0·5	− 3·8	− 7·2	n 9·5	− 8·2	− 4·7	− 0·3	3·2	x 4·7	4·6	4·1	3·6	3·4	2·5	1·2	0·2
W.	− 0·2	− 0·2	− 0·4	− 0·7	− 1·1	− 1·5	− 1·2	− 0·9	− 0·6	− 1·6	n 2·6	− 2·5	− 1·3	0·2	2·6	x 3·4	2·9	1·8	1·4	1·1	1·0	0·9	0·2	− 0·6
Eq.	− 0·5	− 0·3	− 0·3	− 0·2	0·7	1·5	2·2	2·8	1·0	− 3·0	− 7·3	n10·2	− 8·9	− 5·0	− 0·1	3·4	4·3	4·0	x 4·4	4·1	4·2	2·8	1·0	− 0·5
S.	0·5	0·1	1·4	3·2	4·8	4·8	4·0	1·6	− 2·0	− 6·9	−11·9	n15·6	−14·2	− 9·2	− 3·2	2·8	6·8	x 8·0	6·5	5·6	5·1	3·9	2·6	1·6

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

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

Mean Hourly Values, Greenwich Mean Time, for the Months, Years, and Seasons.

Eskdalemuir. LVIII.—DECLINATION (measured positive towards the West) *Quiet Days.* **1918.**

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.	−0·96	−0·49	−0·20	0·18	−0·13	−0·57	−0·82	−1·00	−1·40	−1·49	−0·15	1·95	2·91	x3·71	2·74	1·46	0·60	0·25	0·10	−0·38	−0·87	−1·46	n1·99	−1·96
F.	−1·00	−1·01	−0·94	−1·36	−1·06	−1·33	−1·65	−2·21	n2·44	−1·42	0·53	2·50	3·35	x3·55	3·00	2·03	1·28	0·84	0·47	−0·07	−0·55	−0·71	−0·81	−0·97
M.	−1·05	−0·75	−0·73	−1·06	−1·31	−1·74	−2·65	−3·28	n3·34	−2·11	1·15	4·37	x6·36	5·99	4·30	2·29	1·07	0·63	0·00	−1·30	−2·39	−2·21	−1·28	−0·95
A.	−0·88	−1·02	−0·71	−1·93	−2·76	−3·35	−4·61	n5·37	−4·46	−1·75	1·30	4·48	x6·72	6·17	4·41	2·58	1·59	0·69	0·29	0·34	0·04	−0·39	−0·55	−0·85
M.	0·24	−0·78	−2·25	−3·06	−4·69	−5·47	n6·22	−6·06	−4·79	−1·40	2·95	6·61	x8·34	7·34	5·20	2·92	0·71	−0·22	−0·39	0·16	0·52	0·22	0·03	0·09
J.	−1·03	−1·37	−1·77	−2·54	−4·11	−5·36	−5·66	n5·78	−4 83	−2·47	0·70	4·04	6·39	x6·74	6·03	4·23	2·30	1·20	1·14	0·83	0·75	0·66	0·50	−0·59
J.	−0·65	−0·73	−1·62	−2·43	−3·61	−4·78	−5·13	n5·44	−3·96	−2·30	0·70	4·35	6·23	x6·57	5·56	4·17	2·39	0·66	0·30	−0·11	0·13	0·19	0·03	−0·50
A.	−0·33	−0·56	−0·39	−1·86	−4·05	−5·92	−6·00	n6·14	−4·88	−1·65	1·82	5·23	x7·47	7·05	5·65	2·88	0·78	−0·16	−0·33	0·46	0·45	0·42	0·37	−0·32
S.	−1·44	−1·20	−1·65	−2·48	−2·58	−2·46	−3·30	n4·31	−3·49	−1·20	1·90	4·69	x6·43	6·18	4·72	2·80	1·62	0·77	0·82	0·67	−0·61	−0·66	−2·40	−2·82
O.	−1·67	−1·80	−1·25	−1·39	−1·70	−1·75	−2·59	−3·56	n3·96	−2·41	0·41	3·62	x5·12	4·71	4·30	2·71	1·80	1·25	0·01	0·47	−0·39	−0·34	−0·60	−0·99
N.	−1·04	−0·97	−0·61	−1·12	−1·26	−1·51	−1·49	−1·63	−1·76	−0·57	1·49	3·78	x3·81	3·08	2·53	1·51	1·02	0·64	0·25	−0·22	−1·75	−1·38	−1·41	n2·40
D.	−0·47	−0·60	−0·67	−0·55	−0·59	−0·68	−0·77	−0·75	−0·19	0·79	1·28	1·74	2·03	x2·12	1·22	0·58	0·02	−0·20	−0·28	−0·47	−0·72	−0·92	n1·11	−0·83
Y.	−0·86	−0·94	−1·07	−1·63	−2·32	−2·91	−3·41	n3·80	−3·29	−1·50	1·17	3·95	x5·43	5·27	4·14	2·51	1·26	0·53	0·20	0·03	−0·37	−0·55	−0·77	−1·09
W.	−0·87	−0·77	−0·61	−0·71	−0·76	−1·02	−1·18	−1·40	−1·45	−0·67	0·79	2·49	3·02	x3·11	2·37	1·39	0·73	0·38	0·14	−0·28	−0·72	−1·12	−1·33	n1·54
Eq.	−1·26	−1·19	−1·08	−1·71	−2·09	−2·33	−3·29	n4·13	−3·81	−1·87	1·19	4·29	x6·16	5·76	4·43	2·60	1·52	0·83	0·28	0·04	−0·84	−0·90	−1·21	−1·40
S.	−0·44	−0·86	−1·51	−2·47	−4·12	−5·38	−5·75	n5·86	−4·61	−1·95	1·54	5·06	x7·11	6·92	5·61	3·55	1·54	0·37	0·18	0·34	0·46	0·37	0·23	−0·33

Eskdalemuir. LIX.—INCLINATION (*Quiet Days*). **1918.**

	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
J.	−0·09	−0·07	−0·14	−0·25	−0·45	n0·52	−0·48	−0·42	−0·11	0·48	0·93	x1·03	0·87	0·69	0·32	0·12	−0·07	−0·25	−0·25	−0·33	−0·28	−0·24	−0·29	−0·21
F.	−0·46	−0·47	−0·42	n0·56	−0·52	−0·53	−0·39	−0·22	0·19	0·67	0·82	x0·86	0·83	0·74	0·69	0·61	0·35	−0·04	−0·20	−0·36	−0·35	−0·38	−0·42	−0·44
M.	−0·58	−0·60	−0·58	−0·52	−0·57	−0·61	−0·36	0·06	0·86	1·18	1·83	x1·86	1·23	0·84	0·34	−0·09	−0·26	−0·51	n0·75	−0·61	−0·29	−0·51	−0·70	−0·67
A.	−0·57	−0·55	−0·47	−0·43	−0·30	−0·37	−0·11	0·61	1·54	x2·27	2·19	1·61	0·91	0·55	0·13	−0·18	−0·67	n1·05	−0·84	−1·00	−0·97	−0·97	−0·66	−0·65
M.	−0·62	−0·51	−0·18	−0·22	−0·26	0·02	0·69	1·25	1·73	x1·97	1·51	0·89	0·50	0·17	−0·19	−0·50	−0·72	−0·79	n0·97	−0·90	−0·74	−0·87	−0·72	−0·58
J.	−0·31	−0·11	−0·09	−0·11	−0·10	0·10	0·31	0·70	1·23	1·70	x1·76	1·36	0·81	0·31	−0·50	−0·65	−0·54	−0·84	n1·23	−1·16	−0·96	−0·67	−0·62	−0·38
J.	−0·45	−0·52	−0·49	−0·47	−0·22	0·20	0·78	1·36	1·97	x2·18	1·95	1·30	0·65	0·10	−0·76	n0·96	−0·84	−0·93	−0·95	−0·87	−0·94	−0·85	−0·75	−0·50
A.	−0·60	−0·36	−0·26	−0·29	−0·15	0·11	0·53	1·19	1·86	x2·16	1·86	1·23	0·78	0·58	0·28	−0·30	−0·84	−0·89	−0·93	n1·31	−1·22	−1·08	−1·19	−1·17
S.	−0·63	−0·63	−0·51	−0·46	−0·46	−0·23	0·12	0·90	1·56	2·04	x2·16	1·61	0·98	0·80	0·17	0·04	−0·37	−0·70	−1·09	n1·36	−1·14	−1·13	−0·97	−0·68
O.	−0·37	−0·22	−0·29	−0·43	−0·48	−0·32	−0·08	0·45	1·10	1·64	x1·67	1·27	1·10	0·55	0·08	0·00	−0·35	−0·69	−0·82	−0·76	n0·92	−0·81	−0·69	−0·64
N.	−0·05	−0·06	−0·06	−0·28	n0·43	−0·34	−0·25	−0·05	0·41	0·78	x0·96	0·68	0·50	0·16	0·17	−0·04	−0·23	−0·33	−0·41	−0·42	−0·36	−0·25	−0·10	0·00
D.	0·01	−0·02	−0·04	−0·08	−0·18	n0·23	−0·17	0·07	0·22	x0·32	0·28	0·28	0·29	0·15	0·12	0·12	−0·07	−0·23	−0·22	−0·18	−0·16	−0·13	−0·14	−0·02
Y.	−0·39	−0·34	−0·30	−0·34	−0·34	−0·23	0·05	0·49	1·05	1·45	x1·49	1·17	0·79	0·47	0·07	−0·15	−0·38	−0·60	−0·72	n0·77	−0·69	−0·66	−0·60	−0·50
W.	−0·15	−0·16	−0·17	−0·29	−0·40	n0·41	−0·32	−0·16	0·18	0·56	x0·75	0·71	0·62	0·44	0·32	0·20	0·00	−0·21	−0·27	−0·32	−0·29	−0·25	−0·24	−0·17
Eq.	−0·54	−0·50	−0·46	−0·46	−0·45	−0·38	−0·11	0·51	1·27	1·78	x1·96	1·59	1·05	0·69	0·18	−0·06	−0·41	−0·74	−0·88	n0·93	−0·83	−0·85	−0·76	−0·66
S.	−0·49	−0·37	−0·26	−0·27	−0·18	0·11	0·58	1·13	1·70	x2·00	1·77	1·20	0·69	0·29	−0·29	−0·60	−0·74	−0·86	−1·02	n1·06	−0·97	−0·87	−0·82	−0·66

Eskdalemuir. LX.—HORIZONTAL FORCE (*Quiet Days*). **1918.**

	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	0·5	1·6	3·2	6·3	x 7·2	6·6	5·7	1·3	− 7·8	−15·2	n16·3	−13·6	−10·5	− 3·8	− 0·3	2·5	4·9	4·7	5·6	4·8	4·2	4·6	3·0
F.	6·9	6·8	6·0	x 8·0	7·2	7·2	5·4	3·3	− 2·7	−10·2	−13·3	n13·9	−13·3	−11·1	− 9·2	− 7·8	− 4·3	1·1	3·5	5·8	5·7	6·1	6·5	6·5
M.	8·5	8·6	8·5	7·6	8·4	9·2	6·0	− 0·1	−12·5	−18·9	−30·1	n31·2	−21·2	−14·0	− 5·4	1·9	5·1	8·7	12·7	11·0	6·7	9·3	x11·2	10·1
A.	9·0	9·3	7·8	6·9	5·2	6·4	2·6	− 8·3	−23·3	n35·5	n35·5	−28·6	−17·9	−10·6	− 2·4	3·5	11·0	x17·2	14·7	16·7	16·0	15·4	10·6	9·9
M.	9·3	6·8	2·6	4·2	5·2	1·0	− 9·2	−18·7	−27·0	n32·7	−28·3	−20·0	−12·4	− 5·1	2·7	9·9	14·6	16·0	x17·8	15·6	12·9	14·0	11·3	9·4
J.	5·7	2·9	3·2	3·8	3·5	0·2	− 3·4	−10·2	−19·9	−28 7	n30·6	−26·6	−18·2	− 8·9	5·0	9·8	9·7	14·8	x20·6	19·9	17·1	12·4	10·9	7·0
J.	7·6	8·2	8·1	8·7	5·6	− 1·0	−10·4	−20·3	−30·7	n35·4	−33·8	−25·0	−15·4	− 5·7	9·5	15·2	15·6	x17·2	16·8	15·1	15·5	13·9	12·3	8·6
A.	7·6	4·4	3·3	4·2	3·5	0·5	− 5·6	−15·5	−26·5	n33·1	−30·5	−23·0	−16·0	−11·2	− 4·6	5·2	14·1	15·3	15·4	x20·9	19·8	17·1	18·0	16·7
S.	8·2	7·8	5·9	5·9	6·7	3·9	− 1·3	−12·6	−23·0	−31·3	n34·8	−27·9	−17·9	−13·5	− 1·4	2·3	8·5	12·9	18·3	x21·9	18·7	18·1	14·7	9·7
O.	5·6	3·8	4·9	6·8	7·8	5·7	2·3	− 4·9	−15·2	−24·9	n27·3	−22·2	−19·0	−10·4	− 1·9	0·7	6·1	11·1	13·1	12·2	x14·3	12·3	10·1	9·0
N.	0·8	1·1	1·1	3·9	6·2	4·8	3·4	0·3	− 6·3	−12·7	n15·7	−11·6	− 7·8	− 2·1	− 1·5	1·9	4·3	5·6	6·5	x 6·7	5·7	4·2	1·4	− 0·4
D.	0·0	0·4	0·8	1·2	2·4	2·9	1·9	− 1·4	− 3·7	n 5·2	− 4·2	− 4·4	− 4·4	− 1·9	− 0·9	− 0·6	1·9	x 3·7	3·4	2·7	2·3	1·8	1·8	− 0·1
Y.	5·8	5·1	4·5	5·3	5·7	4·0	− 0·1	− 6·9	−15·8	−23·0	n24·9	−20·9	−14·7	− 8·7	− 1·2	3·5	7·4	10·7	12·3	x12·8	11·6	10·7	9·4	7·4
W.	2·1	2·2	2·3	4·1	5·5	x 5·5	4·3	2·0	− 2·9	− 9·0	n12·1	−11·5	− 9·7	− 6·4	− 3·9	− 1·7	1·1	3·8	4·5	5·2	4·6	4·1	3·6	2·2
Eq.	7·8	7·4	6·8	6·8	7·0	6·3	2·4	− 6·5	−18·5	−27·7	n31·9	−27·5	−19·0	−12·1	− 2·7	2·1	7·7	12·5	14·7	x15·4	13·9	13·8	11·6	9·7
S.	7·5	5·6	4·3	5·2	4·5	0·2	− 7·2	−16·2	−26·0	n32·4	−30·8	−23·6	−15·5	− 7·7	3·1	10·0	13·5	15·8	17·6	x17·9	16·3	14·3	13·1	10·4

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

Note.—The corrections formerly applied on account of the effect of the N. Force on the W. Magnetograph, etc., have been ignored this year as insignificant.

LX*a*.-LX*c*.—SELECTED DISTURBED DAYS—DIURNAL INEQUALITIES OF THE GEOGRAPHICAL COMPONENTS OF MAGNETIC FORCE.

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

Eskdalemuir. LX*a*.—NORTH COMPONENT (*Disturbed Days*). 1918.

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.	24.
	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.	1·3	6·0	3·1	5·2	13·7	x17·0	15·9	13·8	1·9	0·8	− 3·9	−18·0	n21·5	−11·0	−13·3	− 6·2	1·5	− 8·0	− 4·5	− 6·0	7·1	8·8	− 6·1	2·2
F.	− 0·5	− 0·6	0·8	− 0·5	14·2	x16·8	14·7	9·4	0·2	− 8·9	−16·2	n22·1	−20·7	−16·6	− 8·3	5·9	− 0·4	8·0	12·5	9·8	− 0·1	1·1	1·6	− 0·1
M.	− 2·5	−28·2	n30·2	−11·6	7·0	15·4	9·9	3·5	− 1·9	−15·8	−24·6	−22·6	−15·4	− 1·7	− 6·7	8·5	10·1	x23·5	19·2	8·0	10·8	12·0	14·7	18·7
A.	3·7	3·4	13·2	11·1	7·9	6·0	1·1	3·7	−11·8	−38·0	n46·5	−45·5	−41·6	−14·3	2·5	7·0	21·0	28·7	x32·8	24·6	15·9	6·5	1·8	6·9
M.	−25·2	n33·3	−22·6	−22·6	− 9·7	− 6·7	− 9·2	−11·2	−22·5	−18·8	−21·2	−21·3	− 6·1	5·6	30·0	28·5	37·2	49·4	x67·3	49·3	26·0	− 4·7	−25·9	−32·4
J.	− 3·3	− 9·1	2·8	8·4	0·1	4·4	− 3·4	−30·7	−41·9	n47·2	−46·0	−41·1	−15·8	4·4	9·1	4·7	31·8	x42·9	41·7	33·4	19·2	8·3	12·5	14·8
J.	−14·9	4·1	7·3	7·0	5·8	− 0·4	−10·9	−13·9	−22·7	−36·2	n47·0	−38·2	−24·7	−16·7	4·1	20·4	40·6	x52·8	51·7	29·1	8·7	4·2	− 4·2	− 6·2
A.	15·7	4·4	− 2·8	− 4·6	3·9	17·3	4·0	−18·8	−32·6	n57·9	−50·1	−49·8	−25·4	−16·7	− 9·3	1·6	23·0	44·6	41·1	x51·1	20·8	6·6	12·8	21·1
S.	18·4	21·3	23·1	13·2	26·8	0·9	−12·3	−36·3	−35·0	n51·2	−50·5	−42·5	−15·4	−18·8	−10·5	3·6	26·6	19·3	21·9	18·0	x29·4	15·3	13·1	21·8
O.	10·4	0·4	− 0·3	10·7	7·0	24·0	− 2·2	−11·4	−27·9	−30·4	n31·6	−28·6	−23·3	−15·3	− 4·0	12·5	11·3	15·8	16·0	x19·3	18·1	9·6	14·6	5·4
N.	− 0·9	− 3·0	3·7	7·2	7·7	14·4	13·1	−11·0	n31·7	−26·6	−22·0	−16·7	−15·6	− 9·5	2·4	6·9	7·4	15·5	11·8	8·1	12·6	x21·9	2·2	2·2
D.	−15·6	−14·4	− 2·4	15·7	7·7	17·7	5·2	3·2	1·6	− 6·4	− 7·9	−15·1	− 6·3	− 1·6	4·2	22·7	12·1	x29·3	13·4	−18·4	− 4·2	n19·6	− 3·6	−17·1
Y.	− 1·1	− 4·1	− 0·4	3·3	7·7	10·6	2·2	− 8·3	−18·7	−28·1	n30·6	−30·1	−19·3	− 9·3	0·0	9·7	18·5	26·8	x27·1	18·9	13·7	5·8	2·8	3·1
W.	− 3·9	− 3·0	1·3	6·9	10·8	x16·5	12·2	3·9	− 7·0	−10·3	−12·5	n18·0	−16·0	− 9·7	− 3·7	7·3	5·2	11·2	8·3	− 1·6	3·9	3·1	− 1·5	− 3·2
Eq.	7·5	− 0·8	1·5	5·8	12·2	11·6	− 0·9	−10·1	−19·2	−33·8	n38·3	−34·8	−23·9	−12·5	− 4·7	7·9	17·2	21·8	x22·5	17·5	18·5	10·8	11·1	13·2
S.	− 6·9	− 8·5	− 3·8	− 2·9	0·0	3·6	− 4·9	−18·7	−29·9	−40·0	n41·1	−37·6	−18·0	− 5·9	8·5	13·8	33·2	47·4	x50·5	40·7	18·7	3·6	− 1·2	− 0·7

Eskdalemuir. LX*b*.—WEST COMPONENT (*Disturbed Days*). 1918.

	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.	−28·7	− 9·4	−13·4	− 5·7	− 4·3	− 2·8	− 1·2	− 1·7	− 1·3	− 0·6	4·5	9·9	21·6	31·8	31·3	28·5	x33·4	18·6	26·7	15·1	−16·9	−39·0	−45·6	n50·9
F.	−34·6	n55·2	−49·7	−48·3	−20·1	− 5·4	− 1·8	− 3·0	− 1·1	1·7	9·9	16·2	22·6	35·4	x36·7	32·9	32·1	32·8	29·4	13·6	2·7	− 5·5	−18·3	−23·2
M.	−25·3	n47·0	−46·2	−20·3	− 9·6	− 4·9	− 4·7	− 4·8	− 8·7	− 0·4	11·4	26·1	37·0	x45·3	36·5	22·6	21·3	− 3·4	1·8	− 5·5	− 3·6	− 3·9	− 4·9	− 8·8
A.	n47·8	−47·0	−24·8	−24·7	1·7	− 0·9	− 7·4	−16·6	−20·0	−10·3	11·3	32·1	47·1	x50·4	47·6	40·2	38·9	28·7	12·1	− 9·6	−11·6	−13·9	−34·7	−40·9
M.	−40·6	−16·9	−15·9	−10·6	−14·8	−17·7	−18·4	−18·7	−11·5	− 0·3	7·2	17·4	29·7	x37·6	36·8	31·4	31·7	32·8	22·5	5·5	− 0·6	−16·0	−29·1	n41·4
J.	−20·3	− 4·1	−20·9	−23·7	−32·3	−26·7	−27·4	n33·4	−31·0	−22·4	− 8·0	6·9	15·1	33·3	x42·1	34·3	33·7	29·6	31·4	17·2	10·8	8·8	4·8	−17·8
J.	−18·5	− 2·1	−11·6	− 4·5	− 6·9	−25·2	n32·5	−29·3	−28·4	−19·7	− 5·3	16·4	29·5	37·3	42·8	x46·3	40·9	28·0	8·1	− 4·3	− 8·6	−16·3	−14·1	−22·2
A.	−22·2	−11·1	− 0·9	−10·0	−13·4	−16·1	n22·9	−20·4	−18·8	−20·9	− 3·9	15·8	x35·4	30·7	32·9	28·2	25·2	18·7	5·9	12·2	4·4	− 9·7	−21·1	−18·2
S.	−23·9	n25·6	−16·9	−18·0	− 9·6	4·5	3·4	− 1·7	− 5·7	− 1·0	9·9	23·2	x36·0	27·7	29·8	18·3	16·1	2·8	− 4·1	1·0	−19·2	− 8·1	−23·6	−15·3
O.	−17·1	− 8·6	−11·2	− 5·4	14·7	4·5	− 5·1	− 9·0	−23·0	− 3·0	8·3	19·5	x33·5	29·6	31·0	19·0	17·9	9·7	−20·1	n30·4	−11·4	−15·4	−14·3	−13·7
N.	−22·8	− 8·0	−21·5	− 1·4	17·5	16·0	11·5	0·3	1·0	− 1·1	10·6	19·9	24·4	24·0	18·5	x33·8	− 4·3	− 8·0	− 4·9	−16·2	−13·4	−19·9	n30·8	−25·1
D.	−11·3	−11·1	− 0·1	− 0·7	6·3	22·1	28·5	17·0	13·4	18·8	24·6	31·6	37·8	x41·2	38·0	28·8	11·6	− 7·4	−40·2	−42·2	n84·7	−70·5	−39·1	−12·3
Y.	n26·1	−20·5	−19·4	−14·4	− 5·9	− 4·4	− 6·5	−10·1	−11·3	− 4·9	6·7	19·6	30·8	x35·4	35·3	30·4	24·9	15·2	5·7	− 3·6	−12·7	−17·4	−22·6	−24·1
W.	−24·3	−20·9	−21·2	−14·0	− 0·1	7·5	9·3	3·1	3·0	4·7	12·4	19·4	26·6	x33·1	31·1	31·0	18·2	9·0	2·8	− 7·4	−28·1	n33·7	−33·4	−27·9
Eq.	−28·5	n32·1	−24·8	−17·1	− 0·7	0·8	− 3·4	− 8·0	−14·4	− 3·6	10·2	25·2	x38·4	38·3	36·2	25·0	23·5	9·5	− 2·6	−11·1	−11·5	−10·3	−19·4	−19·7
S.	−25·4	− 8·5	−12·3	−12·2	−16·8	−21·4	−25·3	n25·5	−22·4	−15·8	− 2·5	14·1	27·4	34·7	x38·7	35·1	32·9	27·3	17·0	7·6	1·5	− 8·3	−14·9	−24·9

Eskdalemuir. LX*c*.—VERTICAL COMPONENT (*Disturbed Days*). 1918.

	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.	−18·2	−23·0	−12·5	− 8·8	− 9·8	− 9·1	− 8·8	− 8·2	− 7·9	−10·0	−10·2	− 7·3	− 2·6	2·6	12·9	16·0	17·6	25·7	26·0	x29·0	25·1	10·8	− 5·8	n23·3
F.	−13·9	−25·9	−28·6	n37·0	−33·0	−26·6	−17·9	−11·5	− 6·9	− 7·3	− 6·6	− 2·4	1·6	7·2	16·1	22·9	28·9	32·1	x40·3	25·6	22·2	17·8	8·5	− 5·7
M.	−38·8	−46·2	n48·6	−29·9	−24·1	−16·9	−12·5	− 8·2	− 6·0	− 7·0	− 6·0	− 4·9	1·5	12·0	21·5	33·3	34·2	x41·6	31·2	23·8	18·7	16·3	10·9	4·1
A.	−48·1	n54·6	−49·3	−42·2	−38·5	−31·8	−15·2	− 3·5	1·8	0·9	− 1·6	1·2	7·3	24·4	34·7	45·2	55·9	x67·7	63·4	48·3	7·4	− 8·3	−22·4	−42·7
M.	−58·7	n66·3	−55·5	−55·3	−26·7	− 3·0	5·4	10·0	13·6	11·4	8·8	11·1	17·9	29·1	38·5	39·3	34·2	33·8	41·6	x47·8	28·2	− 6·4	−50·2	−48·7
J.	−22·8	−44·8	n46·4	−37·6	−28·6	−17·2	−10·4	− 7·2	− 8·0	− 8·6	− 5·6	− 2·8	20·6	36·4	30·4	30·2	36·4	x39·6	33·2	29·6	16·0	− 4·8	− 9·0	−19·6
J.	n28·3	−20·0	−17·1	−18·6	−19·9	−13·4	− 9·2	− 7·9	− 8·6	− 7·5	− 9·0	−10·9	− 6·2	3·1	8·2	15·9	31·8	46·3	x47·4	35·4	16·7	− 2·8	− 7·9	−17·6
A.	−10·4	−14·8	−37·1	n44·9	−23·4	− 9·8	− 1·5	1·5	1·2	0·6	− 2·3	4·3	4·8	12·4	16·7	18·9	19·8	22·4	24·5	x31·3	17·4	− 2·8	−15·5	−13·7
S.	−24·6	−24·2	−33·3	n42·5	−35·2	−37·2	−29·7	−23·7	−10·5	− 5·2	− 2·0	2·5	26·1	33·4	38·6	49·2	47·9	x49·9	42·2	19·4	− 1·6	−16·5	−12·3	−10·8
O.	−19·7	−19·4	−25·8	−28·2	n37·9	−36·1	−25·8	−15·7	− 8·2	− 6·9	− 6·6	− 5·7	− 2·9	11·9	35·2	46·0	x50·6	46·1	36·7	24·5	15·3	4·1	− 7·8	−23·7
N.	−27·9	−37·8	−27·6	−24·5	−30·8	n40·0	−35·3	−22·9	−17·0	−11·5	− 5·7	6·6	11·4	15·7	25·3	28·0	39·3	36·5	x57·4	48·4	40·1	16·7	−12·4	−25·9
D.	−52·3	n59·0	−52·4	−42·1	−35·7	−35·3	−31·4	−23·8	−18·9	−12·1	− 8·5	− 0·4	15·2	44·5	43·3	59·2	73·0	x99·4	81·7	31·5	0·2	−12·0	−23·4	−40·7
Y.	−30·3	n36·3	−36·2	−34·3	−29·1	−23·0	−16·0	−10·1	− 6·3	− 5·3	− 4·6	− 0·7	7·9	19·4	26·8	33·7	39·1	x45·1	43·8	32·9	17·2	1·0	−12·3	−22·4
W.	−28·1	n36·4	−30·3	−28·1	−28·8	−27·8	−23·3	−16·6	−12·7	−10·2	− 7·7	− 0·9	6·4	17·5	24·4	31·5	39·7	48·4	x51·3	33·6	21·9	8·3	− 8·3	−23·9
Eq.	−32·8	−36·1	n39·3	−35·7	−33·9	−30·5	−20·8	−12·8	− 5·7	− 4·5	− 4·0	− 1·7	8·0	20·4	32·5	43·4	47·2	x51·3	43·4	29·0	10·0	− 1·1	− 7·9	−18·3
S.	−30·1	−36·5	−39·0	n39·1	−24·6	−10·9	− 3·9	− 0·9	− 0·4	− 1·0	− 2·0	0·4	9·3	20·3	23·5	26·1	30·5	35·5	x36·7	36·1	19·6	− 4·2	−20·6	−24·9

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

LX*d*.–LX*f*.—SELECTED DISTURBED DAYS—DIURNAL INEQUALITIES.

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

Eskdalemuir. LX*d*.—DECLINATION (measured positive towards the West).—*Disturbed Days*. 1918.

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.	−5·70	− 2·21	−2·81	−1·43	−1·67	−1·58	−1·19	−1·17	−0·36	−0·17	1·11	3·03	5·53	6·90	*x*6·93	5·96	6·45	4·13	5·50	3·32	−3·74	−8·18	−8·56	*n*10·11
F.	−6·75	*n*10·78	−9·80	−9·44	−4·80	−2·08	−1·24	−1·15	−0·23	0·88	2·93	4·51	5·69	*x*7·95	7·69	6·09	6·32	5·94	5·00	2·08	0·53	−1·14	−3·68	− 4·55
M.	−4·80	*n* 7·49	−7·23	−3·28	−2·30	−1·89	−1·53	−1·16	−1·58	0·89	3·72	6·49	8·19	*x*8·99	7·55	3·91	3·57	−2·09	−0·82	−1·57	−1·36	−1·48	−1·86	− 2·86
A.	*n*9·58	− 9·42	−5·67	−5·50	−0·15	−0·54	−1·51	−3·48	−3·21	0·30	5·04	9·05	*x*11·75	10·75	9·17	7·45	6·35	3·88	0·37	−3·37	−3·24	−3·11	−6·91	− 8·44
M.	*n*6·43	− 1·29	−1·75	−0·70	−2·32	−3·06	−3·04	−2·99	−0·88	1·07	2·70	4·69	6·19	*x*7·04	5·39	4·43	3·94	3·44	0·34	−1·91	−1·69	−2·86	−4·13	− 6·14
J.	−3·78	− 0·26	−4·26	−5·15	*n*6·33	−5·49	−5·17	−4·69	−3·54	−1·53	1·22	3·83	3·91	6·26	*x*7·70	6·44	4·69	3·20	3·63	1·35	0·95	1·23	0·19	− 4·37
J.	−2·73	− 0·65	−2·71	−1·31	−1·70	−4·91	*n*5·72	−4·89	−4·19	−1·68	1·81	5·53	7·27	*x*8·33	8·15	7·83	5·57	2·30	−1·55	−2·60	−2·21	−3·46	−2·50	− 3·97
A.	*n*5·32	− 2·46	0·00	−1·70	−2·87	−4·22	−4·75	−2·89	−1·73	−0·62	2·27	6·12	*x*8·52	7·06	7·05	5·46	3·58	0·98	−1·32	−0·69	−0·38	−2·31	−4·93	− 4·86
S.	−5·83	*n* 6·33	−4·72	−4·33	−3·52	0·83	1·42	1·87	0·99	2·90	5·01	7·15	*x*8·02	6·59	6·51	3·40	1·56	−0·62	−2·13	−0·88	−5·56	−2·52	−5·44	− 4·32
O.	−3·99	− 1·73	−2·19	−1·71	2·47	−0·57	−0·86	−1·09	−2·84	1·25	3·54	5·57	*x*8·02	6·75	6·35	2·99	2·84	0·96	−4·92	*n*7·17	−3·34	−3·61	−3·71	− 3·03
N.	−4·43	− 1·40	−4·47	−0·71	2·98	2·29	1·48	0·72	2·11	1·39	3·42	4·93	5·76	5·29	3·40	*x*6·24	−1·30	−2·51	−1·67	−3·67	−3·41	−5·25	*n*6·20	− 5·08
D.	−1·28	− 1·32	0·12	−1·08	0·78	3·29	5·31	3·15	2·53	4·08	5·32	7·13	7·82	*x*8·21	7·23	4·31	1·56	−3·22	−8·72	−7·19	*n*16·44	−12·72	−7·49	− 1·40
Y.	*n*5·05	− 3·78	−3·79	−3·03	−1·63	−1·50	−1·40	−1·48	−1·08	0·73	3·17	5·67	7·22	*x*7·51	6·94	5·38	3·76	1·36	−0·52	−1·86	−3·33	−3·78	−4·60	− 4·93
W.	−4·54	− 3·93	−4·24	−3·17	−0·68	0·48	1·09	0·38	1·01	1·55	3·19	4·90	6·20	*x*7·09	6·34	5·65	3·26	1·09	0·03	−1·37	−5·76	*n*6·82	−6·48	− 5·28
Eq.	−6·05	*n* 6·24	−4·95	−3·71	−0·88	−0·54	−0·62	−0·96	−1·66	1·33	4·33	7·06	*x*8·99	8·27	7·40	4·44	3·58	0·53	−1·88	−3·25	−3·38	−2·68	−4·48	− 4·66
S.	−4·57	− 1·16	−2·18	−2·22	−3·31	−4·42	−4·67	−3·86	−2·59	−0·69	2·00	5·04	6·47	*x*7·17	7·07	6·04	4·45	2·48	0·28	−0·96	0·83	−1·85	−2·84	*n* 4·84

Eskdalemuir. LX*e*.—INCLINATION (*Disturbed Days*). 1918.

	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
J.	0·03	−0·77	−0·25	−0·44	−1·04	*n*1·26	−1·21	−1·06	−0·29	−0·29	−0·10	0·77	0·88	0·14	0·55	0·23	−0·32	0·78	0·41	0·81	0·50	0·48	*x*1·15	0·29
F.	0·38	0·49	0·23	0·07	1·34	*n*1·63	−1·35	−0·83	−0·16	0·36	0·68	*x*1·03	0·92	0·54	0·20	−0·46	0·11	−0·36	−0·38	−0·26	0·50	0·48	0·47	0·32
M.	−0·30	1·58	*x*1·64	0·40	−0·86	*n*1·31	−0·85	−0·33	0·15	0·84	1·20	0·81	0·29	−0·50	0·24	−0·16	−0·22	−0·40	−0·49	0·19	−0·15	−0·28	−0·57	− 0·92
A.	−0·49	−0·65	*n*1·58	−1·27	−1·50	−1·16	−0·30	0·00	1·20	2·66	*x*2·72	2·31	1·92	0·53	−0·24	−0·12	−0·73	−0·72	−0·76	−0·19	−0·60	−0·35	0·02	− 0·69
M.	0·96	0·82	0·38	0·28	0·25	0·71	1·09	1·34	*x*2·01	1·50	1·44	1·30	0·25	−0·38	−1·69	−1·47	−2·16	−2·98	*n*3·73	−2·08	−0·96	0·46	0·99	1·68
J.	0·05	−0·45	−0·92	−1·01	−0·08	−0·18	−0·50	2·45	3·10	*x*3·26	2·97	2·43	1·23	−0·03	−0·66	−0·23	−1·80	−2·35	*n*2·47	−1·74	−1·05	−0·82	−1·12	− 1·09
J.	0·62	−0·72	−0·66	−0·83	0·73	0·19	1·11	1·27	1·81	2·52	*x*2·90	1·86	0·85	0·41	−0·90	−1·83	−2·62	*n*2·79	−2·30	−0·90	0·03	−0·02	0·35	0·40
A.	−0·83	−0·43	−0·73	−0·63	−0·57	−1·04	0·16	1·65	2·49	*x*4·14	3·23	2·99	1·05	0·78	0·36	−0·18	−1·48	−2·67	−2·14	*n*2·74	−0·99	−0·30	−0·80	− 1·33
S.	−1·32	−1·46	−1·98	−1·55	*n*2·41	−1·07	−0·02	1·77	2·10	*x*3·17	3·00	2·33	0·93	1·49	1·05	0·64	−0·83	−0·05	−0·28	−0·69	−1·55	−1·23	−0·68	− 1·36
O.	−0·82	−0·34	−0·40	−1·28	−1·68	*n*2·53	−0·40	0·52	*x*2·04	1·84	1·70	1·31	0·76	0·69	0·52	−0·04	0·18	−0·06	0·28	−0·03	−0·56	−0 21	−0·85	− 0·67
N.	−0·19	−0·59	−0·50	−1·05	−1·75	*n*2·24	−1·94	0·13	*x*1·59	1·45	1·06	0·84	0·80	0·53	0·11	−0·41	0·59	0·07	0·77	1·01	0·46	−0·59	0·16	− 0·29
D.	−0·07	−0·32	−1·14	−2·04	−1·50	*n*2·44	−1·67	−1·13	−0·84	−0·26	−0·19	0·34	0·04	0·40	0·06	−0·55	0·81	0·73	1·96	*x*2·79	1·94	2·34	0·42	0·33
Y.	−0·17	−0·24	−0·49	−0·78	−1·10	*n*1·16	−0·41	0·48	1·27	*x*1·77	1·72	1·53	0·83	0·38	−0·03	−0·38	−0·71	−0·90	−0·76	−0·32	−0·20	0·00	−0·04	− 0·28
W.	0·04	−0·30	−0·42	−0·86	−1·41	*n*1·89	−1·54	−0·72	0·08	0·31	0·36	0·75	0·66	0·40	0·23	−0·30	0·30	0·31	0·69	*x*1·09	0·85	0·67	0·55	0·16
Eq.	−0·73	−0·22	−0·58	−0·93	*n*1·61	−1·51	−0·39	0·49	1·37	2·13	*x*2·15	1·69	0·97	0·55	0·39	0·08	−0·40	−0·31	−0·31	−0·18	−0·71	−0·52	−0·52	− 0·91
S.	0·20	−0·20	−0·48	−0·55	−0·28	−0·08	0·71	1·68	2·35	*x*2·85	2·63	2·15	0·84	0·20	−0·72	−0·93	−2·02	*n*2·70	−2·66	−1·87	−0·74	−0·17	−0·15	− 0·08

Eskdalemuir. LX*f*.—HORIZONTAL FORCE (*Disturbed Days*). 1918.

	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.	− 7·2	3·0	− 1·0	3·3	11·8	*x*15·4	14·9	12·7	1·5	0·6	− 2·4	−14·3	−14·1	− 1·1	− 3·4	2·5	11·3	− 2·1	3·6	− 1·3	1·8	− 3·1	*n*19·3	−13·0
F.	−10·7	*n*16·9	−14·0	−14·8	7·6	14·4	13·5	8·1	− 0·2	− 8·0	−12·5	−16·3	−13·1	− 5·3	3·0	15·4	9·2	17·3	*x*20·6	13·4	0·7	− 0·6	− 3·9	− 6·9
M.	− 9·9	−40·8	*n*42·5	−17·1	3·8	13·2	8·1	1·9	− 4·4	−15·2	−20·1	−13·9	− 3·8	11·8	4·4	14·8	15·9	*x*21·4	18·9	6·0	9·2	10·3	12·6	15·3
A.	−10·6	−10·6	5·3	3·3	8·1	5·5	− 1·2	− 1·3	−17·2	−39·3	*n*41·1	−33·9	−25·8	1·2	16·5	18·5	31·6	*x*35·9	34·8	20·7	11·7	2·2	− 8·5	− 5·5
M.	−36·1	−36·8	−26·3	−24·7	−13·6	−11·6	−14·2	−16·3	−24·9	−18·0	−18·2	−15·2	2·9	16·5	39·5	36·5	44·9	56·9	*x*71·0	48·7	24·7	− 9·2	−33·4	*n*43·2
J.	− 9·2	− 9·9	− 3·5	1·1	− 9·4	− 3·7	−11·3	−39·2	−49·2	*n*51·7	−46·3	−37·3	−10·7	14·0	21·1	14·6	40·3	*x*49·7	49·1	36·9	21·6	10·5	13·4	8·9
J.	−19·7	3·3	3·5	5·4	3·5	− 7·8	−19·9	−21·9	−30·1	−40·4	*n*46·5	−31·7	−14·9	− 5·0	16·5	33·2	50·9	*x*58·7	51·8	26·6	5·8	− 0·8	− 8·2	−12·5
A.	8·5	0·9	− 2·9	− 7·3	− 0·2	11·8	− 2·9	−24·0	−36·6	*n*61·5	−49·0	−43·0	−13·8	− 7·0	0·8	9·8	29·4	48·2	41·0	*x*52·4	21·1	3·5	6·1	14·8
S.	10·6	12·8	17·1	7·3	22·8	2·1	−10·8	−35·2	−35·2	*n*49·2	−45·4	−33·8	− 4·1	− 9·8	− 1·3	8·8	*x*30·2	19·2	19·7	17·5	22·5	12·2	5·6	16·3
O.	4·9	− 2·1	− 3·6	8·7	11·0	24·3	− 3·6	−13·6	*n*33·4	−29·9	−27·8	−21·6	−12·4	− 6·0	5·3	17·5	16·0	*x*17·9	9·4	9·5	13·9	4·7	9·8	1·1
N.	− 7·5	− 5·2	− 2·8	6·5	12·5	*x*18·5	15·9	−10·5	*n*30·1	−25·8	−17·9	−10·1	− 7·7	− 2·0	7·7	16·5	5·8	12·5	9·8	3·0	8·1	15·0	− 7·0	− 5·2
D.	−18·3	−17·0	− 2·3	14·8	9·2	23·4	13·3	8·0	5·5	− 0·6	− 0·4	− 5·2	5·1	10·5	15·2	*x*30·1	15·0	25·9	1·0	−30·0	−28·8	*n*39·4	−14·9	−19·9
Y.	− 8·8	−10·0	− 6·1	− 1·1	5·6	8·8	0·1	−10·9	−21·2	*n*28·3	−27·3	−23·0	− 9·4	1·5	10·4	18·2	25·0	*x*30·1	27·6	17·0	9·4	0·4	− 4·0	− 4·2
W.	−10·9	− 9·0	− 5·0	2·4	10·3	*x*17·9	14·4	4·6	− 5·8	− 8·5	− 8·3	*n*11·4	− 7·5	0·5	5·6	16·1	10·3	13·4	8·8	− 3·7	− 4·6	− 7·0	*n*11·3	−11·0
Eq.	− 1·2	−10·2	− 5·9	0·6	11·4	11·3	− 1·9	−12·0	−22·6	−33·4	*n*33·6	−25·8	−11·6	− 0·7	6·2	14·9	23·4	*x*23·6	20·7	13·4	14·3	7·3	4·9	6·8
S.	−14·1	−10·6	− 7·3	− 6·4	− 4·9	− 2·8	−12·1	−25·3	−35·2	*n*42·9	−40·0	−31·8	− 9·1	4·6	19·5	23·5	41·4	*x*53·3	53·2	41·2	18·3	1·0	− 5·5	− 8·0

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

Note—The corrections formerly applied on account of the effect of the N. Force on the W. Magnetograph, etc., have been ignored this year as insignificant.

LXg.—LXI.—LXII.—DIURNAL INEQUALITIES OF DECLINATION AND HORIZONTAL FORCE.

Derived from readings at exact hours, Greenwich Mean Time.

LXg.—DECLINATION (measured positive towards the West)—*All days except disturbed days.*

Richmond (Kew Observatory). **1918.**

Month and Season.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
J.	−1·99	−1·82	−0·92	−0·15	−0·10	−0·66	−1·09	−1·47	−1·71	−1·34	0·59	2·42	3·68	*x*4·11	3·33	2·34	1·39	0·57	0·15	−0·38	−1·09	−1·72	*n*2·02	*n*2·02
F.	−1·43	−1·26	−1·30	−1·13	−0·94	−1·03	−1·31	−1·68	−1·89	−0·79	1·13	2·98	3·82	*x*4·21	3·66	2·81	1·68	0·76	0·18	−0·70	−1·81	*n*2·25	−2·06	−1·69
M.	−0·99	−1·01	−1·13	−1·37	−1·61	−2·21	−3·68	*n*4·99	−4·62	−2·22	2·48	6·18	*x*7·79	7·37	5·40	3·10	0·92	−0·17	−1·06	−1·81	−1·91	−1·85	−1·39	−1·17
A.	−1·10	−1·26	−1·42	−1·99	−2·10	−2·66	−4·18	*n*5·43	−4·77	−2·04	1·64	5·06	*x*7·32	7·11	5·41	3·54	1·85	0·51	−0·12	−0·37	−0·83	−1·35	−1·50	−1·34
M.	−0·65	−0·99	−1·32	−2·15	−3·19	−4·42	*n*5·46	−5·29	−3·92	−1·13	2·50	5·28	*x*6·49	6·34	4·84	3·16	1·66	0·41	−0·30	−0·35	−0·43	−0·23	−0·32	−0·46
J.	−0·79	−0·98	−1·59	−2·84	−3·96	−4·88	*n*5·20	−5·07	−3·85	−1·26	2·46	4·93	6·38	*x*6·39	5·34	3·53	1·70	0·68	0·01	−0·06	0·14	0·08	−0·44	−0·75
J.	−1·07	−1·32	−1·98	−2·66	−3·93	*n*5·18	−5·17	−4·68	−3·37	−1·13	2·13	4·91	6·27	*x*6·45	5·59	4·15	2·46	1·19	0·10	−0·37	−0·33	−0·45	−0·73	−0·89
A.	−1·17	−1·32	−1·53	−2·49	−3·65	−4·62	*n*5·11	−4·90	−3·19	−0·43	3·09	6·00	*x*7·47	7·12	5·62	3·45	1·53	−0·10	−0·84	−0·51	−0·72	−1·36	−1·33	−1·08
S.	−1·24	−1·67	−2·37	−2·86	−2·87	−2·94	−3·59	*n*3·81	−2·32	0·41	4·25	6·63	*x*7·09	6·32	4·78	2·52	0·92	−0·08	−0·96	−1·35	−1·69	−1·87	−1·94	−1·45
O.	−1·37	−1·45	−1·25	−0·91	−0·65	−1·11	−2·10	−3·14	*n*3·15	−1·28	2·00	4·98	*x*6·01	5·78	4·63	2·61	1·12	0·35	−0·56	−1·58	−2·27	−2·34	−2·36	−1·86
N.	−0·86	−0·56	−0·30	−0·21	−0·86	−1·31	−1·40	−1·62	−1·61	−0·09	2·36	4·30	*x*4·44	3·84	2·91	2·06	1·03	−0·10	−0·93	−1·58	−2·41	*n*2·58	*n*2·58	−1·80
D.	−0·53	−0·25	−0·12	−0·48	−0·83	−0·55	−0·41	−0·27	0·12	1·17	2·06	2·38	*x*2·58	2·35	1·96	1·53	0·89	−0·23	−1·04	−1·60	*n*2·57	−2·55	−2·12	−1·48
Y.	−1·10	−1·16	−1·27	−1·60	−2·06	−2·63	−3·23	*n*3·53	−2·86	−0·84	2·22	4·67	*x*5·78	5·62	4·46	2·90	1·43	0·32	−0·45	−0·89	−1·33	−1·54	−1·57	−1·33
W.	−1·21	−0·97	−0·66	−0·49	−0·68	−0·89	−1·05	−1·26	−1·27	−0·26	1·53	3·02	*x*3·63	*x*3·63	2·96	2·18	1·25	0·25	−0·41	−1·07	−1·97	*n*2·28	−2·20	−1·75
Eq.	−1·17	−1·35	−1·54	−1·78	−1·81	−2·23	−3·39	*n*4·34	−3·72	−1·28	2·59	5·71	*x*7·05	6·64	5·06	2·94	1·20	0·15	−0·68	−1·28	−1·67	−1·85	−1·80	−1·45
S.	−0·92	−1·15	−1·60	−2·53	−3·68	−4·77	*n*5·24	−4·98	−3·58	−0·99	2·55	5·28	*x*6·65	6·57	5·35	3·57	1·84	0·55	−0·26	−0·32	−0·34	−0·49	−0·70	−0·79

LXI.—DECLINATION (*Quiet days*).

Kew Observatory. **1918.**

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Midt.
	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′	′
J.	−0·87	−0·55	−0·18	0·46	0·24	−0·36	−0·92	−1·46	*n*1·79	−1·63	0·47	2·17	3·09	*x*3·39	2·43	1·24	0·42	0·08	−0·22	−0·62	−0·90	−1·35	−1·65	−1·41
F.	−1·05	−0·97	−0·90	−0·75	−0·53	−1·04	−1·67	−2·59	*n*2·76	−1·51	0·65	2·64	3·13	*x*3·27	2·88	1·83	1·33	0·72	0·19	−0·35	−0·64	−0·69	−0·59	−0·62
M.	−0·76	−0·64	−0·57	−0·47	−0·92	−1·54	−2·73	*n*3·76	−3·74	−1·81	1·73	4·76	*x*6·05	5·53	3·66	1·94	0·61	0·26	−0·32	−1·51	−2·11	−1·88	−1·16	−0·69
A.	−0·52	−0·78	−0·56	−1·57	−2·23	−3·01	−4·53	*n*5·69	−4·75	−1·70	2·24	5·10	*x*6·82	5·88	3·99	2·21	1·01	0·13	0·15	0·09	−0·36	−0·52	−0·74	−0·66
M.	0·31	−0·69	−1·57	−2·59	−4·15	−5·29	*n*6·14	−6·08	−4·60	−1·12	3·52	6·98	*x*7·86	6·90	4·50	2·20	0·36	−0·49	−0·65	0·07	0·13	0·13	0·09	0·29
J.	−0·64	−0·84	−1·20	−2·25	−3·57	−4·75	−5·29	*n*5·33	−4·55	−2·20	0·92	4·28	6·22	*x*6·26	5·15	3·45	1·65	0·85	0·63	0·45	0·42	0·38	0·28	−0·30
J.	−0·23	−0·44	−1·12	−2·07	−3·49	−4·40	−4·84	*n*5·06	−3·95	−1·75	1·72	4·82	*x*6·28	5·99	4·85	3·04	1·14	−0·14	−0·17	−0·25	0·08	0·04	0·05	−0·13
A.	−0·28	−0·37	−0·53	−1·92	−3·75	−5·34	−5·71	*n*5·78	−4·19	−1·13	2·66	5·65	*x*7·04	6·65	4·71	2·22	0·51	−0·74	−0·31	0·04	0·17	0·33	0·16	−0·07
S.	−0·89	−0·92	−1·32	−2·06	−2·49	−2·89	−3·65	*n*4·56	−3·56	−0·94	2·77	5·31	*x*6·43	5·70	4·14	2·20	1·35	0·45	0·33	0·06	−0·66	−0·94	−1·75	−2·01
O.	−0·93	−1·32	−0·79	−0·90	−1·23	−1·50	−2·46	−3·77	*n*4·04	−2·25	0·90	3·81	*x*4·98	4·89	3·84	2·27	1·54	0·74	0·11	−0·10	−0·83	−1·10	−1·03	−0·86
N.	−0·30	−0·30	0·07	−0·39	−1·16	−1·44	−1·65	−2·11	*n*2·40	−0·80	2·13	*x*4·07	3·97	2·98	2·14	1·41	0·63	0·12	−0·12	−0·69	−1·07	−1·54	−1·80	−1·75
D.	−0·11	−0·07	−0·15	−0·08	−0·46	−0·62	−0·82	−0·74	−0·44	0·59	1·65	1·81	*x*1·95	1·55	0·92	0·44	−0·14	−0·36	−0·46	−0·66	−0·97	−1·01	*n*1·17	−0·63
Y.	−0·52	−0·66	−0·74	−1·22	−1·98	−2·68	−3·37	*n*3·91	−3·40	−1·35	1·78	4·28	*x*5·32	4·92	3·60	2·04	0·87	0·13	−0·07	−0·29	−0·56	−0·68	−0·78	−0·74
W.	−0·58	−0·47	−0·29	−0·19	−0·48	−0·86	−1·27	−1·73	*n*1·85	−0·84	1·22	2·67	*x*3·03	2·80	2·09	1·23	0·56	0·14	−0·15	−0·58	−0·90	−1·15	−1·30	−1·10
Eq.	−0·78	−0·91	−0·81	−1·25	−1·72	−2·24	−3·34	*n*4·44	−4·02	−1·68	1·91	4·74	*x*6·07	5·50	3·91	2·15	1·13	0·39	0·07	−0·36	−0·99	−1·11	−1·17	−1·05
S.	−0·21	−0·58	−1·11	−2·21	−3·74	−4·95	−5·49	*n*5·56	−4·32	−1·55	2·21	5·43	*x*6·85	6·45	4·80	2·73	0·91	−0·13	−0·13	0·08	0·20	0·22	0·14	−0·05

LXII.—HORIZONTAL FORCE (*Quiet days*).

Kew Observatory. **1918.**

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

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

LXIII.—RANGE OF MEAN DIURNAL INEQUALITIES FOR THE MONTHS, YEAR, AND SEASONS OF 1918, AT ESKDALEMUIR AND RICHMOND (KEW OBSERVATORY).

Note.—The ranges are those shown in Tables XLIX. to LXII., in the preparation of which non-cyclic change has been eliminated (see Table LXIIIa).

Months and Season.	ESKDALEMUIR.																		RICHMOND.		
	"All" Days.			Quiet Days.			Disturbed Days.			"All" Days.			Quiet Days.			Disturbed Days.			Quiet Days.		"All" Days.
	N.	W.	V.	N.	W.	V.	N.	W.	V.	D.	I.	H.	D.	I.	H.	D.	I.	H.	D.	H.	D.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	′	′	γ	′	′	γ	′	′	γ	′	γ	′
J.	27·7	38·1	16·6	26·1	23·4	7·7	38·5	84·3	52·3	8·76	1·53	23·0	5·70	1·55	23·5	17·04	2·41	34·7	5·18	24·8	0·13
F.	29·9	39·3	25·9	27·1	25·4	6·7	38·8	91·8	77·2	8·85	1·75	24·3	5·99	1·41	21·9	18·73	2·66	37·5	6·03	19·7	0·46
M.	43·2	52·0	27·5	48·6	43·0	15·4	53·6	92·3	90·2	11·08	2·42	38·8	9·70	2·62	42·4	16·48	2·94	63·9	9·81	32·2	12·78
A.	61·5	59·9	45·8	51·3	53·7	18·4	79·3	98·2	122·3	12·88	3·32	60·5	12·10	3·32	52·7	21·33	4·30	77·0	12·51	40·5	12·75
M.	58·3	60·1	30·2	48·8	68·9	29·4	100·6	79·0	114·1	11·93	3·31	58·4	14·56	2·95	50·4	13·46	5·74	114·2	14·00	36·8	11·05
J.	60·7	63·4	27·8	49·2	59·5	24·5	90·1	75·5	86·0	12·18	3·75	64·2	12·52	2·99	51·1	14·03	5·72	101·4	11·59	41·2	11·59
J.	68·0	63·8	33·7	48·9	60·3	24·4	99·8	78·8	75·7	12·94	4·04	71·0	12·01	3·14	52·5	14·05	5·68	105·2	11·34	38·4	11·63
A.	67·6	62·3	31·5	51·1	63·0	18·7	109·0	58·3	76·2	13·69	4·22	70·7	13·61	3·48	54·0	13·83	6·88	113·9	12·82	46·2	12·58
S.	59·3	51·5	45·3	55·9	48·4	18·8	80·6	61·6	92·4	11·48	3·36	53·4	10·74	3·52	56·6	14·35	5·58	79·4	10·99	46·7	10·90
O.	47·1	46·5	35·1	40·9	42·3	13·7	50·9	64·0	88·5	9·80	2·90	42·0	9·08	2·59	41·6	15·18	4·57	57·7	9·02	34·6	9·16
N.	30·8	35·6	27·1	24·9	26·7	7·3	53·6	64·6	97·4	8·00	2·03	27·8	6·21	1·39	22·4	12·44	3·83	48·5	6·47	24·3	7·02
D.	19·0	40·3	29·2	10·8	13·9	4·7	48·9	125·9	158·5	8·65	1·48	15·7	3·22	0·56	8·9	24·66	5·24	69·5	3·12	11·4	5·15
Y.	43·7	44·2	27·6	37·8	41·9	14·1	57·7	61·4	81·4	9·37	2·29	42·8	9·23	2·27	37·8	12·56	2·93	58·4	9·23	30·1	9·31
W.	26·5	32·2	22·9	21·3	20·1	6·0	34·4	66·8	87·7	8·03	1·62	22·7	4·65	1·16	17·6	13·91	2·98	29·2	4·88	18·0	5·91
Eq.	50·8	51·9	34·7	47·1	46·4	14·6	60·8	70·4	90·6	10·96	2·75	48·0	10·29	2·89	47·3	15·24	3·76	57·2	10·51	38·0	11·39
S.	63·6	60·8	29·5	48·2	62·0	23·6	91·5	64·2	75·8	12·42	3·83	66·1	12·96	3·07	50·3	12·01	5·55	96·3	12·41	38·8	11·89

LXIIIa.—NON-CYCLIC CHANGE (24h—0h) FOR THE MONTHS OF 1918 AT TWO OBSERVATORIES.

Month.	ESKDALEMUIR.									RICHMOND.		
	"All" Days.			Quiet Days.			Disturbed Days.			Quiet Days.		"All" Days.
	N.	W.	V.	N.	W.	V.	N.	W.	V.	D.	H.	D.
	γ	γ	γ	γ	γ	γ	γ	γ	γ	′	γ	′
January..	−0·8	−1·1	−0·6	0·4	3·4	−2·6	− 7·2	−20·4	6·4	0·44	1·8	0·02
February	0·9	0·7	−1·0	5·0	1·0	−0·8	− 3·2	−10·4	5·4	−0·16	4·9	0·40
March ..	0·8	−0·8	−1·5	3·4	−1·0	−2·6	− 4·2	6·6	0·6	−0·14	1·8	−0·02
April ..	0·1	−2·3	−1·0	9·4	−0·4	−1·4	−11·0	0·8	11·6	−0·52	5·8	−0·36
May ..	0·1	3·7	2·0	2·4	2·2	0·0	− 3·4	15·8	− 0·4	0·50	3·7	−0·08
June ..	0·0	0·0	0·6	−0·6	0·2	0·8	− 6·2	−10·0	− 9·6	0·04	0·0	0·00
July ..	−0·1	−0·6	0·7	7·0	4·6	−0·8	− 8·8	3·2	12·2	0·38	5·5	0·09
August ..	−1·3	0·0	0·5	6·8	−5·8	−4·2	8·6	8·4	22·8	−1·16	6·0	−0·11
September	−0·4	0·6	−0·9	4·0	−4·0	−1·0	− 6·0	− 3·0	−10·6	−0·88	3·9	−0·59
October	1·5	−2·0	0·1	0·3	−3·0	1·3	−12·5	−15·2	− 7·5	−0·26	3·5	0·05
November	−0·2	−0·7	0·8	4·2	3·6	−1·6	−21·4	− 7·6	− 3·4	0·36	5·0	−0·32
December	4·5	−0·1	1·2	4·6	1·8	−0·8	− 5·6	4·6	−15·4	0·04	6·2	0·42

LXIIIb.—MEAN VALUES OF THE SQUARES OF THE ABSOLUTE DAILY RANGES OF THE GEOGRAPHICAL COMPONENTS OF TERRESTRIAL MAGNETIC FORCE.

Eskdalemuir. (Unit 1γ²). **1918.**

Month and Year.	R_N^2	R_W^2	R_V^2	$R_N^2 + R_W^2$	$R_N^2 + R_W^2 + R_V^2$	Mean Character Figure.
January	6747	10001	3995	16748	20743	0·39
February	8561	9837	4779	18397	23176	0·68
March	14092	11297	5375	25389	30763	0·58
April	19565	17865	11944	37431	49374	0·83
May	18187	12097	7864	30284	38148	0·68
June	10587	7291	6388	17878	24266	0·57
July	11400	9560	5104	21628	26527	0·65
August	22375	12004	7780	36912	44759	0·87
September	20297	14049	9049	34346	43394	0·71
October	15561	14178	7101	28137	35930	0·77
November	13402	13216	6726	26618	33343	0·70
December	20438	18878	13640	39316	52956	0·74
Year 1918	15101	12598	7479	27757	35282	0·68
Year 1917	14535	12058	7842	26593	34435	0·65
Year 1916	12508	10172	8269	22680	30949	0·74
Year 1915	10066	9542	3808	19608	23416	0·80
Year 1914	4606	4333	1632	8939	10571	0·71
Year 1913	3097	3320	—	6417	—	0·58
Year 1912	3591	3402	—	6993	—	0·69
Year 1911	7655	6103	2514	13758	16272	0·85

LXIV.—HARMONIC COMPONENTS OF THE DIURNAL INEQUALITY.

Values of a_n, b_n in the series Σ ($a_n \cos 15nt^\circ + b_n \sin 15nt^\circ$), t being reckoned in hours from midnight G.M.T.

Eskdalemuir. (Longitude of Eskdalemuir Observatory, 3° 12′ W.) **1918.**

Month and Season.	North Component.								West Component.								Vertical Component.							
	a_1.	b_1.	a_2.	b_2.	a_3.	b_3.	a_4.	b_4.	a_1.	b_1.	a_2.	b_2.	a_3.	b_3.	a_4.	b_4.	a_1.	b_1.	a_2.	b_2.	a_3.	b_3.	a_4.	b_4.
	All Days.																							
	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.	7·9	5·4	− 4·7	−3·8	2·5	0·2	−0·2	0·1	−10·3	− 5·9	−4·8	6·7	−1·9	−1·6	−0·4	2·4	0·9	− 7·7	− 3·0	−1·4	0·5	−0·6	−0·7	−0·4
F.	8·5	4·2	− 7·6	−3·1	2·3	0·7	0·1	0·2	−13·0	− 9·4	−2·5	4·6	−0·3	−2·2	0·9	2·9	0·1	−11·7	− 2·3	−3·0	1·1	−0·2	−0·9	−0·1
M.	16·4	1·1	−10·2	−1·5	3·7	−2·2	−1·2	0·9	−10·5	−12·3	3·5	11·2	−2·4	−4·7	1·4	2·8	2·3	− 8·7	− 5·8	−0·8	2·9	0·7	−0·5	−0·9
A.	19·4	− 5·2	−15·2	−1·3	2·9	0·2	−0·8	2·1	−12·5	−19·5	−0·2	10·6	−3·3	−6·1	1·8	1·9	− 2·6	−14·5	− 9·3	−5·5	−0·4	0·3	−1·5	−0·7
M.	16·9	−10·5	−11·9	1·0	2·3	−0·9	0·7	0·7	− 5·2	−19·3	6·1	10·7	−3·5	−3·6	0·9	0·8	2·7	− 9·1	− 8·3	−2·1	2·4	−0·5	−0·6	−0·2
J.	17·8	−10·6	−13·0	2·7	1·3	−2·5	1·4	1·7	− 5·4	−24·1	5·3	9·5	−2·9	−3·5	−0·1	1·2	1·2	− 9·1	− 7·2	−2·2	1·5	−0·4	−0·3	0·5
J.	18·6	−12·3	−15·7	3·3	0·1	0·5	−0·1	0·1	− 6·8	−24·8	2·9	11·5	−2·2	−2·6	−0·4	0·1	3·4	−10·2	− 8·8	−3·4	−0·4	0·3	−0·3	0·1
A.	21·6	−11·5	−14·1	0·3	1·1	−1·1	2·4	2·3	− 8·6	−20·5	6·5	11·3	−4·5	−3·1	0·0	1·6	1·1	− 9·7	− 7·2	−5·2	1·9	−0·3	−0·9	1·0
S.	22·5	− 7·0	−11·2	4·1	1·5	−2·9	0·1	0·6	−13·0	−13·3	5·5	9·9	−2·3	−4·4	2·4	2·0	− 4·8	−16·4	− 8·3	−1·9	3·1	1·9	0·0	−0·9
O.	17·6	− 2·4	−10·6	−1·2	2·1	−3·6	0·7	1·2	−11·5	− 9·2	0·5	11·0	−2·3	−5·2	2·5	1·3	− 5·6	−13·1	− 6·0	−2·0	1·9	1·8	−2·1	−0·5
N.	10·3	− 0·6	− 8·5	−0·5	1·6	−2·5	0·7	0·2	−11·5	− 2·6	−0·4	7·6	−1·8	−2·6	0·9	1·1	− 3·2	−11·6	− 3·6	−0·4	−1·1	0·2	−1·5	0·4
D.	4·1	2·2	− 4·9	−1·3	−0·8	−2·4	−0·3	−0·2	−14·1	2·0	0·2	5·6	0·6	0·0	1·7	1·4	− 4·7	−12·2	− 3·8	0·4	−0·1	0·1	−0·4	0·3
Y.	15·1	− 3·9	−10·6	−0·1	1·8	−1·4	0·3	0·8	−10·2	−13·2	1·8	9·2	−2·3	−3·3	0·9	1·6	− 0·8	−11·2	− 6·2	−2·3	1·1	0·2	−0·8	−0·1
W.	7·7	2·8	− 6·5	−2·2	1·4	−1·3	0·1	0·1	−12·2	− 4·0	−1·9	6·2	−0·8	−1·6	0·7	2·0	− 1·7	−10·8	− 3·2	−1·1	0·1	−0·1	−0·8	0·1
Eq.	19·0	− 3·4	−11·7	0·0	2·6	−2·1	−0·3	1·3	−11·9	−13·6	2·3	10·7	−2·6	−5·0	2·0	2·0	− 2·7	−13·2	− 7·4	−2·5	1·9	1·1	−1·1	−0·8
S.	18·7	−11·2	−13·6	1·8	1·2	−1·0	1·1	1·3	− 6·5	−22·2	5·2	10·7	−3·3	−3·2	0·1	0·9	2·1	− 9·5	− 7·9	−3·2	1·3	−0·2	−0·5	0·3
	Quiet Days.																							
Y.	15·0	− 1·8	− 8·9	−0·6	2·3	−1·4	0·0	0·4	− 3·6	−12·3	4·0	8·2	−3·2	−3·7	0·7	1·6	3·2	− 1·3	− 3·8	−0·6	1·6	0·2	−0·7	−0·4
W.	7·8	1·7	− 5·1	−1·9	1·5	−0·5	−0·2	0·3	− 4·3	− 4·4	0·5	4·2	−2·0	−1·9	0·4	1·5	0·4	− 1·7	− 0·9	0·5	0·7	0·0	−0·6	−0·2
Eq.	18·9	− 1·8	−10·5	−1·1	3·2	−1·8	−0·3	0·9	− 3·6	−12·7	2·8	9·2	−3·7	−4·5	1·7	2·2	2·9	− 1·2	− 4·0	−1·3	2·0	0·3	−1·3	−0·2
S.	18·3	− 5·5	−11·0	1·1	2·2	−2·0	0·7	0·0	− 2·8	−19·9	8·9	10·9	−3·9	−4·6	0·2	1·2	6·1	− 1·1	− 6·6	−1·1	2·2	0·3	−0·3	−0·8
	Disturbed Days.																							
Y.	12·8	−10·1	−15·4	1·4	1·4	−1·9	2·2	1·3	−20·7	−14·3	−3·9	9·8	−1·1	−4·2	1·9	0·5	−12·6	−32·3	−11·2	−5·4	0·4	1·2	−0·3	1·8
W.	5·3	1·0	−10·8	0·1	2·1	−1·9	1·4	−1·5	−25·8	− 5·4	−7·1	8·4	1·4	−1·8	2·9	2·5	− 8·7	−34·8	−11·1	−4·4	−2·5	1·5	−0·6	0·6
Eq.	18·6	− 8·9	−13·9	1·7	3·1	−3·2	2·3	0·5	−22·9	−12·8	−1·4	8·6	−0·9	−9·4	4·2	−1·3	−14·0	−35·7	−10·6	−3·2	3·5	3·2	0·1	−0·4
S.	14·5	−22·4	−21·7	2·3	−0·9	−0·3	2·9	4·7	−13·4	−24·7	−3·2	12·4	−4·0	−1·6	−1·6	0·3	−15·1	−26·5	−11·9	−8·3	0·2	−1·0	−0·5	5·0

LXIV*a*.—HARMONIC COMPONENTS OF THE DIURNAL INEQUALITY.

Values of c_n, α_n in the series $\Sigma c_n \sin (15nt^\circ + \alpha_n)$, t being Mean Local Time reckoned in hours from midnight.

Eskdalemuir. (Longitude of Eskdalemuir Observatory, 3° 12′ W.) **1918.**

Month and Season.	North Component.								West Component.								Vertical Component.							
	c_1.	α_1.	c_2.	α_2.	c_3.	α_3.	c_4.	α_4.	c_1.	α_1.	c_2.	α_2.	c_3.	α_3.	c_4.	α_4.	c_1.	α_1.	c_2.	α_2.	c_3.	α_3.	c_4.	α_4.
	All Days.																							
	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°
J.	9·6	55·5	6·1	230·1	2·5	84·3	0·2	291·2	11·8	240·2	8·3	324·1	2·5	227·6	2·4	349·2	7·7	173·1	3·3	245·2	0·8	140·1	0·8	241·2
F.	9·5	63·9	8·2	247·8	3·2	106·6	0·2	20·8	16·1	234·1	5·4	331·5	2·2	187·0	3·2	17·7	11·7	179·5	3·7	217·0	1·1	102·0	0·9	266·3
M.	16·4	86·1	10·3	261·4	4·2	120·4	1·5	311·7	16·1	220·5	11·6	17·5	5·3	207·5	3·2	24·8	9·0	165·2	5·9	262·4	3·0	75·9	1·1	209·0
A.	20·1	104·9	15·3	265·1	2·9	85·7	2·3	337·9	23·2	212·6	10·7	358·8	6·9	208·9	[illegible]	[illegible]	14·8	190·3	10·8	239·8	0·5	309·6	1·7	241·6
M.	19·9	121·7	11·9	274·9	2·4	112·9	1·1	43·9	20·0	195·1	12·3	29·3	5·0	224·5	1	[illegible]	9·4	163·5	8·5	255·7	2·5	101·5	0·6	252·0
J.	20·7	120·8	13·3	281·9	2·8	151·1	2·2	40·4	24·7	192·7	10·8	29·1	4·5	220·0	1·2	[illegible]	9·2	172·5	7·6	252·7	1·5	105·2	0·6	333·5
J.	22·3	123·5	16·1	282·1	0·5	13·9	0·2	312·1	25·7	195·2	11·9	14·3	3·4	219·8	0·4	284·1	10·8	161·6	9·5	248·6	0·5	307·2	0·3	284·8
A.	24·4	118·1	14·1	271·4	1·6	133·9	3·4	45·8	22·3	202·8	13·0	29·9	5·5	236·0	1·6	359·2	9·8	173·4	8·8	234·3	1·9	100·8	1·4	318·4
S.	23·6	107·3	11·9	290·1	3·3	151·9	0·7	7·5	18·6	224·3	11·3	29·0	4·9	207·8	3·0	50·6	17·1	196·3	8·5	256·9	3·6	59·2	0·9	181·5
O.	17·8	97·6	10·6	263·6	4·1	150·1	1·4	31·8	14·7	231·5	11·1	2·5	5·6	203·8	2·8	63·0	14·2	203·0	6·3	251·1	2·5	46·7	2·2	254·7
N.	10·3	93·3	8·5	266·5	3·0	146·6	0·7	71·5	11·8	257·3	7·6	356·9	3·1	213·5	1·5	42·1	12·0	195·4	3·6	263·5	1·1	282·0	1·6	286·8
D.	4·6	62·2	5·2	254·9	2·6	198·4	0·4	233·0	14·3	278·0	5·6	1·6	0·7	86·8	2·1	51·2	13·1	200·9	3·8	276·6	0·2	318·8	0·5	306·6
Y.	15·6	104·5	10·6	269·4	2·3	130·8	0·8	19·1	16·7	217·6	9·4	11·5	4·0	214·1	1·9	30·5	11·2	183·9	6·6	249·5	1·1	76·9	0·8	261·4
W.	8·2	70·0	6·8	251·0	2·0	133·5	0·1	44·5	12·9	252·0	6·5	342·7	1·8	206·1	2·1	21·7	10·9	189·0	3·3	251·0	0·2	141·3	0·9	274·9
Eq.	19·3	100·0	11·7	270·1	3·3	129·7	1·3	346·6	18·0	221·2	11·0	12·2	5·7	207·1	2·8	45·0	13·5	191·5	7·8	250·9	2·2	58·4	1·4	231·7
S.	21·8	120·9	13·8	277·7	1·5	129·9	1·7	42·2	23·1	196·3	11·9	25·7	4·6	225·9	0·9	6·3	9·8	167·6	8·5	247·7	1·3	100·1	0·6	304·8
	Quiet Days.																							
Y.	15·1	97·0	8·9	265·9	2·7	121·4	0·4	5·1	12·8	196·1	9·1	26·4	4·8	220·9	1·8	26·2	3·4	113·1	3·8	260·6	1·6	82·7	0·8	241·6
W.	8·0	77·5	5·4	248·8	1·6	108·3	0·4	318·1	6·1	223·9	4·3	6·1	2·7	226·1	1·5	18·2	1·7	165·9	1·0	299·0	0·7	86·2	0·7	254·3
Eq.	19·0	95·3	10·6	264·0	3·6	118·4	1·1	341·1	13·2	195·8	9·7	17·1	5·9	219·0	2·7	38·2	3·2	112·2	4·2	251·8	2·0	81·9	1·3	259·9
S.	19·1	106·7	11·1	276·0	2·9	132·6	0·6	88·6	20·1	188·1	14·0	39·1	6·1	220·6	1·2	8·3	6·2	100·3	6·7	260·8	2·2	82·2	0·8	201·4
	Disturbed Days.																							
Y.	16·3	128·3	15·6	275·1	2·3	142·1	2·5	60·1	25·2	235·6	10·6	338·3	4·3	195·4	1·9	74·4	34·7	201·3	12·4	244·7	1·2	19·1	1·8	349·2
W.	5·4	79·4	10·8	270·5	2·8	132·4	2·0	137·2	26·7	258·4	11·0	319·2	2·2	140·4	3·8	49·4	35·9	194·1	12·0	248·2	2·9	302·1	0·8	316·3
Eq.	20·6	115·5	14·0	277·1	4·4	136·5	2·4	78·5	26·2	240·8	8·7	350·6	9·4	185·4	4·4	106·7	38·3	201·5	11·1	253·2	4·7	48·1	0·4	161·3
S.	26·7	147·0	21·8	276·2	1·0	253·2	5·6	31·9	28·1	208·5	12·8	345·6	4·3	248·2	1·6	282·8	30·5	209·7	14·5	235·3	1·1	169·5	5·0	353·8

LXVII.—MEAN MONTHLY AND ANNUAL VALUES OF TERRESTRIAL MAGNETIC ELEMENTS AT THE METEOROLOGICAL OFFICE OBSERVATORIES, 1918.

1918.	RICHMOND (KEW OBS.) (quiet days **D** and **H**, absolute observations **I**, See p. 58)				ESKDALEMUIR. (all days except those noted in monthly tables).				CAHIRCIVEEN (VALENCIA OBS.). (in general 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	17818	4745	43401	47155	15976	4948	45072	48075	16830	6012	44458	47916
February	17815	4737	43407	47159	15971	4942	45069	48070	16816	6009	44455	47907
March	17814	4737	43362	47118	15971	4940	45074	48075	16798	5998	44401	47850
April	17802	4727	43340	47091	15976	4934	45053	48056	16810	5988	44421	47872
May	17823	4726	43345	47104	15983	4932	45065	48069	16810	5985	44388	47841
June	17825	4728	43360	47119	15984	4924	45053	48058	16819	5994	44430	47884
July	17817	4722	43367	47121	15986	4924	45063	48068	16813	5984	44385	47839
August	17809	4711	43319	47073	15976	4920	45068	48068	16798	5978	44368	47817
September	17811	4708	43346	47098	15968	4915	45066	48063	16807	5978	44388	47839
October	17817	4706	43414	47163	15965	4910	45077	48072	16786	5970	44378	47821
November	17812	4700	43326	47080	15965	4907	45068	48064	16806	5971	44369	47820
December	17810	4694	43346	47096	15958	4898	45070	48062	16826	5976	44441	47893
Year 1918	17814	4720	43361	47115	15973	4925	45067	48067	16810	5987	44407	47858
Year 1917	17809	4770	43366	47122	15976	4971	45093	48097	16808	6024	44448	47900
Year 1916	17816	4823	43395	47156	15986	5020	45119	48130	16803	6078	44473	47929
Year 1915	17808	4874	43376	47141	16001	5075	45173	48191	16785	6130	44519*	47972*
Year 1910	17781	5117	43546	47313	15976	5311	45343	48368	16732	6337	44771	48215
Year 1905	17743	5272	43742	47496	..	..	..	..	..	..	..	..

1918.	Declination (West).	Inclination (North).	Horizontal Force.	Declination (West).	Inclination (North).	Horizontal Force.	Declination (West).	Inclination (North).	Horizontal Force.
	° ′	° ′	γ	° ′	° ′	γ	° ′	° ′	γ
January	14 54·8	66 58·9	18439	17 12·6	69 38·6	16724	19 39·4	68 6·0	17872
February	14 53·5	66 59·4	18434	17 11·7	69 38·9	16718	19 39·8	68 6·9	17857
March	14 53·5	66 58·2	18433	17 11·3	69 39·0	16718	19 39·0	68 6·8	17837
April	14 52·2	66 58·5	18419	17 9·7	69 38·4	16720	19 36·4	68 6·8	17845
May	14 51·1	66 57·3	18439	17 8·9	69 38·2	16726	19 35·9	68 6·0	17844
June	14 51·3	66 57·6	18441	17 7·4	69 38·0	16725	19 37·0	68 6·4	17855
July	14 50·6	66 58·4	18432	17 7·2	69 38·1	16727	19 35·4	68 5·8	17840
August	14 49·0	66 57·7	18422	17 7·1	69 39·0	16716	19 35·4	68 6·4	17830
September	14 48·3	66 58·4	18423	17 6·5	69 39·6	16707	19 34·9	68 6·4	17838
October	14 47·8	67 0·0	18428	17 5·7	69 40·1	16703	19 34·7	68 7·6	17816
November	14 46·9	66 57·9	18422	17 5·1	69 39·9	16702	19 33·6	68 6·1	17835
December	14 46·0	66 58·8	18417	17 3·8	69 40·6	16693	19 33·1	68 6·6	17856
Year 1918	14 50·4	66 58·4	18429	17 8·1	69 39·0	16715	19 36·2	68 6·5	17844
Year 1917	14 59·6	66 58·0	18437	17 16·3	69 38·6	16732	19 43·0	68 6·9	17855
Year 1916	15 8·8	66 57·5	18457	17 26·1	69 37·6	16756	19 53·1	68 6·6	17869
Year 1915	15 18·4	66 56·6	18463	17 35·9	69 36·9	16786	20 3·8	68 7·9*	17869
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	..	..	..	..	..	..

* Mean of 11 months.

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

Place.	Latitude.	Longitude.	1918.				1917.				1916.			
			Declination.	Inclination.	Horizontal Force.	Vertical Force.	Declination.	Inclination.	Horizontal Force.	Vertical Force.	Declination.	Inclination.	Horizontal Force.	Vertical Force.
	N.			N.	γ	γ		N.	γ	γ		N.	γ	γ
Sitka (Alaska)	° ′ 57 3	° ′ 135 20 W.	° ′ 30 24·9 E.	° ′ 74 23·8	15580	55790	° ′ 30 24·7 E.	° ′ 74 24·8	15584	55866	° ′ 30 23·9 E.	° ′ 74 25·6	15585	55923
Rude Skov	55 51	12 27 E.	8 17·1 W.	68 56·5	17167	44587	8 26·0 W.	68 54·7	17198	44599	8 34·6 W.	68 52·7	17229	44599
Eskdalemuir	55 19	3 12 W.	17 8·1 W.	69 39·0	16715	45067	17 16·3 W.	69 38·6	16732	45093	17 26·1 W.	69 37·6	16756	45119
Meanook	54 37	113 21 W.	27 44·2 E.	77 54·5	12940	60399	27 46·1 E.	77 55·0	..	..	..	..	..	..
Stonyhurst	53 51	2 28 W.	16 8·6 W.	68 43·3	17330	44501	16 16·5 W.	68 42·0	17341	44475	16 25·6 W.	68 41·9	17342	44477
Potsdam	52 23	13 4 E.	7 54·0 W.	66 30·0	18658	42911	8 2·8 W.	66 28·2	18685	42910	8 7·5 W.	66 27·1	18698	42904
Seddin	52 17	13 1 E.	7 55·3 W.	66 27·0	18696	42896	8 4·1 W.	66 25·2	18723	42895	8 9·0 W.	66 24·1	18736	42890
De Bilt (Utrecht)	52 5	5 11 E.	11 44·0 W.	66 50·7	18424	43081	11 53·6 W.	66 50·1	18443	43103	12 2·7 W.	66 48·8	18461	43100
Valencia (Ireland)	51 56	10 15 W.	9 36·2 W.	68 6·5	17844	44407	19 43·0 W.	68 6·9	17855	44448	19 53·1 W.	68 6·6	17869	44473
Kew (Richmond)	51 28	0 19 W.	14 50·4 W.	66 58·4	18429	43361	14 59·6 W.	66 58·0	18437	43365	15 8·8 W.	66 57·5	18457	43395
Greenwich	51 28	0 0	14 27·7 W.	66 52·9	18467	..	14 37·0 W.	66 53·2	18480	..	14 46·9 W.	66 52·7	18492	..
Val Joyeux (near Paris)	48 49	2 1 E.	13 12·4 W.	64 43·2	19680	41669	13 21·5 W.	64 41·2	19690	41629	13 30·7 W.	64 40·3	19700	41623
O'Gyalla	47 53	18 12 E.	5 21·9 W.	..	20917	..	5 31·0 W.	..	20945	..	5 41·1 W.	..	20966	..
Pola	44 52	13 51 E.	7 11·0 W.	60 9·0	22113	38533	7 19·2 W.	60 6·8	22124	38494	..	..	..	..
Agincourt (Toronto)	43 47	79 16 W.	6 38·3 W.	74 44·8	15916	58366	6 36·2 W.	74 44·2	15950	58449	6 33·4 W.	74 43·5	15987	58538
Tortosa	40 49	0 30 E.	12 16·1 W.	57 42·8	23298	36872	12 24·9 W.	57 44·3	23301	36914	12 34·7 W.	57 46·2	23306	36967
Coimbra	40 12	8 25 W.	15 35·6 W.	58 26·7	23062	37545	15 42·6 W.	58 29·6	23059	37618	15 50·1 W.	58 32·2	23046	37662
Cheltenham (Maryland)	38 44	76 50 W.	..	..	..	..	..	..	..	..	6 7·7 W.	70 49·6	19341	55624
San Fernando	36 28	6 12 W.	14 12·4 W.	54 2·2	24976	34423	14 21·1 W.	54 9·0	24986	34580	14 28·5 W.	54 15·8	24958	34686
Tucson (Arizona)	32 15	110 50 W.	13 47·1 E.	59 26·5	26982	45701	13 46·1 E.	59 26·4	27021	45763	13 44·4 E.	59 26·1	27063	45824
Lukiapang	31 19	121 2 E.	3 18·8 W.	45 31·0	33212	33817	3 17·8 W.	45 31·5	33201	33815	3 16·0 W.	45 31·9	33201	33823
Dehra Dún	30 19	78 3 E.	2 1·4 E.	44 49·6	32980	32782	2 6·5 E.	44 44·1	33010	32704	2 11·0 E.	44 37·9	33050	32627
Hong Kong	22 18	114 10 E.	0 18·0 W.	30 48·3	37164	22159	0 16·3 W.	30 50·4	37163	22188	0 13·8 W.	30 51·8	37155	22205
Honolulu (Hawaii)	21 19	158 4 W.	9 48·6 E.	39 26·7	28905	23781	9 46·3 E.	39 27·1	28935	23812	9 43·9 E.	39 28·5	28966	23856
Toungoo	18 56	96 27 E.	0 16·5 W.	23 8·4	39067	16696	0 12·7 W.	23 8·5	39037	16684	0 8·4 W.	23 8·5	39018	16677
Alibag (Bombay)	18 39	72 52 E.	0 28·4 E.	24 43·0	36886	16979	0 32·5 E.	24 35·8	36875	16880	..	..	..	..
Vieques (Porto Rico)	18 9	65 26 W.	..	..	..	..	..	..	..	..	3 19·2 W.	50 55·5	28158	34680
Antipolo	14 36	121 10 E.	..	..	..	..	0 35·9 E.	16 7·7	38088	11014	0 37·3 E.	16 9·8	38096	11042
Kodai-Kanal	10 14	77 28 E.	1 39·2 W.	4 30·3	37694	2969	1 33·8 W.	4 27·1	37661	2931	1 27·9 W.	4 22·4	37633	2878
	S.			S.				S.				S.		
Mauritius	20 6	57 33 E.	10 3·2 W.	52 44·9	23149	30447	9 54·5 W.	52 48·6	23181	30551	9 47·6 W.	52 54·6	23201	30688
Pilar (Argentine)	31 40	63 53 W.	8 5·6 E.	25 39·5	25398	12200	8 13·7 E.	25 41·0	25450	12240	8 22·9 E.	25 40·9	25506	12265
Melbourne	37 50	114 58 E.	..	..	..	..	8 3·2 E.	67 50·9	22961	56400	8 6·5 E.	67 48·7	23001	56395
Christchurch, N.Z.	43 32	172 37 E.	16 55·7 E.	68 6·7	22304	55516	16 53·0 E.	68 4·8	22328	55486	16 49·8 E.	..	22355	..

LXVIII*b*.—ADDITIONAL VALUES FOR EARLIER YEARS.

			1915.				1914.				1913.			
	N.			N.	γ	γ		N.	γ	γ		N.	γ	γ
Kasan	° ′ 55 50	° ′ 48 51 E.	..	..	..	..	° ′ 8 21·3 E.	° ′ 69 22·1	17891	47517	° ′ 8 10·9 E.	° ′ 69 18·2	17959	47535
Uccle	50 48	4 21 E.	12 38·3 W.	66 1·2	18989	42690	12 48·0 W.	66 0·7	19007	42714	..	..	..	..
Cracow	50 4	19 58 E.	..	..	..	..	..	..	..	..	5 3·3 W.	64 18·4	..	..
O'Gyalla	47 53	18 12 E.	5 50·1 W.	..	20995	..	..	..	..	..	..	..	..	..
Kakioka	36 14	140 11 E.	..	..	..	..	..	..	..	..	5 10·1 W.	49 30·9	29749	34851
Lukiapang	31 19	121 2 E.	3 13·1 W.	45 32·1	33212	33839	3 9·5 W.	45 31·7	33227	33844	3 7·2 W.	45 32·6	33233	33870
Helwan	29 52	31 21 E.	2 3·0 W.	40 54·8	30012	26009	2 9·2 W.	40 50·9	30016	25954	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
Antipolo	14 36	121 10 E.	0 37·3 E.	16 11·1	38095	11057	0 38·8 E.	16 10·6	38062	11041	0 39·4 E.	16 14·7	38090	11098
	S.			S.				S.				S.		
Batavia	6 11	106 49 E.	0 46·1 E.	31 33·6	36676	22528	0 46·2 E.	31 28·8	36685	22464	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

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

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

Richmond (Kew Observatory). **1918.**

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	Non-cyclic change 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.	−134	−136	*n*146	−143	−104	− 65	−59	−13	68	55	72	87	67	40	44	51	96	*x*131	87	45	24	4	−33	−42	−26	..	462
F.	− 64	− 61	− 70	*n* 82	− 59	− 55	3	22	26	7	−46	− 47	− 42	−41	−46	−21	35	103	134	*x*161	129	68	− 6	−51	+43	..	383
M.	− 62	− 91	− 95	−107	*n*122	−112	−54	−16	33	40	39	4	− 4	−16	−13	−42	3	50	120	*x*184	131	106	31	−10	−10	..	463
A.	− 53	− 50	− 58	− 64	− 44	12	88	73	*x*104	59	−27	− 38	− 42	−56	*n*68	−33	−32	14	48	74	90	51	− 4	−42		..	405
M.	− 59	*n* 78	− 61	− 69	− 28	− 8	64	98	*x*105	51	19	− 5	− 25	− 2	−22	−17	−15	24	24	35	33	2	−25	−43	+ 8	..	319
J.	*n* 46	− 19	− 29	− 23	18	54	82	*x*91	71	33	32	8	− 2	−25	−36	−37	−43	− 10	− 11	− 3	− 13	− 20	−29	−41	+24	..	260
J.	− 17	− 20	− 26	− 21	− 21	27	70	*x*80	59	53	32	− 3	− 19	−43	*n*45	−34	−22	− 8	− 14	− 34	0	23	− 8	− 9	+ 6	..	195
A.	− 8	− 17	− 16	− 15	− 21	30	77	*x*80	71	42	3	− 24	− 32	*n*40	−32	−15	−35	− 26	− 21	7	13	4	− 4	−18	+ 9	..	182
S.	− 58	− 67	*n* 80	− 73	− 54	15	53	87	46	8	−49	− 65	− 54	−56	−49	−26	−12	60	115	*x*126	112	56	− 3	−33		..	255
O.	*n*105	− 92	− 45	− 33	− 59	− 59	− 2	51	40	18	42	26	18	13	36	− 3	25	78	*x* 91	78	26	− 34	−38	−69	+ 3	..	346
N.	− 43	*n* 70	− 65	− 61	− 55	− 58	−40	15	45	67	*x*80	46	− 1	−13	−40	8	45	69	40	25	25	21	7	−47	− 8	..	490
D.	−132	*n*174	−171	−162	−163	−130	−65	2	76	91	92	*x*119	104	35	31	52	92	118	105	88	47	27	−11	−74	−44	..	395
Y.	− 65	*n* 73	− 72	− 71	− 59	− 29	18	48	62	44	24	9	− 3	−17	−20	−10	11	50	60	*x*66	51	26	−10	−40	..	..	346
W.	− 93	−110	*n*113	−112	− 95	− 77	−40	7	54	55	50	51	32	5	− 3	23	67	*x*105	92	80	56	30	−11	−53	..	..	433
Eq.	− 69	*n* 75	− 70	− 69	− 70	− 36	21	49	56	31	1	− 18	− 20	− 29	−24	−26	− 4	50	93	*x*115	90	45	− 3	−38	..	..	367
S.	− 32	− 33	− 33	− 32	− 13	26	73	*x*87	76	45	21	− 6	− 19	−28	*n*34	−26	−29	− 5	− 5	1	8	2	−16	−28	..	..	239

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

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Year, Months, and Seasons (0a, Days only).* **1918.**

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.	v/m.
J.	−126	−153	−148	*n*157	−111	−88	−73	−81	−77	− 30	− 62	− 75	− 35	− 90	22	98	211	*x*430	277	140	124	92	18	−107	+135	5	496
F.	83	99	− 9	− 43	− 62	−30	8	−11	−92	−101	*n*118	− 94	− 56	− 22	−18	9	54	99	*x*108	63	70	43	25	0	− 84	4	313
M.	− 4	17	− 5	− 3	2	− 9	12	29	−14	− 63	− 63	− 70	*n* 73	− 66	*n*73	−56	− 37	9	69	87	*x* 88	69	86	68	+ 68	15	334
A.	− 8	− 1	− 2	− 47	− 55	−48	−52	−41	−46	*n* 85	− 71	− 54	− 27	− 18	− 3	13	9	33	84	*x*109	*x*120	88	69	33	− 83	14	230
M.	16	13	− 1	31	51	37	2	−15	− 2	− 33	− 29	− 34	− 38	− 34	−39	−29	*n* 43	− 39	− 14	*x* 74	59	34	19	6	− 11	13	238
J.	40	23	13	13	9	23	−18	−58	−61	− 62	− 66	*n* 71	− 55	− 61	−41	−28	− 22	17·	42	63	*x*103	90	70	32	− 28	12	205
J.	45	36	31	11	13	55	41	21	−20	− 34	− 31	− 49	− 43	− 27	−35	−36	− 42	*n* 50	− 31	− 10	3	46	*x*61	46	+ 33	8	187
A.	11	39	46	32	34	53	*x*70	7	−21	− 29	− 29	− 50	*n* 62	− 52	−44	−52	− 39	− 11	− 12	17	18	12	45	22	− 18	11	216
S.	57	*x*109	44	− 7	− 27	− 1	6	−25	−57	− 81	*n* 87	− 73	− 71	− 37	−33	−34	− 5	− 5	45	63	75	45	35	68	+ 67	3	231
O.	32	− 4	20	− 1	− 8	−51	−46	−23	−37	−111	−113	*n*134	− 83	− 80	−48	−42	33	104	147	*x*154	86	108	64	33	− 95	5	286
N.	− 20	− 21	− 38	− 19	− 49	−24	− 5	7	36	58	20	− 49	−102	*n*110	−99	−34	25	79	*x* 90	63	84	78	25	9	+ 61	12	368
D.	− 59	− 43	− 80	*n* 98	− 80	−94	−86	−35	−46	− 70	7	18	− 32	4	31	42	60	90	*x* 96	61	111	*x*129	64	6	− 37	7	283
Y.	6	10	− 11	− 24	− 24	−15	−12	−19	−36	− 53	− 54	*n* 61	− 56	− 49	−32	−12	17	63	75	74	*x* 78	70	48	18	..	..	282
W.	− 31	− 30	− 69	*n* 79	− 76	−49	−39	−30	−45	− 36	− 38	− 50	− 56	− 55	−16	29	88	*x*175	143	82	97	86	33	− 23	..	..	365
Eq.	19	30	14	− 15	− 22	−27	−20	−15	−39	*n* 85	− 84	− 83	− 64	− 50	−39	−30	0	35	86	*x*103	92	78	64	51	..	..	270
S.	28	28	22	22	27	42	24	−11	−26	− 40	− 39	*n* 51	− 50	− 44	−40	−36	− 37	− 21	− 4	36	46	46	*x*49	27	..	..	212

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

Eskdalemuir. *Mean Hourly Values, Greenwich Mean Time, for the Months, Year, and Seasons (1a, and 2a Days only).* **1918.**

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.	7	16	− 34	− 77	− 17	− 12	51	12	− 51	−101	−123	*n*169	−122	− 87	− 57	43	107	125	185	*x*235	14	12	8	40	− 41	2	207
F.	− 25	− 65	− 84	*n* 93	− 79	− 28	−41	−86	− 43	− 21	− 16	3	20	10	− 33	− 6	82	132	*x*158	136	99	52	−28	−41	+ 88	5	238
M.	− 4	− 59	*n* 89	− 61	− 52	− 87	−57	−52	− 61	− 56	− 43	− 13	20	14	56	22	72	86	*x*129	89	25	66	32	15	− 91	9	220
A.	*x*100	97	60	46	− 17	− 19	4	− 6	− 48	− 94	*n* 99	− 85	− 78	− 70	− 65	− 28	10	58	20	52	34	− 1	75	54	+185	5	208
M.	115	54	− 4	146	110	*x*163	74	38	− 29	− 53	− 18	− 37	− 61	− 62	− 97	− 71	− 62	*n*105	− 50	− 24	4	− 37	11	− 1	+ 5	3	233
J.	41	18	36	52	− 15	− 47	− 7	14	− 14	− 42	*n* 47	− 22	− 28	− 12	− 21	− 42	− 23	11	21	22	9	9	29	*x*53	+ 16	7	169
J.	4	*x*189	59	− 6	− 21	91	47	18	73	− 21	− 43	− 58	− 74	*n*110	− 76	− 49	− 64	− 73	− 3	− 11	−55	51	85	41	+ 28	1	144
A.	8	− 13	− 17	14	1	14	28	*x*47	9	− 1	− 27	− 12	*n* 41	− 41	7	− 13	1	− 7	− 24	− 1	24	6	− 7	39	+ 20	7	133
S.	13	− 26	− 58	50	98	19	− 5	−22	− 15	− 40	− 57	− 81	− 19	− 33	*n*108	− 14	8	30	*x*146	89	25	7	1	−13	− 14	2	197
O.	− 34	0	− 1	− 9	− 41	*n* 59	− 5	− 6	6	− 14	− 7	− 46	− 53	37	6	− 22	− 2	26	50	*x* 88	51	13	− 8	31	+ 9	9	134
N.	41	41	− 13	23	48	34	12	55	48	16	− 84	− 56	12	− 13	−131	*n*184	−145	80	*x*187	177	−38	−106	− 6	− 6	+172	2	352
D.	− 94	− 91	*n*139	− 96	− 90	− 59	26	32	*x*146	84	15	71	35	5	− 64	21	64	− 27	19	82	53	12	−14	4	+ 21	2	236
Y.	14	13	− 24	− 1	− 6	1	11	4	2	− 29	− 46	− 42	− 32	− 30	*n* 49	− 29	4	28	70	*x* 78	20	7	15	18	..	..	206
W.	− 18	− 25	− 68	− 61	− 35	− 16	12	3	25	− 6	− 52	− 38	− 14	− 21	*n* 71	− 32	27	78	137	*x*158	32	− 8	−10	− 1	..	..	258
Eq.	19	4	− 22	5	− 3	− 37	−16	−22	− 30	− 51	− 52	*n* 56	− 33	− 13	− 28	− 11	22	50	*x* 86	80	34	21	25	22	..	..	190
S.	42	*x* 62	19	52	19	55	36	29	10	− 29	− 34	− 32	− 51	*n* 56	− 47	− 44	− 37	− 44	− 14	− 4	− 5	7	30	33	..	..	170

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

Notes on the Meteorological Summaries.

In the meteorological tables in the present volume the diurnal variation of pressure, temperature, humidity, rainfall, sunshine and wind-speed is shown. The tables differ from those published for the years 1911 to 1917 in that the 1918 values of the various elements are printed, not their departures from normal. These values are averages for the months and the year; 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 1889, and 1887 to 1899 five-day means were printed.

The normal hourly values computed for periods ending with 1915 will be found in the 1917 volume.

In the tables for pressure, temperature and relative humidity values at 0h. and 24h. are both given. The small difference between them 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. Tables of the diurnal inequalities of pressure and temperature have been introduced. In preparing these tables the non-cyclic change has been eliminated by the use of the formulae given in footnotes.

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. Tables for conversion to other units were given with the Notes for 1913. They will also be found in the *Computer's Handbook*.

Some points of importance in the history of the observations are referred to in the *Notes* for 1917. They are not reproduced here as the present tables cover only the year 1918. It should be mentioned, however, that the system of time-marking previously in use introduced some uncertainty in the readings of the barograms and thermograms. The time-marks occur at intervals of two hours and alternate readings used to be made at a time-mark and halfway between two time-marks. From January 1st, 1918, the time-marks have been made half-an-hour before each even hour instead of at the hour, so that where the hourly readings have to be made the photographic curve is uninterrupted.

(*a*) *Pressure*—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, i.e. to the level of the cistern of the control-barometer, the readings of the curves being compared three times a day with those of this barometer. Tables for 'reduction' of pressure to sea-level are printed in the Introduction to *Part IV, Section 1* of the *Year Book* for 1913.

(*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 273a. Conversion from the centigrade to the absolute scale is a simple addition or subtraction. Tables for converting from the 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 sides. At the other observatories the screen is on the north wall of the observatory building. In the case of Aberdeen the screen in question is on the tower of King's College at a height of 12·5 m. above ground.

The diurnal range of temperature determined by thermometers exposed in a north-wall screen is generally appreciably less than the range in a Stevenson screen in the open hut ; recent investigation has shown that this rule does not hold good at Valencia Observatory.*

(*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 four 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.

(*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. Anemographs of the latter type are also in operation at the other observatories and the charts are used in other publications of the office, e.g. in the *Monthly Weather Report Annual Summary.*

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.

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* L.H.G. Dines. Meteorological Office Professional Notes No. 23 1921.
† See Computer's Handbook Section 1.
‡ Not published now.

(*e*) *Rainfall.*—In this table totals for the hours have been given instead of means. The first and last entries refer to the half hours beginning and ending at midnight.

(*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 values are given in hours and are obtained by dividing the totals for each month by the number of days in the month. It should be noticed that the entries refer to Local Apparent Time.

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. Results for 1918 are set out below, the normals for the older observatories being for 1871-1915, those for Eskdalemuir for 1911-1915:—

Observatory and Period.	Amplitude in Millibars.				Phase Angle, Greenwich Mean Time.								Phase Angle, Local Mean Time.			
					24-Hour Term.		12-Hour Term.		8-Hour Term.		6-Hour Term.					
	P_1	P_2	P_3	P_4	A_1	Max.	A_2	Max.	A_3	Max.	A_4	Max.	A_1	A_2	A_3	A_4
					°	h m	°	h m	°	h m	°	h m	°	°	°	°
Aberdeen, 1918 ..	·092	·246	·059	·011	216·3	15 35	139·0	10 22	8·2	1 49	349·0	1 41	218·4	143·2	14·5	357·4
,, Normal	·116	·249	·028	·009	157·8	19 29	143·6	10 13	349·5	2 14	335·7	1 55	159·9	147·8	355·8	344·1
Eskdalemuir 1918 ..	·051	·275	·005	·012	79·0	0 44	143·5	10 13	332·9	2 36	322·9	2 7	82·2	149·9	342·5	335·7
,, Normal	·083	·257	·023	·016	75·1	1 0	141·9	10 16	15·0	1 40	330·6	1 59	78·3	148·3	24·6	343·4
Richmond (Kew Obs.) 1918	·095	·357	·035	·009	17·3	4 51	145·5	10 9	1·8	1 58	245·5	3 25	17·6	146·1	2·7	246·7
,, Normal	·138	·351	·030	·008	28·1	4 7	149·5	10 1	1·6	1 58	274·7	2 55	28·4	150·1	2·6	276·0
Cahirciveen (Val. Obs.) 1918	·185	·300	·018	·005	209·1	16 4	128·6	10 43	347·3	2 17	225·8	3 44	219·4	149·2	18·2	267·0
,, Normal	·151	·307	·034	·004	177·8	18 9	130·9	10 38	331·9	2 37	42·3	0 48	188·1	151·5	2·8	83·5

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

$P_1 \sin (15t+A_1)^\circ+P_2 \sin (30t+A_2)^\circ+P_3 \sin (45t+A_3)^\circ+P_4 \sin (60t+A_4)^\circ+$

and

$P_1 \cos 15\,(t-T_1)^\circ+P_2 \cos 30(t-T_2)^\circ + P_3 \cos 45(t-T_3)^\circ+P_4 \cos 60(t-T_4)^\circ+$

Here t is the time elapsed in hours since midnight and T_1, T_2, T_3, T_4 are the times of maxima of the four harmonic terms. The times of the corresponding minima differ from those of the maxima by twelve, six, four, and three 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.

It may also be mentioned that the " normal " values of the P's refer to the normal diurnal variation. The average values of the P's for individual years would naturally be greater.

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.*

Normal values for various elements are given in the *Book of Normals* which is in course of publication.

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

RAINFALL: MONTHLY TOTALS OF HOURLY VALUES.

Amounts, in millimetres, for periods of sixty minutes centered at the exact hours, Greenwich Mean Time.*

Falmouth : H_r=50·8 m. + 0·6 m. **1918.**

G.M.T.	0 to 0·30	1	2	3	4	5	6	7	8	9	10	11	Noon	13	14	15	16	17	18	19	20	21	22	23	23·30 to 24·0	Day.
Jan.	0·9	3·3	4·1	3·8	7·5	7·5	1·7	4·7	8·2	5·8	9·1	7·3	6·8	5·7	2·8	5·0	6·2	9·5	9·4	8·2	5·6	3·6	4·0	3·2	1·2	135·1
Feb.	4·4	4·8	3·5	2·7	3·1	2·0	2·7	3·7	1·7	1·7	2·8	4·4	2·4	3·5	5·1	2·7	4·4	4·2	3·3	4·1	5·2	7·0	6·1	4·8	2·6	92·9
Mar.	1·0	2·8	2·4	2·1	1·8	1·5	3·8	3·8	9·0	2·8	0·9	0·1	0·0	0·1	0·1	0·5	0·5	0·6	2·1	2·3	0·3	0·5	5·4	1·2	1·0	46·6
April	2·3	1·6	1·0	2·1	2·6	1·6	1·5	1·1	0·5	2·7	1·5	0·5	0·0	1·4	4·4	2·3	7·6	3·4	1·3	1·2	1·9	3·2	1·4	1·6	1·4	50·1
May	1·1	3·1	1·7	0·7	0·5	1·0	1·4	1·6	4·8	1·2	4·0	3·9	1·2	0·4	0·0	0·0	0·0	0·2	0·0	0·0	0·4	0·2	1·0	0·9	29·3
June	0·2	1·0	0·0	0·0	0·0	1·0	0·0	0·1	0·8	3·0	0·5	0·8	1·7	3·0	8·5	4·3	0·2	0·2	0·3	0·0	0·0	0·0	0·1	0·0	0·0	25·7
July	0·6	4·6	1·3	4·3	1·7	3·1	5·5	10·9	4·9	5·0	3·3	1·5	3·1	3·8	1·4	3·8	1·1	3·6	3·3	2·2	7·0	2·1	0·8	2·6	1·0	82·5
Aug.	2·7	2·5	1·0	1·9	1·1	3·4	1·4	4·0	3·3	2·3	5·9	0·0	0·1	8·0	0·1	0·4	2·3	1·3	3·4	3·5	6·4	2·1	0·3	0·8	1·2	59·4
Sept.	7·0	11·2	11·3	6·2	15·5	8·7	10·6	13·8	9·7	7·9	6·8	9·0	11·8	8·4	11·4	7·7	9·9	12·3	3·6	3·5	3·2	6·6	4·0	7·6	4·2	211·9
Oct.	1·2	7·9	6·0	7·9	10·6	6·0	4·7	5·7	2·6	0·9	1·6	1·4	0·8	1·5	1·0	1·9	2·2	1·7	4·1	2·0	4·1	8·0	3·6	1·5	0·4	89·3
Nov.	1·2	2·9	5·1	6·7	5·9	4·5	4·1	4·6	5·2	9·3	3·3	1·5	1·2	0·6	1·6	1·8	1·5	4·6	9·3	7·8	6·8	3·0	1·4	3·5	0·7	98·1
Dec.	7·0	16·7	5·2	5·0	7·2	10·7	8·7	8·4	4·7	3·4	4·8	5·7	9·9	10·8	10·5	7·7	6·6	5·2	11·1	10·7	13·9	11·3	7·0	11·0	7·5	211·3
Year	29·6	62·4	42·6	43·4	57·5	51·0	46·1	62·4	55·4	46·0	44·5	36·1	39·0	47·2	46·9	38·1	42·5	46·6	51·4	45·5	54·4	47·8	34·9	38·8	22·1	1132·2

DURATION OF BRIGHT SUNSHINE: MONTHLY MEANS OF HOURLY VALUES.

Amounts for periods of sixty minutes centered at the hours of Local Apparent Time.

Falmouth : h_S=10·4 m. **1918.**

L.A.T.	4	5	6	7	8	9	10	11	Noon.	13	14	15	16	17	18	19	20	Day.
Jan. ..	..	..	..	..	·06	·25	·25	·29	·33	·33	·31	·25	·09	..	..	..	..	2·16
..	..	..	..	..	·12	·19	·20	·24	·20	·20	·19	·10	·12	·02	..	..	..	1·64
Mar. ..	..	..	·01	·15	·30	·39	·46	·50	·51	·49	·51	·46	·41	·18	·01	..	..	4·38
April ..	..	..	·19	·47	·50	·54	·52	·64	·57	·55	·56	·55	·52	·44	·22	·01	..	6·28
May ..	..	·07	·35	·48	·55	·55	·57	·59	·62	·64	·64	·58	·62	·63	·60	·30	..	7·79
June ..	..	·32	·53	·50	·55	·59	·60	·66	·72	·72	·75	·76	·77	·76	·72	·54	·03	9·52
July ..	..	·23	·54	·55	·57	·55	·56	·63	·63	·62	·62	·65	·67	·67	·52	·31	·02	8·34
Aug. ..	..	·01	·21	·35	·35	·33	·43	·47	·55	·53	·42	·36	·35	·37	·28	·05	..	5·06
Sept. ..	..	..	·05	·28	·44	·46	·41	·40	·48	·47	·46	·39	·36	·28	·03	..	..	4·51
Oct. ..	..	..	..	·03	·17	·34	·43	·42	·46	·42	·39	·40	·22	·05	..	..	..	3·33
Nov. ..	..	..	..	..	·09	·30	·41	·35	·42	·40	·34	·24	·14	..	..	..	..	2·69
Dec. ..	..	..	..	..	..	·17	·25	·28	·26	·29	·27	·15	..	..	..	..	..	1·67
Year ..	..	·05	·16	·23	·31	·39	·42	·46	·48	·47	·46	·41	·36	·28	·20	·10	·00	4·78

* The half-hours before and after midnight are tabulated separately.

TERRESTRIAL MAGNETISM: 1. NOTES ON THE MANAGEMENT OF THE INSTRUMENTS AT KEW OBSERVATORY, RICHMOND, AND ON THE CORRESPONDING TABLES, 1918.

By C. Chree, Sc.D., LL.D., F.R.S., Superintendent.

The magnetographs have continued in regular operation throughout the year, and absolute observations of declination, dip, and horizontal force have been taken, usually once a week. The results of the absolute observations have appeared month by month in the *Geophysical Journal*.

On January 14th a scale-value determination of the horizontal force magnetograph gave 1 mm.=5·9 mm. This was checked several times during the year and found to remain unaltered. On January 15th a scale-value determination gave for 1 mm. on the vertical force trace 16γ. This was checked twice later in the year and found practically unaltered. The scale value of the declination instrument remained as in previous years,

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

The base values of the curves were determined by means of the absolute observations. These were taken, as in past years, with the Jones unifilar magnetometer, using collimator magnet K.C.I., mirror magnet AN, and declination magnet KO 90, and with the Barrow dip circle, No. 33, with $3\frac{1}{2}$-inch needles. In the absolute observations of horizontal force deflections were made at three distances—22·5, 30 and 40 cms.—and values were calculated for the " distribution constants " P and Q 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	$\bar{1}\cdot 99939$
1911	+ 0·832	− 1377	$\bar{1}\cdot 99934$
1912	+ 0·749	− 1286	$\bar{1}\cdot 99937$
1913	+ 1·504	− 1528	$\bar{1}\cdot 99959$
1914	+ 1·226	− 1343	$\bar{1}\cdot 99958$
1915	+ 0·778	− 1245	$\bar{1}\cdot 99942$
1916	+ 2·962	− 2044	$\bar{1}\cdot 99996$
1917	+ 0·696	− 1236	$\bar{1}\cdot 99938$
1918	+ 1·683	− 1565	$\bar{1}\cdot 99965$

Originally the observations made in 1918 were reduced, employing the values obtained for P and Q in the previous year. The substitution of the values appropriate to 1918 entailed an increase of 6γ in the calculated values of H. The results were, however, obtained in time to secure the publication of the corrected values in the *Geophysical Journal*. The disturbance of the magnetic curves by artificial electric currents has been much as in the previous year. The publication of diurnal inequalities in D and H from the international quiet days has thus been continued.

Particulars of the magnetic " character " of individual days on the international scale " 0 " (quiet), " 1 " (moderately disturbed), and " 2 " (highly disturbed) have been contributed quarterly, as in recent years, to Professor 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," " 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 in the disturbance to which any one figure is attached, these monthly means should be regarded as giving only a general indication of the disturbance prevailing.

1918.	Number of Days having Magnetic " Character."			Mean of " Character " Numbers.
	" 0."	" 1."	" 2."	
January	15	12	4	0·65
February	9	11	8	0·96
March	13	14	4	0·71
April	11	11	8	0·90
May	17	12	2	0·52
June	19	9	2	0·43
July	13	17	1	0·61
August	13	14	4	0·71
September	10	16	4	0·80
October	8	16	7	0·97
November	17	4	9	0·73
December	9	13	9	1·00
Year (Totals and Means) ..	154	149	62	0·75

The mean " character " figure for the year is in excess of that for 1917, there being a decided increase in the number of days of " character " 2. The increase of disturbance was confined to the earlier and later months of the year, the midsummer months being quieter than in 1917. There were no outstanding magnetic storms during 1918, but there was very considerable disturbance on the following dates: January 30th, February 12th, March 8th, April 5th, 6th, and 11th, May 16th and 17th, August 15th, September 21st, December 8th and 25th. The disturbances of March 7th–8th and August 15th–16th formed the subject of a special paper* by the Superintendent.

The declination and horizontal force curves were tabulated on the five international days a month, particulars of which are given in the accompanying table :—

List of Magnetic Quiet Days for 1918 *as issued by the International Commission of Terrestrial Magnetism.*

January	8,	11,	17,	18,	19	July ...	7,	19,	20,	21,	22
February	8,	19,	22,	25,	26	August ...	1,	18,	19,	21,	30
March ...	5,	6,	19,	24,	25	September	11,	12,	15,	25,	26
April ...	13,	14,	15,	20,	24	October...	11,	12,	13,	14,	27
May ...	7,	8,	9,	26,	27	November	5,	6,	7,	26,	27
June ...	2,	3,	4,	29,	30	December	5,	6,	28,	29,	30

The usual temperature correction, viz., 3·1γ per 1° C, has been applied to the horizontal force curves. In view of the continual small oscillations now usual in the traces all the curves were smoothed, readings being taken exactly at the hour. The procedure differs from that adopted at Eskdalemuir where hourly values are 60-minute means.

* *Roy. Soc. Proc.*, A., Vol. XCVI., p. 32.

Tables LXI and LXII give the diurnal inequalities of declination and horizontal force for the selected quiet days, after elimination of the non-cyclic change, for each month of the year, for the year as a whole, and for three seasons defined as in previous years, x and n, are attached to the maximum and minimum hourly values.* 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, the minus sign means that the magnet points to the east of its mean position for the day.

Table LXIII gives the algebraic difference of the extreme hourly values, and Table LXIII*a* the mean algebraic excess of the value at 24h. over the value at oh. In the majority of months, both for declination and horizontal force, the range is less than in 1917. The smallness of the ranges in December, 1918, is particularly striking. The non-cyclic change in H was not negative in any single month, and on the average had the somewhat high value of $+4{\cdot}0\gamma$, being the same as in 1917.

Table LXVII contains mean monthly and annual values of declination, inclination, horizontal force, north and west components of force, vertical force, and total force. The results for declination and horizontal force are derived from the curve measurements of the international quiet days. The inclination results are derived from absolute observations of dip, taken at an hour in the afternoon when the departure from the mean value for the day is small, and an allowance has been made for this departure from the diurnal inequalities of previous years. The values of the other elements are derived by calculation from those of declination, inclination, and horizontal force.

Westerly declination continues to fall rapidly at approximately the same rate as in recent years. Inclination shows a small rise, as during the previous three years, and horizontal force a small fall. There is a very regular decline in the west component, as there has been of late years ; the north component, on the other hand, seems to be nearly stationary. Vertical force and total force show a small fall, but it is perhaps too small to rely on, in view of the larger uncertainties affecting the values of these elements.

Table LXVIII gives mean annual values of the magnetic elements at the observatories whose publications are received at Kew Observatory, including the latest data available up to 1918. No data have been received from a considerable number of observatories since the war began.

After an exchange of ideas with representatives of the Institution of Mining Engineers, an arrangement was come to for the publication week by week of information as to the magnetic declination. The data published consist of mean values of the declination to the nearest $0'{\cdot}5$ for two-hour intervals throughout the day, and the mean value for the whole day. Mean values are also given to the nearest $0'{\cdot}1$ of the declination for three months, including the latest complete month of the current year, the corresponding month of the previous year, and the current month of the previous year. This enables the rate of the secular change to be inferred. Diurnal inequalities to the nearest $0'{\cdot}1$ are given for the same three months. Magnetic " characters " are assigned to the individual days, following generally the international scale 0, 1, 2 of disturbance. These figures are, however, assigned from consideration of the declination curves only, and asterisks are attached to the particular two-hour intervals which are considered highly disturbed. If a single two-hour interval is deemed highly disturbed, the whole day is considered of " character " 2.

* In the present year. however, unlike previous years, the letter n itself implies a negative value.

The data for the week ending on a Saturday are prepared by the following Wednesday, and are at once communicated for publication to the Institution of Mining Engineers, and to the Editors of the *Colliery Guardian* and the *Iron and Coal Trades Review*. The scheme was put into operation in the middle of March, and has continued to work smoothly.

The method of assigning " character " figures leads in general to a slightly larger number of 2's than the method followed in obtaining the figures for De Bilt ; but the excess for the nine months, April to December, was only 5.

In forming the diurnal inequalities for the Mining Engineers, days of " character " 2 are omitted, and the same is true of the mean monthly values. The data thus answer to what has been sometimes defined as " ordinary " days.

It seemed worth while to carry out the corresponding measurements for January and February, so as to have ordinary day data for all the months of the year. While mean values and inequalities had been published only to $0'{\cdot}1$, the inequalities had really been carried out to $0'{\cdot}01$, and this was also done for January and February.

The mean monthly values of declination from ordinary and quiet days were closely alike. On the average of the twelve months the ordinary day mean was the larger by $0'{\cdot}07$, the algebraic excess varying from $+0'{\cdot}5$ in May to $-0'{\cdot}2$ in April and July. The monthly means were identical in two months, and their difference exceeded $0'{\cdot}2$ in only three months.

The inequalities derived from ordinary days are given in Table LX*g* ; the ranges and non-cyclic changes in Tables LXIII. and LXIII*a*.

Comparing the monthly ranges, it will be found that on the average of the twelve months the ordinary day range was the larger by $0'{\cdot}44$. The excess was not large, except in December, January, and March, and in three months—May, August, and September—the quiet day range was the larger. Owing partly to the greater homogeneity of the quiet-day data, the difference between the ranges in the ordinary and quiet-day diurnal inequalities for the whole year is only $0'{\cdot}08$.

There is, in reality, a decided difference in the type of the diurnal inequality on ordinary and quiet days, especially conspicuous in the winter months. The quiet-day diurnal inequality for the winter season has the minimum, as in the other seasons, in the early forenoon ; but all the winter months show a decided tendency to a second minimum near midnight, and in December this was the principal minimum. In the ordinary day inequalities the minimum near midnight is the principal minimum in all four winter months, and the value at 22h. in the winter season is $1'$ below that at 9h., instead of being $0'{\cdot}7$ higher as in quiet days. The difference in type may be most concisely described as a tendency in the declination on ordinary days to be more westerly than that on quiet days during the day hours, and more easterly during the night hours. In the diurnal inequality for the year, the ordinary day declination was the more westerly from 6h. to 18h.

The ordinary days include the quiet days. The difference in type between the two inequalities would be increased if the quiet days were excluded. It represents, of course, the influence which disturbance exerts on the diurnal variation. An inequality derived exclusively from highly disturbed days diverges even more markedly from the quiet-day inequality.

TERRESTRIAL MAGNETISM:—II. NOTES ON THE MAGNETIC OBSERVATIONS MADE AT THE VALENCIA OBSERVATORY, CAHIRCIVEEN, 1918. By L. H. G. DINES, M.A., A.M.I.C.E., Superintendent.

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 the same hours of the day on each occasion. The mean times of observation were $10^h\ 20^m$ for the declination, $11^h\ 37^m$ for the horizontal force, and $14^h\ 31^m$ for the inclination. In no case did the time of any individual observation differ from the mean by more than 5 minutes.

Only such observations of each element have been used as had been taken at times when that element, as recorded by the magnetographs at Kew Observatory, Richmond, was subject to no abnormal disturbance.

The deflections of the mirror magnet were taken at two distances of the collimator magnet and a single "distribution constant," P, was calculated from them. This constant was determined by utilizing all observations of deflection made in 1918.

Except in a very few cases, 12 readings of deflection were taken for each complete observation in the manner described in the notes on the observations made in 1917.

Previous to the year 1918 no allowance was made for the bending of the deflection bar in determining the distance between the two magnets; also the weights on the two halves of the bar on either side of the magnetometer were different, the collimator magnet and carriage being much heavier than the thermometer placed at the other end.

From the beginning of 1918 an equal counterweight has been used in all cases to ensure symmetry of loading, and appropriate corrections have been made to allow for bending.

The physical constants of the bar, required for this purpose, were determined experimentally by loading in a known manner with both magnets in their normal positions, and noting the corresponding deflections of the mirror magnet.

A discontinuity of appreciable magnitude has inevitably been introduced by the new procedure. Reviewing all the circumstances in the light of the experiments referred to above, it would seem that the application of the bending correction has resulted in all values of H being decreased by 3 γ. It is, therefore, necessary to subtract 3 γ from the means of horizontal force for 1917 and previous years to make them comparable with those for 1918. The values of the total force and of the three rectangular co-ordinates require proportional corrections. Even with the new scheme, accuracy to 1 γ is not claimed. The neglect of the distribution constant Q, for instance, (c.f. p. 56) involves presumably a systematic error of 3 γ or 4 γ.

Particulars of the individual observations will be found in the monthly numbers of the *Geophysical Journal*, the figures for which were based on the value of the distribution constant determined, as mentioned above, at the end of the year.

Table LXVII in the present volume 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.

TERRESTRIAL MAGNETISM:—III. NOTES ON THE MANAGEMENT OF THE INSTRUMENTS AT ESKDALEMUIR AND ON THE CORRESPONDING TABLES. 1918. By A. CRICHTON MITCHELL, D.Sc., F.R.S.E., Superintendent.

The magnetographs at Eskdalemuir are arranged so as to record changes in value of the three geographical components of terrestrial magnetic force, viz., north component N (or +X); west component W (or −Y), and the vertically downward component V (or +Z). They are installed in an underground house in which the mean diurnal range of temperature, as ascertained by direct observation, is certainly less than 0°·05 Centigrade.

Temperature as determined by daily observations at 9^h 30^m is given in the monthly tables (Tables IV, VIII, &c.). The annual range of temperature is subject to considerable variation, as will be seen from the following figures:—

Annual Range of Temperature (Degrees Centigrade).

1911	.. .. ..	4·2°	
1912	.. .. ..	3·4	
1913	.. .. ..	3·6	
1914	.. .. ..	5·6	
1915	.. .. ..	4·1°	
1916	.. .. ..	4·8	
1917	.. .. ..	4·4	
1918	.. .. ..	3·8	

The lowest temperature of the year occurs in the magnetograph house in April, the highest in September, the monthly means being as follows:—

Excess of Mean Temperature above 280a.

Month.	Jan.	Feb.	Mar.	Apl.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.
Average 1911–17	3·1	2·5	2·0	**1·8**	2·2	3·1	4·1	5·2	**5·9**	5·8	5·1	4·0
„ 1918	3·1	2·8	2·8	**2·7**	2·8	3·8	4·8	5·7	**6·3**	5·8	5·1	4·3

The north and west magnetographs employed were, as in previous years, the Adie bifilar instruments. In these instruments, torsion of the bifilar suspension is used to bring the magnets into an azimuth approximately perpendicular to the direction of the components which they respectively measure. During 1918, no change was made in the suspension.

The vertical magnetograph was that lent by the late Professor Watson. The base line value of this instrument is liable to change if any incautious movement is given to the pivoted magnets during a scale test. This happened on two occasions —14th August and 21st August—during 1918. The air within the brass case of the instrument is kept dry by calcium chloride, but when the drying agent is renewed there is almost inevitably a large change in base line value. This occurred on 8th August, 1918. The control magnet was raised on 21st August, 1918, so as to bring the trace into a more convenient position on the recording sheet.

The constants of the magnetographs were as follows :—

	North.	West.	Vertical.
Time scale : 1 hour=	15·6 mm.	15·6 mm.	15·6 mm.
Time marks	Every two hours ; end of mark at exact hour.		
Error of time mark	Not more than ± 1 minute.		
Period of vibration, seconds	13·9	11	7·4
Logarithmic decrement	·345	·572	—
Angular equivalent of 1 mm. on paper ; radians ..	·00032	·00032	·0003
Twist of bifilar suspension	35°	90°±5°	—
Ratio $\frac{\text{length of bifilar suspension}}{\text{mean breadth of suspension}}$	51	66	—
Temperature coefficient, per 1° C.	−9 γ	−2 γ	+26 γ
Direction in which marked pole points	West.	North.	—
Azimuth of magnet	270° 9′	0° 28′	346°

The scale values of the magnetographs were determined fortnightly in the manner described in the 1913 *Notes*. The following values obtained from overlapping means were employed in reducing the hourly readings.

Month.	North Instrument. γ per mm.	West Instrument. γ per mm.	Vertical Instrument. γ per mm.
January	4·96	5·36	4·20
February	4·97	5·35	4·19
March	4·97	5·33	4·19
April	4·95	5·34	4·12
May	4·96	5·35	4·10
June	4·98	5·35	4·11
July	4·98	5·35	4·15
August	4·97	5·38	*
September	4·96	5·38	4·18
October	4·99	5·38	4·12
November	4·99	5·37	4·07
December	4·98	5·37	4·10

Absolute observations were made weekly in the eastern magnetic hut. Declination and horizontal force were determined on Pier No. 5 by the Elliot magnetometer No. 60. Dip was measured on Pier No. 6 by the Schulze Inductor No. 103. In the deflection observations, three distances, 25, 30, and 35 cm. were used. The value of the term $\log\left(1+\frac{P}{25^2}+\frac{Q}{25^4}\right)$, required in the reduction of the absolute observations for horizontal force, was obtained for a given month by taking a mean for a group of seven months, including the given month as fourth of the seven. The values during the year were as follows :—

January, ·00539 ; February, ·00534 ; March, ·00536 ; April, ·00523 ; May, ·00517 ; June, ·00532 ; July, ·00539 ; August, ·00540 ; September, ·00550 ; October, ·00542 ; November, ·00526 ; December, ·00524.

In obtaining the foregoing values, absolute observations considered unreliable—*e.g.*, those taken during times of disturbance—were excluded.

From the absolute observations the preliminary base line values were deduced. Those finally adopted were obtained from a curve drawn smoothly through points given by the preliminary values. Plate I shows these curves. It also shows the variation of temperature during the year in the underground magnet house.

The hourly readings are obtained from the magnetograms by means of a ruled glass scale. The reading for any given hour G.M.T. is that ordinate which is estimated

*4·24 from 0h on 1st to 11h on 21st ; 3·97 from 12h on 21st to 24h on 25th ; 4·10 during the remainder of the month.

to be the mean reading for 60 minutes centering at the given hour. This ordinate is then multiplied by the scale value; to this product the base line value is added, and the sum so obtained is the hourly value printed in the table. The mean value for the day is $\frac{S}{24}$ where

$$S=\frac{0+24}{2}+1+\ldots\ldots+23.$$

In calculating diurnal inequalities, the non-cyclic change has been eliminated in the usual manner, assuming its time-rate to be linear. The value of the inequality at each hour is first calculated to $0\cdot01\gamma$, and afterwards rounded off to $0\cdot1\gamma$. The diurnal inequalities of the horizontal force, declination, and dip were computed from those of the geographical components by means of the formulæ—

$$\delta D=\frac{180\times60}{\pi}(\delta W\cos D-\delta N\sin D)/H.$$

$$\delta H=\delta N\cos D+\delta W\sin D.$$

$$\delta I=\frac{180\times60}{\pi}\cos I\,(\delta V\cos I-\delta H\sin I)/H.$$

in which δD, δI, are expressed in minutes of arc. The values of D, H, and I, used in these formulæ, are those given for the appropriate month in Table LXVII.

For Tables LXIV and LXIVa the values of the Fourier coefficients were computed from the unrounded values of the inequalities. The coefficients were finally corrected, where necessary, on account of the fact that the hourly values are not instantaneous values, but are mean values taken over an hour. The correction, details of which are given in the Report of the Committee on the Harmonic Analysis of Tidal Observation, B.A. Report 1883, page 98, involves the multiplication of the coefficients by certain factors. For the coefficients a_1, b_1, c_1, the factor is $1\cdot00286$; for a_2, b_2, c_2, it is $1\cdot01152$; for a_3, b_3, c_3, it is $1\cdot02617$; and for a_4, b_4, c_4, it is $1\cdot04720$. The figures published in earlier volumes of *Hourly Values* require similar amendment.

TERRESTRIAL MAGNETISM:—IV. REVIEW OF RESULTS OF MAGNETIC OBSERVATIONS AT ESKDALEMUIR DURING 1918.

By A. Crichton Mitchell, D.Sc., F.R.S.E., Superintendent.

1. The following account summarises the principal results of the magnetic observations made during 1918.

Reference may be made to the *Notes on the Management of the Magnetic Instruments* in this and previous issues of the *Year Book* for details regarding the instruments employed and the manner in which the values of the elements are deduced from the magnetograms.

2. *Mean Annual Values of the Magnetic Elements*, 1918.—These, together with the respective values for the previous year, are given in Table I. The values of N, W, and V have been computed from the autographic records, standardized by means of absolute observations. Those of H, D, I, and T have been deduced from the values of N, W, and V.

Table I.

Year.	H.	D. (West)	I.	N.	W.	V.	T.
	γ	° ′	° ′	γ	γ	γ	γ
1918 ..	16715	17 8·1	69 39·0	15973	4925	45067	48067
1917 ..	16732	17 16·3	69 38·6	15976	4971	45093	48097

The fall in H, which has been in progress since 1912, still continued, but its rate was again lower during 1918. The decrease in westerly declination is also lower than it has been since 1911. The rise in the inclination from the minimum reached in 1914 is still slow. The geographical components all diminished in value, W and V at about the same rate as for 1917, N at a lower rate.

The extreme values of N, W, and V recorded during the year are shown in Table II.

Table II.

Component.	Maximum.		Minimum.		Absolute Annual Range
	Value.	Date 1918.	Value.	Date 1918.	
	γ	d h m	γ	d h m	γ
North	16371	Aug. 15 20 30	15699	Sept. 21 20 27	672
West	5136	Aug. 15 18 15	4690	Dec. 25 19 18	446
Vertical	45369	Dec. 25 { 17 18 / 17 42 }	44809	May { 16 / 17 * * }	560

The absolute annual range during 1918 was thus much less, in all three components, than in the previous year.

3. *Magnetic Character of the Year.*—The magnetic character at a given station for a given year, season, month, or day—that is, the measure of the extent or frequency of departure from normal conditions—may be estimated in several ways. The first of these is by the assignment to the period in question of a "character figure," 0, 1, or 2, according to the increasing scale of disturbance. This is the well-known

* For details, see *Geophysical Journal*, May, 1918.

international arrangement. Another method, which has been employed at Eskdalemuir during recent years, is to compare the values of the sum ΣR^2 of the squares of the absolute daily ranges of the three geographical components.† A third method is to use the mean value, for each day, of the sum Σr^2 of the squares of the absolute hourly ranges of these components.† Although these three methods are not capable of direct mutual interpretation, they confirm each other to a certain extent when applied to the several months of the year, and provide a measure of the extent of disturbance in each month. The results of each, for Eskdalemuir in 1918, are collected in the subjoined Table.

TABLE III.

Month.	Magnetic "Character" Figures.				Mean Value of ΣR^2	Mean Value of Σr^2
	No. of "0" Days.	No. of "1" Days.	No. of "2" Days.	Mean Character Figure.		
1918.					γ^2	γ^2
January	21	8	2	0·39	20743	839
February	13	11	4	0·68	23176	1160
March	17	10	4	0·58	30763	1588
April	12	11	7	0·83	49374	2139
May	15	11	5	0·68	38148	1524
June	17	9	4	0·57	24266	1135
July	15	12	4	0·65	26527	1137
August	11	13	7	0·87	44759	2701
September	12	14	4	0·71	43394	2767
October*	11	15	4	0·77	35930	1859
November	16	7	7	0·70	33343	2032
December	14	11	6	0·74	52956	3018
Year 1918	174	132	58	0·68	35282	1826
Year 1917	173	146	46	0·65	34435	—

The foregoing Table shows that, with regard to average magnetic character, 1918 was very similar to the previous year. The number of "2" days was greater, but this was partly compensated by a smaller number of "1" days. The estimate given by the values of ΣR^2 bears this out.

With regard to the several months of 1918, the quietest month was January according to character figure, according to the value of ΣR^2, and also according to that of Σr^2. The most disturbed month was August according to the first of these methods, and December according to the second and third. It is to be remembered, however, that in these latter two, account is taken of the different extent of disturbance, while all fairly large disturbances have the same character figure. The numbers in the last two columns are fairly concordant in their rise and fall, but their ratios vary between 15·7 and 24·7. Judging by these numbers, it would appear that the character figures assigned during February and October were too high, and those for December too low. With these exceptions, the general results of the three methods are in agreement.

† R_N, R_W, and R_V denoting the ranges for a calendar day of the north, west, and vertical components, ΣR^2 is written for $R_N^2+R_W^2+R_V^2$.

ΣR^2 determined thus is entered in Table IV., and monthly means, such as $\frac{1}{31}\sum_{1}^{31}(\Sigma R^2)$, are given in Table III

Similarly r_n, r_w, and r_v denoting hourly ranges, Σr^2 stands for $r_n^2+r_w^2+r_v^2$.

$\frac{1}{24}\sum_{1}^{24}(\Sigma r^2)$ is shown in Table V., and monthly means such as $\frac{1}{31}\sum_{1}^{31}\left[\frac{1}{24}\sum_{1}^{24}(\Sigma r^2)\right]$ in Table III.

* Character figure for one day omitted owing to imperfect record.

For the sake of completeness, the values of ΣR^2 and the mean value of Σr^2 are given in Tables IV. and V. respectively.

TABLE IV.

Day of Month	Values of ΣR^2.											
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1918	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2
1	2950	52246	12073	20634	58977	10758	34554	14426	69989	65738	14484	105905
2	3366	13842	11883	20654	14390	9629	14349	33142	22065	24125	7457	13181
3	16067	5219	34793	18348	13574	6737	17709	35117	25515	35677	5403	27921
4	14738	2550	11298	38195	17000	8350	11354	20660	45236	44514	6089	7691
5	15182	11156	8578	106169	34818	15181	9433	27372	59809	40363	5341	1216
6	20029	48626	5705	194121	10638	17701	11666	37256	26253	49581	2162	537
7	8921	8315	21102	98189	11129	15368	15614	38741	16397	18677	2516	53435
8	1419	3206	264196	30235	16341	18490	34349	41389	36249	171545	4302	313002
9	3885	12329	8987	24646	12609	43043	29049	..	15513	42290	5045	56890
10	9386	30729	32693	27781	13317	175202	22774	..	16826	8690	14957	77397
11	2210	31898	64193	218419	26842	24648	43659	..	10145	7931	99421	31758
12	41545	125201	38606	135818	16974	70755	18146	18822	8290	6499	97694	17786
13	22278	75690	10307	11897	11537	20744	28165	15749	14657	5430	40897	33537
14	10731	35963	9956	6377	25492	24017	29381	18496	17906	..	54174	9030
15	9426	47398	44502	11913	48630	43605	21803	466209	12317	..	67441	3997
16	4664	22485	64939	9349	279913	29019	18985	75359	42818	..	35572	8865
17	6870	6561	11814	12941	328353	32222	16133	10595	30804	89714	20699	8725
18	4022	3179	11198	46661	38801	14417	16901	5534	38765	27340	7020	7521
19	2339	2862	7115	73254	35933	7538	8594	9842	65574	66314	28122	31825
20	5166	13062	11342	9801	23674	12104	8106	16770	32829	35881	..	20969
21	16002	13034	30123	18201	18781	24993	..	13313	439562	25253	7186	15762
22	7763	1929	26909	18741	13845	7832	11194	14453	43627	30410	10322	16914
23	3240	23163	71277	25430	9464	9382	..	16377	18869	18369	78989	..
24	10328	15285	8358	12845	10598	9236	..	58770	24762	16650	44442	..
25	7130	2292	9704	99278	11242	9886	43045	70616	11221	19416	4273	544746
26	6756	4014	19953	89774	10969	23816	23585	50200	8435	..	3893	103603
27	13307	9930	41720	11195	7956	14454	15363	42728	19422	4426	3629	5785
28	4606	26773	14094	11834	10394	10616	93089	26585	32689	39861	14340	2846
29	46868	..	15128	12461	18419	9181	82333	18594	28962	15854	226789	1787
30	179678	..	14297	66072	19241	9041	33894	11045	66324	16357	54302	441
31	142177	..	16818	..	12739	..	29531	45107	..	43211	..	12654
Mean	20743	23176	30763	49374	38148	24266	26527	44759	43394	35930	33343	52956

For Table IV. on the following days:—March 8th, April 12th, May 16th, 17th, August 15th and December 25th, the actual value of the range could not be determined owing to the trace "going off the sheet." In such cases the value at the edge of the sheet has been taken as the extreme value.

In Table V. the practice has been to omit from the daily mean any hour during which the trace was "off the sheet." In a few cases, however, when the time "off the sheet" was of short duration the value at the edge of the sheet has been taken as the extreme value.

TABLE V.

Day of Month	Mean Value of Σr^2.											
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1918	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2
1	84	3959	692	461	2181	227	1672	475	4846	3287	613	7226
2	116	981	480	586	508	177	525	1997	886	2084	613	327
3	493	191	1676	439	504	144	606	2182	1888	2793	212	1270
4	919	123	358	1793	620	164	431	873	2728	2812	277	505
5	939	612	232	6314	1026	318	378	1410	2950	2162	170	58
6	755	2186	141	7198	358	481	361	1512	1760	2718	61	20
7	365	525	1402	3700	209	445	270	1872	867	768	87	2390
8	50	102	18008	1428	287	547	1308	2183	1799	9546	118	15376
9	141	647	544	746	371	2575	1123	...	824	1485	206	3973
10	496	1686	1015	1005	368	10608	1396	..	510	366	760	5099
11	64	2192	3874	13969	1163	1485	2166	..	330	243	5585	2264
12	1478	6149	1843	4422	708	3791	864	632	216	272	6983	1132
13	1348	3483	238	199	480	1020	1106	622	590	136	3458	2761
14	751	1408	346	110	930	1041	1432	950	475	..	2148	533
15	729	2250	2548	426	1761	2966	1145	38019	315	..	4990	195
16	222	936	3741	388	11631	2214	559	3545	2990	..	2827	244
17	181	273	321	424	13768	1401	425	267	2023	3800	1070	520
18	101	148	224	2590	2845	371	437	186	1376	1317	284	431
19	53	86	190	2518	2322	218	165	164	3367	2129	1713	2476
20	126	513	759	192	243	344	124	442	1902	..	..	1596
21	590	489	1326	531	901	852	..	305	36919	826	229	1204
22	365	56	1050	628	428	206	...	528	2039	781	336	1449
23	211	813	4047	1184	396	162	..	465	785	..	3979	..
24	311	672	192	289	305	265	..	2518	982	..	2554	..
25	443	74	194	4248	307	158	1565	4381	482	981	419	30727
26	303	123	560	3358	244	1010	765	3156	333	..	143	4805
27	433	444	1227	469	272	332	730	1894	965	127	140	233
28	146	1360	469	523	178	177	6161	1046	1866	2159	452	97
29	2375	..	636	272	784	150	1948	443	1919	621	15635	77
30	6206	..	420	3752	858	211	1569	270	4079	583	2864	30
31	5218	..	468	..	297	..	1460	3299	..	2630	..	506
Mean	839	1160	1588	2139	1524	1135	1137	2701	2767	1859	2032	3018

Table VI., which gives the mean values of ΣR^2 and Σr^2 on days of magnetic character 0, 1, or 2, is intended to illustrate the use of these quantities in discriminating between varying degrees of disturbance.

TABLE VI.

Month.	"0" Days.		"1" Days.		"2" Days.	
	ΣR^2.	Σr^2.	ΣR^2.	Σr^2.	ΣR^2.	Σr^2.
1918.	γ^2	γ^2	γ^2	γ^2	γ^2	γ^2
January	6371	280	23425	1088	160928	5712
February	6029	254	24436	1218	75441	3944
March	11632	379	33441	1558	105378	6799
April	13149	376	37618	1490	129950	6180
May	11757	334	24024	864	148395	6549
June	10755	245	23614	1105	83151	4985
July	13337	389	27530	1264	63090	2811
August	13357	396	30694	1437	114200	8131
September	14167	558	35493	2017	158734	12020
October	13062	391	38420	1999	100541	5169
November	5941	261	30348	1749	95058	6111
December	6020	270	30430	2139	193264	10749
Mean 1918	10465	—	29956	—	119011	—
,, 1917	9796	—	21751	—	168806	—
,, 1916	9262	—	23006	—	111444	—

The dividing line between "0" and "1" days in 1918 was thus somewhat higher than in the previous two years.

It may be mentioned that if, from the daily values of ΣR^2 and Σr^2, five days of lowest value be selected each month, the days so selected from ΣR^2 coincide in 42 cases out of 60 with the international quiet days; those from Σr^2 coincide in 46 cases. The selections from the two lists agree in 45 cases out of 60.

In connection with Σr^2, its diurnal inequality has been found for "all" days in 1918, but it is of an irregular character. It tends to a minimum about 10h., and a maximum at 22h., G.M.T.

4. *Diurnal Inequalities.*—The diurnal inequalities have been obtained in the usual manner for "all" days, international quiet days, and for selected disturbed days.*

The inequality ranges on "all" days showed no features worthy of particular remark, except that the ranges of the north component for July and of the vertical component for April were amongst the highest yet recorded at Eskdalemuir. As a rule, the ratio of the ranges of the inequalities of the north and west components varies throughout the year, being higher in May and October and lower in July, December and January. During 1918 this variation took much the usual course, except that the two maxima were earlier than usual.

The international quiet days (selected at De Bilt) were as follows:—

January	8,	11,	17,	18,	19	July	7,	19,	20,	21,	22
February	8,	19,	22,	25,	26	August	1,	18,	19,	21,	30
March	5,	6,	19,	24,	25	September	11,	12,	15,	25,	26
April	13,	14,	15,	20,	24	October	11,	12,	13,	14,	27
May	7,	8,	9,	26,	27	November	5,	6,	7,	26,	27
June	2,	3,	4,	29,	30	December	5,	6,	28,	29,	30

The records for all these days were complete. The inequalities showed, in general, diminished ranges as compared with 1917. More especially was this the case in December, which, although otherwise a highly disturbed month, showed inequality ranges resembling those of a quiet year. The inequality range of the vertical component in May was the largest recorded in any month since January, 1911.

The disturbed days (selected at De Bilt) were as follows:—

January	5,	12,	29,	30,	31	July	8,	11,	25,	28,	29
February	5,	6,	12,	13,	15	August	15,	16,	25,	26,	27
March	8,	11,	12,	15,	16	September	1,	18,	19,	20,	21
April	5,	6,	11,	19,	26	October	2,	8,	16,	17,	31
May	1,	16,	17,	18,	19	November	11,	12,	15,	23,	29
June	9,	10,	11,	12,	15	December	1,	8,	9,	25,	26

The inequalities on these selected disturbed days differed from those of the previous year in two ways; there was nothing approaching the high values of the inequality range found in August, 1917, and December, 1918, was more than usually disturbed. Hence for the winter and equinox inequality ranges were relatively high, those for summer being lower.

5. *Harmonic Co-efficients.*—The co-efficients in the Fourier series which represent the diurnal inequalities are given in Tables LXIV. and LXIV*a*. The values for 1918 do not appear to call for special remark.

The Eskdalemuir diurnal inequalities, expressed in trigonometrical series, have been given for all three classes of day since 1916. Previous to that year, and since 1911, they had only been given for "all" days, and that only for the 24 and 12-hour terms of the series. Until the reductions of the earlier years has been carried out,

* See Tables XLIX—LX*f* and Plates II & III.

a complete examination of the annual variation of the harmonic co-efficients is not possible; but sufficient data have been accumulated for "all" days to show the manner of this variation with tolerable clearness.

The mean values of the amplitude and phase angles for "all" days during the eight years 1911–18 are given for the different months of the year in Table VII.

TABLE VII.—*Harmonic Analysis of Diurnal Variation. Mean Values of the Amplitudes and Phase Angles, 1911–1918, "All" days.*

	North Component.				West Component.				Vertical Component.			
	c_1	α_1	c_2	α_2	c_1	α_1	c_2	α_2	c_1	α_1	c_2	α_2
	γ	°	γ	°	γ	°	γ	°	γ	°	γ	°
January ..	4·66	43·9	3·90	249·9	8·73	257·9	3·84	11·4	6·38	177·7	1·87	258·7
February ..	6·75	67·1	5·06	248·9	10·26	247·9	5·49	13·7	8·12	172·0	3·43	251·3
March ..	12·37	92·7	7·79	265·6	12·74	229·3	9·34	17·2	9·02	174·6	5·10	254·9
April ..	16·91	104·3	10·98	268·4	15·69	210·7	10·68	13·2	10·17	170·5	7·10	246·7
May ..	17·79	118·8	11·23	278·9	17·23	200·3	9·83	31·3	8·95	154·5	7·00	255·6
June ..	18·36	119·2	11·08	280·1	21·38	194·6	10·14	23·1	7·10	156·5	6·78	249·5
July ..	18·16	118·8	11·81	279·7	20·36	195·6	10·68	24·5	8·43	160·7	7·00	252·7
August ..	19·00	118·0	10·71	285·4	17·38	208·6	11·08	38·5	9·03	177·8	7·18	254·4
September ..	18·15	104·4	8·71	287·9	13·71	224·8	9·06	37·9	9·13	180·4	5·83	264·6
October ..	14·03	90·3	8·19	272·6	10·21	240·0	8·15	13·6	11·22	200·1	4·35	252·9
November ..	8·29	85·4	5·79	263·2	9·24	260·2	5·58	10·0	8·68	194·6	2·63	260·6
December ..	3·89	62·5	3·65	253·8	8·51	265·5	4·16	8·9	6·63	185·1	1·80	255·5

The foregoing values may be analysed harmonically so as to be represented by the series $M+P_1\sin(30t+\theta_1)+P_2\sin(60t+\theta_2)$, where t represents time in calendar months (supposed equal) reckoned from January 1st. The results of this analysis are given in Table VIII.

TABLE VIII.

	M.	P_1.	θ_1.	P_2.	θ_2.	P_2/P_1.
	γ	γ	°	γ	°	
c_1 North ..	13·20	7·48	264·2	2·11	283·8	0·28
c_2 ,, ..	8·24	3·95	273·7	0·83	245·2	0·21
c_1 West ..	13·06	6·57	278·9	0·97	79·6	0·15
c_2 ,, ..	8·17	3·33	274·4	1·23	278·0	0·37
c_1 Vertical ..	8·57	0·75	248·1	1·61	260·8	2·15
c_2 ,, ..	5·01	2·76	278·1	0·73	281·6	0·26
	°	°	°	°	°	
α_1 North ..	93·8	32·3	265·7	8·2	235·9	0·25
α_2 ,, ..	269·5	17·4	246·5	4·6	261·1	0·26
α_1 West ..	244·6	35·3	101·1	1·7	126·7	0·05
α_2 ,, ..	20·3	10·2	246·0	4·9	335·9	0·48
α_1 Vertical ..	175·4	17·0	133·1	6·8	257·4	0·40
α_2 ,, ..	254·8	4·1	150·0	0·6	318·4	0·15

The prominent results given by the Table above are (1) the small relative value of the bi-annual term in c_1 west; (2) the predominance of that term in the case of c_1 vertical. The former is also noticed even more markedly in a reduction of the Potsdam observations, and is also true of those for Batavia. Similar results have been obtained by Chree for quiet days at Falmouth and Kew, though not for ordinary and disturbed days. Corresponding to this annual wave in the variation of c_1 West, there is a predominant annual change in the phase angle α_1 West, which is noticeable at other stations besides Eskdalemuir.

Another point is worthy of notice. In all cases except one—the 24-hour wave on the West component—increased amplitude is accompanied by acceleration of phase. In the exceptional case, the retardation in phase amounts to nearly five hours between midwinter and midsummer. This is about the same interval as that by which the phase is accelerated in the case of the 24-hour wave on the north component. In fact, if the values of α_1 North for the different months of the year be represented graphically, and if, on the same scale, those of α_1 West be drawn inverted, the two graphs are very similar. The same result is deducible from the Potsdam–Seddin observations for 1890–1912.

6. *Daily Range.*—The mean absolute daily range for each month of the year, compared with the corresponding means for 1911–18, is given in Table IX. The ranges are also expressed as percentages of the mean daily absolute range for the year.

TABLE IX.—*Absolute Daily Range. Mean Monthly Values.*

Month.	Mean Absolute Daily Range.						Mean Daily Range expressed as Percentage of Yearly Mean.					
	1918.			Mean, 1911-18.			1918.			Mean, 1911-18.		
	N.	W.	V.	N.	W.	V.	N.	W.	V.	N.	W.	V.
	γ	γ	γ	γ	γ	γ	%	%	%	%	%	%
January .	71	79	37	56	59	30	68	81	60	73	80	73
February.	83	86	48	60	64	33	79	88	77	78	86	80
March . .	105	95	52	76	78	45	100	97	84	99	105	110
April . .	127	118	81	89	81	51	121	120	131	116	109	124
May . .	111	97	61	84	73	43	106	99	98	109	99	105
June . .	94	83	55	83	79	39	89	85	89	108	107	95
July . .	101	94	58	83	77	46	96	96	94	108	104	112
August .	126	103	69	98	86	54	120	105	111	127	116	132
September	120	108	77	84	78	41	114	110	124	109	105	100
October .	118	109	75	82	81	46	112	111	121	107	110	112
November	96	98	57	67	66	35	91	100	92	87	89	85
December	106	105	73	57	61	33	101	107	118	74	82	80
Winter .	89	92	54	60	63	33	85	94	87	78	85	80
Equinox .	118	108	71	83	80	46	112	110	115	108	108	112
Summer .	108	94	61	87	79	46	103	96	98	113	107	112
Year . .	105	98	62	77	74	41	...	...	...	...	...	...

It may be noted that the mean daily range in all three components was larger in 1918 than in the previous year; that these increased ranges occurred chiefly in the equinoctial months; but that there was no approach to the exceptionally large ranges of August, 1917.

As a general result of the period 1911–18, it may also be noted that the daily range on the north component, relatively to that on the west, is markedly smaller in the first two and last two months of the year. The average value of the ratio of the two mean ranges R_N/R_W for a given month taken over the period referred to is 0·95, 1·06, and 1·09 during the winter, equinox, and summer months respectively. There are also indications that the value of this ratio is lower in quieter years. It is, of course, a truism in terrestrial magnetics that disturbance affects N more than W, but it is well that some numerical measure of such an effect should be obtained.

The frequency distribution of absolute daily ranges, according to different amounts, during 1918 was markedly different from that of 1917. Table X. subjoined gives the details and illustrates the manner in which the frequency curve is altered

in a more disturbed year. Roughly speaking, if 160 γ be taken as the range of either horizontal component, beyond which the magnetic conditions may be regarded as stormy, the frequency of such conditions in 1918 was about thrice that in 1917.

TABLE X.—*Frequency Distribution of Absolute Range.*

Range. γ	No. of Cases, 1918.			Percentage Distribution.					
				North.		West.		Vertical.	
	N.	W.	V.	1918.	1911-17.	1918.	1911-17.	1918.	1911-17.
0–9 ..	0	0	12	0·0	0·1	0·0	0·1	3·4	6·9
10–19 ..	2	2	49	0·6	4·0	0·6	2·9	13·7	21·1
20–29 ..	4	7	66	1·1	6·7	1·9	6·4	18·4	25·5
30–39 ..	15	9	54	4·2	8·9	2·5	8·6	15·1	14·5
40–49 ..	16	23	35	4·5	12·5	6·4	13·9	9·8	8·7
50–59 ..	30	26	21	8·5	14·9	7·2	15·6	5·9	5·2
60–69 ..	34	35	22	9·6	13·1	9·7	14·2	6·1	4·3
70–79 ..	34	59	19	9·6	9·1	16·4	10·3	5·3	2·3
80–89 ..	42	39	13	11·8	7·2	10·9	7·3	3·6	2·5
90–99 ..	38	44	12	10·7	4·9	12·3	5·1	3·3	2·0
100–109 ..	24	20	7	6·8	4·6	5·6	4·1	2·0	1·0
110–119 ..	22	11	9	6·2	2·8	3·1	2·5	2·5	0·7
120–129 ..	12	19	1	3·4	2·5	5·3	1·4	0·3	0·4
130–139 ..	18	10	3	5·1	2·1	2·8	1·4	0·8	0·7
140–149 ..	11	10	6	3·1	1·0	2·8	1·7	1·7	0·3
150–159 ..	11	9	6	3·1	0·9	2·5	0·7	1·7	0·4
160–169 ..	4	4	2	1·1	0·8	1·1	0·5	0·6	0·3
170–179 ..	7	8	1	2·0	0·5	2·2	0·7	0·3	0·5
180–189 ..	5	5	0	1·4	0·7	1·4	0·5	0·0	0·4
190–199 ..	5	0	2	1·4	0·4	0·0	0·4	0·6	0·4
200 and above	21	19	18	5·9	2·2	5·3	1·6	5·0	2·0
Days omitted ..	10	7	6	..	..	..	..	..	..

7. *Principal Magnetic Disturbances.*—Table XI gives a list of the principal magnetic disturbances recorded during the year, with particulars of the extreme values reached during each disturbance. Amongst the most interesting of these disturbances were those of January 30th, August 15th and September 21st. For January 30th Vector diagrams illustrating the progress of the changes in magnetic force are reproduced in Plates IV., V. and VI. It will be seen that the representative point in the horizontal plane described a number of loops in the counter clockwise sense. The records for the storms of August 15th and September 21st have been reproduced with reduced scales in Plates VII. and VIII. The disturbances of March 7th and August 15th have been discussed by Dr. Chree.*

The magnetograms for other disturbed days during 1918 have not been reproduced, but photographic copies of the records for any of these may be obtained on application to the Director, Meteorological Office, Air Ministry, Kingsway, London.

* *Roy. Soc. Proc.*, A., Vol. XCVI, p. 32.

TABLE XI.—*Principal Magnetic Disturbances Recorded at Eskdalemuir*, 1918.

Where the beginning of a disturbance has been marked by a "sudden commencement," the serial number is followed by an asterisk (*), and the time entered in the second column is that of the sudden commencement. To the tabulated values of maximum and minimum the following have to be added :—

N, 15000γ; W, 4000γ; V, 44000γ.

No.	From.	To.	North Component.					West Component.					Vertical Component.				
			Max.	Time.	Min.	Time.	Range.	Max.	Time.	Min.	Time.	Range.	Max.	Time.	Min.	Time.	Range.
	d h m	d h	γ	d h m	γ	d h m	γ	γ	d h m	γ	d h m	γ	γ	d h m	γ	d h m	γ
1*	Jan. 28 14 47	Feb. 2 24	1116	§ 1 20 48	860	30 23 40	256	1025	29 17 46	728	30 23 58	297	1147	31 20 14	903	30 23 41	244
2*	Feb. 5 6 52	,, 7 8	1025	5 7 14	916	6 13 32	109	993	6 1 28	833	6 3 39	160	1081	6 18 2	966	6 3 52	115
3	,, 9 18	,, 14 4	1057	10 21 27	857	13 0 21	200	1015	12 19 6	806	13 1 15	209	1231	12 19 16	988	13 0 14	243
4*	Mar. 7 21 11	Mar. 8 20	1064	7 21 14	<728	8 {2 12, 3 10}	> 336	1004	8 4 31	<698	8 {2 10, 3 10}	> 306	1150	8 18 19	<862	8 {1 7, 3 9}	288
5*	,, 15 17 51	,, 16 22	1099	16 17 52	907	15 14 41	192	1029	15 13 44	877	16 1 25	152	1144	16 17 50	1029	16 4 5	115
6	Apr. 4 22	Apr. 7 8	1071	5 18 42	806	7 0 49	265	1061	6 13 39	747	6 1 57	314	1157	6 14 14	901	7 1 17	256
7*	,, 10 20 56	,, 12 24	1086	11 21 18	769	12 0 38	317	1030	11 17 58	773	11 20 38	257	1230	11 18 13	<902	12 0 47‡	> 328
8	,, 18 12	,, 19 24	1053	19 1 0	880	19 12 16	173	1012	18 14 2	824	19 0 52	188	1105	18 21 3	998	19 0 17	107
9*	,, 25 1 34	,, 26 21	1074	26 19 57	838	25 23 11	236	988	26 13 12	774	25 23 28	214	1124	26 19 42	926	26 3 21	198
10	,, 29 21 20	May 1 22	1096	30 17 33	902	{30 12 3, 1 2 7}	194	986	30 20 22	846	30 23 51	140	1112	30 19 15	944	1 2 26	168
11	May 16 18	,, 21 8	1107	17 19 48	<718	{16, 17} †	†	1007	16 18 7	<706	17 { †	†	1135	17 14 4	<809	{16, 17} †	†
12	June 9 15	June 13 3	1079	9 23 35	838	10 9 50	241	998	10 14 45	848	9 23 56	150	1233	10 13 30	905	10 2 22	328
13	,, 15 6	,, 17 22	1088	15 19 44	920	15 11 19	168	982	15 19 21	870	16 3 7	112	1085	15 17 55	994	16 2 3	91
14*	July 25 2 54	July 25 22	1084	25 18 39	954	25 12 31	130	1025	25 15 50	872	25 6 56	153	1189	25 18 6	1045	25 12 21	144
15	,, 28 0	,, 31 24	1074	28 17 33	866	28 22 16	208	984	28 17 34	807	28 21 37	177	1126	29 19 10	907	29 1 4	219
16*	Aug. 2 16 41	Aug. 3 24	1082	2 16 50	906	3 11 12	176	981	2 16 48	859	3 0 43	122	1098	2 20 33	1002	3 4 12	96
17*	,, 15 15 32	,, 16 21	1371	15 20 30	809	16 {9 56, 10 24}	562	1136	15 18 15	760	15 20 38	376	> 1258	15 {20 22, 20 40}	974	16 3 8	> 284
18	,, 24 12	,, 27 20	1051	24 21 13	873	25 12 0	178	987	26 14 58	848	27 18 30	139	1119	25 17 35	945	25 4 2	174
19	,, 31 15	Sep. 3 1	1066	31 18 43	891	‖ 1 7 54	175	1014	‖ 1 13 7	797	‖ 1 1 4	217	1155	31 22 24	1031	‖ 2 0 54	124
20*	Sep. 21 4 20	,, 21 24	1200	21 16 34	699	21 20 27	501	1079	21 20 18	814	21 21 23	265	1275	21 16 30	931	21 20 54	344
21	Oct. 8 7	Oct. 9 15	1080	8 17 58	831	8 18 17	249	1033	8 16 46	803	8 21 51	230	1295	8 18 1	989	9 3 35	306
22	,, 16 2	,, 17 22	1135	16 15 5	?	?	?	1083	16 15 6	784	17 19 47	299	1322	16 15 12	?	?	?
23	Nov. 10 15	Nov. 13 23	1069	12 17 13	878	12 9 34	191	1013	12 5 11	766	11 19 19	247	1181	11 18 57	967	12 1 52	214
24*	,, 29 13 26	,, 30 21	1135	29 22 31	798	29 22 45	337	1028	29 18 33	770	29 22 22	258	1258	29 20 33	1030	30 2 24	228
25	Dec. 1 10	Dec. 2 1	1036	1 16 22	896	1 19 16	140	963	1 17 15	711	1 21 5	252	1179	1 {16 28, 16 38}	1028	1 23 57	151
26	,, 7 18	,, 13 24	1069	10 19 27	820	8 2 27	249	1068	8 13 33	752	8 22 3	316	1276	8 13 51	881	8 2 24	395
27*	,, 25 3 53	,, 27 2	1253	25 17 40	742	25 20 12	511	1094	25 15 48	690	25 19 18	404	> 1369	25 {17 18, 17 42}	1022	25 23 24	> 347

† For details, see *Geophysical Journal*, May, 1918, p. 35. ‡ Approximate. § February. ‖ September.

ATMOSPHERIC ELECTRICITY :—NOTES ON THE TABLES OF POTENTIAL GRADIENT.

At both Kew and Eskdalemuir Observatories potential gradient is determined by means of the Kelvin water-dropping apparatus.

The method of standardizing the records so as to give potential gradient in the open is explained in *Hourly Values, 1916.*

The factors used in the reduction are shown month by month in the *Geophysical Journal,* Tables 5 and 6, where gradient values for four hours a day are set out.

The data utilised in the preparation of the tables on page 51 above are mean values for periods of 60 minutes centred at the hours of Greenwich Mean Time. Means for the selected days of each month are found and from these the mean for the month (given in the last column of the tables) is computed. The departures from this mean are corrected for the non-cyclic change before being entered in the appropriate table.

The electrograph at Kew Observatory was moved from the main building at the end of May 1915. A discussion of the effects of this removal will be found in *Hourly Values, 1916.* The method of testing the insulation of the electrograph at Eskdalemuir is described in *Hourly Values, 1917.*

Table A relating to Kew Observatory is based on selected quiet days—*i.e.*, days of electric character 0, in which there is no occurrence of negative potential—numbering 10 a month. To obtain the full number of " days " it was necessary in April to include two 24-hour periods commencing at 17h, and in September three such periods commencing at 10h. In these two months separate allowance was made for the non-cyclic changes in each of the two groups of " days " employed, and there is no entry in the column headed " 24-0 " as the figure would, under the circumstances have been open to misconstruction. Even in the representative day of a month the non-cyclic change must be regarded as in the main an accidental feature, depending on the weather conditions near midnight of the selected days. It is desirable to choose days which will keep it as small as possible, because its elimination from the diurnal inequalities proceeds on the hypothesis that it represents a gradual change introduced at a uniform rate throughout the 24 hours, whereas the way it actually comes in is uncertain. When the non-cyclic correction is similar in size to the range of the diurnal inequality, the same confidence cannot be felt in the inequality as when the correction is small.

Tables B and C give the corresponding inequalities for Eskdalemuir, the former table for 0a days : the latter for 1a and 2a days combined. The explanation of these symbols is as follows :—

0, denotes a day during which from midnight to midnight no negative potential was recorded.

1, denotes one or more excursions of limited duration to the negative side of the scale.

2, denotes negative potential extending in the aggregate over 3 hours or more.

" a " denotes that within the 25 periods of 60 minutes for which an estimate of the mean potential gradient has to be made in the process of tabulation there was in no case a range of potential gradient in the open exceeding 1000 volts.

In forming these inequalities for Eskdalemuir, only those days were used on which all the hours were available. The number of days employed in the several months in these two tables is specified, being highly variable.

Eskdalemuir Magnetographs, Base Values 1918.

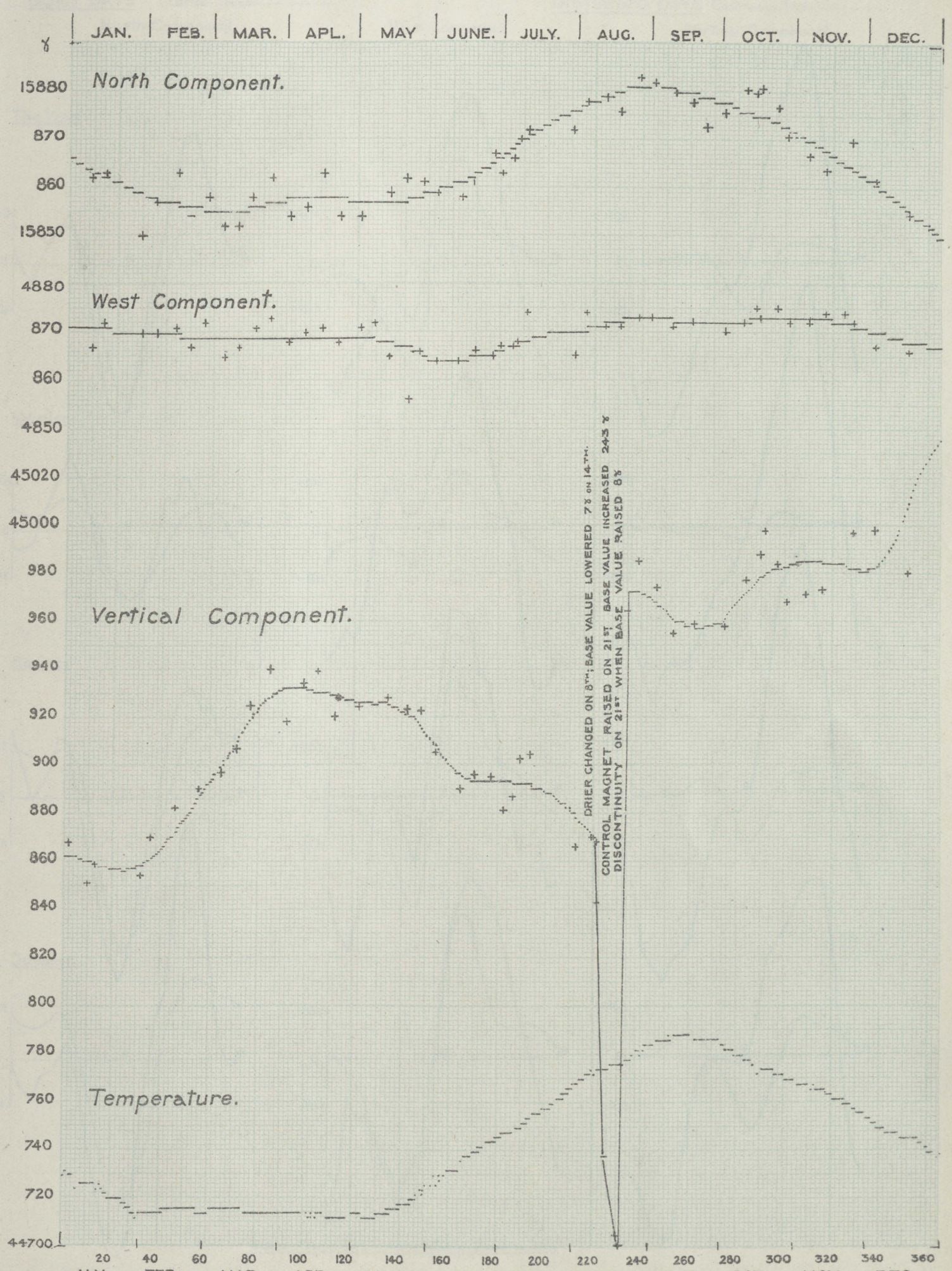


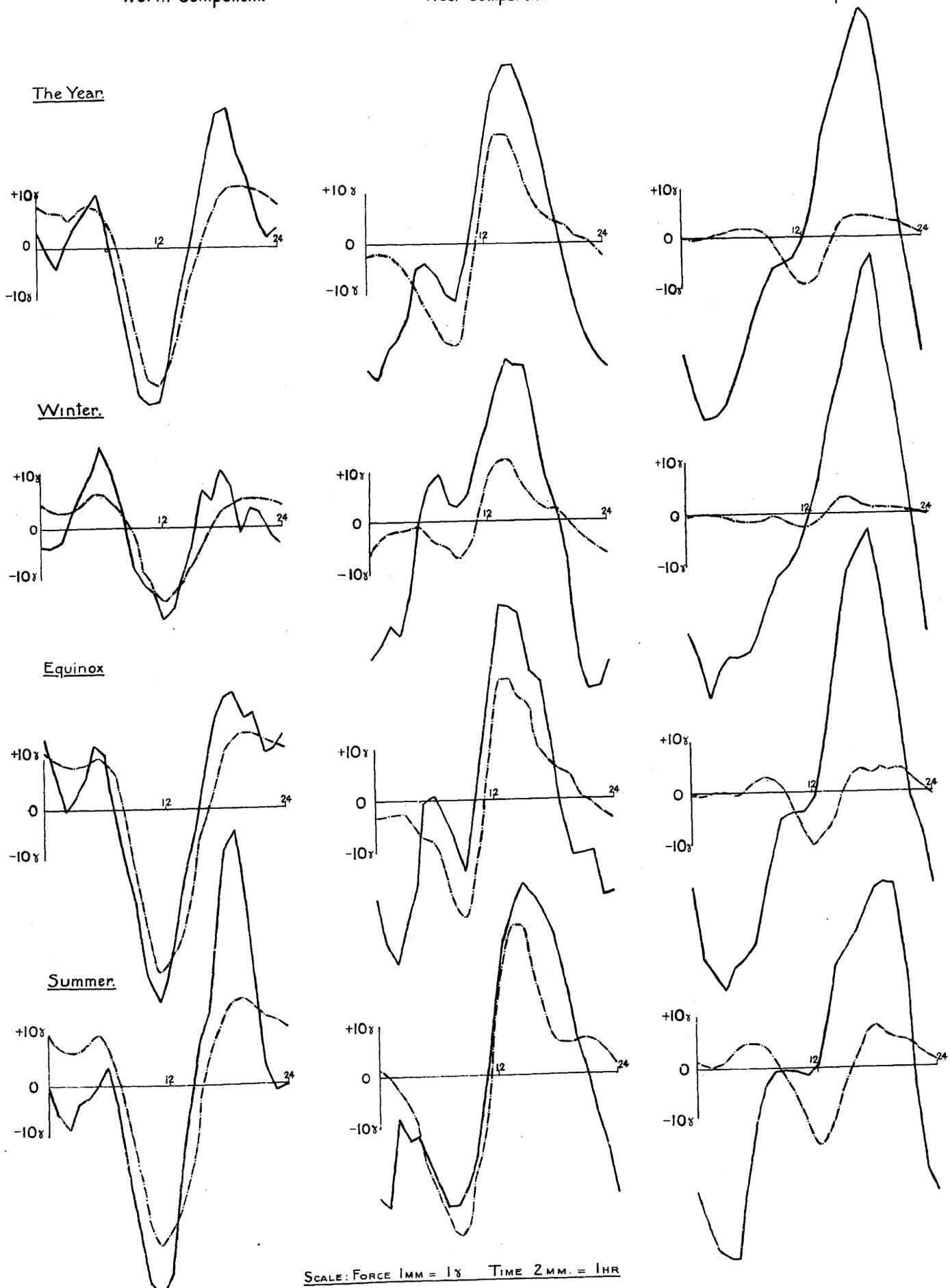
Plate II.

Diurnal Variation in the Components of Magnetic Force on Quiet and Disturbed Days Eskdalemuir 1918.

(The Year and the Seasons)

Quiet Days Dotted lines -·-·-·-·- **Disturbed Days** Continuous lines ———

North Component. | West Component. | Vertical Component.



Scale: Force 1mm = 1γ Time 2mm. = 1hr

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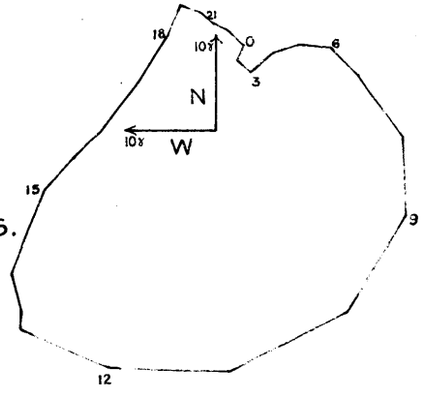
VECTOR DIAGRAMS ILLUSTRATING DIURNAL VARIATION IN MAGNETIC FORCE ON QUIET DAYS AND DISTURBED DAYS

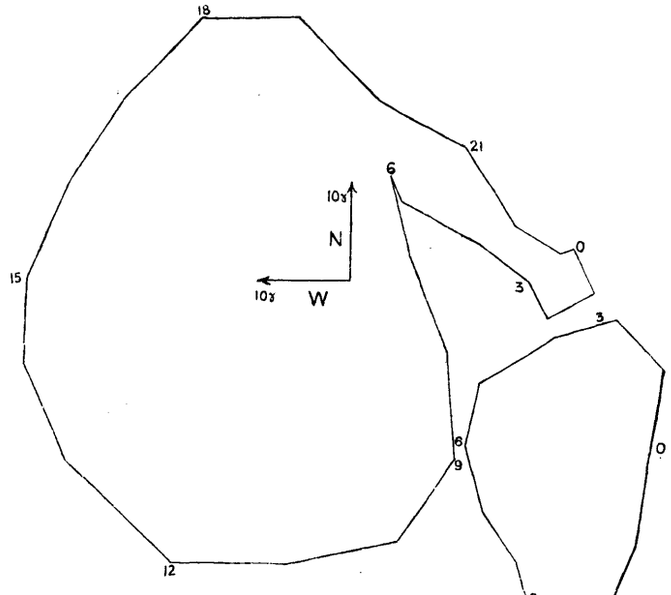
ESKDALEMUIR 1918.

QUIET DAYS.

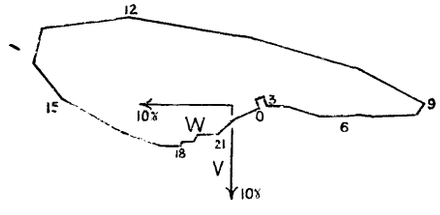
DISTURBED DAYS.

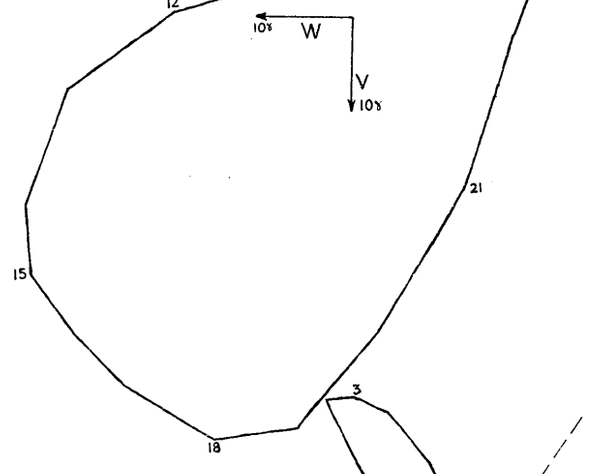
HORIZONTAL COMPONENTS.



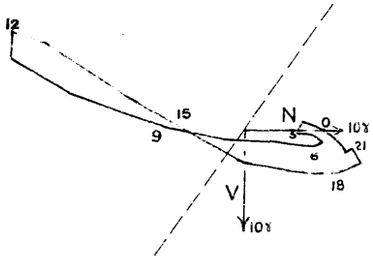


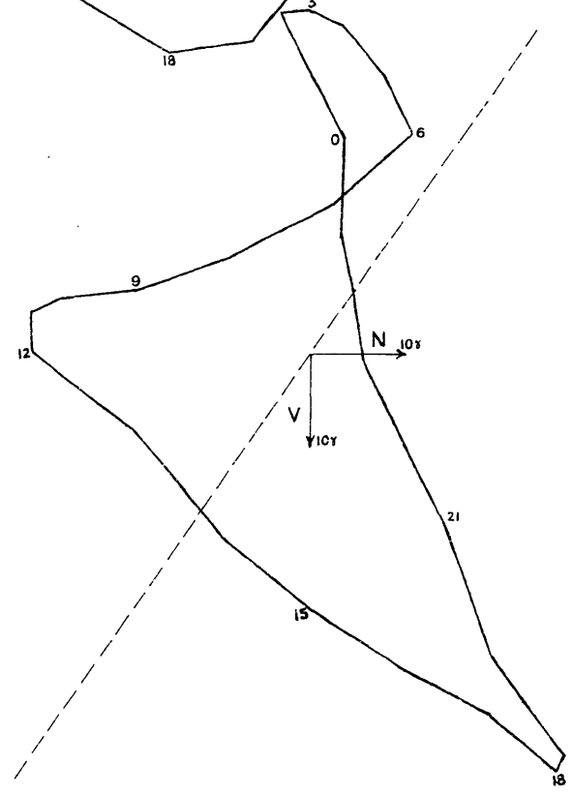
PRIME VERTICAL COMPONENTS.





MERIDIAN COMPONENTS.





SCALE 0·05 in = 1γ

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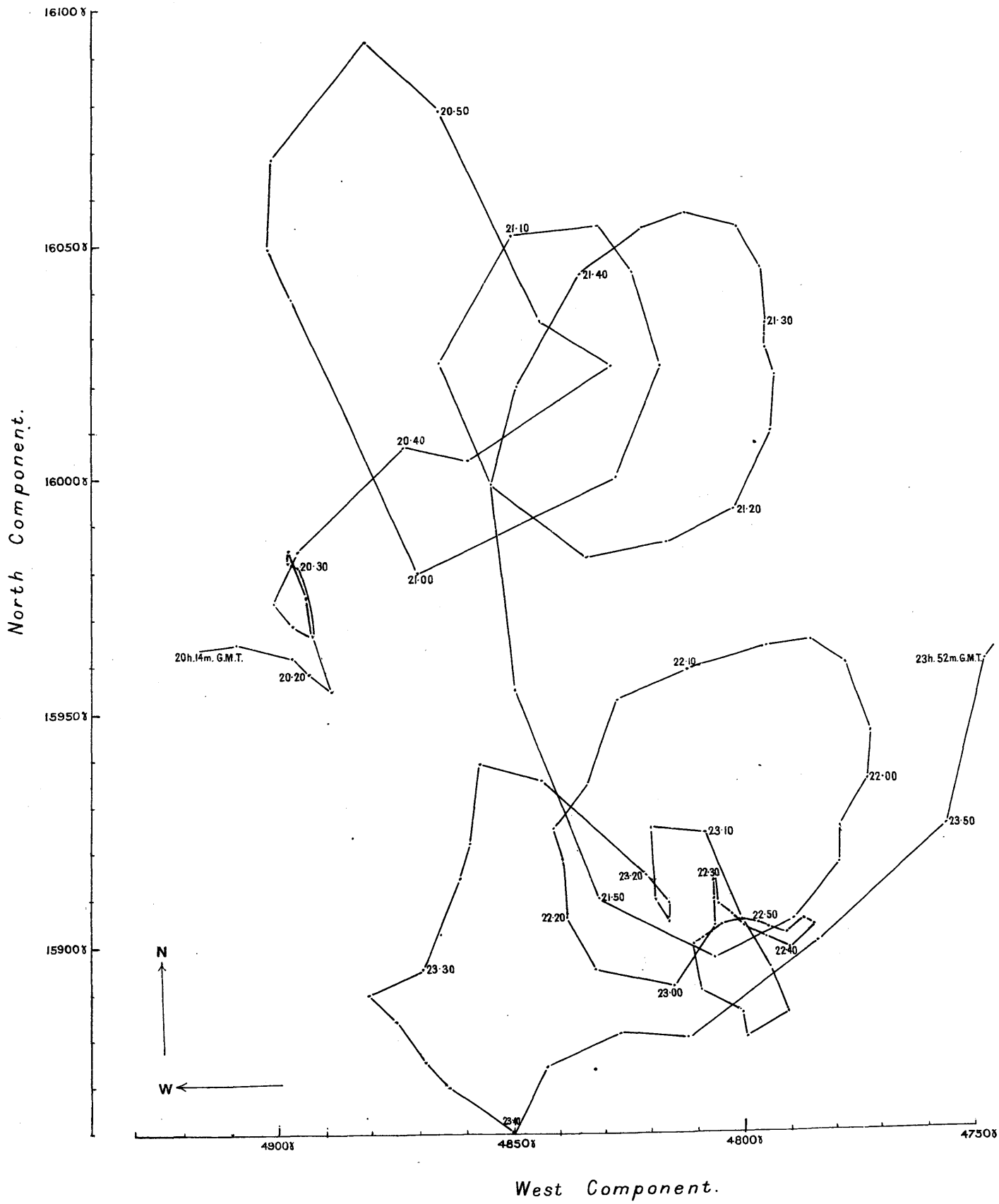
P5 229/204. Wt 20. 5 0 P. 565. 375. 3/24.

N. W. VECTOR DIAGRAM. ESKDALEMUIR.

JANUARY 30th. 1918, 20h. 14m., TO 23h. 52m., G. M. T.



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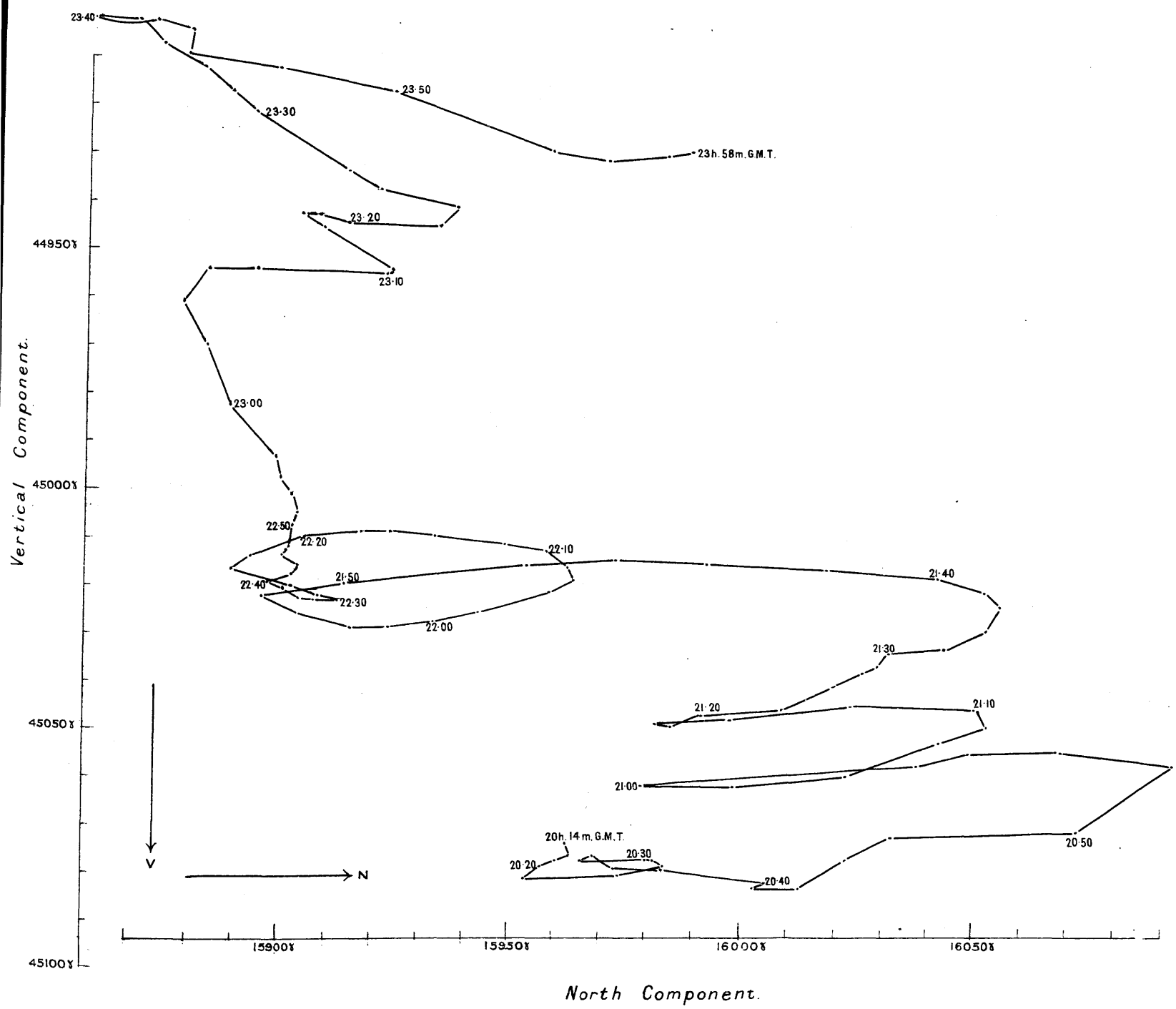
P.S. 229/204. Wt. 20. D.S.O.P. 565. 375. 3/21.

V.N. VECTOR DIAGRAM. ESKDALEMUIR.
JANUARY 30th. 1918, 20h. 14m., TO 23h. 58m., G.M.T.



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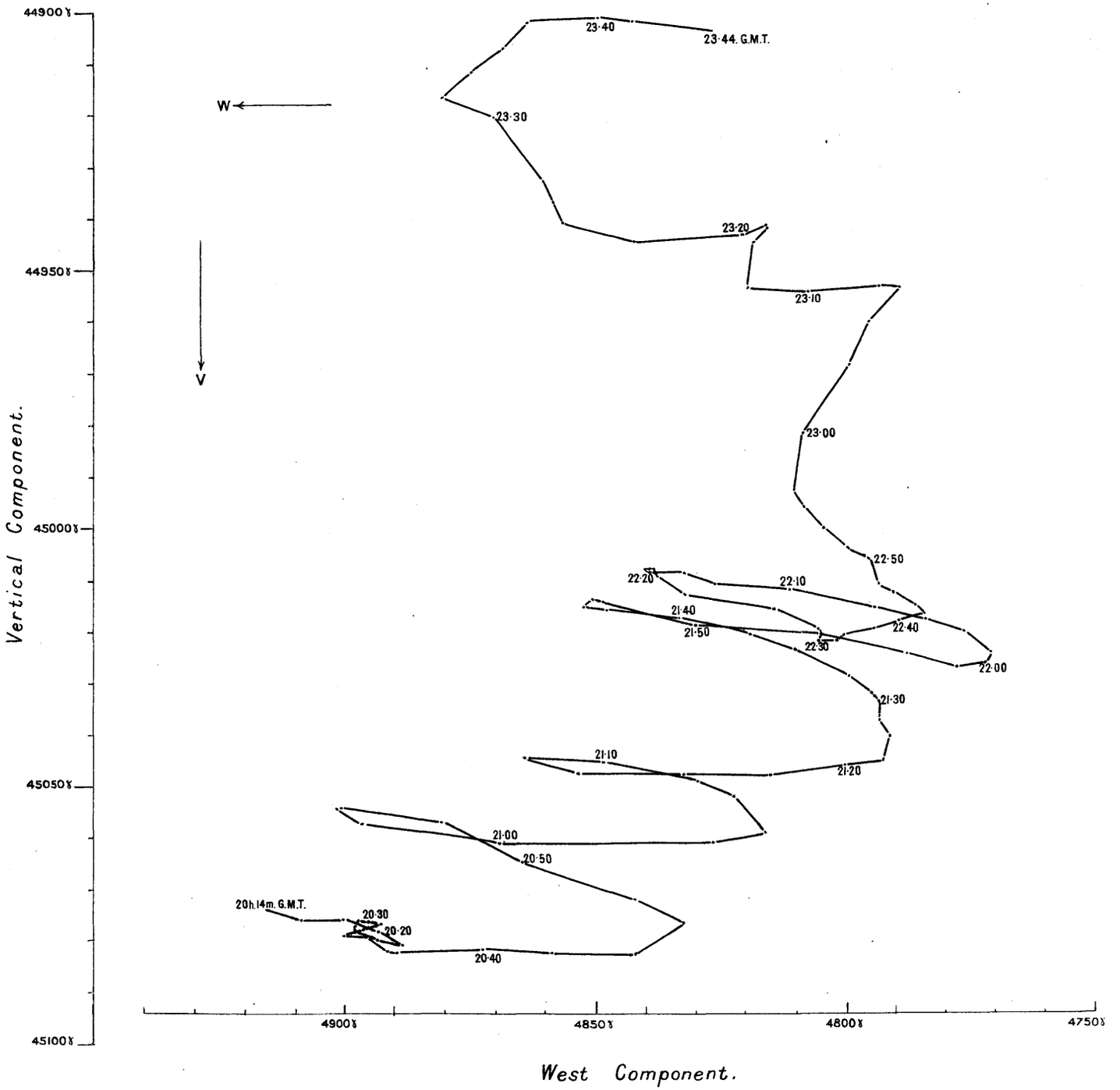
Ps 229/204 We 20. D.S.O.P 565 375 9/25.

V.W. VECTOR DIAGRAM. ESKDALEMUIR.

JANUARY 30th. 1918, 20h. 14m., TO 23h. 44m., G.M.T.



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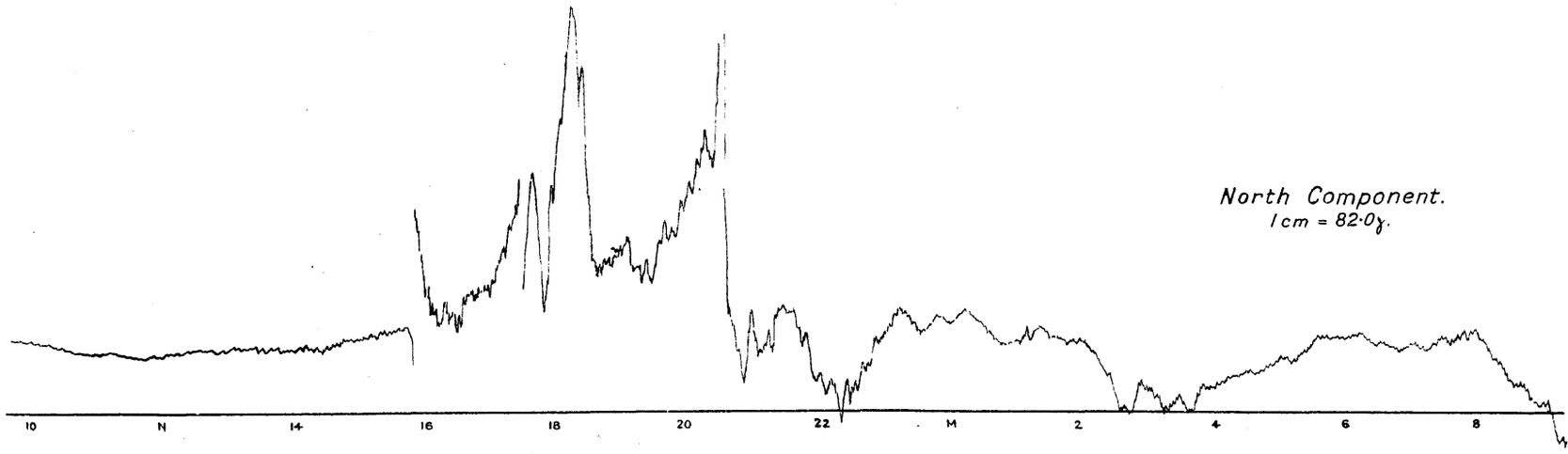
Ps. 229/204 m. 20 D. S.O.P. 565 375 3/22.

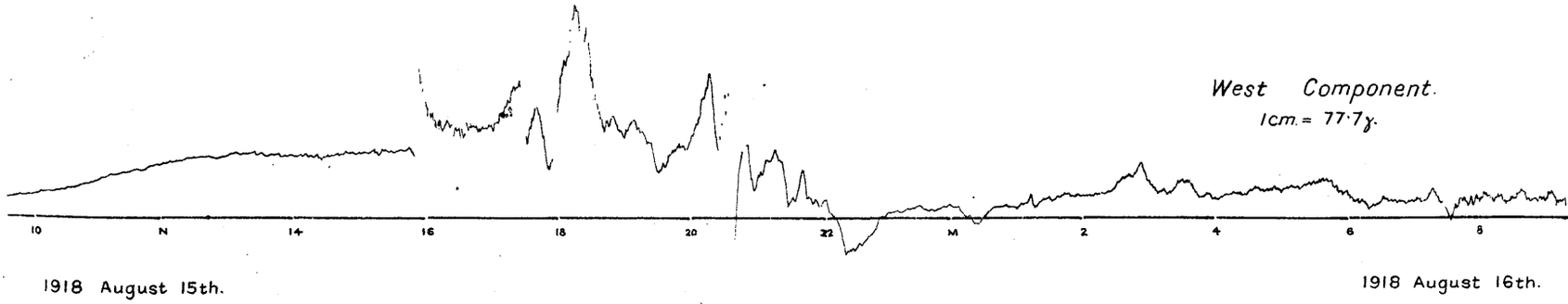
Plate. VII.

ESKDALEMUIR MAGNETOGRAMS. AUGUST. 15TH-16TH 1918.



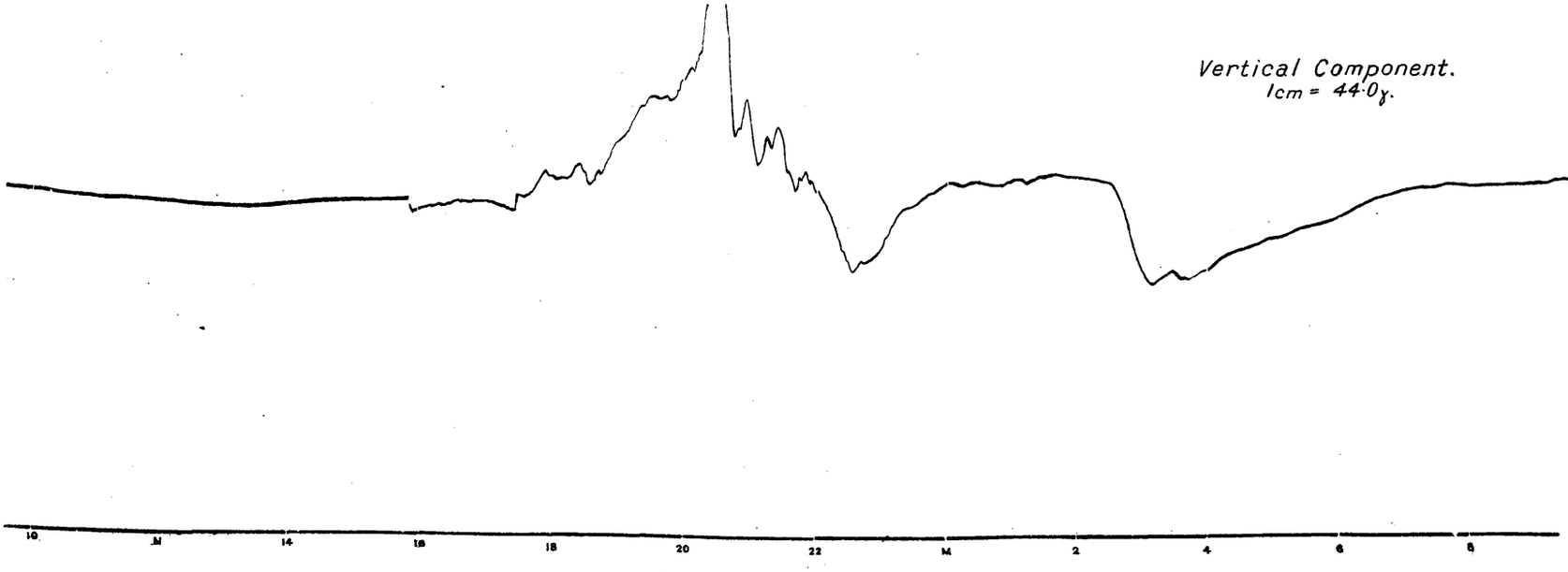
1918 August 15th.

1918 August 16th.



1918 August 15th.

1918 August 16th.



1918 August 15th.

1918 August 16th.

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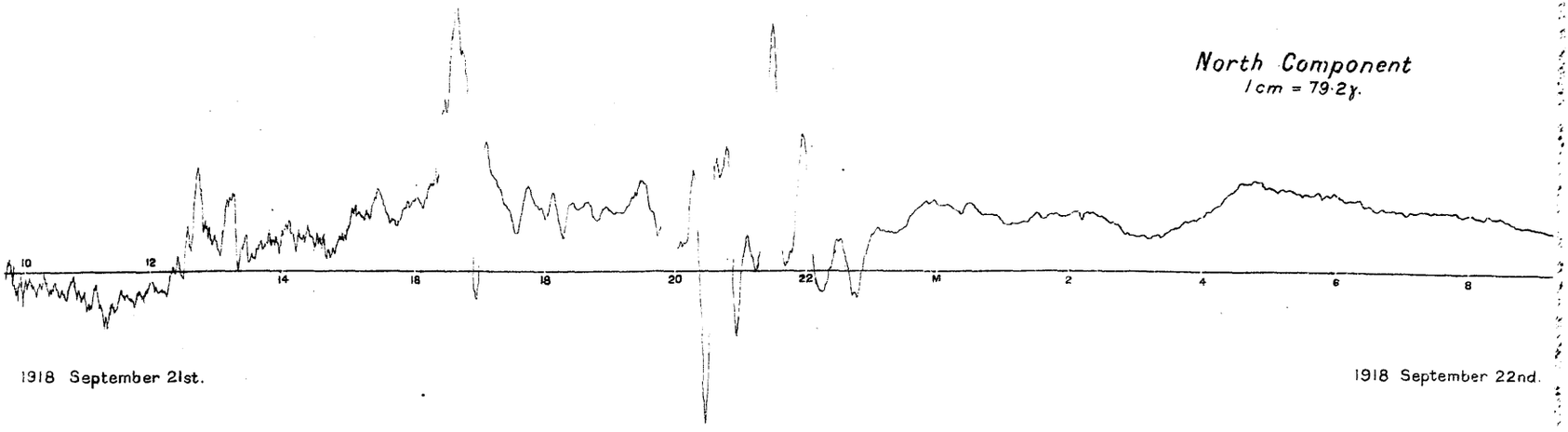
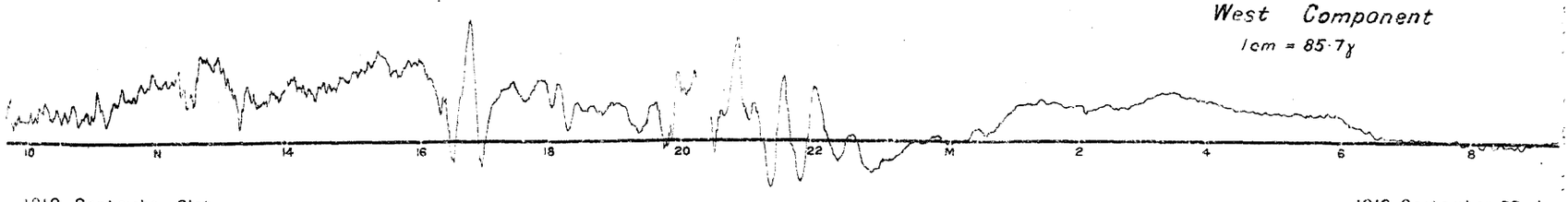
Plate. VIII.

ESKDALEMUIR MAGNETOGRAMS. SEPTEMBER, 21ST - 22ND 1918.



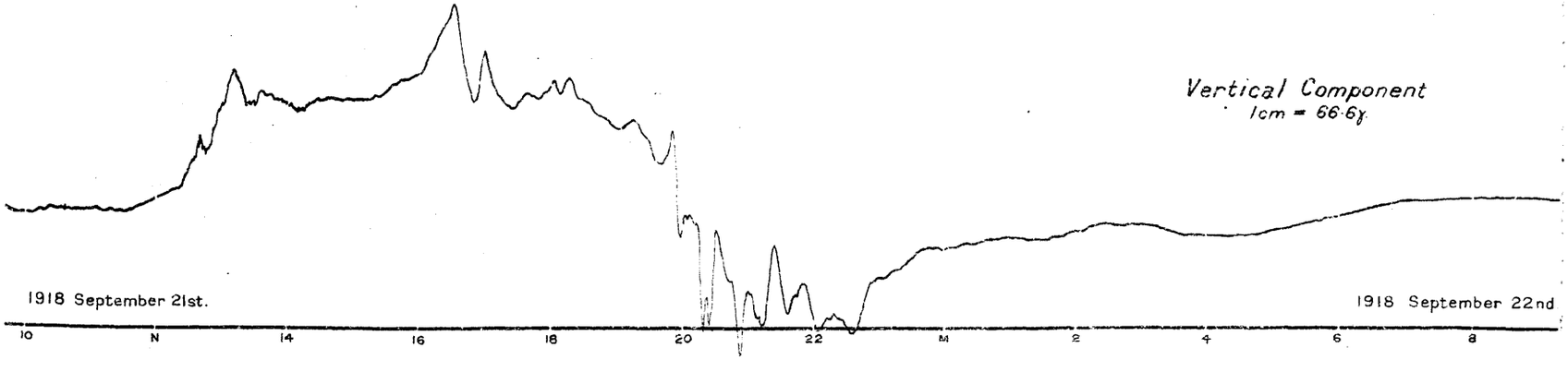
1918 September 21st.

1918 September 22nd.



1918. September 21st.

1918 September 22nd.



1918 September 21st.

1918 September 22nd

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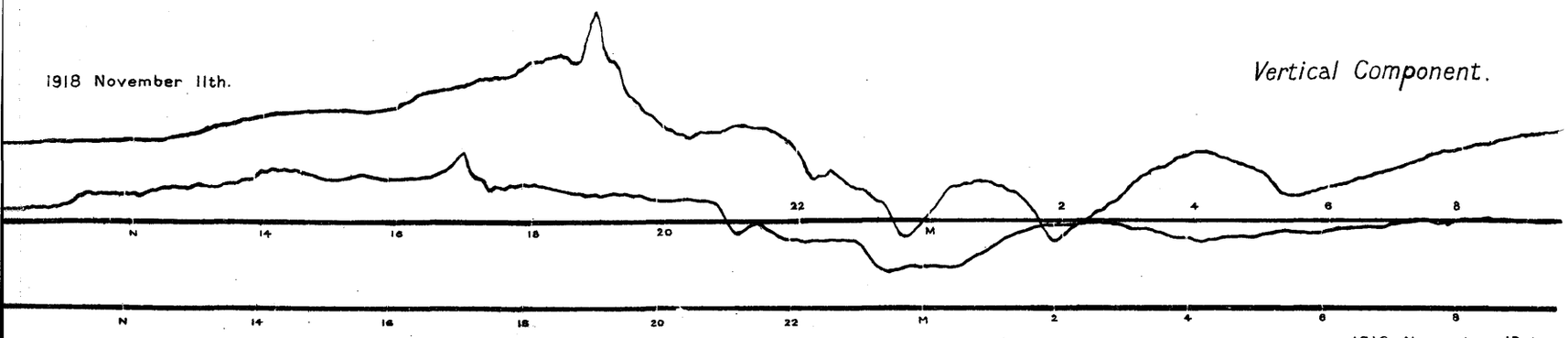
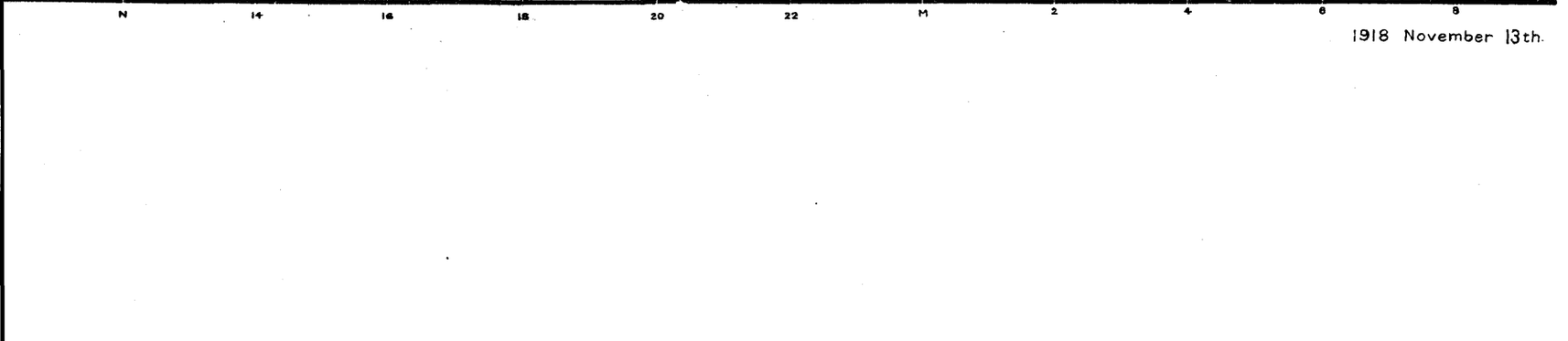
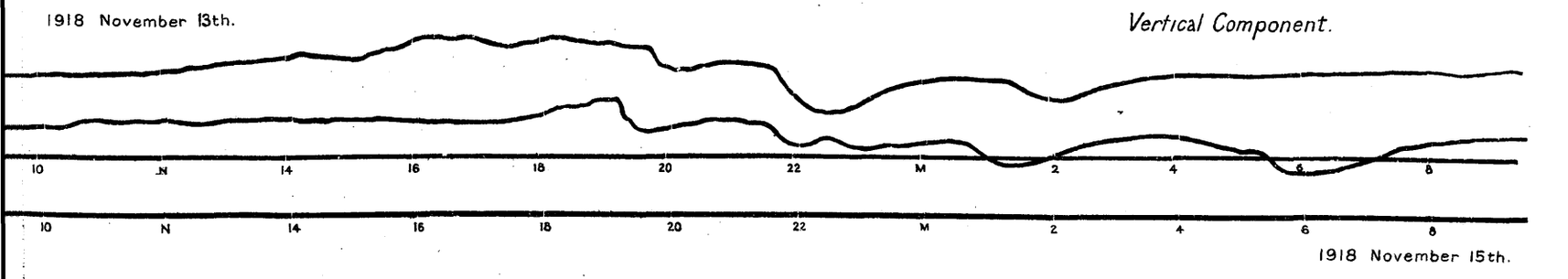
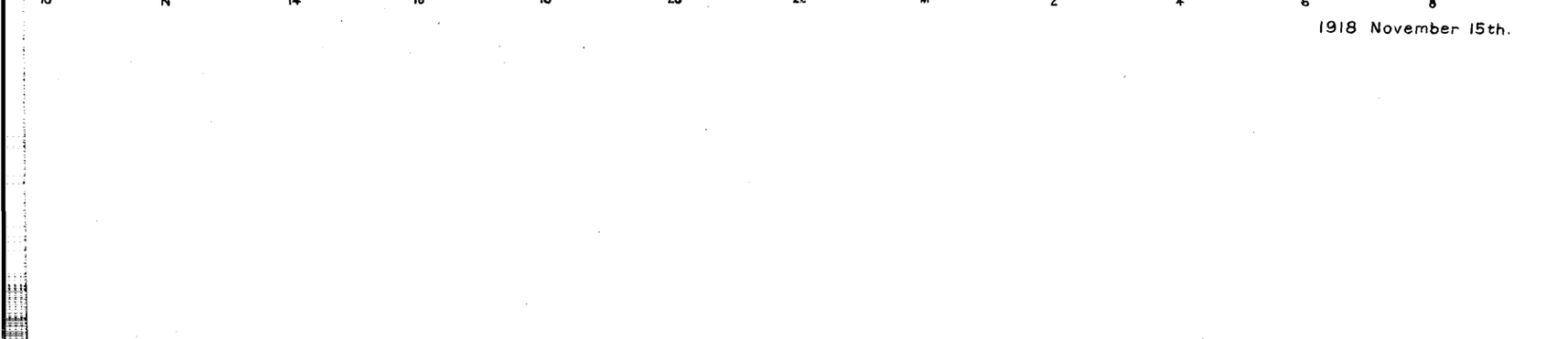
Plate. IX.

ESKDALEMUIR MAGNETOGRAMS. NOVEMBER, 11TH - 15TH 1918.









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